Spectrum® II
Powder Feed Center

Customer Product Manual
Part 1060125-08
Issued 9/20

For parts and technical support, call the
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Notice

Trademarks

Change Record

Revision	Date	Change
07	03/20	Internal admin change
08	9/20	Fluid plate plenum gasket change

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Section 1

Safety

Introduction

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include

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

Regulations and Approvals

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

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

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read 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.

- 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 SDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.

- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

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

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

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

Action in the Event of a Malfunction

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

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

Disposal

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

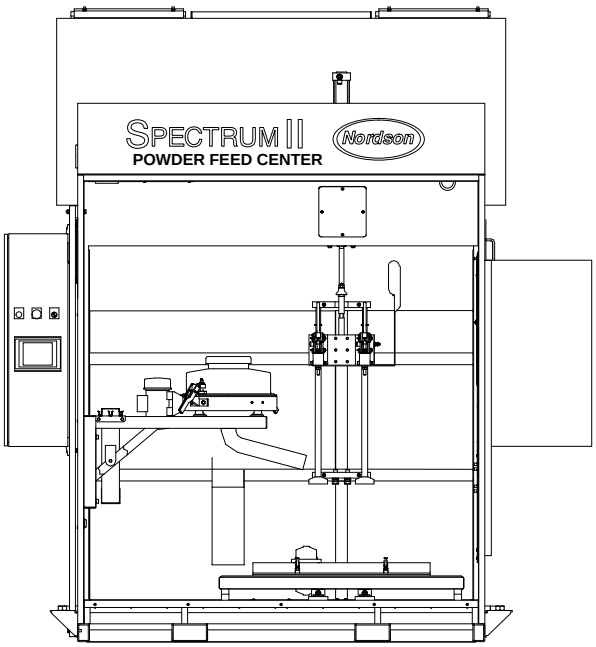
Section 2
Description

Introduction

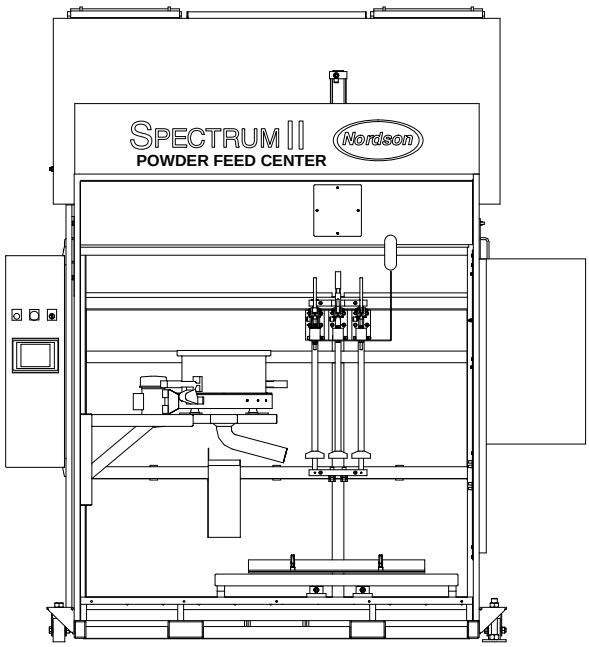
See Figure 2-1. The Spectrum II Powder Feed Center delivers powder to up to 24 powder spray guns and returns reclaimed powder to the virgin powder source. The powder feed center efficiently reclaims powder and helps a powder coating system achieve fast, efficient color changes.

The sieve used in the powder feed center depends on the powder transfer system. Figure 2-1 shows the two typical sieves. This manual shows the Prodigy HDLV version of the sieve.

NOTE: The illustrations in this manual show the powder feed center without a powder transfer system. Refer to *Powder Transfer System* on page 2-6 for more information.



with Prodigy HDLV Sieve



with Sure-Max Sieve

Figure 2-1 Spectrum II Powder Feed Center

Components

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

Table 2-1 Powder Feed Center Components

Item	Component	Description
1	Control Panel	Houses the feed center operator interface and the electrical and pneumatic controls. Refer to *Control Panel* for more information.
2	Sieve	Breaks up clumps of reclaimed powder and separates usable reclaimed powder from waste. **NOTE:** An optional, higher throughput Vibrasonic sieve screen is available. Refer to *Vibrasonic Sieve Screen* in the *Options* section for parts and installation information.
3	Fan/Filter Section	Filters the air in the feed center enclosure before returning it to the spray room.
4	Hose Lockers	Stores powder feed hoses when not in use.
5	Lance Assembly	Consists of a vertical slide assembly and one, two, or three pump block assemblies. Each pump block assembly consists of a pickup plate and up to eight inline powder pumps. A pneumatic cylinder raises and lowers the pickup plates in and out of the feed source and onto the purge manifold. The pumps are operated by the spray gun control system. While feeding from a standard box of powder, the lance assembly fluidizes the powder. The operator adjusts the fluidizing air pressure using a needle valve located on the lance assembly.
6	Vibratory Table	Vibrates the feed source to maintain powder consistency around the pickup plates. **NOTE:** The vibratory table only vibrates for a short time while the optional fluidizing hopper is being used.
7	Purge Manifold	Pulses compressed air through the pickup plates, pumps, powder feed hoses, and spray guns to blow out all loose powder. Consists of one manifold block for each pickup plate. Each manifold block is equipped with up to eight open ports to match the number of pumps and spray guns in the system.
NS	Feed Source	Stores the powder supply for the spray guns. The source may be either a standard box of powder or an optional fluidizing hopper.
NS	Powder Transfer System	Draws reclaimed powder from the booth's cyclones or color module and returns it to the sieve. There are several types of powder reclaim transfer systems available. Refer to *Powder Transfer Systems* on page 2-6 for more information.

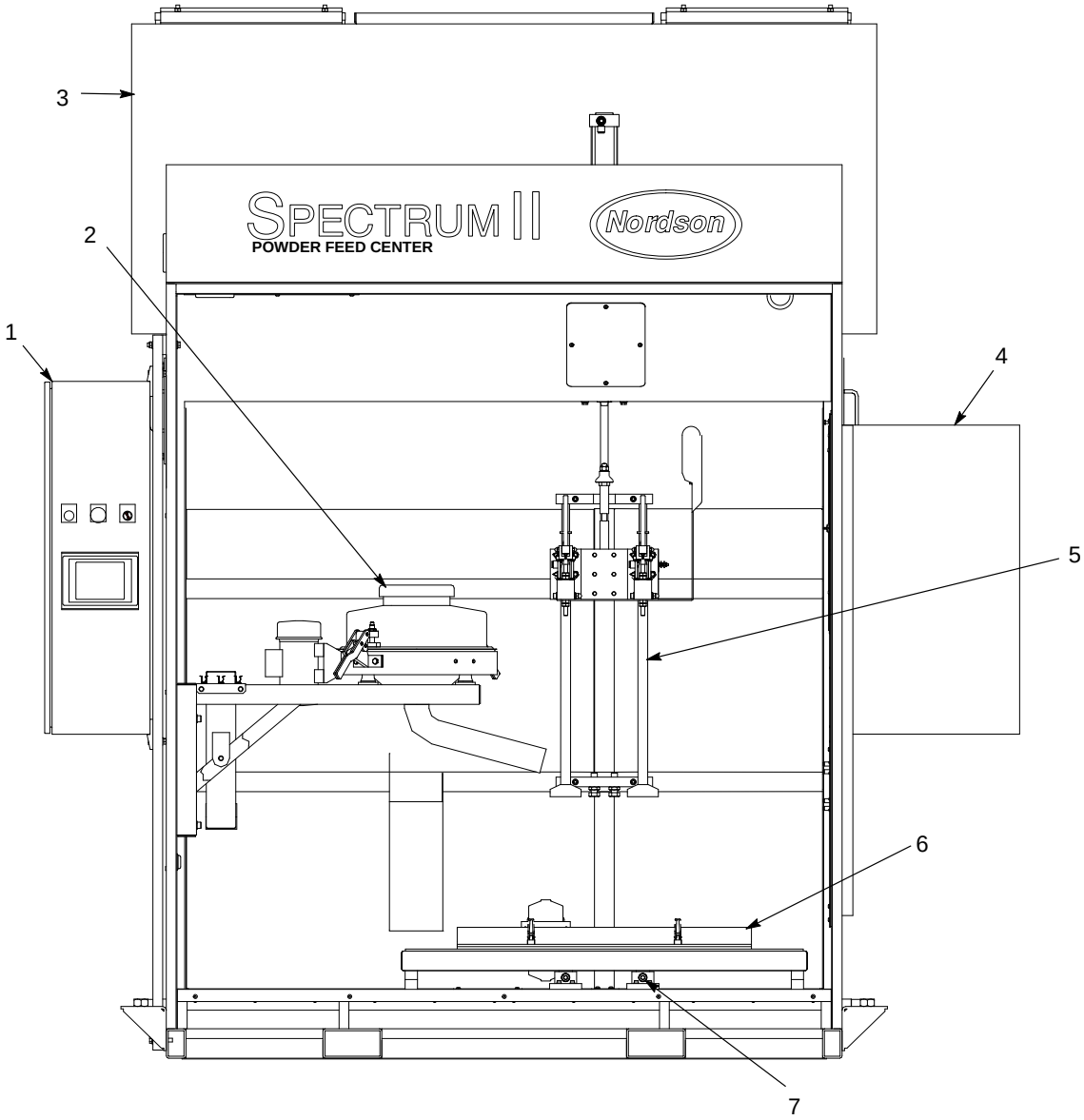


Figure 2-2 Powder Feed Center Components

Control Panel

Refer to Table 2-2 and Figure 2-3 for a description of the controls on the control panel. Refer to the *Troubleshooting* section for control panel schematics.

Table 2-2 Controls on the Control Panel

Item	Component	Description
1	COLLECTOR TRANSFER	Adjusts the operating air pressure for the waste hopper transfer pump. **Normal Setting:** 2.75 bar (40 psi)
2	COLLECTOR FLUIDIZE	Adjusts the fluidizing air pressure of the waste hopper. **Normal Setting:** 0.5 bar (8 psi)
3	COLLECTOR PULSE	Adjusts the cartridge filter pulse air pressure. **Normal Setting:** 2.75 bar (40 psi)
4	LANCE FLUIDIZE	Adjusts the lance fluidizing air pressure. **Normal Setting:** 0.3 bar (5 psi)
5	HOPPER FLUIDIZE	Adjusts the fluidizing air pressure for the optional fluidizing hopper. **Normal Setting:** 0.3 bar (5 psi)
6	Main Electrical Disconnect	Turns power to the feed center on and off.
7	COLOR CHANGE COMPLETE	Blinks to indicate the end of a color change sequence.
8	Alarm Buzzer	Indicates either a low powder condition or booth moving sequence.
9	E-STOP	Shuts down all feed center functions.
10	FC LIGHT	Turns the light in the feed center on and off.
11	Operator Interface	A touch-screen computer that allows the operator to adjust and start or stop the feed center automated functions. Refer to the *Operation* section for more information about the operator interface. **NOTE:** In quick color change systems, the PLC and operator interface also control other booth functions. Refer to your quick color change system manual for more information about the operator interface.

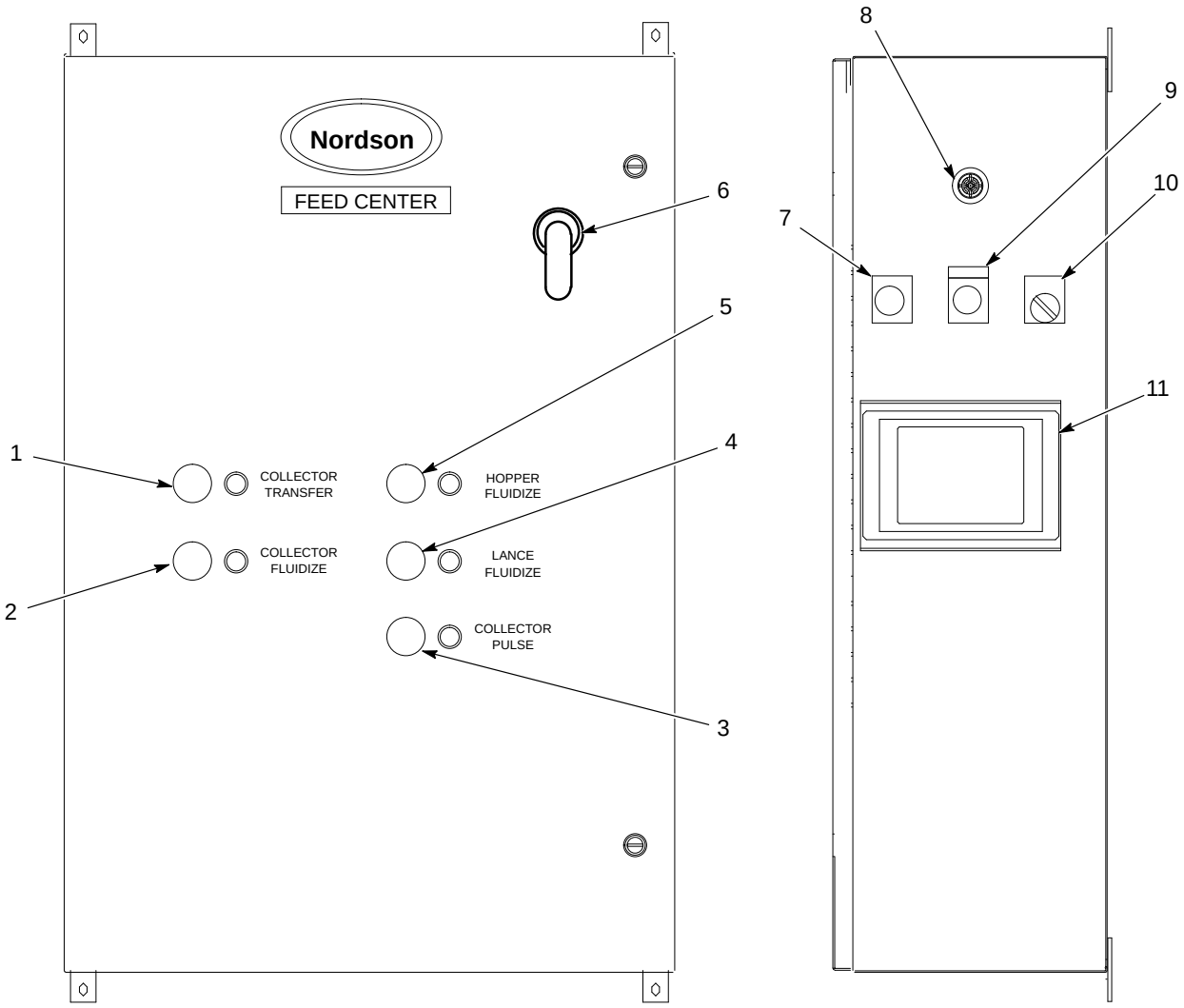


Figure 2-3 Control Panel

Powder Transfer System

The powder transfer system replenishes the powder feed source from either of two locations:

- reclaimed powder from the booth cyclones or color module
- bulk virgin powder from a drum

Four types of powder transfer systems are available.

A separate powder transfer system manual was shipped with your powder feed center. That manual contains the following information about your powder transfer system:

- description of how the system works
- specific controls information
- the color change process
- replacement parts

Theory of Operation

Powder Fluidization and Transfer

See Figure 2-4. A feed source (4) is placed on the vibratory table (5). Powder in the feed source is fluidized and the lance assembly (3) lowers in one of the following ways:

Box of Powder: The vibratory table vibrates to maintain an even distribution of powder in the box. The lance assembly fluidizes the powder in the box. When all feed center functions are set to **AUTO**, the lance assembly lowers until its level sensor senses the powder in the box, and continues to lower as the powder level falls. When the level sensor senses that the lance assembly has lowered below a set limit, the sensor activates either a low-powder alarm or automatic bulk feed.

Fluidizing Hopper (Optional): Compressed air forced through a porous fluidizing plate in the bottom of the hopper fluidizes the powder in the hopper. When all feed center functions are set to **AUTO**, the lance assembly lowers into the hopper until it reaches a set position. The lance assembly stays at the set position. When the level sensor senses that the powder level has fallen below a set limit (above the lance inlet), the sensor activates either a low-powder alarm or automatic bulk feed.

Air flowing through the powder pumps (2) draws the fluidized powder up the pickup plates and out the powder feed hoses to the spray guns.

Standard powder feed centers have two sets of powder feed hoses: one for use with light-colored powders, and one for use with dark-colored powders. Having two separate sets of powder feed hoses minimizes the possibility of cross-contamination of powder after a color change.

In applications that use special powders (such as metallics or textures), a separate set of hoses can be added. The feed center can accommodate up to four sets of hoses:

- Standard, light-color powders
- Standard, dark-color powders
- Special, light-color powders
- Special, dark-color powders

When a set of hoses is not being used, it is stored offline in the hose locker on the side of the feed center.

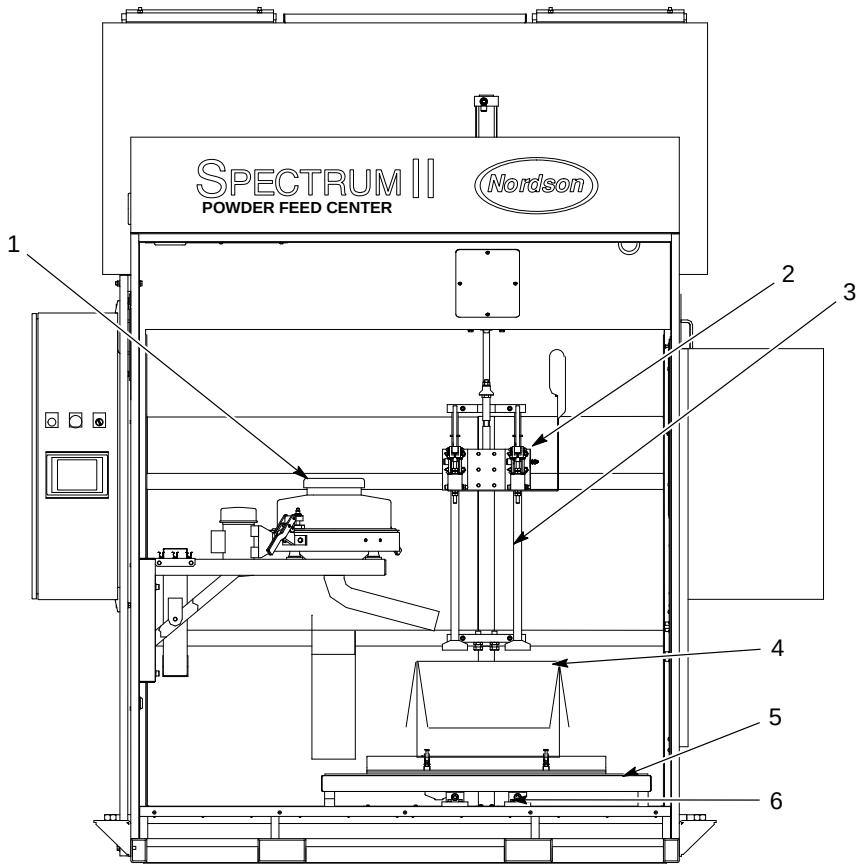


Figure 2-4 Powder Fluidization and Transfer

1. Sieve
2. Powder pumps
3. Lance assembly
4. Feed source
5. Vibratory table
6. Purge manifold

Air Filtration

See Figure 2-5.

The exhaust fan (1) draws airborne powder through the cartridge filters (4), where the powder collects on the filter media.

The pulse valves (3) send periodic pulses of air through the cartridge filters, blowing the powder off the filter media. The powder then falls into the waste hopper (5), which holds the waste powder until the operator empties it using the feed center transfer pumps.

Any powder that remains in the air that passes through the cartridge filters is collected on the final filters (2) before the air returns to the spray room.

