Prodigy® Manual Powder Spray Gun Controller

Customer Product Manual
Part 1054580C02

Issued 6/09

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

This document is subject to change without notice.
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NORDSON CORPORATION • AMHERST, OHIO • USA

Table of Contents

Contact Us

Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

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Change Record

Revision	Date	Change
C02	6/09	Added Fast Flow function to Configuration Settings (page 7). Added Fast Flow icon and reference to Powder Flow Settings (page 12).

Prodigy® Manual Powder Spray Gun Controller

Safety

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.
- 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.

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.

Aggressive Substances

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection provided by the equipment is not compromised.

Aggressive substances: e.g. acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.

Suitable precautions: regular check as part of routine inspections or establishing from the material's data sheets that it is resistant to specific chemicals.

Please contact Nordson Corporation if you are concerned or unsure about the suitability of the product with relation to coming into contact with particularly aggressive substances.

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.

Description

The Prodigy Manual Powder Spray Gun Controller provides electrostatic, powder flow, and pattern air controls for the Prodigy Manual Powder Spray Gun.

The controller interfaces with the HDLV pump controls. It can also interface with a Nordson iControl® system or a Color-on-Demand® quick color change system.

Standard mounting equipment is a hand rail bracket, swivel bracket, and a ground clamp. The gun cable and pump panel power/network cable connect to receptacles on the bottom of the enclosure.

Operator Controls

The **Arrow keys** and **Rotary Knob** serve two functions: to move the cursor around the screen, and to change settings.

The **Color Change key** starts gun purging, which is the first step in a color change procedure. This key is disabled if the system includes Color-On-Demand.

The **Nordson key** opens the Configuration screen if pressed and held during the power on sequence. During normal operation it opens the Fault screen.

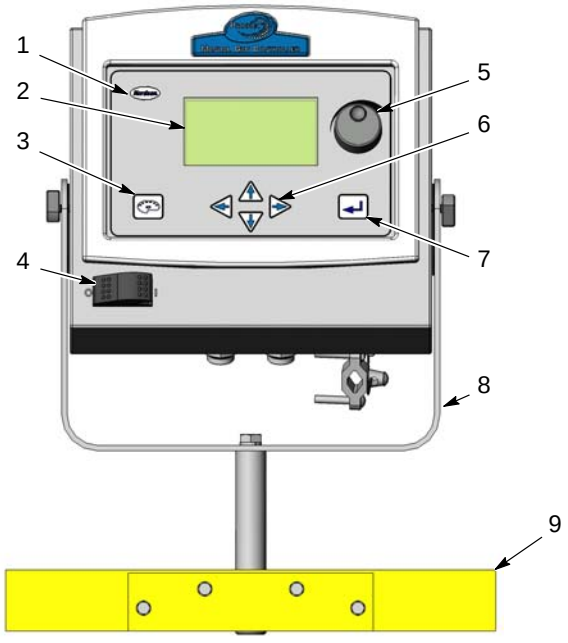


Figure *1* *Prodigy Manual Gun Controller*

1. Nordson key
2. LCD screen
3. Color Change key
4. Power switch
5. Rotary knob
6. Arrow keys
7. Enter key
8. Swivel bracket
9. Hand rail bracket

Installation

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

WARNING: Installation in Europe shall carried out by suitably trained personnel in accordance with the applicable code of practice. EN60079-14: 1997

1. Refer to page 15. You can install the controller on an operator platform hand rail with the rail bracket kit. For wall or stand mounting, use only the U-shaped swivel bracket.
2. Connect the controller ground clamp to a true earth ground, preferably to the booth base structure.

WARNING: Turn OFF the power switch before connecting the power/network cable to the controller. Failure to observe this warning could result in damage to the controller circuit boards.

3. Connect the spray gun cable to the GUN receptacle and tighten the cable nut.
4. Connect the power/network cable to the receptacle labeled POWER/NETWORK and tighten the cable nut securely.

NOTE: The power/network cable is hard-wired at the opposite end to the manual pump panel, or a junction box when included in an automatic system.

5. Turn on the controller power and wait for the controller to boot up. The controller should display the Setup screen on first-time startup.
6. Use the Setup and Calibration screens to configure the controller as described in *Configuration Settings* on page NO TAG.
7. Point to **Return to Main Screen** and press the **Enter** (↵) key.
8. Set up maintenance intervals as desired. Refer to *Maintenance Settings* on page 8.
9. Make Low mode pattern flow settings. Refer to *Pattern Flow Settings* on page 9.
10. Make purge settings as desired. Refer to Purge Settings on page 10.
11. Set up the spray presets as desired. Refer to *Spray Settings* on page 11.

Installation in a Prodigy Automatic System

If installing Prodigy Manual Controllers in a Prodigy Automatic system:

1. Open the controller enclosure and locate SW1 on the interface board.
2. Set the Term switch on SW1 to OFF.

This must be done for all Manual Controllers connected to the automatic system.

Screen Controls

The cursor is a pointer that moves up and down the left and right sides of the screen.

Opening Screens

To open the Tools screens from the Main screen, point to the **Tools** icon, and press ↵. To open other screens, point to the screen name and press ↵.

To return to the Main screen point to **RETURN TO MAIN SCREEN** and press ↵.

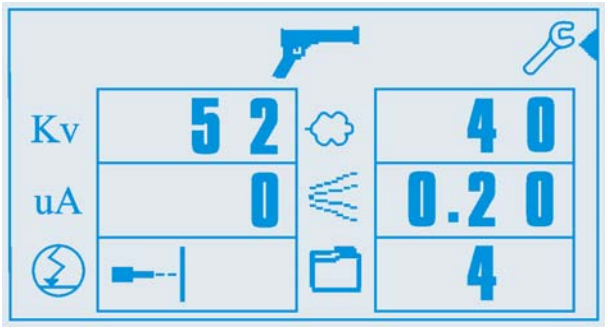


Figure *2* *Cursor at Tools Icon*

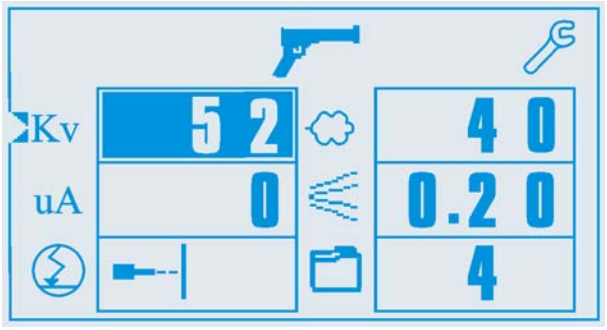


Figure *3* *Main Screen with KV Field Selected*

Changing Settings

Use the **Arrow keys** or **Rotary Knob** to point the cursor at the setting, then press ↵. The setting field and the cursor become reverse-highlighted to show that they are selected.

Use the ▲ and ▼ arrow keys or the rotary knob to change the setting value. Press ↵ again to save your changes and deselect the setting.

NOTE: If you can only point to the Tools icon or the preset number, the controller is locked. You must unlock it before you can change the settings. Refer to **Configuration Settings**>**Password** to unlock the controller.

Configuration Settings

When a new controller is powered up for the first time, it automatically displays the Setup screen. To manually access the Configuration screen, turn the controller off, press and hold the **Nordson** key, then turn power on. Press the Nordson key until the Configuration screen appears.

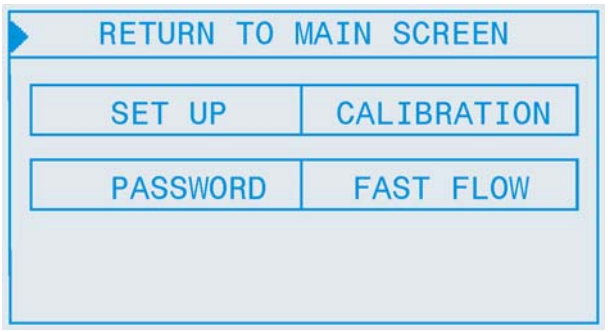


Figure *4* *Configuration Screen*

SET UP: Gun number, type, and purge mode.

CALIBRATION: Calibration of controller to the HDLV pump module controlling the delivery of powder and air to the spray gun.

PASSWORD: Password protect the configuration, tools, and spray settings.

FAST FLOW: Use for powders that are difficult to fluidize, with poor flow characteristics, that tend to clump. Allows you to specify Normal or Fast Flow for each preset.

From the set up, calibration, and password screens, point to **RETURN TO AUX TOOLS** and press ↵ to return to the configuration screen.

When you finish configuring the controller, point to **RETURN TO MAIN SCREEN** and press ↵. The Main screen opens.

Setup

From the Configuration screen, point to **SET UP** and press ↵.

Figure *5* *Setup Screen*

GUN NO.: Set the gun number. For a dual manual system, gun 1 is connected to the right-hand pump and gun 2 is connected to the left-hand pump. The gun number must be unique within a system. Zero is not a valid number.

NOTE: If you change the gun number, the controller will automatically reboot.

GUN TYPE: Choose HDLV for a standard system, or HDLV-COD for a system with Color-On-Demand.

LANGUAGE: Choose English, Spanish, French, Italian, or German.

PURGE: For a standard system without Color-On-Demand the choices are:

- **SINGLE** - Only the gun connected to this controller is purged when the Color Change key is pressed.
- **DUAL** - Both guns (two-gun system) are purged.
- **DISABLED** - Color Change key and purging are disabled. Automatically selected if the Gun Type is set to HDLV-COD.
- **REMOTE** - Purging is controlled from a Prodigy Automatic system.

Calibration

Point to **CALIBRATION** and press ↵. Calibration is only required for new systems, or if the pump manifold or pump control board is replaced. Do not change the calibration numbers. Invalid numbers will cause an E30 error.

Enter the A and C calibration numbers for Pump Flow and Pattern Flow. (B values are no longer used.) The numbers are on the pump manifold label for the pump supplying powder to the spray gun connected to the controller. The pump manifold is located inside the pump panel.

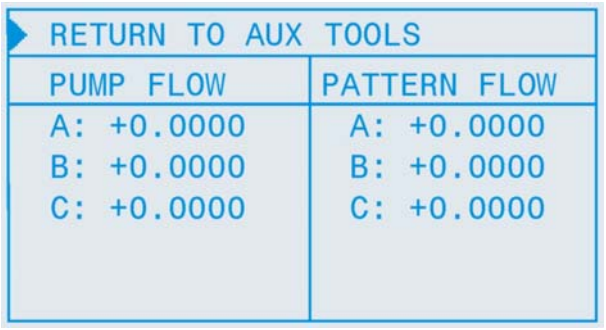


Figure *6* *Calibration Screen*

Password

You can set a 4-digit password and lock the controller. When locked, the operator can only

- change the preset number
- view and reset Faults
- view the About screen
- view the Maintenance screen and reset maintenance hours

The factory default password is 4486. This password will always work to lock and unlock the controller. Do not give it to the operator.

To enter your own password:

1. Point to PASSWORD and press ↵.
2. Enter the factory default, using the arrow keys or rotary dial to change the highlighted digit, then press ↵ to advance to the next digit.
3. Toggle the Lock icon to Program Password.
4. Enter your own password and toggle the lock to Locked.
5. To lock or unlock the controller, enter your password and toggle the lock icon.

To return to this screen and change the lock status, you must cycle controller power while pressing the Nordson key.