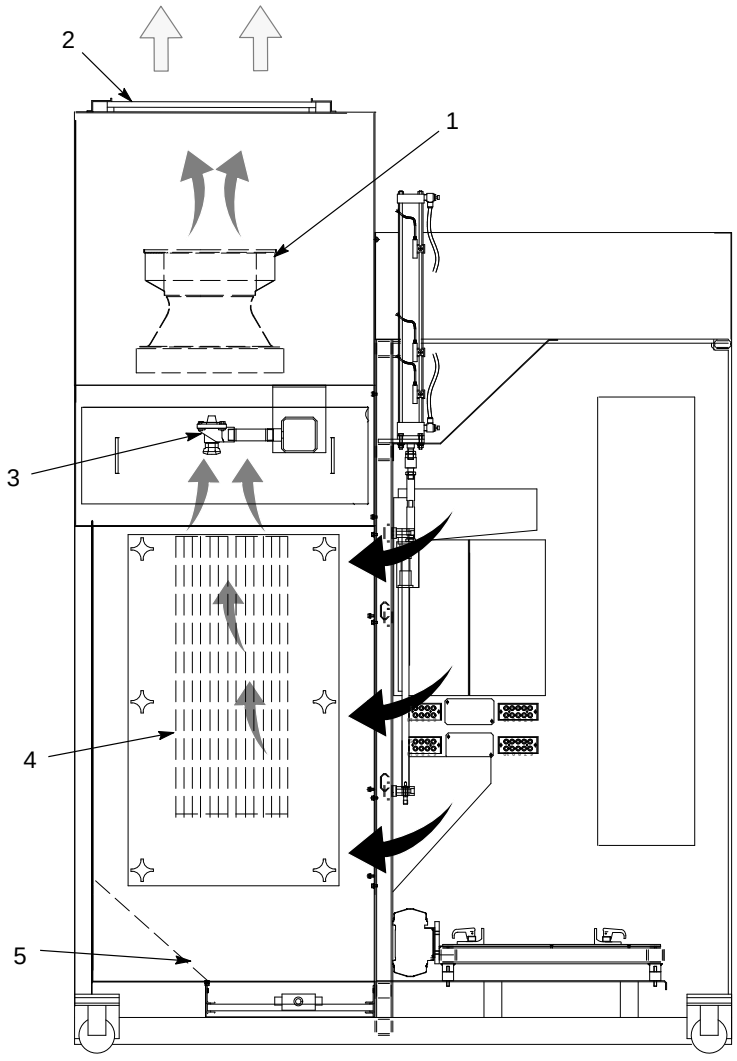


Figure 2-5 Powder Feed Center Air Filtration

1. Exhaust fan
2. Final filters
3. Pulse valves
4. Cartridge filters
5. Waste hopper

Purge Cycle

See Figure 2-4.

The operator starts a purge cycle either when changing colors or shutting down the system. When the purge cycle starts, the spray guns turn off and the lance assembly (3) raises up out of the feed source. The operator blows powder off the lance assembly, then removes the feed source (4) from the vibratory table (5).

The operator lowers the lance assembly until the pickup plates contact the purge manifold (6). The purge manifold sends timed pulses of air through the pickup plates, powder pumps (2), powder feed hoses, and spray guns.

NOTE: Depending on how the feed center is configured, the purge cycle purges each pump block assembly separately, or all pump block assemblies at the same time.

Powder Transfer System Operation

Refer to your powder transfer system manual for a description of how the powder transfer system operates.

Powder Level Sensor Probe

The powder feed center has one level sensor probe that controls the up and down movement of the lance assembly. Feed centers that have the optional bulk virgin powder feed system have a second level sensor that signals the bulk feed system to add powder to the feed source.

NOTE: The level sensor probe only operates when the **Lance/Purge Mode** is set to **Auto**.

The lance assembly stays at the fully up position until the operator selects a feed source by touching either the **Select Box** or **Select Hopper** button on the operator interface. How the level sensor probe controls movement of the lance assembly depends on which feed source is selected.

Box Selected

NOTE: When you touch the **Select Box** button, its text changes to **BOX Selected**. If you touch the **BOX Selected** button during operation, the lance assembly will immediately move to the fully up position.

The feed center vibrator table turns on and the lance assembly lowers until it contacts the surface of the powder in the box. As the level of powder in the box goes down, the level sensor probe signals the lance assembly to lower until the contacts the powder surface.

When the powder in the box drops below a pre-set level, one of two things happen:

- If the feed center has the optional bulk virgin powder feed system, virgin powder will be automatically added to the box after a pre-set delay.
- If the feed center does not have the optional bulk virgin powder feed system, the low powder alarm timer delay starts. After the pre-set delay expires, the alarm buzzer turns on and a low powder alarm condition appears on the operator interface.

Hopper Selected

NOTE: When you touch the **Select Hopper** button, its text changes to **HOPPER Selected**. If you touch the **HOPPER Selected** button during operation, the lance assembly will immediately move to the fully up position.

The feed center vibrator table turns on for a pre-set period of time and the lance assembly lowers until it reaches a pre-set hopper limit position.

When the powder in the hopper reaches a level at which the level sensor probe cannot sense it, one of two things happen:

- If the feed center has the optional bulk virgin powder feed system, virgin powder will be automatically added to the hopper after a pre-set delay.
- If the feed center does not have the optional bulk virgin powder feed system, the low powder alarm timer delay starts. After the pre-set delay expires, the alarm buzzer turns on and a low powder alarm condition appears on the operator interface.

Section 3
Initial Setup

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

Introduction

This section explains how to set up the powder feed center to suit your application requirements. The following topics are covered in this section:

Topic	Description
User Access Levels	Logging in to the feed center's operator interface using one of three access levels
System Configuration	Identifying the hardware in your powder coating system
System Setup	Setting the operating parameters for your • Compressed Air System • Powder Feed Center • Spray Booth • Powder Transfer System
Typical Operating Settings	Setting the recommended air pressure and cartridge filter pulse timing values for the feed center
Level Sensor Programming	Programming the level sensor probe to cause the lance assembly to raise or lower to the appropriate level in the powder feed source

These procedures need to be completed only when you start up the powder feed center for the first time. After the initial configuration is completed and the system is operating, you may also access the configuration menus to change operating parameters.

User Access Levels

There are three user access levels. Not all users have access to adjust all functions of the powder feed center.

The user access level can be changed by touching the **User Log-On** button in the **Special Functions** area of the **Main Menu** or on either of the configuration screens. Refer to Table 3-1 for a list of the three user access levels and their passwords. The default user access level is Operator.

Touching **Special Functions>User Log-Off** switches the feed center to **No Operator** status. You cannot change any operating or setup parameters when the feed center is in **No Operator** status.

Table 3-1 User Access Levels

User Access Level	Password
Operator	0
Lead Operator	108
Supervisor	1597

System Configuration

See FIgure 3-1. From the **Special Functions** menu, touch the **System Config** button. The **Feed Center Configuration** menu appears.

Configure your feed center by touching the **Yes/No** buttons to identify the hardware in your feed center.

When you are finished with the settings on the **Feed Center Configuration** menu, touch either

- **Configuration Completed** to exit the configuration setup, or
- **Config System** to go to the **Spray System Configuration** menu. The **Spray System Configuration** menu allows you to specify the hardware included in the spray booth.

 Touch this button to view descriptions of the settings on the current menu.

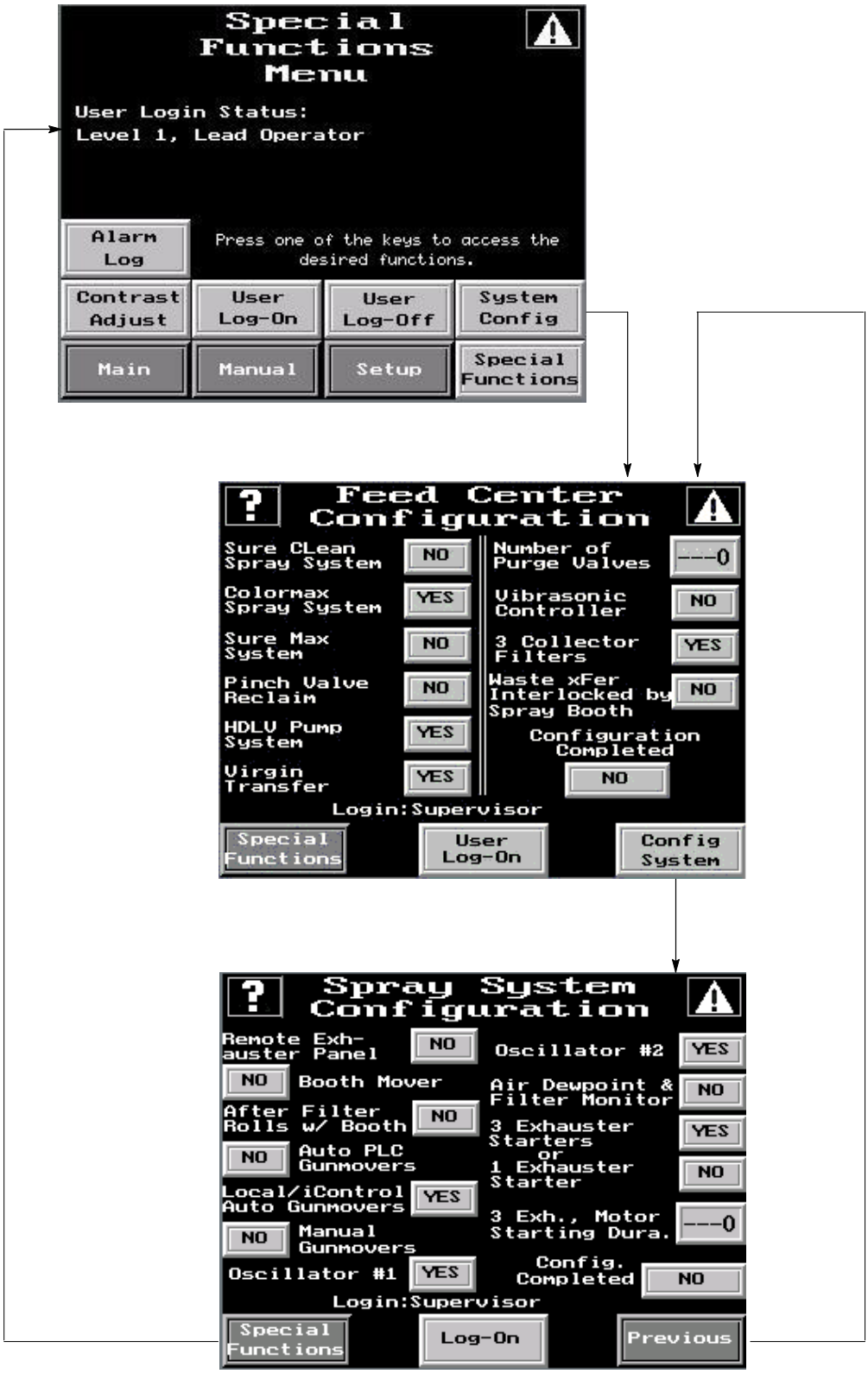


Figure 3-1 System Configuration Menus

System Setup

See Screen 3-1. The **Setup Menu** displays buttons that open the four setup menus.

Touch this button to view descriptions of the settings on the current menu.

Screen 3-1 Setup Menu

Note: The **Comp. Air** button is optional.

Compressed Air Setup (Optional Feature)

See Screen 3-2. From the **Setup Menu,** touch the **Comp. Air** button to show the optional **Compressed Air Setup** menu.

Screen 3-2 Compressed Air Setup Menu

Feed Center Setup

See Figure 3-2. From the **Setup Menu,** touch the **Feed Center** button to show the **Feed Center Setup** menu. Touch the **Next** and **Previous** buttons to switch between the two **Feed Center Setup** menus.

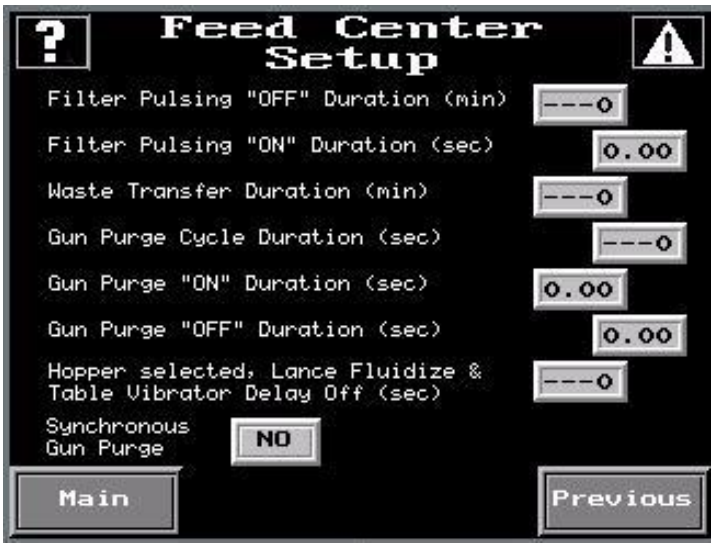


Figure 3-2 Feed Center Setup Menus

Spray Booth Setup

See Screen 3-3. From the **Setup Menu,** touch the **Spray Booth** button to show the **Spray Booth Setup** menu.

NOTE: Some of the settings on this menu are optional. They will only appear on systems that have an optional compressed air monitoring system.

Screen 3-3 Spray Booth Setup Menu

Powder Transfer System Setup

From the **Setup Menu,** touch the **Transfer** button to show the **Powder Transfer Setup** menu.

NOTE: Refer to your powder transfer system manual for more information about setting up the powder transfer system.

Typical Operating Settings

The settings listed here are approximate. You may need to adjust these settings to obtain the desired results.

Operating Air Pressures

Refer to Table 3-2 for a list of typical operating air pressures. These settings are average starting points. You may need to adjust these settings depending on your application.

Table 3-2 Typical Operating Air Pressures

Air Pressure	Setting
Input (Minimum)	6 bar (90 psi)
COLLECTOR PULSE	2.75 bar (40 psi)
COLLECTOR FLUIDIZE	0.5 bar (8 psi)
HOPPER FLUIDIZE	0.3 bar (5 psi)
COLLECTOR TRANSFER	2.75 bar (40 psi)
LANCE FLUIDIZE	0.3 bar (5 psi)

Cartridge Filter Pulse Valve Timing Settings

Refer to Table 3-3 for typical pulse valve timing settings. These settings are average starting points. You may need to adjust the settings if the feed center's cartridge filters are not being pulsed sufficiently.

Table 3-3 Typical Pulse Valve Timer Board Settings

Timer	Setting
Filter Pulse On Duration	0.07 seconds
Filter Pulse Off Duration	10 minutes

Level Sensor Programming

The level sensor probe #1 signals the lance assembly to lower to the appropriate level into a box of powder. An optional level sensor or probe #2 signals the bulk powder transfer and low powder alarm. Follow these procedures to program the level sensor probe to recognize the level of powder in the feed source.

There are two different kinds of sensor probes that are identified by the number of programming buttons on the probe.

One Button Level Sensor Probe Programming

When you program the level sensor probe, the powder feed center exhaust fan must be on and the **Lance/Purge Mode** must be set to **Manual**.

NOTE: Your system may have two level sensor probes. Perform the following procedures for both probes.

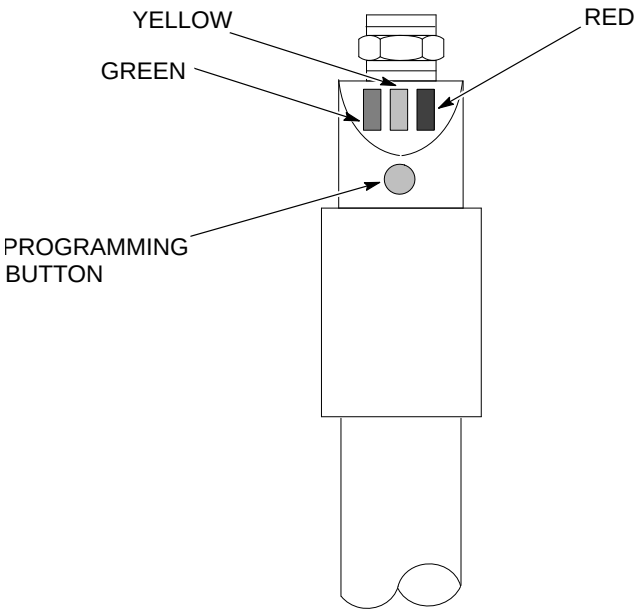


Figure 3-3 Programming the One Button Level Sensor Probe

LED Functions

LED Color	Status	Meaning
Green	Lit continuously	Ready for operation (power is on)
Yellow	Lit continuously	Output has switched (powder is detected; full condition)
Yellow and Red	Flashing quickly	Short circuit of the switching output
Red	Lit temporarily	Normal function check; level sensor probe is approaching the full state
	Lit continuously	Level sensor probe is dirty or out of adjustment.

Empty (no powder) Adjustment

NOTE: Completing the *Empty Adjustment* overwrites the values set in the *Full Adjustment*. If you complete an *Empty Adjustment,* be sure to complete a *Full Adjustment*.

1. Put a box or hopper of powder on the vibratory table.
2. From the **Auto Menu**, touch the **LANCE DOWN** button. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the tip of the level sensor probe.
3. From the **Auto Menu**, touch the **LANCE UP** button. Raise the lance assembly so that the bottom of the level sensor is at least 25 mm (1 in.) away from the top level of the powder.
4. See Figure 3-3. Press the programming button until the green LED flashes slowly. When the green LED stops flashing and the yellow LED turns off, the empty adjustment is complete.

   NOTE: If the programming button remains pressed after the green LED flashes slowly, the green light will eventually start to flash quickly, signaling the programming for the Full Adjustment instead of the Empty Adjustment. To correct the error in programming, repeat the steps from the beginning for programming the Empty Adjustment.

Full Adjustment

NOTE: You may complete the *Full Adjustment* as often as you like without overwriting the *Empty Adjustment* value.

1. Place a box or hopper of powder on the vibratory table.
2. From the **Auto Menu**, touch the **LANCE DOWN** button. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the tip of the level sensor probe.
3. See Figure 3-3. Press the programming button until the green LED flashes quickly.

   The green LED flashes slowly at first, then after five seconds it flashes quickly. When both the green and yellow LEDs are lit continuously, the full adjustment is complete.

Locking and Unlocking Adjustment

The level sensor probe can be locked to protect it from unauthorized adjustment. Use these guidelines to lock or unlock the level sensor probe.

NOTE: The level sensor probe is shipped from the factory in the unlocked state.

Task	Procedure
Locking	Press the programming button for 10 seconds. The green LED will flash slowly for five seconds, then it will flash quickly. When the green LED turns off, the level sensor probe is locked. When the green LED turns back on continuously, the level sensor probe is ready for operation.
Unlocking	Press the programming button for 10 seconds. After 10 seconds, all LEDs turn off, indicating that the level sensor probe is unlocked.

Operational Faults (Red LED Flashing)

If either the empty or full adjustment cannot be completed, the probe's red LED flashes quickly.

Task	Procedure
Clearing a Fault	Clear the fault by either: • pressing the programming button once, or • turning off power to the feed center, then turning it back on again.
Correcting Possible Causes for the Fault	Check for and correct any of these possible causes for the fault: • The difference between the empty and full states is not great enough. • The empty adjustment was completed while the level sensor probe was in the powder, or the full adjustment was completed while the level sensor probe was out of the powder. • During the empty adjustment, the distance between the level sensor probe and the powder was too short.

Two Button Level Sensor Probe Programming

When you program the level sensor probe, the powder feed center exhaust fan must be on and the **Lance/Purge Mode** must be set to **Manual**.

NOTE: Your system may have two level sensor probes. Perform the following procedures for both probes.

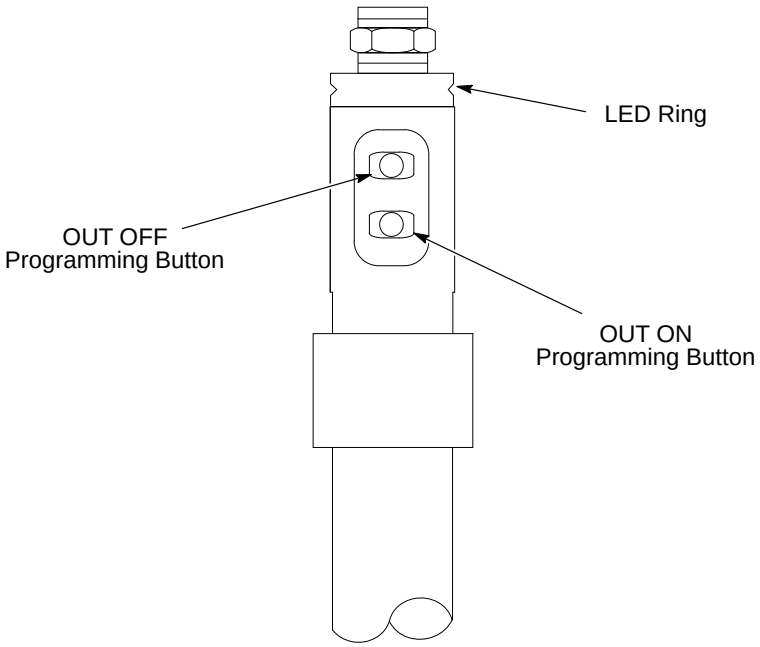


Figure 3-4 Programming the Two Button Level Sensor Probe

LED Functions for Operation

LED Color	Status	Meaning
Green	On	Material not detected
Yellow	On	Material detected

Empty Adjustment

1. Put a box or hopper of powder on the vibratory table.
2. From the **Auto Menu**, touch the **LANCE DOWN** button. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the tip of the level sensor probe.
3. From the **Auto Menu**, touch the **LANCE UP** button. Raise the lance assembly so that the bottom of the level sensor is at least 25 mm (1 in.) away from the top level of the powder.
4. See Figure 3-4 Press the OUT OFF programming button until the LED ring slowly flashes yellow.
5. Release the button and the yellow light will go off. The empty adjustment is complete.

Full Adjustment

1. Place a box or hopper of powder on the vibratory table.
2. From the **Auto Menu**, touch the **LANCE DOWN** button. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the tip of the level sensor probe and LED ring should light up yellow.
3. See Figure 3-4. Press the OUT ON programming button until the yellow light from the LED ring goes from flashing slowly to flashing quickly.
4. Release the button and the LED ring lights yellow continuously. The full adjustment is complete.

Locking and Unlocking Adjustment

The level sensor probe can be locked to protect it from unauthorized adjustment. Use these guidelines to lock or unlock the level sensor probe.

NOTE: The level sensor probe is shipped from the factory in the unlocked state.

Task	Procedure
Locking	Simultaneously press the two programming buttons for at 10 seconds in the operating mode. Once the LED ring light changes its status for a brief moment, release the buttons, and the lock is complete.
Unlocking	Simultaneously press the two programming buttons for at 10 seconds in the operating mode. Once the LED ring light changes its status for a brief moment, release the buttons, and the unlock is complete.

Operational Faults

If the sensor deviates from normal operation, use the following steps to return to normal operation.

Task	Procedure
Return to Normal Operation	Check for and correct any of these possible causes for incorrect operation: • The difference between the empty and full states is not great enough. • The empty adjustment was completed while the level sensor probe was in the powder, or the full adjustment was completed while the level sensor probe was out of the powder. • During the empty adjustment, the distance between the level sensor probe and the powder was too short.

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.

Introduction

NOTE: If you are using the powder feed center with a quick color change system, refer to your quick color change system manual for procedures for operating the powder feed center with the system.

The PLC in the powder feed center control panel controls most of the automatic processes in a typical system. Your Nordson application engineer typically programs and configures the PLC to suit your application requirements.

NOTE: Your feed center may not have all of the functions that are identified in this section.

Operator Interface Menus

The following paragraphs explain the functions of the basic menus that appear on the feed center operator interface. The menus shown are typical. Your feed center menus may appear slightly different.

 Touch this button to view descriptions of the settings on the current menu.

 When this button appears, touch it to view alarm messages. Refer to the *Troubleshooting* section for more information.

Main Menu

See Screen 4-1 and refer to Table 4-1.

The **Main Menu** is the first menu that appears when you start up the powder feed center for normal operation. Touching the buttons at the bottom of the menu allow you to access the feed center controls.

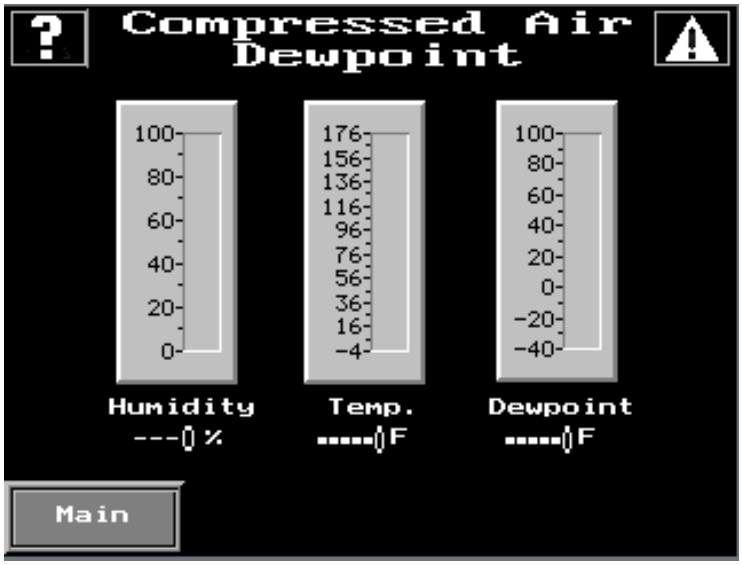
Screen 4-1 Main Menu

Table 4-1 Main Menu Buttons

Button	Function
Comp. Air Status (optional feature)	Displays the current humidity, temperature, and dewpoint of the compressed air supply, if applicable. Refer to *Compressed Air Status* on page 4-3.
Auto	Displays the **Auto Menu**, where automatic functions are started and stopped. Refer to *Auto Menu* on page 4-3.
Manual	Displays the **Manual Menu**, which allows you to navigate to menus that allow manual control of the feed center, spray booth, afterfilter, and gun blowoff functions. Refer to *Manual Functions* on page 4-4.
Setup	Displays the **Setup Menu**, which allows you to set operating parameters for the feed center. Refer to the *Initial Setup* section.
Special Functions	Displays the **Special Functions Menu**, which allows you to set the types of hardware in the feed center, view the alarm log, and log on or off. Refer to the *Initial Setup* section.
Booth Move (optional feature)	Displays the **Booth Move Control** menu, which allows you to move the powder spray booth on and off line, if applicable. Refer to *Booth Move* on page 4-5.

Compressed Air Status (Optional Feature)

See Screen 4-3. The **Compressed Air Dewpoint** menu shows the status of the powder feed center air supply.



Screen 4-2 Compressed Air Status Menu

Auto Menu

See Screen 4-3. The **Auto Menu** allows the operator to control the automated functions of the powder feed center.

Screen 4-3 Auto Menu

Manual Functions

See Figure 4-5. Your system may have other manual functions. Refer to your powder coating system manual for information about functions not explained in this manual.

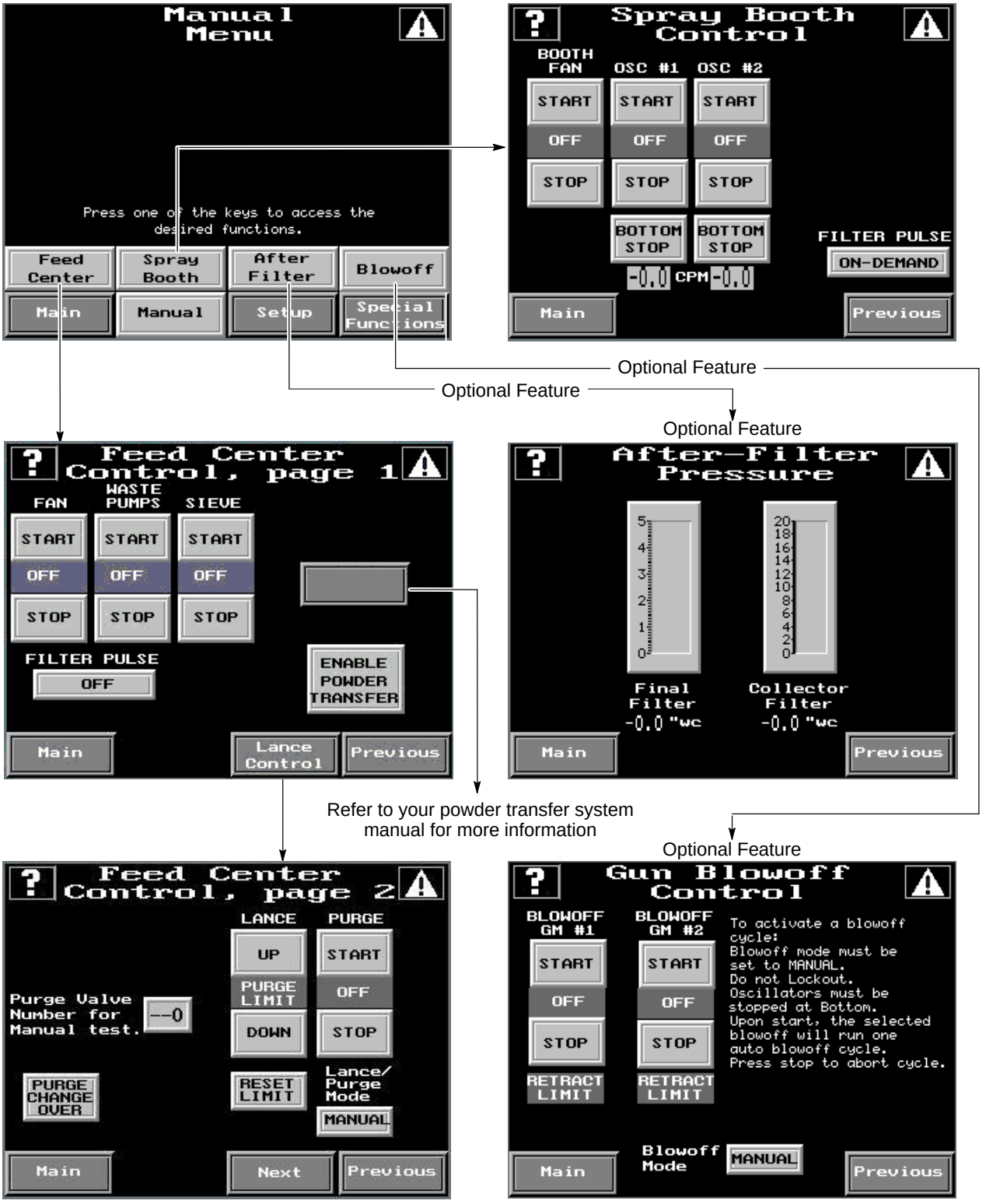


Figure 4-5 Manual Feed Center Control Menus

Booth Move

See Screen 4-3. Refer to *Booth Moving* on page 4-10 for instructions for using the **Booth Move Control** menu.

NOTE: The **Booth Move Control** menu is only included with feed centers that are part of a roll-on/roll-off powder coating system in which the afterfilter assembly does not roll with the spray booth.

Screen 4-4 Booth Move Control Menu

Security System

You must log on to the powder feed center operator interface before you may operate the powder feed center.

There are three user access levels. Not all users have access to adjust all functions of the powder feed center.

Logging On

See Screen 4-5. Touch the **User Log-On** button on the **Special Functions Menu** to log on to the powder feed center. Refer to Table 4-2 for a list of the three user access levels and their passwords. The default user access level is Operator.

Table 4-2 User Access Levels

User Access Level	Password
Operator	0
Lead Operator	108
Supervisor	1597

Logging Off

Touch **Special Functions>User Log-Off** switches the feed center to **No Operator** status. You cannot change any operating or setup parameters when the feed center is in **No Operator** status. If there is no activity on the operator interface for 60 minutes, the current operator will be automatically logged off.

Screen 4-5 Logging On and Logging Off: Special Functions Menu

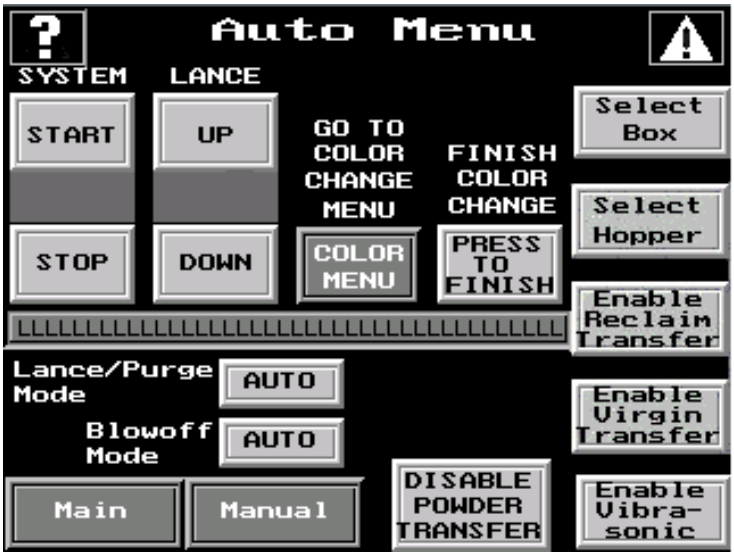
Daily Startup

NOTE: These procedures assume that the powder coating system (including the feed center) has been cleaned and is in the online position.

1. Turn the powder feed center control panel disconnect switch to the on position.
2. See Screen 4-6. From the **Auto Menu**, touch the **SYSTEM START** button. All of the components of the powder coating system turn on.
3. Install the appropriate feed source. Refer to *Powder Feed Source Installation* for instructions on installing the feed source.

NOTE: Make sure that the **Lance/Purge Mode** is set to **AUTO**.

4. Touch the **Select Box** or **Select Hopper** button to match the feed source installed. The button text will change to either **BOX Selected** or **HOPPER Selected** and the lance assembly will move down to the position appropriate for the feed source.



Screen 4-6 Auto Menu

5. Adjust the fluidizing air pressure:
   - **Powder Box:** Adjust the needle valve on the lance assembly.
   - **Fluidizing Hopper:** Adjust the fluidizing air at the powder feed center pneumatic panel. (Recommended setting: 0.3 bar (5 psi))
6. Enable the following functions (as applicable):

Button	Function
Enable Powder Transfer	Enables the powder transfer system
Enable Reclaim Transfer	Reclaims oversprayed powder as it collects in the transfer pan
Enable Virgin Transfer	Enables the optional bulk virgin powder feed system
Enable Vibrasonic	Enables the optional Vibrasonic sieve screen

7. Start spraying powder. Refer to your gun control system manual for information about gun triggering.

Powder Feed Source Installation

Use one of the following procedures to install a powder feed source into the powder feed center.

Powder Box Installation

1. On the **Auto Menu**, set the **Lance/Purge Mode** to **MANUAL**.
2. Touch the **LANCE UP** button to raise the lance assembly.
3. Open the box of powder and place it on the vibratory table.
4. Make sure that the box is centered under the lance assembly, then secure the box to the vibratory table using the box guides and clamping levers.
5. Touch the **Select Box** button. The button's text changes to **BOX Selected**.
6. Set the **Lance/Purge Mode** to **AUTO**.

When all feed center modes are set to **AUTO**, the lance assembly lowers as the powder level falls. When the level sensor senses that the lance assembly has lowered below the box limit, the sensor activates control for either a low-powder alarm or automatic bulk feed.

Fluidizing Hopper Installation

1. On the **Auto Menu**, set the **Lance/Purge Mode** to **MANUAL**.
2. Touch the **LANCE UP** button to raise the lance assembly.
3. Remove the front box guide from the vibratory table and set it aside.
4. Place the hopper on the vibratory table. Make sure that the hopper is centered under the lance assembly, then remove the lid from the hopper.
5. Connect the fluidizing air tubing to the air fitting on the hopper.

   NOTE: Adjust the fluidizing air pressure at the feed center pneumatic panel as necessary.
6. Touch the **Select Hopper** button. The button's text changes to **HOPPER Selected**.
7. Set the **Lance/Purge Mode** to **AUTO**.

When all feed center modes are set to **AUTO**, the lance assembly lowers to the hopper limit position and stays there. If the optional bulk feed level sensor does not sense powder, the sensor activates control for a low-powder alarm or automatic bulk feed.

Color Change

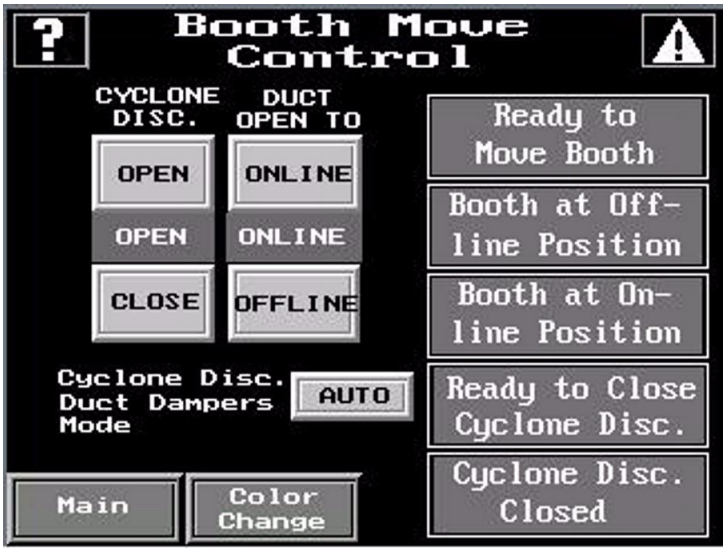
Refer to your powder transfer system manual for color change procedures.

Booth Moving (Optional Feature)

See Screen 4-7. The cyclone disconnect is the device that closes the space between cyclone outlet and the duct that leads into the afterfilter. The duct dampers direct the airflow into the afterfilter from either the online or offline position of the booth.

The booth mover and dampers are interlocked using limit switches so that the booth cannot be moved if the cyclone disconnect is in the closed position.

The cyclone disconnect and duct dampers may be controlled either automatically or manually, depending on how the **Cyclone Disc. Duct Dampers Mode** button is set.



Screen 4-7 Booth Move Control Menu

Auto Mode Operation: Booth Move Control

NOTE: See Screen 4-7. Make sure the **Cyclone Disc. Duct Dampers Mode** button is set to **AUTO**.

1. Press the **Mover Enable** button on the main booth electrical panel. This causes the following things to happen:
   - The booth mover buzzer emits short, fast beeps
   - The cyclone disconnect opens
   - The **Ready to Move Booth** and **Cyclone Disc. Closed** indicators on the **Booth Move Control** menu will light
   - The booth mover is enabled
2. Press and hold the appropriate **Booth Move** direction button on the pendant connected to the main booth electrical panel. As the booth moves, the booth mover buzzer will emit long, slow beeps.
3. When the booth reaches the end of its travel, release the **Booth Move** direction button. The **Booth at Off-line Position** or **Booth at On-line Position** indicator will light.
4. Press the **Mover Enable** button on the main booth electrical panel to disable the booth mover and close the cyclone disconnect.

Manual Mode Operation: Booth Move Control

NOTE: See Screen 4-7. Make sure the **Cyclone Disc. Duct Dampers Mode** button is set to **MANUAL**.

1. Touch the **CYCLONE DISC. OPEN** button on the **Booth Move Control** menu. **Ready to Move Booth** indicator will light.
2. Press the **Mover Enable** button on the main booth electrical panel. This causes the following things to happen:
   - The booth mover buzzer emits short, fast beeps
   - The booth mover is enabled
3. Press and hold the appropriate **Booth Move** direction button on the pendant connected to the main booth electrical panel. As the booth moves, the booth mover buzzer will emit long, slow beeps.
4. When the booth reaches the end of its travel, release the **Booth Move** direction button. The **Booth at Off-line Position** or **Booth at On-line Position** indicator will light.
5. Touch the **CYCLONE DISC. CLOSE** button on the **Booth Move Control** menu. The **Cyclone Disc. Closed** indicator will light.

Shutdown

1. Move the system offline, if applicable. Refer to *Booth Moving* on page 4-10.
2. Clean the system by performing the color change process, but do not install a new powder source. Refer to your powder transfer system manual for instructions.

NOTE: If you are shutting down the system for a short break in production, do not perform steps 3 or 4.

3. See Screen 4-6. From the **Auto Menu**, touch the **SYSTEM STOP** button. All components in the powder coating system turn off.
4. If you will be shutting down the powder feed center for maintenance, repair, or an extended period of time, perform these steps:
   a. Press the SYSTEM STOP button on the system control panel.
   b. Turn the electrical disconnect switch on the powder feed center control panel to the off position.

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.

Daily Maintenance

NOTE: You may need to perform these procedures more or less often, depending on your application requirements.

Table 5-1 Daily Maintenance Procedures

Component	Maintenance Procedure
Sieve	Disassemble and clean the sieve. Inspect the sieve screen and replace it if there is impact fusion present or the screen is damaged.
Cables and Feed Hoses	Check all external cables and powder feed hoses for damage. Replace them if necessary.
Waste Hopper	Turn off the exhaust fan and check the level of powder in the waste hopper. If the powder level is above $^1/_2$ full, empty the waste hopper. Refer to *Emptying the Waste Hopper* on page 5-2.
Pumps	Disassemble the pumps and blow off their parts with low-pressure, compressed air. Replace any worn parts.
Cartridge Filters	Check the seals around the cartridge filters. If the cartridge filters are not sealing properly, tighten them.
Powder Supply	Check the powder supply level regularly and add powder as necessary.