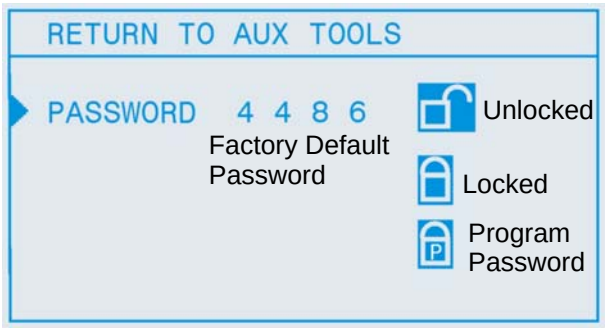


Figure *7* *Password Screen*

Fast Flow

Point to **Fast Flow** and press ↲. This screen allows you to specify Fast Flow or Normal Flow for each preset. Normal is the default, and is the setting used for most powders. If you have a powder that is hard to fluidize and tends to clump, you can use a preset set for Fast Flow.

With the default Normal setting the pump cycle rate varies with the powder flow setting. When Fast Flow is enabled, the pump cycles at a continuous fast cycle rate.

NOTE: Using Fast Flow will decrease the life of the pump pinch valves, so it should be used only with difficult powders.

To change the flow mode, point to the desired preset number and press ↲. Use the arrow keys or rotary dial to toggle the flow mode between N (Normal) and F (Fast Flow), then press ↲ again.

On the operation screen, an “F” appears above the flow icon when the selected preset is set to Fast Flow.

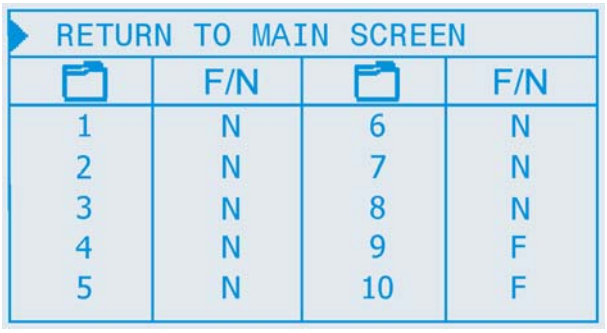


Figure *8* *Fast Flow Screen*

Controller Tools

From the Main screen, point to the **Tools** icon and press ↲.

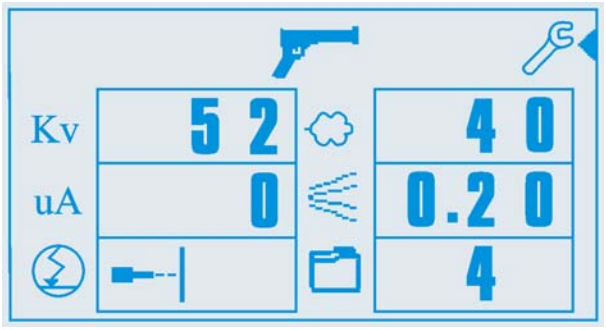


Figure *9* *Cursor at Tools Icon*

The Tools screen appears.

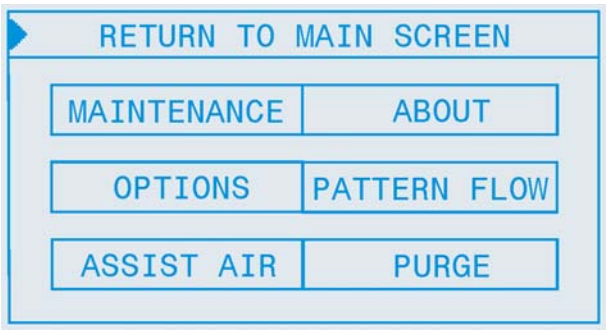


Figure *10* *Tools Screen*

Maintenance Interval Settings

Point to **MAINTENANCE** and press ↵.

ALARM: When ON, alerts the operator to perform gun or pump maintenance when **HOURS** is equal to the **INT** setting. The alarm icon and a fault code appears on the display:

E19: Gun maintenance required
E20: Pump maintenance required

INT: Scheduled maintenance interval (in hours).

HOURS RESET: Resets HOURS to zero and cancels maintenance alarm fault code.

HOURS: Time since last reset.

TOTAL: Total operating hours.

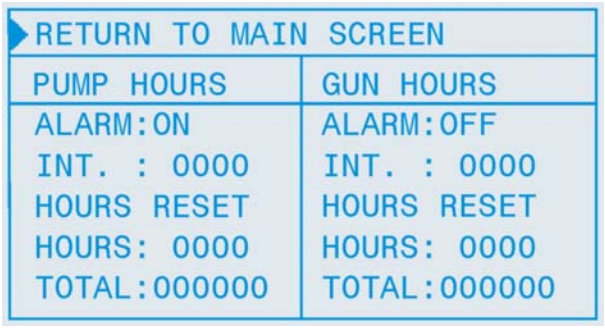


Figure *11* *Maintenance Screen*

Options (Units and LCD Settings)

Point to **OPTIONS** and press ↵.

UNITS: Set units to English or Metric.

DISPLAY MODE: Change the display mode as desired:

- **NORMAL:** Dark characters on a light background.
- **REVERSE:** Light characters on a dark background.

CONTRAST: Point to **CONTRAST** and use the ▲ or ▼ arrow keys or the rotary knob to adjust the screen contrast as desired.

Figure *12* *Options Screen*

Assist Air

Assist air is the air flow that pushes the powder out of the pump to the gun. This screen allows you to increase or decrease the assist air flow by a percentage of the total flow for each preset, to optimize pump and spray performance.

Point to the desired preset number and press ↵.

Use the rotary knob to set the desired assist air percentage, then press ↵ again.

Refer to the Prodigy II System Troubleshooting Guide for more performance solutions.

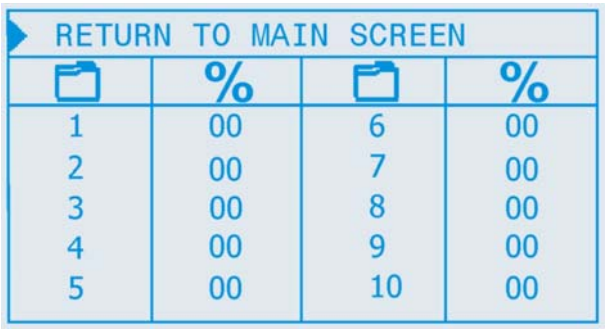


Figure *13* *Assist Air Screen*

About Screen (Controller Information)

Point to **ABOUT** and press the ↲ key.