Emptying the Waste Hopper

NOTE: You may choose to have a single, shared scrap drum for the feed center and the booth after filter. In this application, the scrap transfer hose may remain connected to the scrap drum at all times, allowing you to frequently empty the feed center waste hopper to keep the powder level down.

1. See Figure 5-1. Secure the waste lid to an empty 55-gallon drum (3).
2. Connect the ground clamp (4) to a true earth ground.
3. Attach a $^{3}/_{4}$-in. transfer hose (2) between the transfer pumps (5) and the waste lid. Use hose clamps on both ends of the transfer hose.

NOTE: Make sure that all unused hose connectors on the waste lid are plugged.

4. Attach the vent hose (1) to the waste lid vent stub. Attach the other end of the vent hose to the vent stub (6) on the feed center.
5. Touch the **WASTE PUMPS START** button on the **Manual Feed Center Control, page 1** menu. The fluidizing and flow air will turn on and the powder will be drawn out of the waste hopper.

NOTE: The normal operating air pressure for the transfer pump is 2.75 bar (40 psi). The normal fluidizing air pressure is 0.5 bar (8 psi). Adjust the air pressures as needed at the feed center control panel.

6. When the transfer pump is not drawing any more powder out of the waste hopper, touch the **WASTE PUMPS STOP** button.

NOTE: The waste transfer process will automatically stop after several minutes. The duration of the waste transfer process may be changed on the **Feed Center Setup** menu.

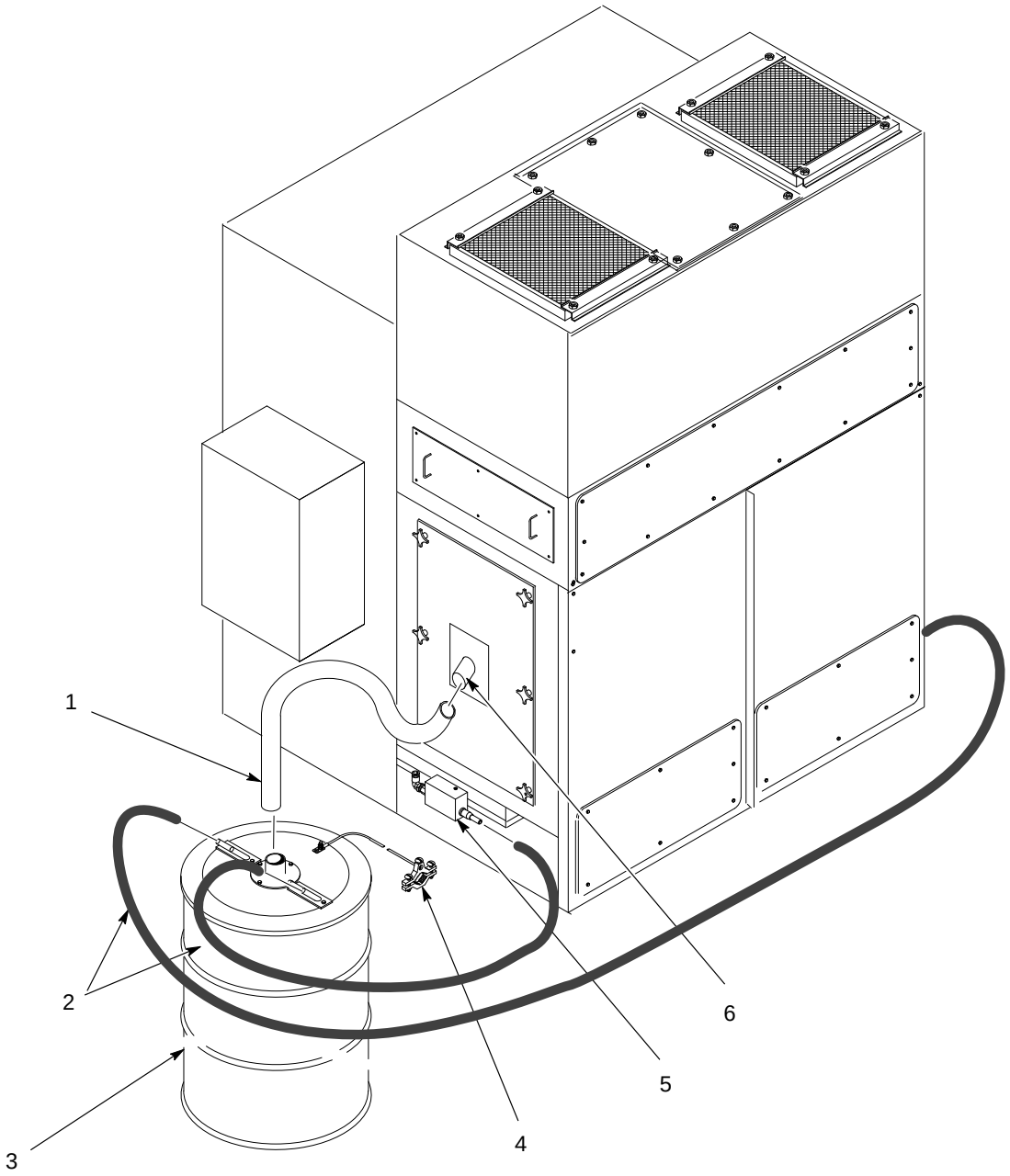


Figure 5-1 Emptying the Waste Hopper

1. Vent hose
2. $^{3}/_{4}$-in. Transfer hoses
3. Scrap drum with lid
4. Ground clamp
5. Transfer pump
6. Feed center vent stub

Periodic Maintenance

NOTE: You may need to perform these procedures more or less often, depending on your application requirements.

Table 5-2 Periodic Maintenance Procedures

Component	Maintenance Procedure
Airflow	Take regular airflow readings. A properly functioning powder feed center should provide a face velocity of around 125 fpm. A lower reading indicates clogged filters or a malfunctioning fan.
Fan Motor	Perform the following checks regularly. Problems will be apparent if you notice changes in the following factors. • Pay attention to changes in vibration and noise levels. • Take current readings regularly. • Check all electrical connections regularly.
Cartridge Filters/Final Filters	Check the differential pressure gauges on the pneumatic panel. • **Cartridge Filters:** pulsing on demand at 3-in. wc • **Final Filters:** warning at 4-in. wc; shutdown at 5-in. wc Check all filters and replace them if necessary. Remove the final filters and inspect the fan housing. Signs of powder inside the fan section indicate a leaking cartridge filter.
Compressed Air System	Open the drop leg and use a clean, white cloth to check for contaminants. Correct any problems immediately.
Electrical System	Tighten all electrical connections and inspect for loose or broken wires. Check the electrical system for electrical safety every 12 months. The system must comply with all local, state, and federal codes.

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.

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

Table 6-1 Powder Supply Problems

No.	Problem	Page
1.	Spray guns are surging or spitting; powder flow is inadequate or intermittent	6-3
2.	Powder in feed source contaminated	6-3
3.	Powder in feed source not fluidizing, or clouds of powder erupting from surface	6-3
4.	Powder escaping from enclosure openings	6-4

Table 6-2 Color Change Problems

No.	Problem	Page
1.	Purge cycle will not start	6-5
2.	Guns' external blowoff cycle will not start	6-5
3.	Purge air does not activate for all purge manifolds	6-5

Table 6-3 Sieve Problems

No.	Problem	Page
1.	Vibrator does not start	6-8
2.	Powder build up on sieve mesh	6-8
3.	Excessive sieve noise	6-8
4.	Contaminants in powder in feed source	6-8

Table 6-4 Filter Section Problems

No.	Problem	Page
1.	Fan will not start	6-9
2.	Loss of extraction	6-9
3.	Final filters clogged; powder in the fan section	6-9
4.	Fan stops unexpectedly	6-9

Table 6-5 Other Problems

No.	Problem	Page
1.	Vibratory table will not start	6-10
2.	No or limited response to commands from operator interface	6-10
3.	No display at operator interface	6-10

Powder Supply Problems

Problem	Possible Cause	Corrective Action
1. Spray guns are surging or spitting; powder flow is inadequate or intermittent	Insufficient air volume in feed hose; powder is settling out	Increase the atomizing air pressure and decrease the flow rate air pressure. Refer to the spray gun and control unit manuals for recommended air pressures and ratios.
	Powder in feed source inadequately fluidized; cavities forming in powder below pickup tube ends	Adjust the fluidizing air pressure. The powder should be gently boiling. Refer to problem 3.
	Low powder level in feed source	Add powder to the feed source. Refer to problem 3.
	Powder pump venturi nozzles or throats worn; pickup tube sucking air at connection to pump mounting arm; pump or pickup tube clogged	Clean the pump and pickup tube. Replace any worn parts. Replace any damaged O-rings.
	Obstruction in powder feed hose	Disconnect the feed hose from the pump. Blow the powder out of the hose with compressed air. Make sure the hose is clear. Eliminate kinks or severe bends in the hose. The hose should be no longer than 7.6 m (25 ft) with a maximum 2.7-m (9-ft) vertical rise.
	Severe tribo-charging in powder feed hose	Contact your Nordson Corporation representative for a suitable hose material. Contact your powder supplier.
	Obstruction in spray gun	Clean the spray gun. If you are using conical nozzles, make sure there is a 3 mm (0.125 in.) or larger gap between the deflector and the nozzle.
2. Powder in feed source contaminated	Sieve screen damaged	Replace the sieve screen.
	Sieve screen not thoroughly cleaned before installation	Remove and clean the sieve screen.
3. Powder in feed source not fluidizing, or clouds of powder erupting from surface	Fluidizing air pressure too low or too high	Check the powder in the feed source. Increase the fluidizing air pressure until the powder is gently boiling. Decrease the pressure if clouds of powder are erupting from the surface.
	Moist or oil-contaminated powder	Open the drain valve at the air-supply drop leg and check the air supply for water or oil. Check the filters, separators, and air dryer. Replace the powder in the feed source. Refer to the next possible cause.

Continued...

Problem	Possible Cause	Corrective Action
3. Powder in feed source not fluidizing, or clouds of powder erupting from surface *(contd)*	**Systems with fluidizing hopper only:** Fluidizing plate gasket leaking, or fluidizing plate plugged, cracked, or installed incorrectly	Check for air leaks around the fluidizing plate gaskets. If leaks are found, remove the plate and replace the gasket. Remove the fluidizing plate from the fluidizing box. Inspect it for stains, discoloration, polished surfaces, or cracks. Replace the fluidizing plate if it is contaminated, plugged, or damaged. Plate should be installed with smooth surface up (in contact with powder).
	Incorrect ratio of reclaimed-to-new powder	Increase or decrease the transfer rate. Add new powder to feed source. The powder supply should be no more than three parts reclaim-to-one part new powder.
	Uneven distribution of powder in feed source	Check the powder and the fluidizing plate for contamination as previously described.
	Vibratory table isolator mounts loose or damaged	Inspect the vibratory table isolator mounts. Tighten or replace them as necessary. Refer to *Vibratory Table Isolator Mount Replacement* in the *Repair* section.
4. Powder escaping from enclosure openings	Cartridge filters clogged; exhaust fan draw insufficient to retain powder within enclosure	Check the cartridge filter pulse sequence and pulse the cartridge filters for 30 minutes. Replace the cartridge filters if necessary.
	Cross drafts interfering with exhaust fan draw	Check for cross drafts at the enclosure opening. Eliminate or divert drafts.
	Fan rotation backward	Reverse the rotation of the motor. Refer to the *Reversing Motor Direction* procedure in this section.
	Access panels not sealed	Tighten all access panels. Check and replace the panel gaskets as necessary.
	Cartridge filters leaking	Check the cartridge filter mounting seal. Tighten or replace the cartridge. Check the cartridge filters for punctures. Replace as necessary.
	Powder feed hose leak	Check the powder feed hose for leaks or damage. Replace as necessary.
	Powder pump leak	Check all pump O-rings. Replace any damaged O-rings.
	Gaps in enclosure seams or gaskets	Caulk seams or replace gaskets.

Color Change Problems

Problem	Possible Cause	Corrective Action
1. Lance moved down, but purge cycle will not start	Purge limit sensor and stop bolts out of alignment	Realign the sensor and stop bolts using the *Purge Position Sensor and Stop Bolt Realignment* procedure.
	External gun blowoff cycle not completed	Refer to the Color Change section of your powder transfer system manual for the correct color change sequence. Check the motor and drive components of the gun movers
	Purge limit switch at gun mover tripped before purge cycle starts	Check gun mover purge limit switch alignment.
	Purge cycle disabled	Enable the system using either the OPERATION keyswitch on the main system electrical panel.
2. Guns' external blowoff cycle will not start	Oscillator not at bottom of stroke; proximity sensor not on	The oscillator's bottom of stroke proximity sensor must be turned on for the entire color change cycle. Check that the oscillator is stopped at the bottom of stroke and that the sensor is on. (Check the manual **Spray Booth Control** screen. See Figure 4-5.) Check the mounting position of the proximity sensor. The sensor should be adjusted to position its face within $^1/_8$ in. of the surface to be detected. Check connections at the sensor and sensor cable.
	Gun mover disabled	Enable the gun mover using either the OPERATION keyswitch on the main system electrical panel or the iControl system.
3. Purge air does not activate for all purge manifolds	Feed center configuration incorrect	See FIgure 3-1. Go to the **Feed Center Configuration** menu and set the number of purge valves to the correct number.
	Purge valve failure	There is one purge valve per purge manifold. Check the purge valve operation and wiring.
		 **WARNING:** High air pressure. Use caution when servicing or actuating the purge valves.

Purge Position Sensor and Stop Bolt Realignment

See Figure 6-1.

1. Remove the feed source from the powder feed center.
2. From the **Color Change** menu, touch the **Lance/Purge Mode** button so that it displays **MANUAL**.

NOTE: To ensure that all lance assemblies will lower to the same location, make the same adjustments to both stop bolts.

3. Touch the **LANCE DOWN** button to lower the lance assembly. Lower the lance assembly until the pickup plates (9) fully engage with the purge manifolds (10).

   If the pickup plates do not engage the purge manifolds, turn both stop bolts (8) clockwise one turn and touch the **LANCE DOWN** button again. Repeat if necessary.

4. Turn both stop bolts counterclockwise until their heads are firmly against the bottom of the linear slide (6). When both stop bolts are firmly in place, lock them into position using the jam nuts (7).

NOTE: Figure 6-1 shows the typical locations of the three sensors on the cylinder rod. Use these dimensions only as a starting point for aligning the sensors.

5. Loosen the sensor bracket (4) and slide it up and down the cylinder rod until the LED (5) illuminates. With the LED illuminated, tighten the sensor bracket.
6. Use the **LANCE UP/DOWN** buttons to make sure that the sensor LED illuminates when the pickup plates engage the purge manifolds. Readjust the stop bolts and sensor if necessary.

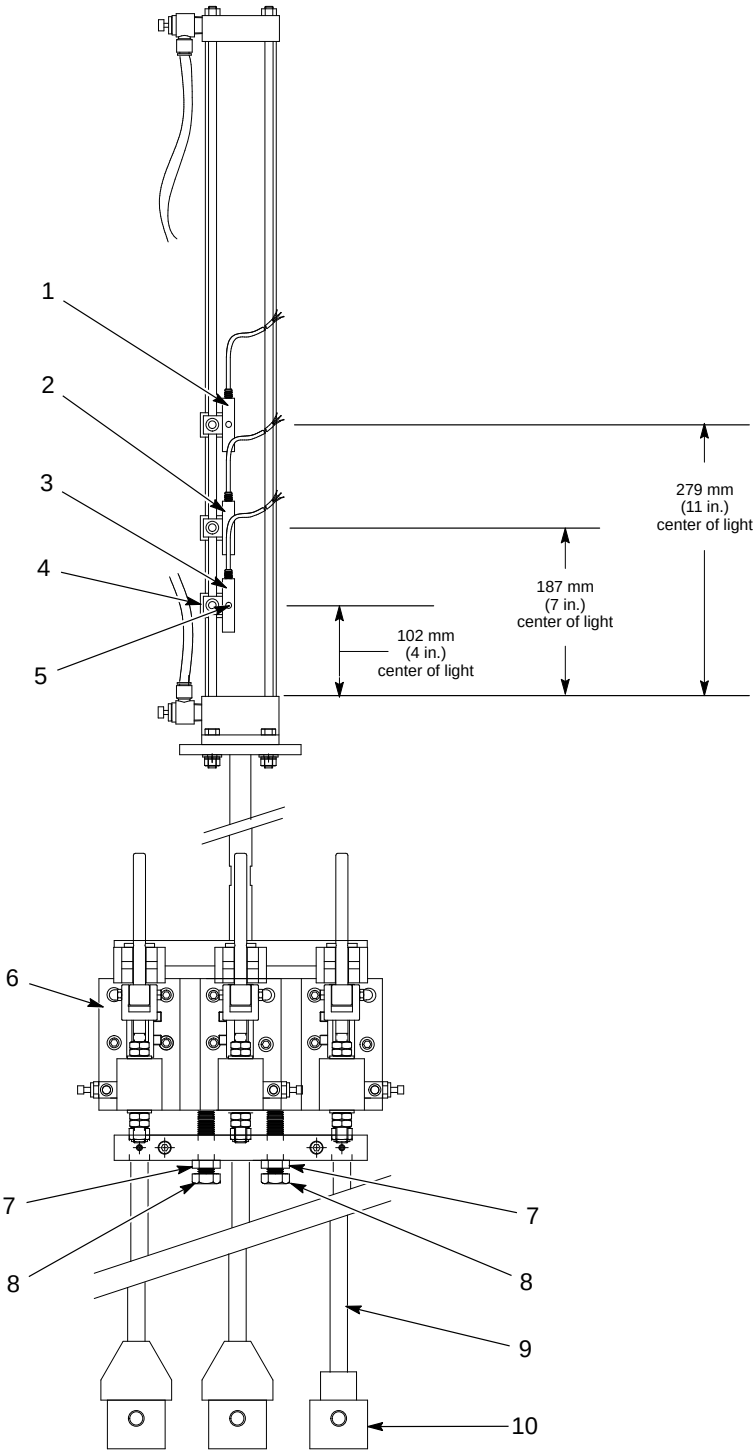


Figure 6-1 Purge Position Sensor and Stop Bolt Realignment

1. Hopper stop sensor
2. Box stop sensor
3. Purge position sensor
4. Sensor bracket
5. Sensor LED
6. Linear slide
7. Jam nuts
8. Stop bolts
9. Pickup plate
10. Purge manifold

Sieve Problems

Problem	Possible Cause	Corrective Action
1. Vibrator does not start	Power is off	Turn on the power supply.
	Fuse failure	Replace any blown fuses.
	Overload activated	Reset the overload.
	Wiring fault	Check the motor wiring. Repair or replace wiring as necessary.
	Motor failure	Check the motor. Replace the motor if necessary.
	Contactor fault	Repair or replace the motor contactor.
2. Powder build up on sieve mesh	Mesh not cleaned frequently enough	Clean the sieve mesh at more frequent intervals. Upgrade to Vibrasonic sieve screen if necessary.
	Mesh size too small for powder being used	Use a sieve screen with a larger mesh size. Upgrade to Vibrasonic sieve screen if necessary.
3. Excessive sieve noise	Sieve deck or underpan not secure	Tighten the clamps securing the sieve deck and underpan to the sieve.
	Knobs or clamps not tightened; isolators loose or damaged; rubber sleeves damaged	Make sure the clamps are tight. Check the isolators for looseness or damage. Tighten the isolator mounting screws. Check the rubber sleeves for damage and replace them if necessary.
4. Contaminants in powder in feed source	Sieve screen torn	Replace the screen.

Filter Section Problems

Problem	Possible Cause	Corrective Action
1. Fan will not start	Power is off	Turn on the power supply.
	Fuse failure	Replace any blown fuses.
	Motor overload protector tripped	Reset the overload protector.
	Wiring fault	Check the motor wiring. Repair or replace wiring as necessary.
	Motor failure	Check the motor. Replace the motor if necessary.
	Contactor fault	Repair or replace the motor contactor.
2. Loss of extraction	Cartridge filters clogged	Check the cartridge filter pulse sequence and pulse the cartridge filters for 30 minutes. Replace the cartridge filters if necessary.
	Pulse pressure too low	Set the pulse air pressure to 2.75 bar (40 psi).
	Pulse valve fault	Replace the pulse valve.
3. Final filters clogged; powder in the fan section	Leaking cartridge filter gaskets, or damaged filter media	Make sure the gaskets are sealing correctly. If you can slip a 0.4-mm (0.015-in.) feeler gauge between the gasket and the sealing surface, tighten the mounting nuts to compress the gaskets. If the gaskets continue to leak, remove the cartridges. Clean and inspect the gaskets, sealing surfaces, and filter media. Replace the cartridges if the gaskets or filter media are damaged. Replace clogged final filters. Refer to *Cartridge Filter Replacement* in the *Repair* section for instructions.
4. Fan stops unexpectedly	Final filter pressure too high	The final filter pressure switch is detecting abnormal pressure at the final filters. Refer to Problem 3 in this table.