Use the information on this screen to view the gun number and purge mode settings, and to check the software version numbers. You may be asked to open this screen if you call for technical support.

Figure *14* *About Screen*

Pattern Flow Settings

Point to **PATTERN FLOW** and press ↲.

The Prodigy Manual Spray Gun pattern control trigger toggles between the preset settings (High mode) and the Low mode settings made on this screen.

When in Low mode, an arrow appears to the right of the gun icon.

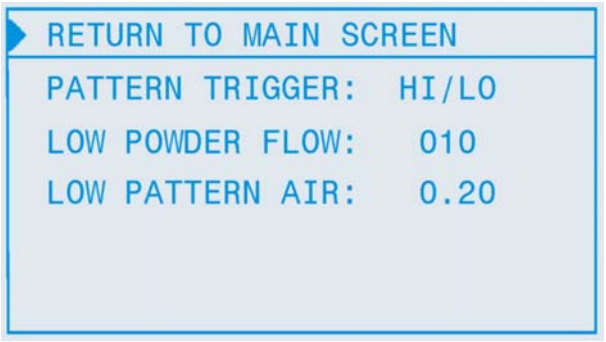


Figure *15* *Pattern Flow Screen*

NOTE: If you change presets while spraying in Low mode, the controller immediately starts spraying with the new preset settings.

PATTERN TRIGGER: Choose OFF (trigger disabled) or HI/LO (trigger enabled).

LOW PATTERN AIR: Set the pattern air flow. The default setting is 0.20 SCFM (0.35 SCMH).

LOW POWDER FLOW: Set the powder flow percentage. The default setting is 20%.

Standard System Purge

Point to **PURGE** and press ↲.

The Purge Cycle operates as follows:

1. **Soft Purge** - Assist air air is directed through the pump and siphon tubing back to the powder supply (Soft Siphon), then through the pump and delivery tubing to the spray gun (Soft Gun). This clears the pump, tubing, and gun of powder.
2. **Pulse Purge** - Purge air is directed in pulses from the pump to the powder supply (Siphon Pulses), then from the pump to the spray gun (Gun Pulses). Pulse On sets duration of each pulse, Pulse Off sets time between pulses.

Purging is started by pressing the **Color Change key**. If your system has two guns, make sure both guns are aimed into the booth before starting a purge.

Purge Settings

SOFT SIPHON: 1.00-10.00 seconds, in 0.25 steps, default is 8 seconds.

SOFT GUN: 1.00-10.00 seconds, in 0.25 steps, default is 8 seconds.

PULSE ON: 0.1-1.00 seconds, in 0.05 steps, default is 0.2 seconds.

PULSE OFF: 0.1-1.00 seconds, in 0.05 steps, default is 0.2 seconds.

SIPHON PULSES: 1-99 pulses, default is 7.

GUN PULSES: 1-99 pulses, default is 13.

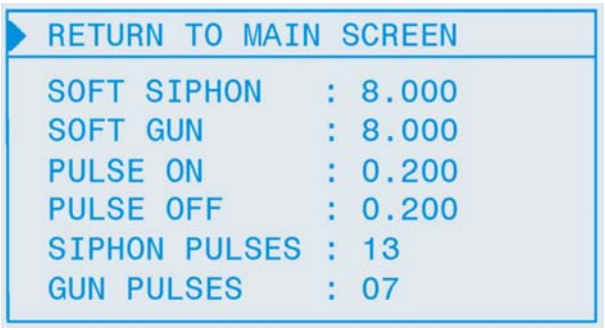


Figure *16* *Standard System Purge Screen*

Color-On-Demand System Purge

Point to **PURGE** and press ↲.

The COD Purge Cycle operates as follows:

1. **Manifold Purge** - The dump valve opens. The pump speeds up to 100% of flow to pump the remaining powder out of the manifolds.
2. **Soft Purge** - Assist air is directed through the pump and siphon tubing back to the powder supply (Soft Siphon), then through the pump and delivery tubing to the spray gun (Soft Gun). This clears the pump, powder tubing, and gun of powder.
3. **Pulse Purge** - Purge air is directed in pulses from the pump to the powder supply (Siphon Pulses), then from the pump to the spray gun (Gun Pulses). Pulse On sets duration of each pulse, Pulse Off sets time between pulses.
4. **Powder Pre-Load** - The new color powder is pumped to the spray gun for the set time at 100% of flow to load the system for production.

The color change cycle is started by the operator or by a remote signal to the Color-On-Demand controller. The operator starts the color change by selecting a new color and touching the **Start** button on the touch screen, or by pressing a foot pedal then selecting a new color before the powder pre-load begins.

NOTE: Powder type, humidity, tubing length and other variables can change the effectiveness of these settings. You may have to adjust these settings to avoid color cross-contamination and maintain performance.

Purge Settings

MANIFOLD PURGE: 0-10.00 seconds, in 0.25 steps, default is 2 seconds.

SOFT SIPHON: 2.00-10.00 seconds, in 0.25 steps, default is 3.5 seconds.

SOFT GUN: 1-10.00 seconds, in 0.25 steps, default is 2 seconds.

PULSE ON: 0.1-1.00 seconds, in 0.05 steps, default is 0.2 seconds.

PULSE OFF: 0.1-1.00 seconds, in 0.05 steps, default is 0.2 seconds.

SIPHON PULSES: 1-99 pulses, default is 20.

GUN PULSES: 1-99 pulses, default is 18.

POWDER PRE-LOAD: 0-99 seconds, default is 4.

SAVE VALUES: Saves changes to settings.

LOAD VALUES: Loads the last saved settings.

To return to the factory defaults, you must manually re-enter them, using the default settings given here.