Other Problems

Problem	Possible Cause	Corrective Action
1. Vibratory table will not start	Power is off	Turn on the power supply.
	Fuse failure	Replace any blown fuses.
	Motor overload protector tripped	Reset the overload protector.
	Wiring fault	Check the motor wiring. Repair or replace wiring as necessary.
	Motor failure	Check the motor. Replace the motor if necessary.
	Contactor fault	Repair or replace the motor contactor.
	Vibratory table not required for selected operation	When the hopper feed source is selected, the vibratory table is on for only a short time.
2. No or limited response to commands from operator interface	Communication lost between operator interface and feed center PLC	Check the cable connections between the operator interface and the PLC. Refer to the *Control Panel Diagrams* section in this manual.
	Operator interface /PLC communication module problem	The communication module connects the operator interface to the PLC. LEDs on the module indicate its status. If the LEDs are not lit, contact Nordson Customer Support.
	BYPASS keyswitch not in the OFF position	The BYPASS keyswitch is located in the feed center electrical panel to provide limited operation of the feed center if the operator interface fails. Make sure the BYPASS keyswitch is in the OFF position.
3. No display at the operator interface	No input power	Check the power supply to the feed center electrical panel.
	No 24 VDC power	Check the feed center electrical panel 24 VDC power supply and its circuit protector. Check the 24 VDC wiring and connections to the operator interface.
	Operator interface failure	Replace the operator interface. Nordson-specific program software must be installed. Contact Nordson Customer Support.

Section 7
Repair

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

Introduction

WARNING: Relieve system air pressure and lock out the air supply before performing the following tasks. Failure to observe this warning may result in personal injury.

This section contains basic repair instructions for the powder feed center. Repair procedures for other system components are covered in their own, separate manuals.

NOTE: Contact your Nordson representative about any powder feed center repair procedures that are not covered in this section.

Cartridge Filter Replacement

NOTE: Two people are required to replace the cartridge filters. One person removes hardware from above the cartridge filter. The other person removes the old filters and holds the new filters up against the mounting plate.

Removing the Cartridge Filter

See Figure 7-1.

WARNING: Relieve system air pressure and lock out the air supply before performing the following tasks. Failure to observe this warning may result in personal injury.

1. Remove the pulse valve and cartridge filter access panels (1, 2).
2. Pull up on the T-handle on the draw rod (8) to hold the cartridge filter (10) against the mounting plate (7).
3. Remove the nut, lock washer, flat washer, and mounting bracket (3, 4, 5, 6) from the draw rod. Save these parts for reuse.
4. Carefully lower the cartridge filter away from the mounting plate and out of the filter section. The centering bracket (9) and draw rod will stay in place.
5. Unscrew the draw rod and remove the draw rod and centering bracket from the old cartridge filter.

Installing the Cartridge Filter

See Figure 7-1.

1. Thoroughly clean the sealing surface on the underside of the mounting plate (7). A dirty surface will prevent the cartridge filter gasket from sealing properly and allow powder to leak into the fan section.
2. Remove the new cartridge filter (10) from its carton and inspect it for damage. Do not use damaged cartridge filters.
3. Set the centering bracket (9) into the open end of the new cartridge filter. Slide the draw rod (8) through the centering bracket. Screw the draw rod into the bottom of the cartridge filter.
4. Center the cartridge filter under the opening in the mounting plate. Use the draw rod T-handle to pull up the cartridge filter against the mounting plate.
5. Install the mounting bracket (6) on the draw rod, making sure that the slots in the mounting bracket slip over the T-handle.
6. Install the flat washer, lock washer, and nut (5, 4, 3) onto the draw rod. Do not tighten the nut at this time.
7. Slip the ends of the mounting bracket into the locating slots around the filter opening in the mounting plate.
8. Tighten the nut until the mounting and centering brackets are touching. This will compress the gasket (11) and seal the cartridge against the mounting plate.
9. Install the pulse valve and cartridge filter access panels (1, 2).

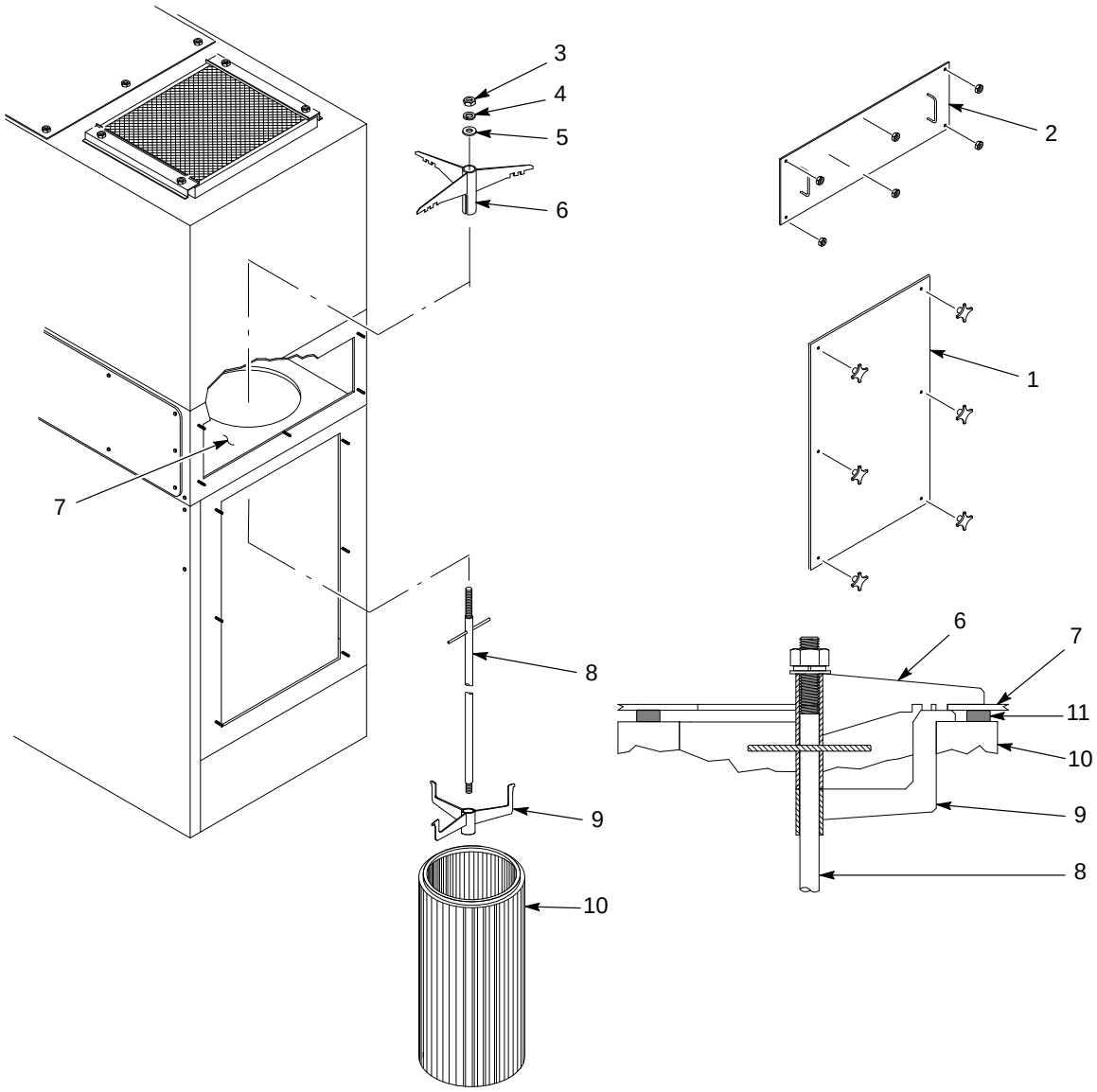


Figure 7-1 Cartridge Filter Replacement

1. Cartridge filter access panel
2. Pulse valve access panel
3. Nut
4. Lock washer
5. Flat washer
6. Mounting bracket
7. Mounting plate
8. Draw rod
9. Centering bracket
10. Cartridge filter
11. Gasket

Final Filter Replacement

WARNING: Relieve system air pressure and lock out the air supply before performing the following tasks. Failure to observe this warning may result in personal injury.

1. See Figure 7-2. Remove the final filter brackets (1).
2. Pull the old final filter (2) out of the powder feed center.
3. Inspect the inside of the fan housing. Vacuum out any powder that has accumulated inside the housing.

NOTE: If powder has accumulated inside the fan housing, check the cartridge filter media and gaskets. Tighten the cartridge filters' mounting hardware to compress the gaskets or replace the cartridge filters.

4. Remove the new final filter from its carton and inspect it for damage. Do not use damaged final filters.
5. Place the new final filter into the powder feed center.
6. Install the final filter brackets.
7. Tighten the bracket nuts to compress the final filter evenly on all four sides.

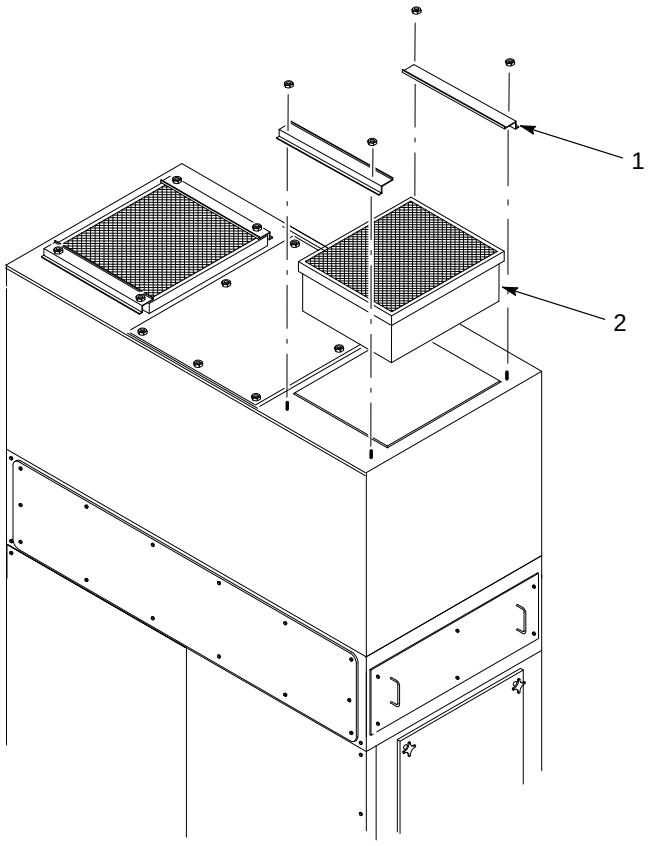


Figure 7-2 Final Filter Replacement

1. Brackets
2. Final filter

Pulse Valve Replacement

NOTE: Replace the pulse valves one at a time to avoid confusing which air tubing connects to which pulse valve.

WARNING: Relieve system air pressure and lock out the air supply before performing the following tasks. Failure to observe this warning may result in personal injury.

1. Relieve system air pressure and lock out the air supply.
2. See Figure 7-3. Remove the pulse valve access panel (5).
3. Disconnect the air tubing from the pulse valve's elbow fitting (2).
4. Unscrew the pulse valve (3) from the nipple (1).
5. Remove the nozzle (4) and elbow from the pulse valve.
6. Clean the threads of the nozzle, elbow, and nipple and wrap the threads with 2–3 layers of new PTFE tape.
7. Install the nozzle and elbow onto the new pulse valve.
8. Install the new pulse valve onto the nipple. Make sure that the pulse valve nozzle points straight down into the center of the cartridge filter.
9. Connect the air tubing to the elbow.
10. Install the pulse valve access panel and turn on system air pressure.

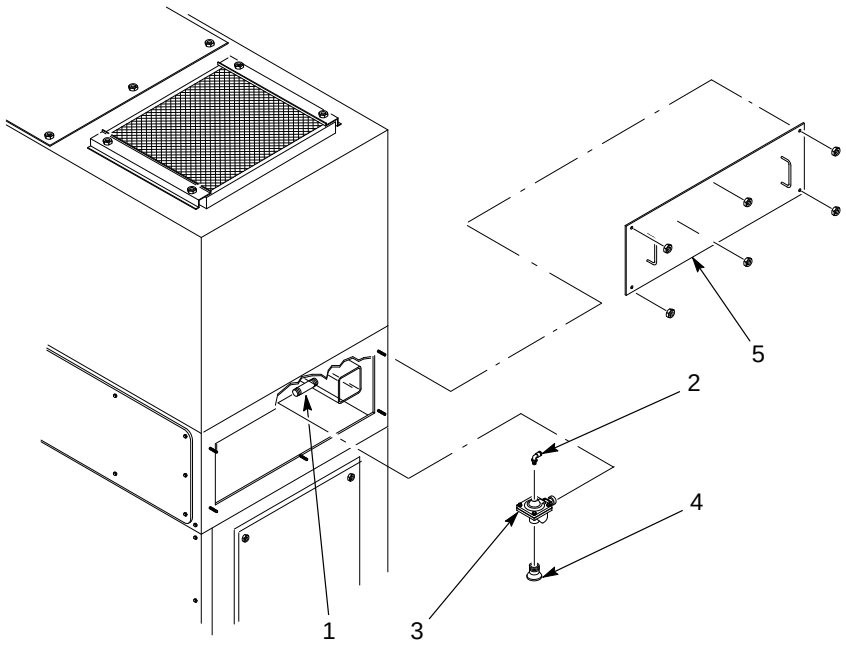


Figure 7-3 Pulse Valve Replacement

1. Nipple
2. Elbow
3. Pulse valve
4. Nozzle
5. Pulse valve access panel

Waste Hopper Fluidizing Plate Replacement

1. Empty as much powder as possible from the waste hopper. Refer to *Emptying the Waste Hopper* in the *Maintenance* section for more information.
2. See Figure 7-4. Remove the cartridge filter access panels (6) and vacuum out any remaining powder in the waste hopper.
3. Turn off and lock out power to the powder feed center.

NOTE: The retaining angles (4) secure the fluidizing plate (5) to the bottom of the waste hopper.

4. Remove the M6 screws (1), lock washers (2), and flat washers (3) securing the six retaining angles (4) to the fluid section.
5. Remove the retaining angles and fluidizing plate (5) from the waste hopper.
6. Set the new fluidizing plate smooth side up into the waste hopper.
7. Set the retaining angles on top of the fluidizing plate.

NOTE: As you tighten the retaining angles, push down on them to compress the fluidizing plate gasket evenly.

8. Secure the retaining angles and fluidizing plate to the waste hopper using the screws, lock washers, and flat washers.

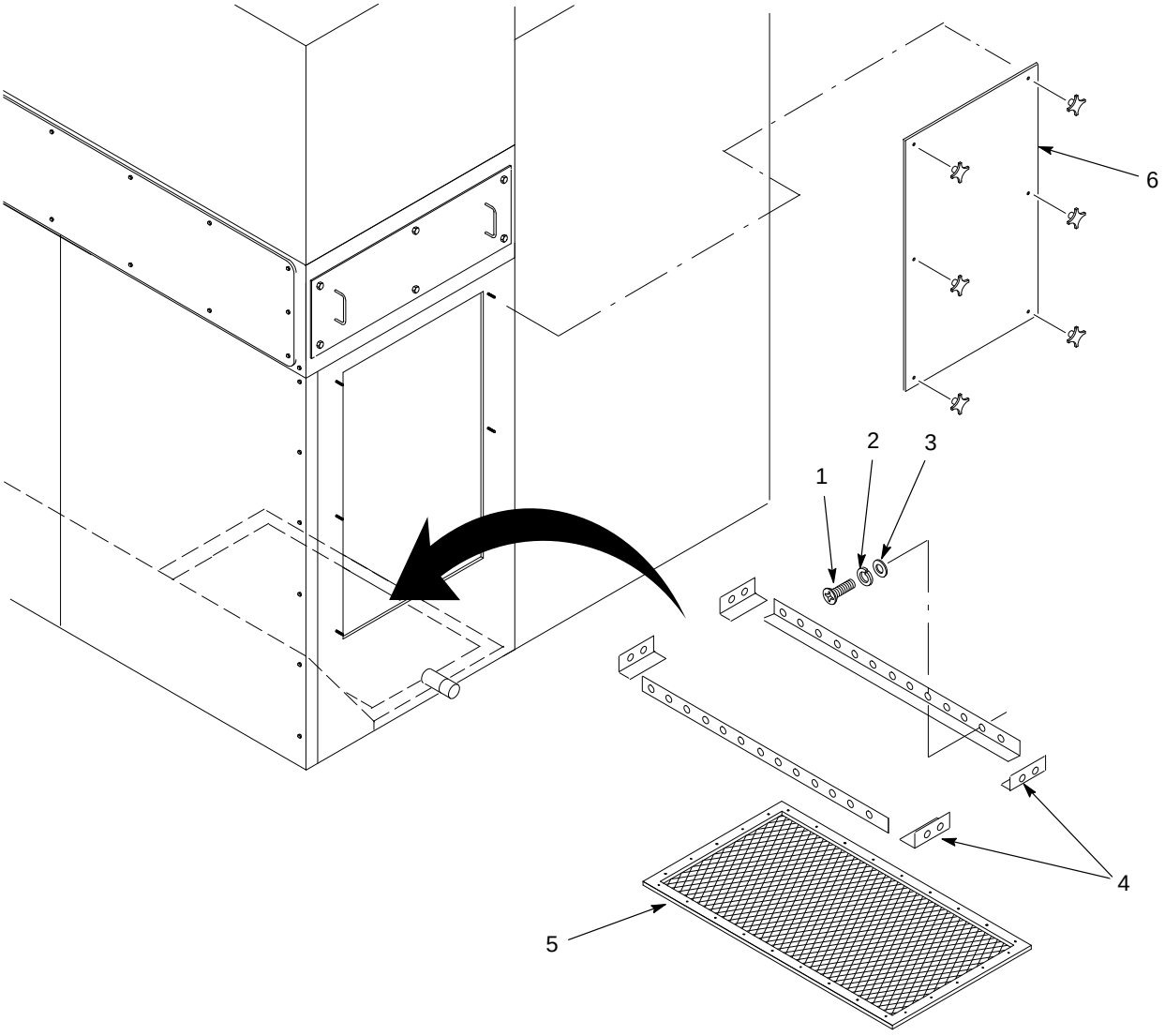


Figure 7-4 Waste Hopper Fluidizing Plate Replacement

1. Screws (M6 x 1 in.)
2. Lock washers (M6)
3. Flat washers (M6)
4. Retaining angles
5. Fluidizing plate
6. Cartridge filter access panel

Vibratory Table Isolator Mount Replacement

1. See Figure 7-5. Remove both box guides (3) from the vibratory table (4) and set them aside.
2. Remove the four socket-head cap screws and lock washers (1) securing the vibrator motor (2) to the vibratory table.
3. Carefully remove the vibrator motor and set it at the back of the feed center.
4. Remove the kick plate (7) on the bottom front of the feed center by removing the five screws (8).
5. Remove the four $^{5}/_{16}$-18 flange nuts (9) securing the vibratory table to the feed center floor (6).
6. Carefully lift the vibratory table out of the feed center and stand it up on its front edge.
7. Unscrew the four isolator mounts (5) from the vibratory table.
8. Install new isolator mounts onto the vibratory table and follow steps 1–6 in reverse to install the vibratory table into the feed center.