Figure *17* *Color-On-Demand System Purge Screens*

Spray Settings

Presets

A preset is a set of saved spray settings: electrostatic, powder flow, and pattern air. Ten presets can be stored. Use presets to save optimized settings for different parts or part shapes.

All spray settings are made on the Main screen. While spraying powder, the Main screen displays the actual spray gun outputs. If you move the cursor the spray settings for the current preset are displayed.

NOTE: You do not have to set up any presets at all to spray parts; you can just set electrostatics, powder flow, and pattern air and start production.

Making Preset Spray Settings

1. Select a preset number.
2. Set electrostatic, powder flow, and pattern air settings. When you change setting values Yes (✓) and No (**X**) symbols appear next to the preset number.
3. To **save** the spray settings, point to ✓ and press ↵. To **cancel** the settings, point to **X** and press ↵.

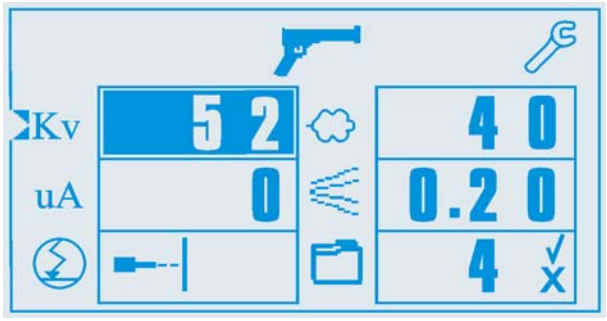


Figure *18* *Main Screen - Spray Settings*

Changing Preset Spray Settings

You can change a preset's spray settings at any time, temporarily or permanently, if the controller is not locked with a password. To unlock the controller refer to Password on page 6.

1. Point to the setting you want to change and press ↵.
2. Change the setting value. Press ↵ to start spraying with the new setting. If you do not press ↵ the controller will do it for you after 5 seconds. Yes (✓) and No (**X**) symbols appear next to the preset number.
3. To save the change, point to ✓ and press ↵. To discard the change, point to **X** and press ↵.

   You cannot change preset numbers until you save or cancel the change for the current preset.

   If you power off the controller, the current preset settings are retained in memory and restored on power up, even if you have not saved them.

Electrostatic Settings

You can choose to set **kV** output or **uA** output (standard mode), or use a Select Charge mode.

Point the cursor at the desired electrostatic mode icon and press ↵. Use the arrow keys to toggle through the modes.

Standard Modes

 **Standard Mode, Kv**: Set high voltage output (25-95 kV). The higher the output, the greater the powder charge. µA cannot be set.

Standard Mode, uA (AFC): This is the maximum current (µA) output. The controller limits current output to this setting while controlling voltage output to keep charging and transfer efficiency high. kV cannot be set.

Select Charge Modes

Recoat (Mode 1): Use for recoating parts that have already been coated and cured. Gun current is reduced to eliminate back ionization.

Special (Mode 2): Use for special powders such as dry blend metallics or micas.

Deep Cavity (Mode 3): Use for coating inside boxes or deep recesses in workpieces.

User Programmable (Mode 4): Allows you to set both kV and µA for a particular part or powder and save the setting.

Powder Flow Settings

 Powder flow is a percentage of available output, from 0-100 %. When the spray gun is triggered, the value displayed should match the setting.

If **Fast Flow** is enabled for the selected preset, an "F" appears above the flow icon. Refer to page 7 for more information on Fast Flow.

Pattern Air Flow Settings

Pattern air controls the shape of the powder pattern. Pattern air flow is 0.20-2.0 SCFM (0.35-3.4 SCMH). When the spray gun is triggered, actual air flow is displayed.

Operation

WARNING: This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.

1. Check all electrical and tubing connections. Make sure the powder suction tubing is inserted into the pump adapter on the powder hopper.
2. Turn on the booth exhaust fan.
3. Turn on fluidizing air and allow the powder in the hopper to become fluidized.
4. Turn on the pump controller power switch.
5. Turn on the gun controller power switch.
6. Charge the spray gun with powder, then begin production.

Charging the Spray Gun with Powder

You must charge the powder tubing and gun with powder before beginning production.

Point the spray gun into the booth and pull the trigger. When powder begins spraying from the gun, release the trigger, then begin production.

NOTE: Color-on-Demand systems automatically pre-load the system with powder at the end of a color change cycle.

Using the Pattern Control Trigger

Press the Powder Control trigger to change powder flow and pattern air flow to the Low mode settings. Press the switch again to return to the preset settings.

Standard System Purging/Color Change

NOTE: For Color-on-Demand systems, refer to the Operator Card for purging and color changing.

For standard systems without Color-on-Demand, disconnect the suction tubing from the pump adapter and direct the end of the tubing into the booth. Point the spray gun into the booth.

Press the **Color Change** key to start the purge cycle. To stop the purge cycle before it is complete, press the **Nordson** key.

CAUTION: If you have a two-gun system and the purge mode is set to Dual, make sure both spray guns are aimed into the booth before starting a purge.

Maintenance Timers

Refer to *Maintenance Settings* for information on the maintenance timers. When an E19 or E20 fault code and alarm icon appears on the display, perform the required maintenance, then reset the timer.

Troubleshooting

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

WARNING: Repair of this equipment shall carried out by suitably trained personnel in accordance with the applicable code of practice. EN60079-19

If you cannot solve the problem with the information given here, contact your local Nordson representative or the Finishing Customer Support Center at (800) 433-9319 for help.

Refer to *Table 1 Fault Code Troubleshooting*, for troubleshooting procedures. Refer to *Troubleshooting* and *Continuity and Resistance Tests* in your spray gun manual for more information and test procedures.

Alarms and Fault Codes

indicates that a fault has occurred and is logged on the fault screen.

E 12 indicates the current fault.

Press the **Nordson** key to view the Fault screen. This screen lists the last 5 faults and a brief description of each fault.