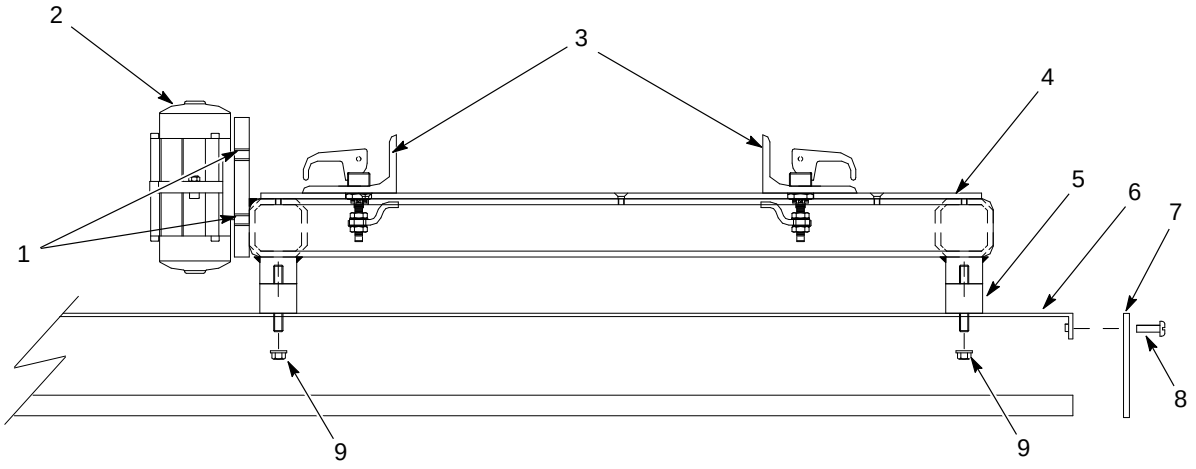


Figure 7-5 Vibratory Table Isolator Mount Replacement (Side View of Vibratory Table)

1. Screws and lock washers
2. Vibrator motor
3. Box guides
4. Vibratory table
5. Isolator mounts
6. Feed center floor
7. Kick plate
8. Screws (M6 x 1 in.)
9. $^{5}/_{16}$-18 Flange nuts

Section 8
Parts

Introduction

To order parts, call the Nordson Finishing Customer Support Center at (800) 433–9319 or your local Nordson representative. Use these parts lists and illustrations to locate parts and describe parts correctly.

Using the Illustrated Parts List

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

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

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

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

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

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

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

Powder Feed Center Assembly

See Figure 8-1. Use the following parts list to identify the feed center subassemblies.

NOTE: Subassembly parts are identified in other lists in this section. Parts for the powder transfer system are listed in the powder transfer system manual.

Item	Part	Description	Quantity	Note
1	- - - - - -	FLUID BED assembly	1	
2	- - - - - -	CARTRIDGE FILTER HOUSING assembly	1	
3	- - - - - -	CONTROL PANEL assembly	1	
4	- - - - - -	SIEVE ASSEMBLY	1	
5	- - - - - -	FAN HOUSING assembly	1	
6	- - - - - -	BLOWDOWN HOUSING assembly	1	
7	- - - - - -	LANCE ASSEMBLY	AR	A
8	249455	CONNECTOR, multi	AR	B
9	249461	SOCKET, multi connector	AR	B
10	1014550	LIGHT FIXTURE, 4 ft, 2 light	1	
NS	- - - - - -	• BULB, light, florescent, 4 ft	2	
11	- - - - - -	VIBRATORY TABLE and purge assembly	1	

NOTE A: The powder feed center has 1, 2, or 3 lance assemblies, depending on the number of spray guns in the system.

B: Two of these parts are included for each lance assembly.

AR: As Required

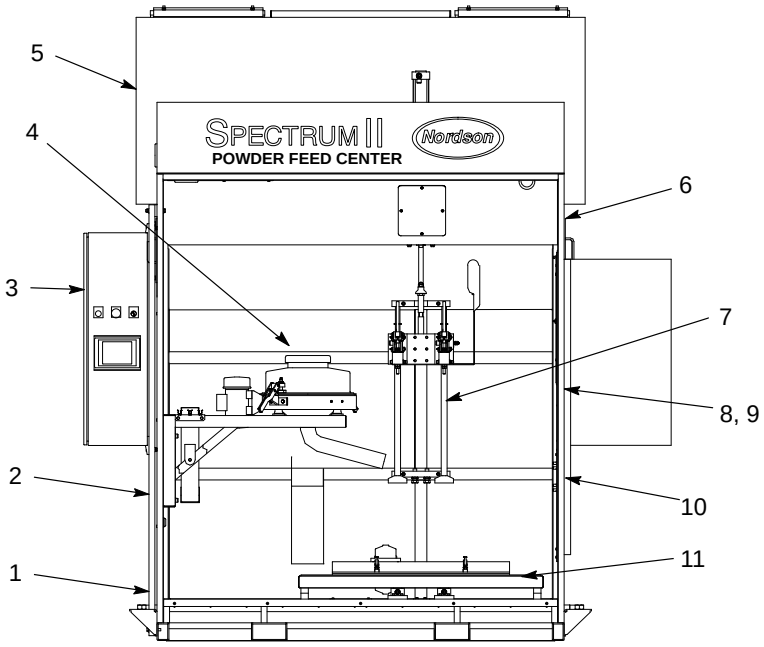


Figure 8-1 Powder Feed Center Assembly

Sieve Parts

See Figure 8-2. Refer to the *Options* section for information on the Vibrasonic sieve screen.

Screens and Vibrator Motors

Item 1: Screens		Item 2: Vibrator Motors	
Part	**Description**	**Part**	**Description**
1056563	20 mesh	1060113	230/460, 3 phase/60 Hz
1014561	40 mesh	1060114	220/380, 3 phase/50 Hz
1014562	60 mesh		

Spare Parts

Item	Part	Description	Quantity	Note
3	1014563	GASKET, screen, sieve, 15 in.	1	
4	1017602	MOUNT, isolation, sieve	4	
5	1600758	GASKET, plastic, wear ring	1	

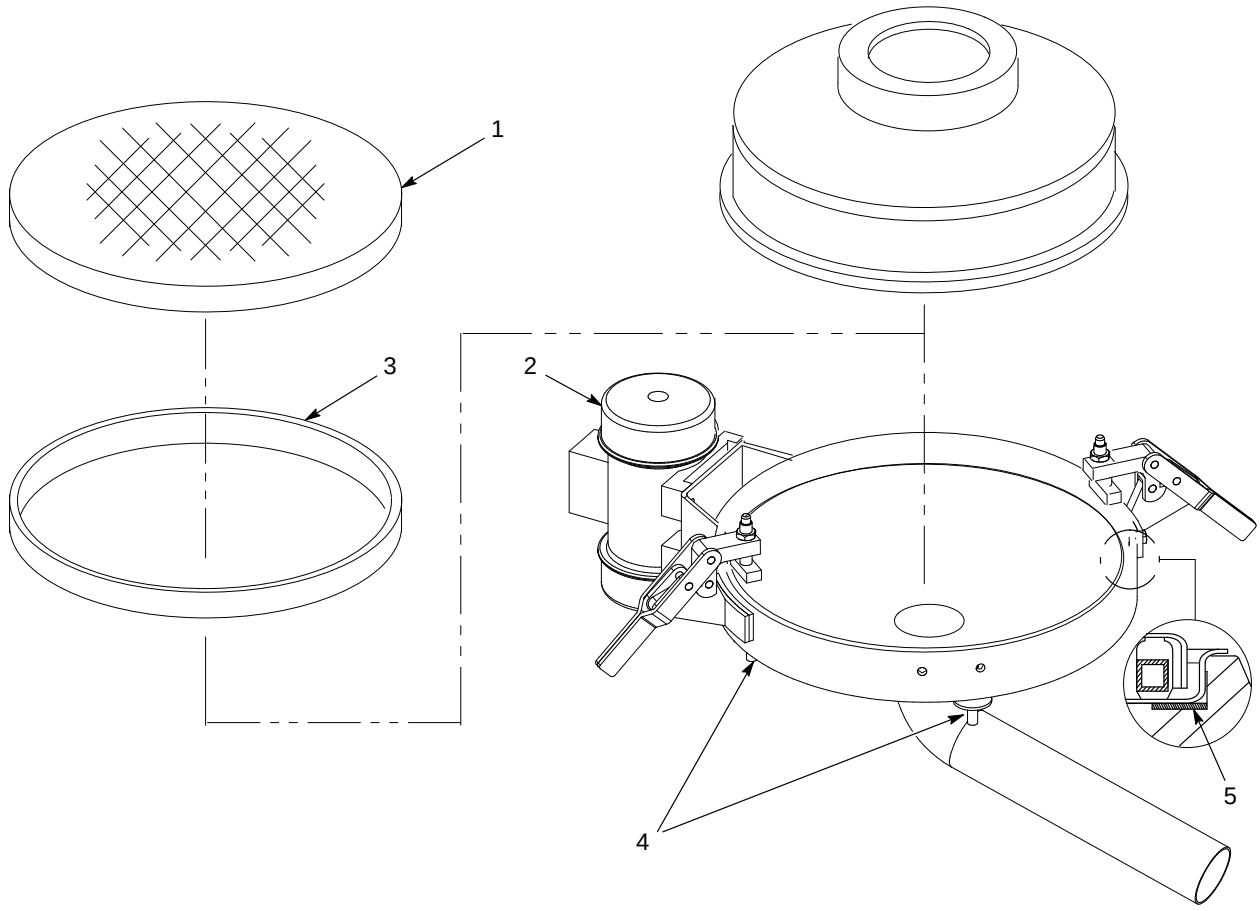


Figure 8-2 Sieve Parts

Note: Shown with Prodigy HDLV powder transfer system sieve deck. Your sieve deck may look different.

Lance Parts

Lance Arm and Vertical Slide

See Figure 8-3. The powder feed center can have up to three lance assemblies. Each lance assembly may have up to eight powder pumps.

Item	Part	Description	Quantity	Note
1	1023136	CYLINDER assembly (two air inlets)	1	A
1	1091411	CYLINDER assembly, locking (three air inlets)	1	A
2	1017574	VALVE, flow control, $^1/_4$-in. universal x 10-mm tube	2	
3	- - - - - -	SENSOR	3	
4	1015208	SLIDE, vertical, assembly	1	
5	1014553	PROBE, level sensor, quick disconnect, M18	AR	
6	1023925	CABLE, 4 pin, M12 connector, 5-m long	AR	
—	1051849	LANCE ARM assembly, plate manifold	AR	
7	1023241	• NUT, support tube	1	
8	1017574	• VALVE, flow control, $^1/_4$-in. universal x 10-mm tube	1	
9	1051579	• PLATE, pump lock-down	2	
10	1014556	• CAM lock assembly	2	
11	1023240	• ROD, locating	2	
12	- - - - - -	• O-RING, Buna-N, 0.424 x 0.103 in.	4	
13	- - - - - -	• WELDMENT, lance arm	1	
14	1051298	• MANIFOLD, pickup tube, 16 mm	1	
15	1023215	• TUBE, fluidizing, assembly	1	
NS	1053162	PLUG ASSEMBLY, pickup tube, block manifold	AR	B
NS	- - - - - -	• ROD, plug, connecting	1	
NS	- - - - - -	• PLUG, upper, pickup tube, manifold	1	
NS	- - - - - -	• PLUG, lower, pickup tube, block manifold	1	

NOTE A: Check cylinder before ordering replacement.
B: Use this kit to plug unused holes in the pickup tube and purge manifolds.

Powder Feed Pumps and Hose Clamps

Item	Part	Description	Quantity	Note
—	1053828	HOSE CLAMP, with 11- and 12.7-mm inserts	1	
16	1051482	• HOSE CLAMP, 11-mm, 8 port	1	
17	1051865	• INSERT, hose clamp, 11-mm ID hose	1	
17	1051348	• INSERT, hose clamp, 12.7-mm ID hose	1	
—	1053829	HOSE CLAMP, with two 12.7-mm inserts	1	
16	1053658	• HOSE CLAMP, 12.7-mm, 8 port	1	
17	1051348	• INSERT, hose clamp, 12.7-mm ID hose	2	
18	1080235	PUMP ASSEMBLY, conductive throat, Tivar	AR	A
18	1080236	PUMP ASSEMBLY, conductive throat, glass-filled PTFE	AR	B

NOTE A: Standard powder pump included with feed center.
B: Optional powder pump.

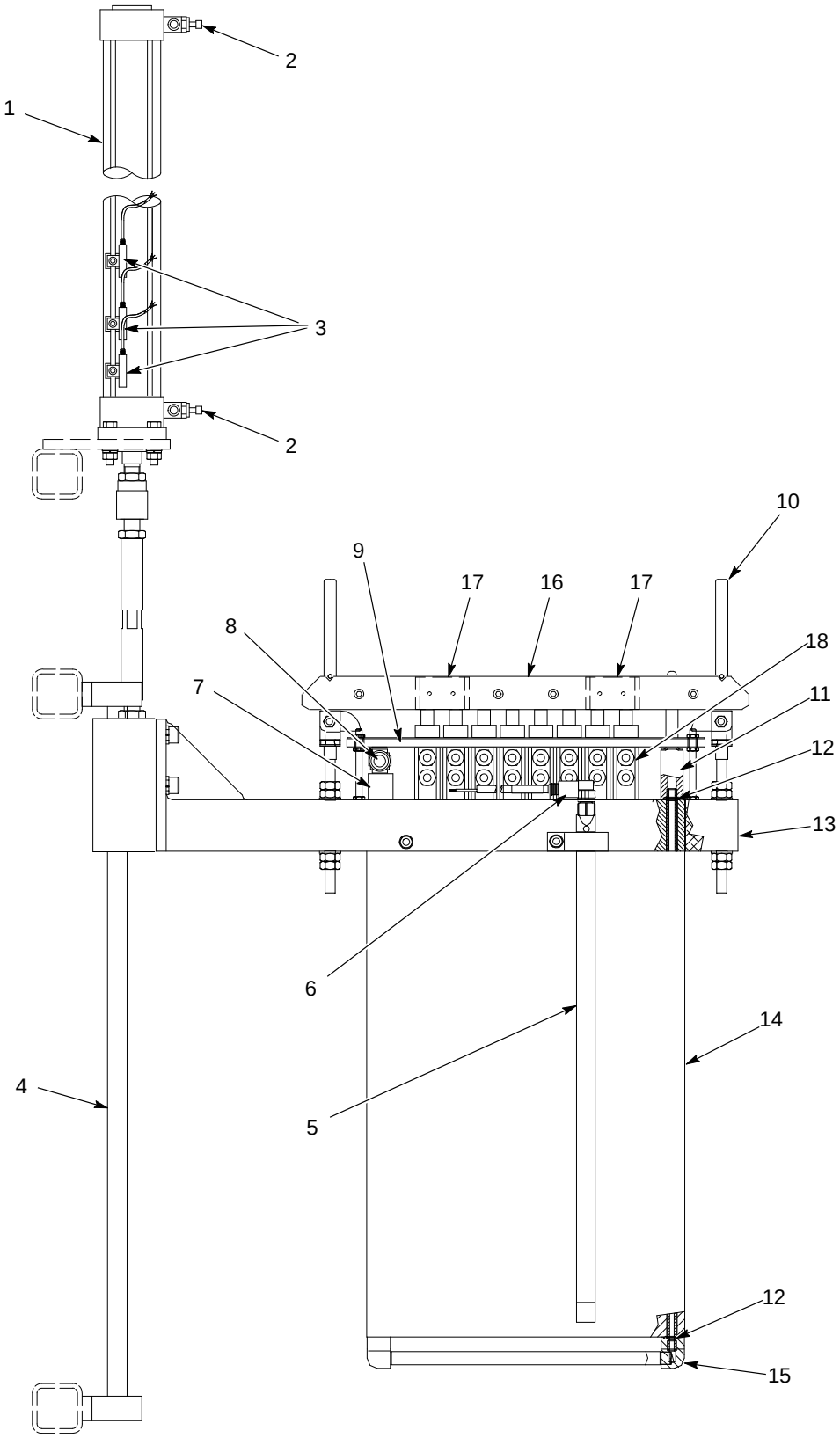


Figure 8-3 Lance Parts

Vibratory Table and Purge Assembly

See Figure 8-4.

Item	Part	Description	Quantity	Note
1	- - - - - -	HOSE, 1 in., male NPT ends	1	
2	1054384	VALVE, assembly, $^1/_2$ in., with solenoid, 15-ft wire	AR	
3	1014643	REGULATOR, 1-in. NPT, 0–150 psi	1	
4	- - - - - -	HOSE, $1^1/_2$ in. female JIC swivel ends	1	
5	- - - - - -	TABLE TOP, vibratory	1	
6	- - - - - -	SCREW, socket head, flat, M5 x 0.8 x 10-mm long	12	
7	1051596	MANIFOLD, purge assembly, pick-up plate	AR	
8	- - - - - -	VIBRATOR	1	A
9	- - - - - -	GASKET, face, manifold	1	B
10	- - - - - -	LATCH, vibratory table, powder feed center	4	
11	- - - - - -	GUIDE, box	2	
12	- - - - - -	TABLE, vibratory	1	
13	1017559	MOUNT, vibration $^5/_{16}$-18, $1^1/_4$ x $1^1/_4$ in.	4	
14	- - - - - -	SCREW, cap, socket head, M6 x 1.0 x 35-mm long, stainless steel	8	
15	- - - - - -	WASHER, flat, M6, stainless steel	8	
16	- - - - - -	BUSHING, reducing, $^3/_4$ x $^1/_2$ in. NPT	AR	
17	- - - - - -	ELBOW, $^1/_2$-in. NPT x $^1/_2$-in. JIC, 90 degree	AR	
18	- - - - - -	HOSE, $^1/_2$ in., 48-in. long, female swivel ends	AR	
NS	1053639	PLATE, blank, purge assembly	AR	
NS	- - - - - -	PLUG, purge, socket set screw, M12 x 1.75 20 mm	1	C

NOTE A: Available in several voltages. Refer to *Vibrator Motors*.

B: To replace the manifold gaskets, order 1075118 Kit, Gasket, Face, Manifold, Cleaning. The kit contains three gaskets and adhesive.

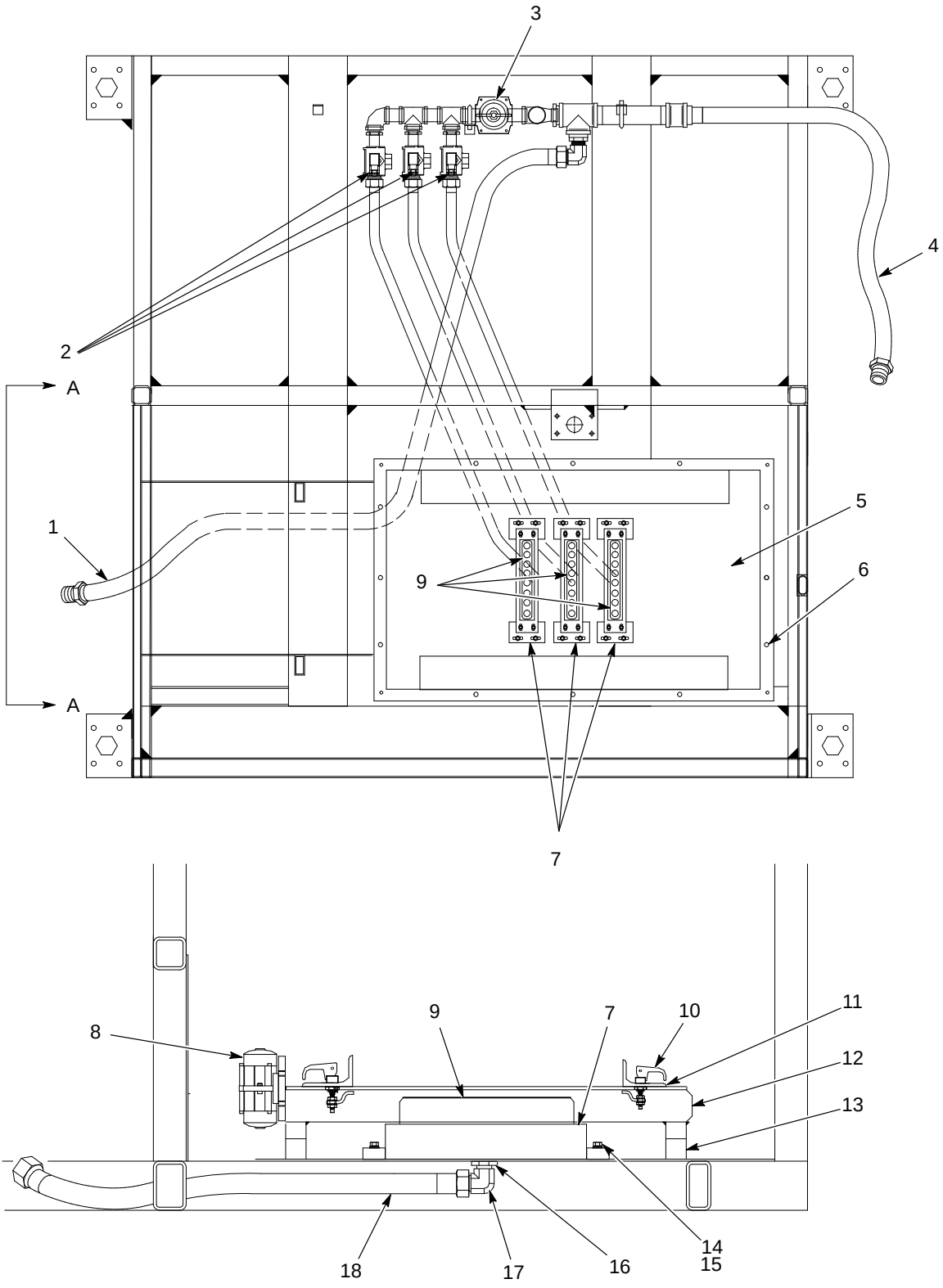
C: Unused ports in the purge manifold must be plugged with the purge plug. The purge plug is included in the plug assembly, part 1053162.