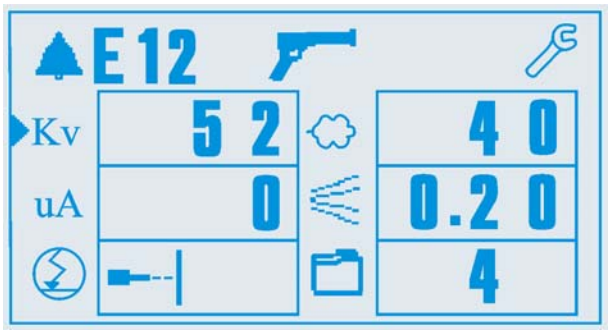


Figure *19 Main Screen - Fault E12*

Figure *20 Fault Screen*

Refer to *Table 1 Fault Code Troubleshooting*, for troubleshooting procedures. Refer to *Troubleshooting* and *Continuity and Resistance Tests* in your spray gun manual for more information and test procedures.

Reset Faults

To reset the faults move the cursor to **RESET** and press ↵. The fault message will reappear if you do not fix the problem causing the fault.

Table 1 Fault Code Troubleshooting

Fault Code	Description	Action
E00	No gun number	Gun cannot be set to 0, must be a number from 1-4. Refer to Setup for more information on gun numbers.
E01	EEPROM read failed	Reset the fault (press the Nordson key to open the fault screen). This fault will sometimes occur when the software is upgraded.
E07	Gun open circuit	Check the LED on the back of the spray gun with the trigger pulled: • If the LED is not lit, check for a faulty gun cable. • If the LED is lit, trigger the spray gun close to a grounded part. If the current display is 1 µA or less, check the multiplier/resistor/electrode assembly for loose connections. If the connections are secure, check the multiplier with a kV meter. If the kV meter shows output voltage, test the gun control cable continuity. If the feedback wire is good, test the multiplier using the procedures in the spray gun manual.
E08	Gun short circuit	Check the LED on the back of the spray gun with the trigger pulled: If the LED does not light, turn off the controller. Remove the rear cover from the gun and unplug the connector from the multiplier. Trigger the spray gun and check the LED. If the LED stays off and the fault code stays E08, the cable is shorted and must be replaced. If the LED lights and the fault code changes to E07, the gun cable is good. Test the multiplier using the procedures in the spray gun manual.
E10	Gun output stuck low	Replace the controller circuit board.
E11	Gun output stuck high	Replace the controller circuit board.
E12	Communications fault	Check the network cable and cable terminations. Make sure switches SW1 and SW2 on the pump control board are set correctly. Check system and controller ground connections.
E15	Foldback fault	Check the LED on the back of the spray gun with the trigger pulled: If the LED does not light, turn off the controller. Remove the rear cover from the gun and unplug the connector from the multiplier. Trigger the spray gun and check the LED. If the LED stays off and the fault code changes to E08, the cable is shorted and must be replaced. If the LED lights and the fault code changes to E07, the gun cable is good. Test the multiplier using the procedures in the spray gun manual.
E19	Gun maintenance timer has run out	Perform gun maintenance, then reset the maintenance hours. Refer to the spray gun manual.
E20	Pump maintenance timer has run out	Perform pump maintenance, then reset the maintenance hours. Refer to the Prodigy HDLV pump manual.
E21	Pattern air flow (proportional) valve fault	Check for a loose connection on the pattern air flow valve. If the connections are good, replace the valve. Refer to the Prodigy HDLV pump manual for information.

Fault Code	Description	Action
E22	Pump air flow (proportional) valve fault	Check for a loose connection on the pump air flow valve. If the connections are good, replace the valve. Refer to the Prodigy HDLV pump manual for information.
E23	Powder low PWM	Check for obstruction in pump flow air servo valve. Refer to Flow Control Valve Cleaning under Repair in the Pump Manifold and Circuit Board manual 1062382.
E24	Pattern low PWM	Check for obstruction in pump flow air servo valve. Refer to Flow Control Valve Cleaning under Repair in the Pump Manifold and Circuit Board manual 1062382.
E25	Powder high PWM	Check output of flow regulator (center regulator in pump panel) - should be 85 psi. Check for kinked or blocked powder delivery tubing. Check for blocked pump flow air servo valve. Refer to Flow Control Valve Cleaning under Repair in the Pump Manifold and Circuit Board manual 1062382.
E26	Pattern high PWM	Check output of flow regulator (center regulator in pump panel) - should be 85 psi. Check for kinked or blocked pattern air tubing. Check for blocked pattern flow air servo valve. Refer to Flow Control Valve Cleaning under Repair in the Pump Manifold and Circuit Board manual 1062382.
E27	Trigger on at power up	Release the gun trigger and reset the fault. If the fault re-occurs, check the gun cable or switch for shorts. Refer to *Troubleshooting* in the gun manual for cable/switch continuity check.
E28	Data version changed	Reset the fault (press the Nordson key to open the fault screen). This fault will sometimes occur when the software is upgraded.
E29	System conf mismatch	Manual gun controller and pump control board configuration do not match. Make sure both the controller and control board are set for the same configurations. Refer to Setup in this manual and Configuring the Circuit Board in the Pump Manifold and Circuit Board manual 1062382.
E30	Calibration Invalid	Pump calibration values for A or C are out of range. Refer to Calibration on page 6 for more information.

Repair

Repairs are limited to replacing the items listed in the parts lists.

WARNING: Repair of this equipment shall carried out by suitably trained personnel in accordance with the applicable code of practice. EN60079-19

CAUTION: The circuit boards and keypad panel are electrostatic-sensitive devices (ESD). Wear a grounding strap when removing and installing them.

Parts

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

Controller Kit Parts List

See Figure 21.