AR: As Required

Vibrator Motors

Part	Description	Note
1058669	VIBRATOR, 230/460V, 3 phase/60 Hz	A
1058710	VIBRATOR, 330/575V, 3 phase/60 Hz	
1058711	VIBRATOR, 220/380V, 3 phase/50 Hz	
1058712	VIBRATOR, 200/400V, 3 phase/60 Hz	

NOTE A: The 230/460V vibrator motor, part 1058669, is standard.



View A-A Enlarged

Figure 8-4 Vibratory Table and Purge Assembly

Fan Housing Assembly

See Figure 8-5.

Item	Part	Description	Quantity	Note
1	176367	SCREW, hex, serrated, $^{3}/_{8}$-16 x 1.25 in., steel, zinc	8	
2	- - - - - -	COVER, access, fan	1	
3	- - - - - -	GASKET, adhesive back, $^{1}/_{2}$-in. wide x $^{1}/_{4}$-in. thick	AR	
4	- - - - - -	FAN, powder feed center, 3500 rpm, 5 hp, 230/460V, 3 phase, 60 Hz	1	A
5	156995	FILTER, final, internal, 20 x 24 in.	2	
6	176366	CLAMP, final filter, 18.5 x 2.75 in.	4	
7	- - - - - -	NUT, hex, serrated, $^{3}/_{8}$-16, steel, zinc	8	

NOTE A: Contact your Nordson representative for information about replacement parts for the fan assembly.

AR: As Required

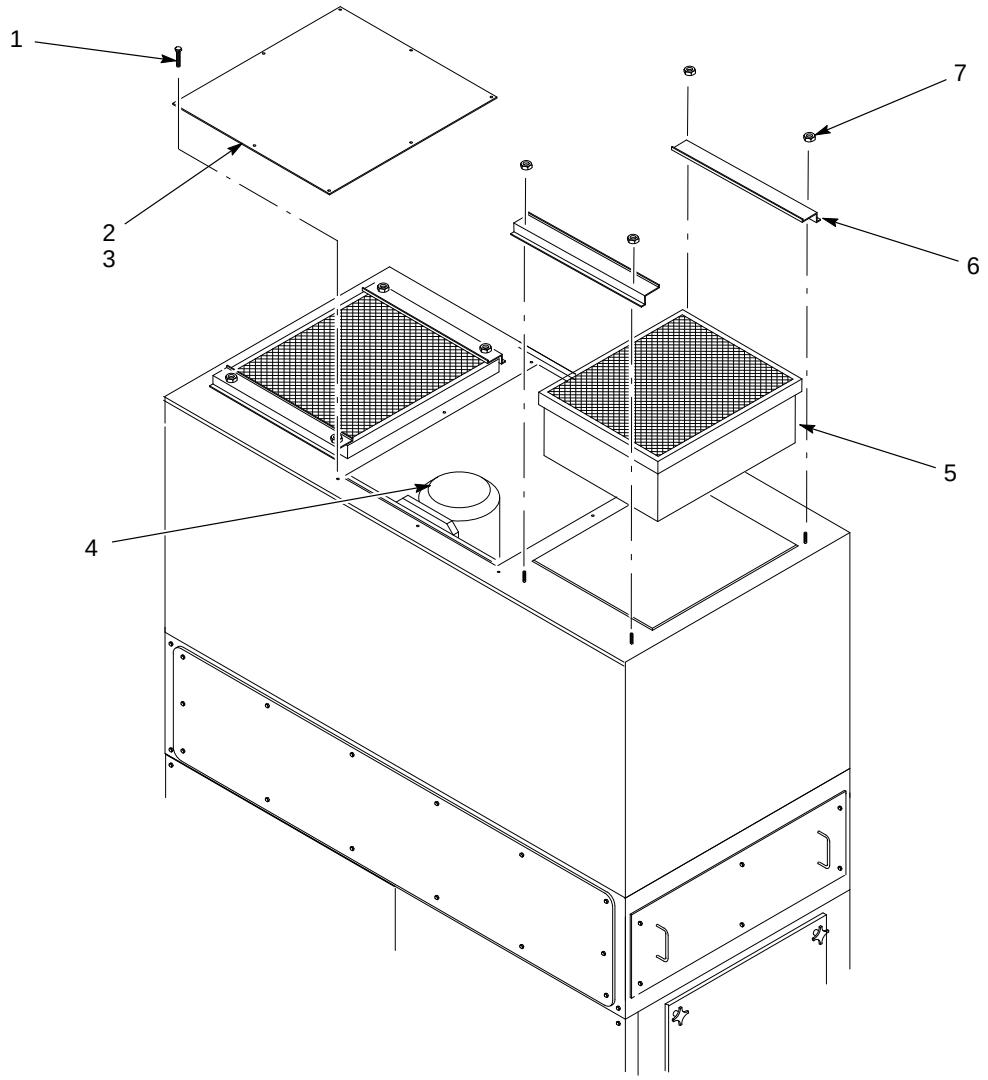


Figure 8-5 Fan Housing Assembly

Blowdown Housing Assembly

See Figure 8-6.

Item	Part	Description	Quantity	Note
1	- - - - - -	COVER, access	1	
2	- - - - - -	GASKET, adhesive back, $^1/_2$-in. wide x $^1/_4$-in. thick	AR	
3	- - - - - -	SCREW, hex head, M6 x 1.0 x 10-mm long	14	
4	178970	SOLENOID BOX, 4 valve	1	
5	165726	NOZZLE, cartridge pulse	3	
6	174710	VALVE, pulse, 1-in. NPT in, 1-in. NPT out	3	
7	- - - - - -	ELBOW	3	
8	- - - - - -	DOOR, access	2	
9	- - - - - -	NUT, hex, serrated, $^3/_8$-16, steel, zinc	8	
NS	- - - - - -	TUBING, 6 mm	AR	

AR: As Required
NS: Not Shown

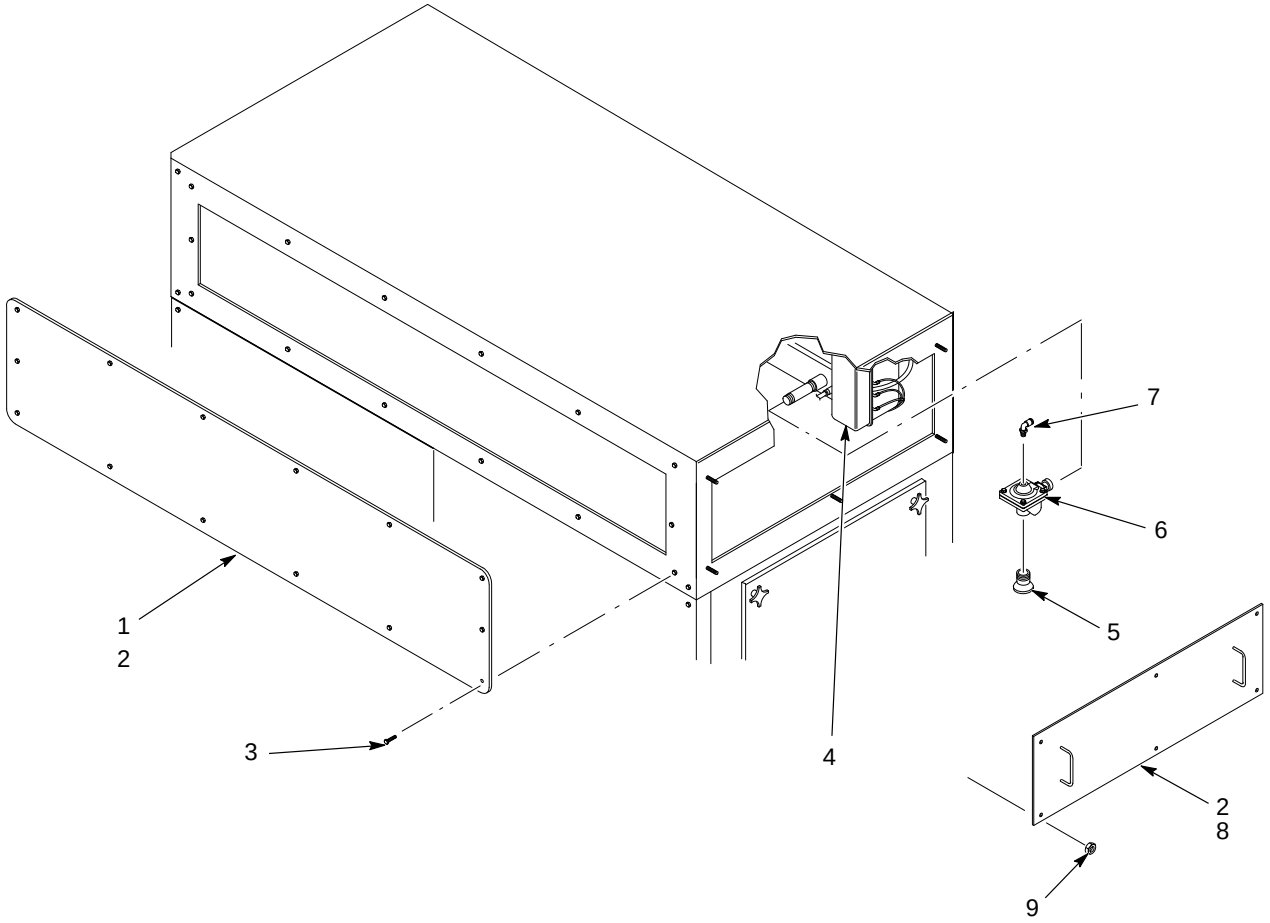


Figure 8-6 Blowdown Housing Assembly

Cartridge Filter Housing Assembly

See Figure 8-7.

Item	Part	Description	Quantity	Note
1	- - - - - -	KNOB, $^{3}/_{8}$-16, cast iron	12	
2	- - - - - -	DOOR, with vent tube	1	
3	1014537	GASKET, door	AR	
4	- - - - - -	DOOR	1	
5	156996	FILTER, 36 in., PowderGrid, center mount	3	
6	174722	BRACKET, filter centering	3	
7	174723	ROD, filter mount, 36-in. filter	3	
8	174720	MOUNT, filter, cartridge	3	
9	- - - - - -	WASHER, flat, $^{5}/_{8}$ in.	3	
10	- - - - - -	WASHER, lock, $^{5}/_{8}$ in.	3	
11	- - - - - -	NUT, hex, $^{5}/_{8}$-11	3	
NS: Not Shown				

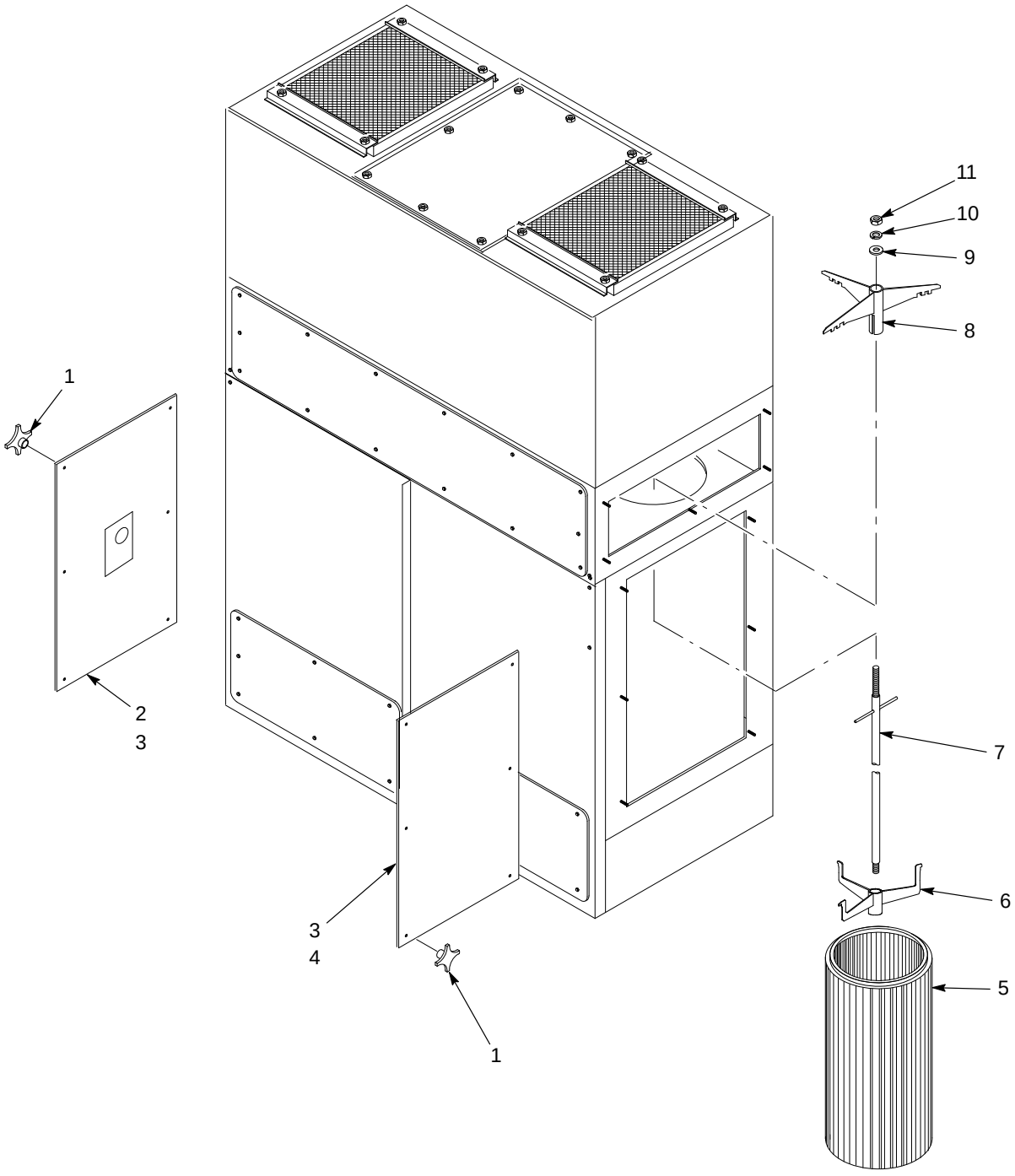


Figure 8-7 Cartridge Filter Housing Assembly

Fluid Bed Assembly

Part	Description	Note
1040853	PUMP, powder, transfer, 0.75-in. outlet, metric	
1016610	PLATE, fluidizing, 65 in. x 19 in.	

Control Panel Assembly

See Figure 8-8.

Item	Quantity	Description	Part	Manufacturer
—	1	Enclosure	C-SD362410	Hoffman
—	1	Subpanel	C-P3624	Hoffman
—	1 set	Mounting foot kit	C-MFK	Hoffman
—	5 ft	Wireduct, 1 in. / cover	71030/79010	Taylor
—	10 ft	Wireduct, 1.5 in. / cover	79010/79015	Taylor
—	3 ft	Wireduct, 2 in. / cover	- - -	Taylor
GTB1, GTB2	2	Ground terminal block	GBK10	Cutler-Hammer
TB1	3 ft	DIN rail	D5PD2-20	Cutler-Hammer
TB1	2	End stop	C383ES35	Cutler-Hammer
TB1	AR	Cross connector (jumper)	C383TJ3	Cutler-Hammer
TB1	35	Control terminal block, 30A	C383RK254	Cutler-Hammer
TB1	1	End plate	C383AP4	Cutler-Hammer
DISC201	1	Disconnect kit	OT3286-170	ABB
M427	1	Contactor, IEC, 3-P, N-REV, 120V	See Ref Chart	Cutler-Hammer
OL427	1	Overload, IEC, 3-P, FXD, HTR	See Ref Chart	Cutler-Hammer
FU203	3	Fuse, 0-E T-D, J, 600V	See Ref Chart	Bussman
FU203	1	Fuseblock	See Ref Chart	Bussman
M428, M433	2	Contactor, IEC, 3-P,N-REV, 120V	CE15ANS3AB	Cutler-Hammer
FU206, FU209	2	Fuseblock	BC6033PQ	Bussman
FU206	3	Fuse, T-0, CC, REJ, 600V (small motor)	See Ref Chart	Bussman
OL428	1	Overload, IEC, 3-P, FXD HTR	See Ref Chart	Cutler-Hammer
FU209	3	Fuse, T-0, CC, REJ, 600V (small motor)	See Ref Chart	Bussman
OL433	1	Overload, IEC, 3-P, FXD HTR	See Ref Chart	Cutler-Hammer
FU223	2	Fuse, T-0, CC, REJ, 600V (transformer)	See Ref Chart	Bussman
FU223	1	Fuseblock	BC6032PQ	Bussman
T224	1	Transformer	See Ref Chart	Hammond
CB227	1	Circuit breaker	1492-CB1F080	Allen-Bradley
CB226, CB316, CB424	3	Circuit breaker	1492-CB1F020	Allen-Bradley
CB301	1	Circuit breaker	1492-CB1F040	Allen-Bradley
CR502, CR511	2	Control relay	RH2B-DC24V	IDEC
CR502, CR511	2	Relay base	SH2B-05	IDEC
LT509	1	Light, indicating, amber, LED	E22HV9X95	Cutler-Hammer
SS226	1	Selector switch, 2 position	E22XB51W	Cutler-Hammer
LT509, SS226	2	Nameplate (black)	E22NSP77	Cutler-Hammer
PLC229	1	Micrologix 1200	1762-L24BWA	Allen-Bradley
PLC229	1	Output expansion	1762-OW16	Allen-Bradley
PLC229	1	Interface converter	1761-NET-AIC	Allen-Bradley
PLC229	1	Cable, interface converter	1761-CBL-AM00	Allen-Bradley
PWS302	1	Power supply, 24V, 90W, 3.75A	PS5R-SE24	IDEC
SS410	1	Switch mount bracket	SPEC.	—
SS410	1	Selector switch, 3 position	E22XBG1	Cutler-Hammer
SS410	1	Contact block,NO	E22B2	Cutler-Hammer
SS410	1	Contact block, NC	E22B1	Cutler-Hammer

Item	Quantity	Description	Part	Manufacturer
PB403	1	Pushbutton, push-pull, red, MH, 40 mm	E22LPB2	Cutler-Hammer
PB403	1	Nameplate (red)	E22NLP77	Cutler-Hammer
ABU517	1	Alarm, piezo, cont. tone, extra loud	XC-09-330-Q	Floyd Bell
GA1, GA5	2	Pressure gauge, 100 psi	226715	Nordson
GA2, GA3, GA4	3	Pressure gauge, 30 psi	226714	Nordson
RG1, RG5	2	Regulator, 125 psi	AR20-N02H-Z	SMC
RG2, RG3, RG4	3	Regulator, 25 psi	AR25-N03H-1-Z	SMC
PS409	1	Pressure switch, 0–5 in. wc	1910-5	Dwyer
SOL430	1	Solenoid valve, 5–3	453A-00A-DM-DDAC-18A	MAC
SOL432, 510	2	Solenoid valve	413A-00A-DM-DDAC-18A	MAC
SOL429, 505	2	Solenoid valve	35A-B00-DDAC-18A	MAC
MANIFOLD A	1	Manifold bar assembly	CBM405A-00A-AD-03	MAC
MANIFOLD B	1	Manifold bar assembly	EBM35A-001A-04	MAC
MANIFOLD B	2	Blank cover, manifold	M-35004	MAC
SUPPLY MANIFOLD	1	3/4 NPT(1) x 3/8 NPT(4)	RAF91703B	RAF
SOLENOID AND ENCLOSURE VENT	2	Breather vent	F68	ALWILCO
PS409, SOL429, 505	3	Bulkhead union, 6 mm	KQ2E06-00	SMC
SOL430(2), 432(2), 510(2), RG5	7	Bulkhead union, 10 mm	KQ2E10-00	SMC
MANIFOLD A, RG5, RG2(2), RG3(2), RG4(2)	8	Male elbow, 10 mm x 3/8 NPT	KQL2L10-03S	SMC
MANIFOLD A	4	Male elbow, 12 mm x 3/8 NPT	KQL2L12-03S	SMC
SOL429, 505, PS408, GA1–GA5	8	Male elbow, 6 mm x 1/8 NPT	KQL2L06-01S	SMC
GA1, GA2, GA3, GA4, GA5	5	Female connector, 6 mm x 1/8 NPT	KQ2F06-01	SMC
SOL429, 503, 504, 505, 506, 507, 508	1	Male connector, 10 mm x 1/8 NPT	KQ2L10-01S	SMC
SOL432, SOL510 (to regulators)	2	Union Y, 10 mm	KQ2U10-00	SMC
RG1(2), RG5(2), SOL430, SOL432, SOL510, MANIFOLD B	9	Male elbow, 10 mm x 1/4 NPT	KQ210-02S	SMC
SOLENOID VENT	1	Triple male elbow, 10 mm x 3/8 NPT	KQ2VT10-03S	SMC
—	AR	6 mm poly tubing	TU0604-BU	SMC
—	AR	10 mm poly tubing	TU1065-BU	SMC
—	AR	12 mm poly tubing	TU1208-BU	SMC