Item	Part	Description	Quantity	Note
—	1054451	KIT, controller, manual, Prodigy	1	
1	- - - - - -	• CONTROLLER, Prodigy, manual gun	1	A
2	129592	• KNOB, clamping, M6 x 12 mm long	2	
3	129509	• SPACER, cabinet, friction	2	
4	982649	• SCREW, hex, machine, M10 x 22 mm	1	
5	983405	• WASHER, lock, split, M10, steel, zinc	1	
6	288828	• KIT, bracket, mounting, rail	1	
7	982500	• SCREW, hex, machine, M8 x 16 mm	1	
8	984707	• NUT, hex, M8, steel, zinc	1	
9	240976	• CLAMP, ground w/wire	1	
10	- - - - - -	• BRACKET, base, manual control interface	1	
11	- - - - - -	• BRACKET, post, Prodigy, manual control	1	

NOTE A: See Figure 22 and accompanying parts list for serviceable parts.

NS: Not Shown

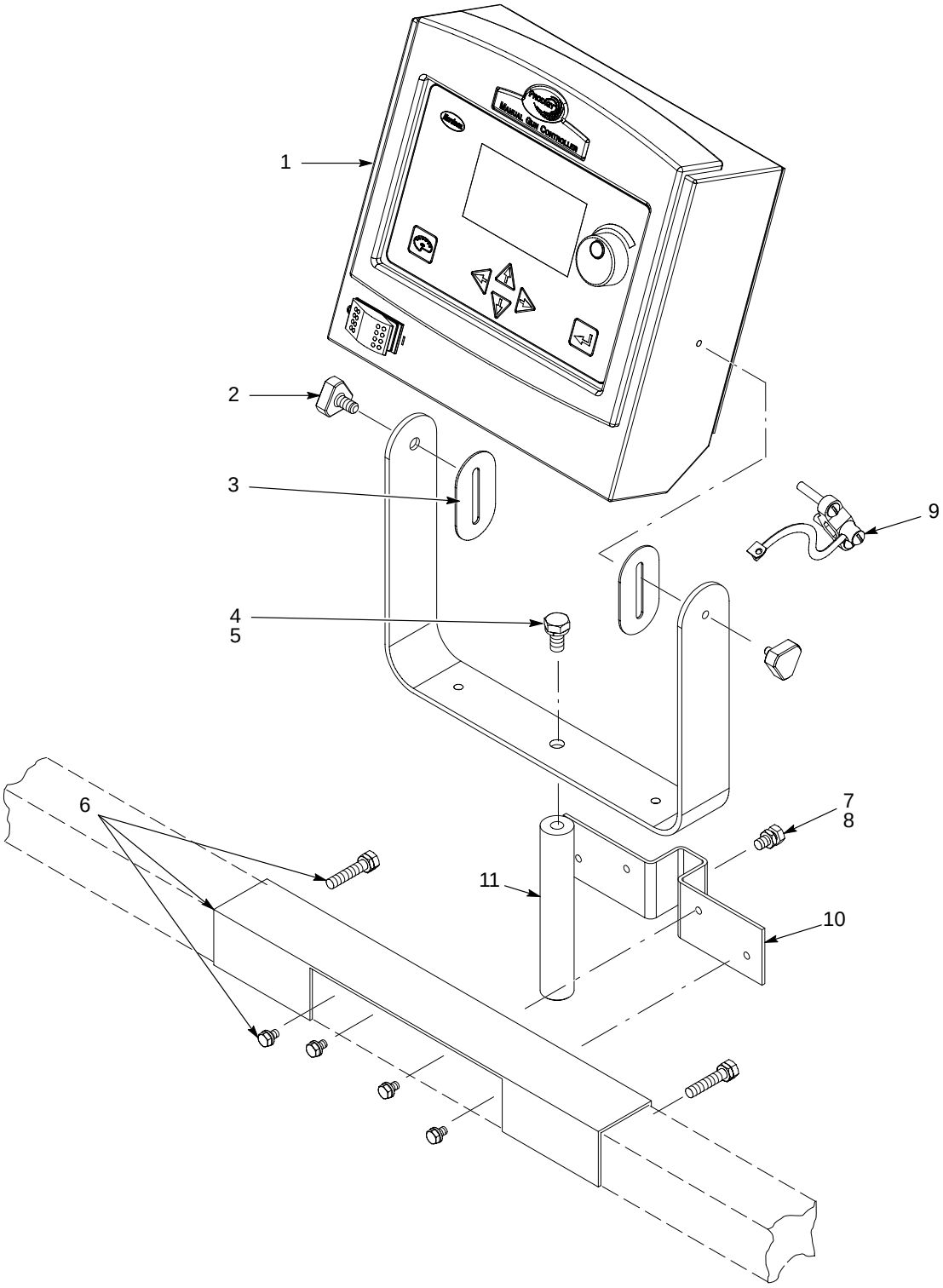


Figure *21 Controller Kit Parts*

Controller Parts

See Figure 22.

Item	Part	Description	Quantity	Note
—	- - - - - -	CONTROLLER, manual, Prodigy	1	
1	982825	• SCREW, pan head, recessed, M4 x 12 mm, w/integral lockwasher	4	
2	1050562	• PCA, manual gun interface, Prodigy	1	
2A	1091172	• • KIT, LCD, graphical, 128 x 240	1	A
3	1054441	• PANEL, keypad, manual control interface	1	
4	984715	• NUT, hex, H4, steel, zinc	10	
5	983403	• WASHER, lock, split, M4, steel, zinc	10	
6	302189	• WIRE, ground assembly, 10.5 in.	1	
7	984702	• NUT, hex, M5, brass	4	
8	983401	• WASHER, lock, split, M5, steel, zinc	4	
9	983021	• WASHER, flat, 0.203 x 0.406 x 0.040 in., brass	3	
10	271221	• LUG, 45, double, 0.250, 0.438 in.	2	
11	240674	• TAG, ground	4	
12	939122	• SEAL, conduit fitting, 1/2 in.	2	
13	984526	• NUT, lock, 1/2 in. conduit	2	
14	322404	• SWITCH, rocker, DPST, dust-tight	1	
NOTE A: This kit replaces the LCD panel, which is part of item 2. Replacement instructions are included with the kit.				

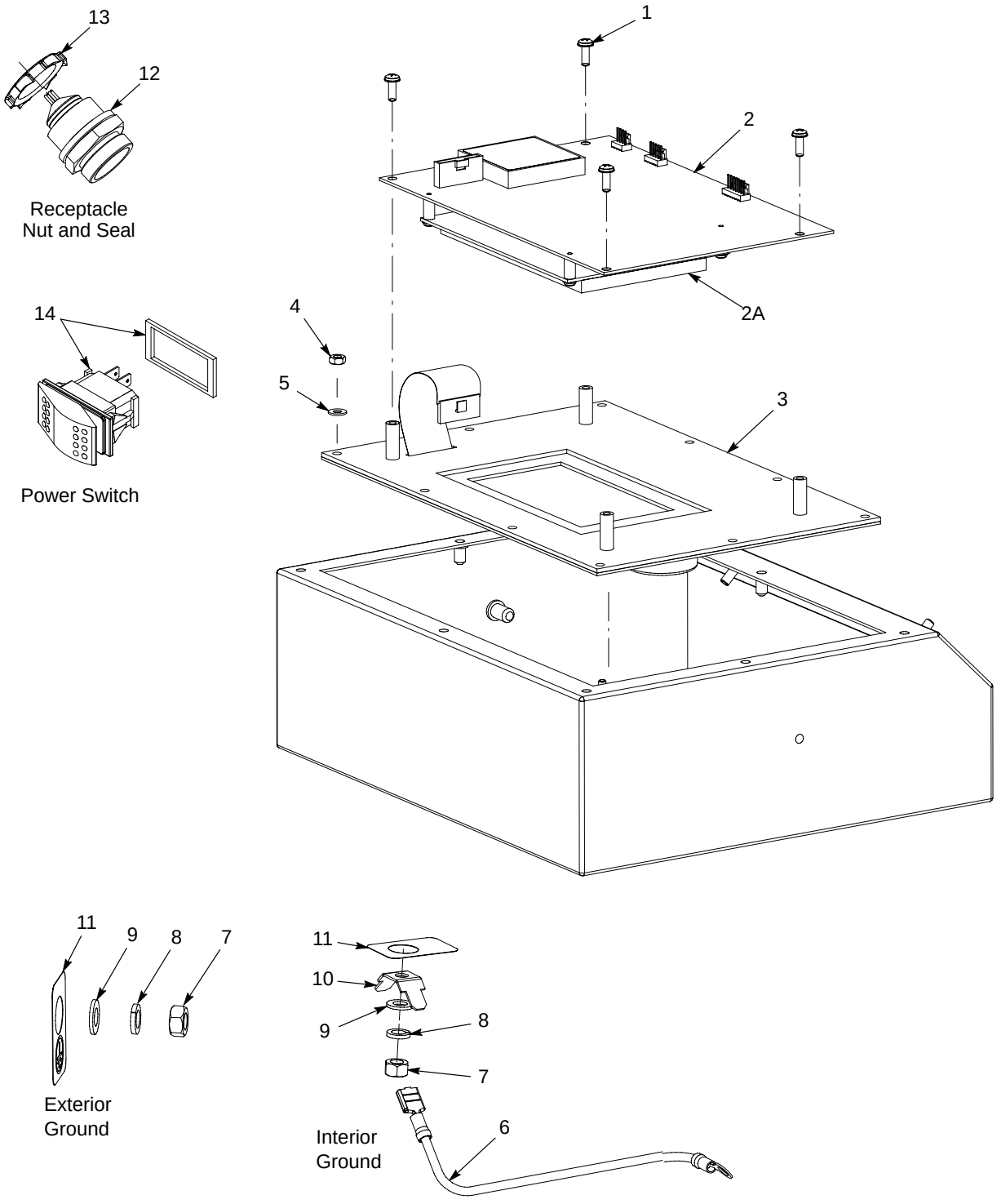


Figure *22 Controller Parts*

Specifications

Weight: 4.05 kg (9.0 lbs)

Electrical

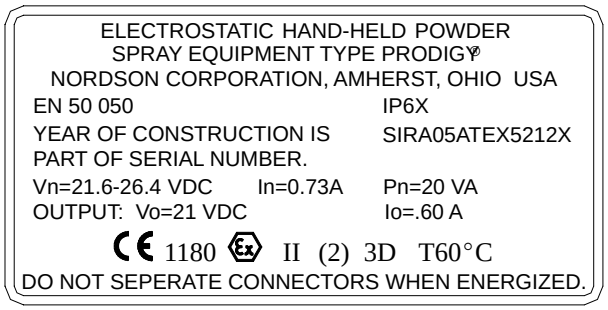
Input:	24 Vdc ± 10 %, 20 VA maximum
Output:	6-21 Vdc
Short circuit current:	30 mA
Maximum output current:	600 mA

Environment

Controller enclosure:	IP 54 (dust-tight)
Maximum ambient temperature:	40 °C (104 °F)

Class II, Division 2, Group F & G

Equipment Labels



DECLARATION of CONFORMITY

Nordson Corporation
declare under our sole responsibility that the products

Prodigy, Powder Electrostatic applicators including control cables used with Prodigy, Manual Controls

to which this declaration relates complies with the following Directives:

- **Machinery Directive 89/37/EEC**
- **EMC Directive 2004/108/EEC**
- **ATEX Directive 94/9/EC**

The conformity is under observance of the following standards or standards documents:

EN12100	EN60079-0	EN61000-6-3
EN1953	EN50050	EN61000-6-2
IEC60417	EN61241-1	EN55011
EN60204		FM7260

Type of protection:

- **II 2 D EEx 2 mj , Ambient temperature: 20°C to + 40°C**

N^{o} of EC type Certificate:

- **SIRA 05 ATEX 5112X**

N^{o} of notified body (ATEX surveillance):

- **1180**

ISO 9000 certificate

DNV

Date: 15 October, 2007

Joseph Schroeder
Engineering Manager,
Finishing Product Development Group

Nordson Corporation • Westlake, Ohio