Transformer Reference Chart						
T224	**208V**	**230V**	**380V**	**415V**	**460V**	**575V**
500VA	PT500MGJ	PT500MQMJ	PT500MGJ	PT500MDMX	PT500MQMJ	PT500MBMH
FU223	FNQ-R-6	FNQ-R-5 6/10	FNQ-R-3 1/2	FNQ-R-3	FNQ-R-3	FNQ-R-2 1/4

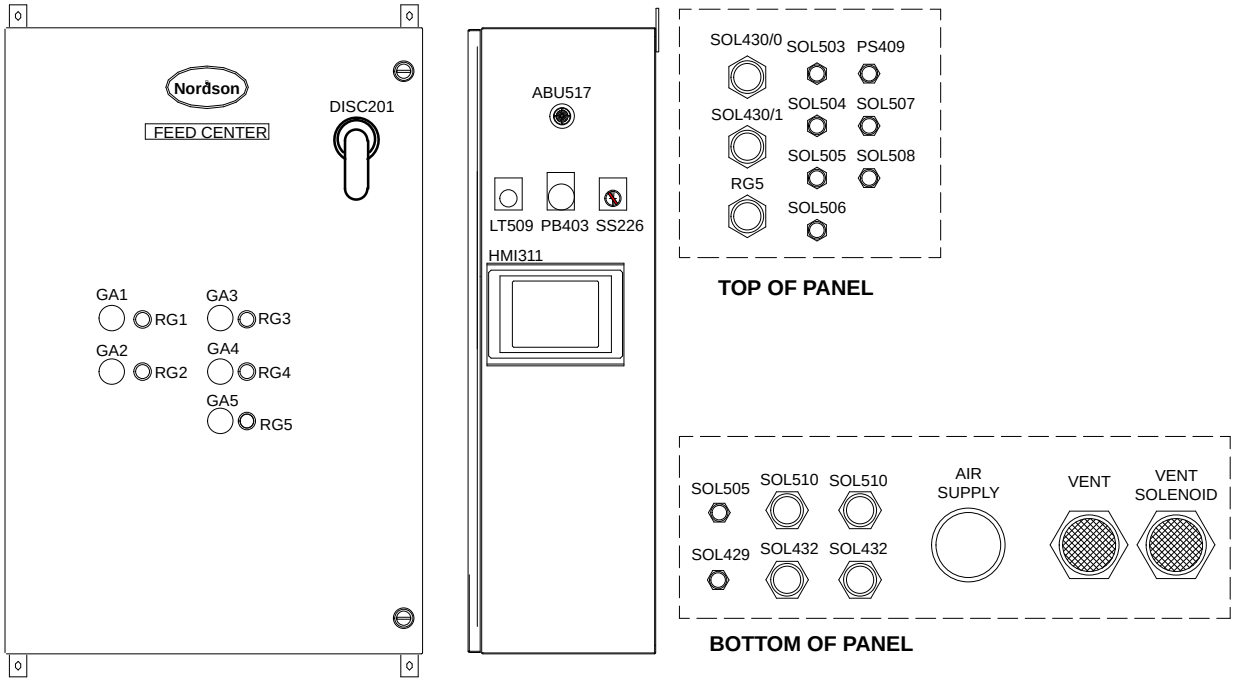
Control Panel Assembly *(contd)*

Motor Reference Chart						
5 hp Motor (Exhauster)						
Item	**208V**	**230V**	**380V**	**415V**	**460V**	**575V**
M427	CE15DNS3AB	CE15DNS3AB	CE15CNS3AB	CE15BNS3AB	CE15BNS3AB	CE15ANS3AB
OL427	C316FNA3R	C316FNA3R	C316FNA3Q	C316FNA3P	C316FNA3R	C316FNA3N
FU203	LPJ-35SP	LPJ-30SP	LPJ-20SP	LPJ-20SP	LPJ-15SP	LPJ-12SP
Fuseblock	J60060-3CR	J60030-3CR	J60030-3CR	J60030-3CR	J60030-3CR	J60030-3CR
1/4 hp Motor (Sieve)						
Item	**208V**	**230V**	**380V**	**415V**	**460V**	**575V**
OL428	C316FNA3F	C316FNA3F	C316FNA3D	C316FNA3D	C316FNA3D	C316FNA3D
FU206	LP-CC-4	LP-CC-4	LP-CC-2	LP-CC-2	LP-CC-2	LP-CC-2
1/6 hp Motor (Table Vibrator)						
Item	**208V**	**230V**	**380V**	**415V**	**460V**	**575V**
OL433	C316FNA3E	C316FNA3D	C316FNA3C	C316FNA3C	C316FNA3C	C316FNA3C
FU206	LP-CC-2	LP-CC-2	LP-CC-1 1/4	LP-CC-1 1/4	LP-CC-1	LP-CC-1

Prodigy HDLV or Sure-Max Powder Transfer System Control Panel Parts

These parts are only used in feed centers that have either the Prodigy HDLV or Sure-Max powder transfer system.

Item	Quantity	Description	Part	Manufacturer
SOL 507, 508	2	Solenoid valve	35A-B00-DDAC-18A	MAC
SOL507(1), 508(1)	2	Male elbow, 6 mm x 1/8 NPT	KQ2L06-01S	SMC
SOL507(1), 508(1)	2	Bulkhead union, 6 mm	KQ2E06-00	SMC
	AR	6 mm poly tubing	TU0604-BU	SMC
MANIFOLD C	1	Manifold bar assembly	CBM405A-00A-AD-03	MAC
SOL 503, 504, 506	3	Solenoid valve	413A-00A-DM-DDAC-18A	MAC
SOL503(1), 504(1)	2	Male elbow, 10 mm x 3/8 NPT	KQ2L10-03S	SMC
SOL503(1), 504(1)	2	Bulkhead union, 10 mm	KQE10-00	SMC
	AR	10 mm poly tubing	TU1065-BU	SMC
SOL 506(1)	1	Male elbow, 8 mm x 3/8 NPT	KQ2L08-03S	SMC
SOL 506(1)	1	Bulkhead union, 8 mm	KQ2E08-00	SMC
	AR	8 mm poly tubing	TU0805-BU	SMC
MANIFOLD C(2)	2	Male elbow, 12 mm x 3/8 NPT	KQ2L12-03S	SMC
RG6	1	Regulator	AR40-N04-Z	SMC
RG6(2)	2	Male elbow, 10 mm x 1/2 NPT	KQ2L10-04S	SMC
GA6	1	Gauge	226715	Nordson



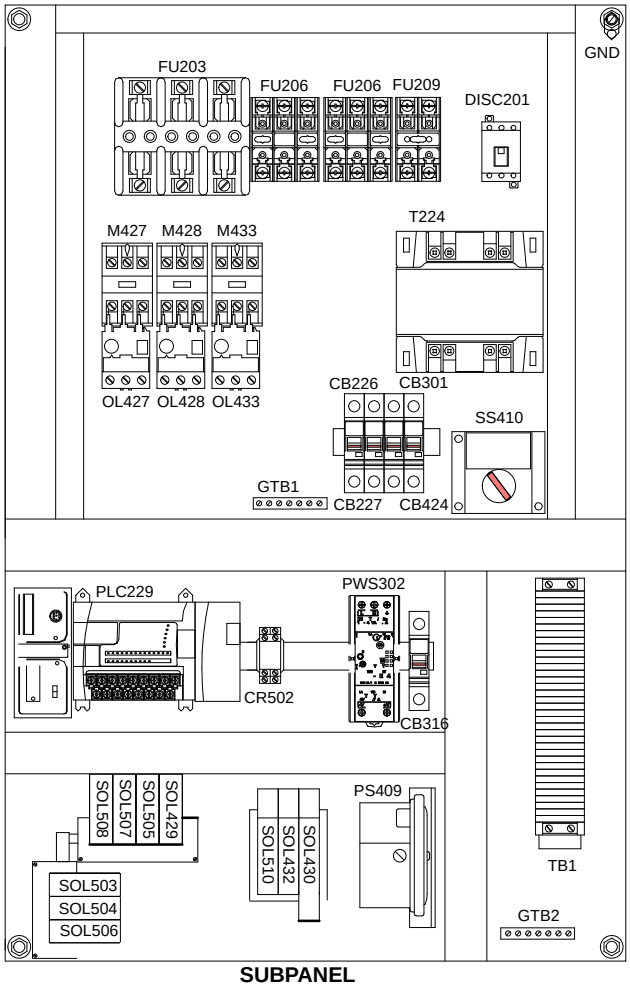


Figure 8-8 Control Panel Assembly

Section 9
Options

Introduction

This section contains information about optional equipment for the Spectrum II powder feed center. Contact your Nordson representative for more information about the options listed in this section.

Fluidizing Hopper

The fluidizing hopper can be used as an alternative feed source in place of a standard powder box. The hopper is a plastic box with a fluidizing plate in its base. A hopper lid and cart are available for moving and storing the hopper while it is not being used.

Powder in the hopper is fluidized by compressed air forced through the fluidizing plate. The operator enables the fluidizing hopper by touching the **Select Hopper** button on the **Auto Menu**. The feed center vibratory table turns on for 60 seconds to help fluidize the powder in the hopper. The lance assembly fluidizing air turns on automatically when the feed center exhaust fan turns on.

Installation

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

1. On the **Auto Menu**, set the **Lance/Purge Mode** to **MANUAL**.
2. Touch the **LANCE UP** button to raise the lance assembly.
3. Remove the front box guide from the vibratory table and set it aside.
4. Place the hopper on the vibratory table. Make sure that the hopper is centered under the lance assembly, then remove the lid from the hopper.
5. Connect the fluidizing air tubing to the air fitting on the hopper.

   NOTE: Adjust the fluidizing air pressure at the feed center's pneumatic panel as necessary.
6. Touch the **Select Hopper** button. The button's text changes to **HOPPER Selected**.
7. Set the **Lance/Purge Mode** to **AUTO**.

When all feed center modes are set to **AUTO**, the lance assembly lowers to the hopper limit position and stays there. If the optional bulk feed level sensor does not sense powder, the sensor activates control for a low-powder alarm or automatic bulk feed.

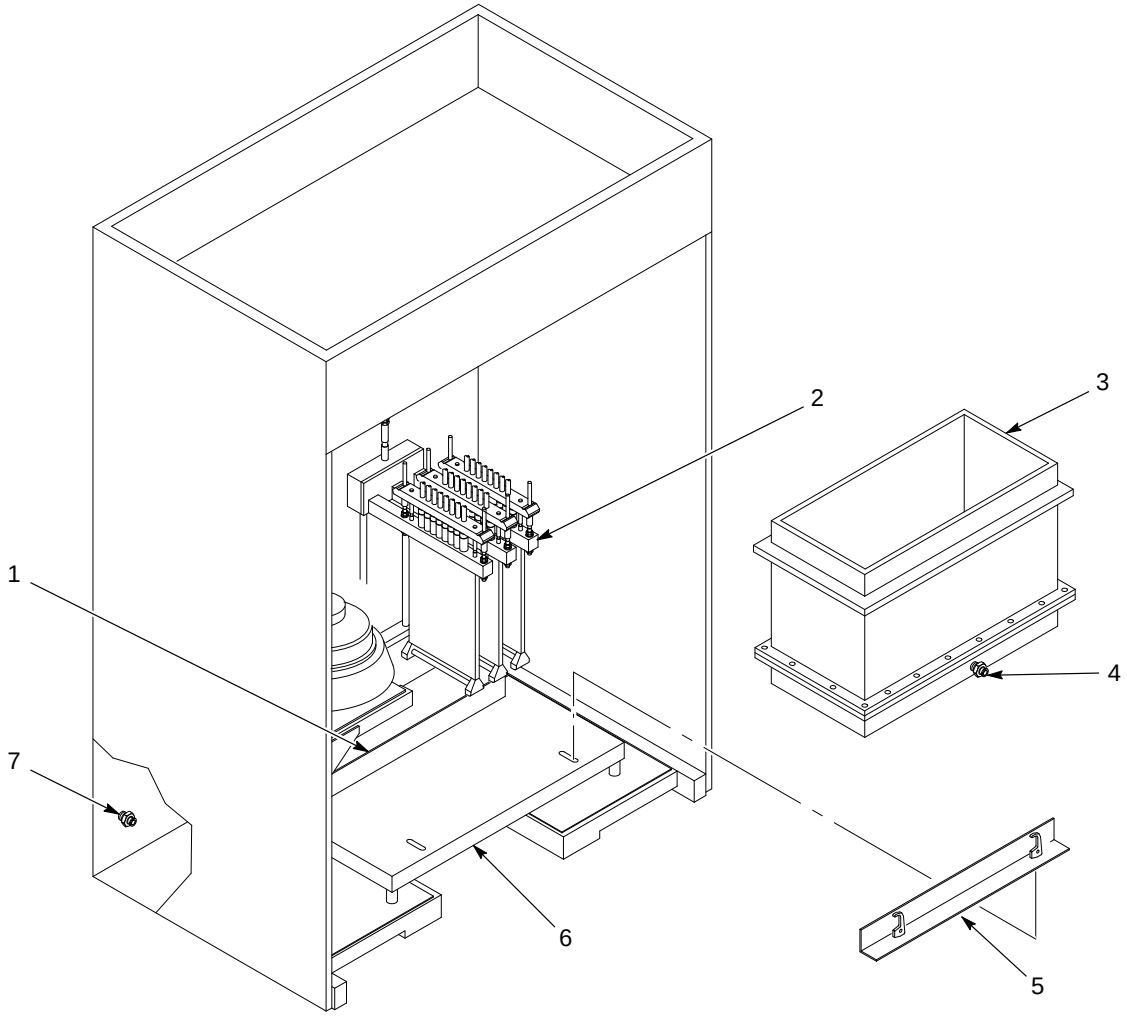


Figure 9-1 Fluidizing Hopper Installation

1. Rear box guide
2. Lance assembly
3. Fluidizing hopper
4. 10-mm fitting
5. Front box guide
6. Vibratory table
7. 10-mm bulkhead fitting

Fluidizing Plate Replacement

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

1. Empty the hopper and vacuum as much powder as possible out of the hopper.
2. See Figure 9-2. Remove the screws (9), flat washers (8) and nuts (7) securing the body (2) to the base (5). Lift the body off the base.
3. Remove the old fluidizing plate (3) and discard it.
4. Inspect the gaskets (4). Replace the gaskets if they are damaged.
5. Vacuum the inside of the base and clean the body and base mounting surfaces.

NOTE: Make sure that the smooth side of the fluidizing plate is facing up.

6. Set a gasket and the new fluidizing plate on the base.
7. Set the other gasket and the body onto the fluidizing plate.

CAUTION: Do not overtighten the nylon screws. Overtightening the screws will result in stripped threads and poor hopper performance.

8. Apply removable threadlocking adhesive to the screw threads. Install the screws, flat washers, and nuts to secure the body to the base.

Fluidizing Hopper Parts

See Figure 9-2.

Item	Part	Description	Quantity	Note
–	7404027	Hopper, fluidizing, feed center	1	
1	------	• Lid, hopper	1	
2	------	• Body, hopper	1	
3	------	• Plate, fluidizing, powder feed center hopper	1	C
4	1604476	• Gasket	1	C
5	------	• Base, hopper	1	
6	------	• Fitting, 1/2 in. HPT x 10 mm tubing	1	
7	------	• Nut, hex, M8, Nylon	40	C, D
8	------	• Washer, flat, M8, Nylon	80	C, D
9	------	• Screw, hex, M8 x 40, Nylon	40	C, D
NS	1043414	Cart, fluidizing hopper	1	A
NS	1051364	Kit, handle, cart, fluidizing hopper	1	B

NOTE A: The optional cart allows the fluidizing hopper to be transported easily.
B: Order this kit to install a handle on the hopper cart.
C: These parts included in 1086406 Kit, Service, Fluidizing Hopper, PFC.
D: These parts included in 1100936 Kit, Service, PFC Hopper Hardware.
NS: Not Shown

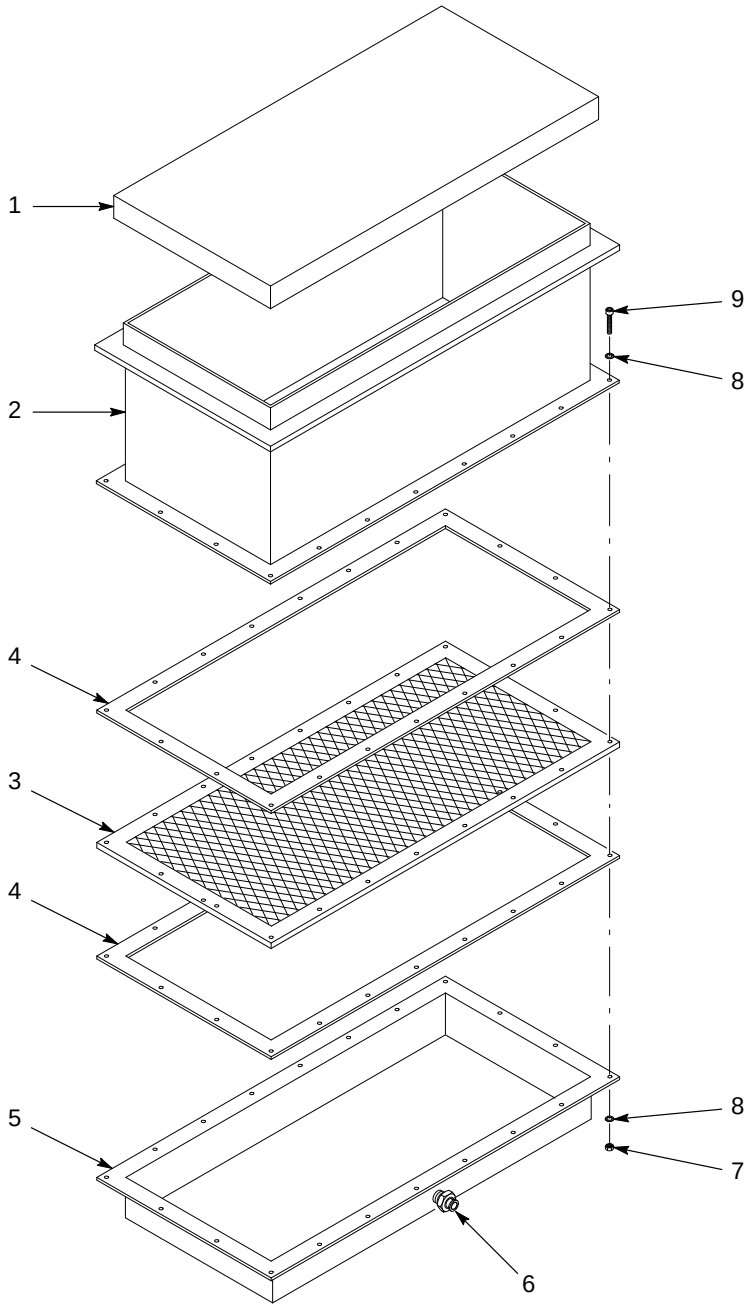


Figure 9-2 Fluidizing Hopper Parts

Vibrasonic Sieve Screen

The Vibrasonic sieve screen increases sieve screen life and powder throughput in the sieve.

The Vibrasonic system constantly applies an ultrasonic frequency to the sieve screen. The ultrasonic frequency breaks down the surface tension in the screen, preventing blinding of the sieve screen.

Vibrasonic System Components

See Figure 9-3.

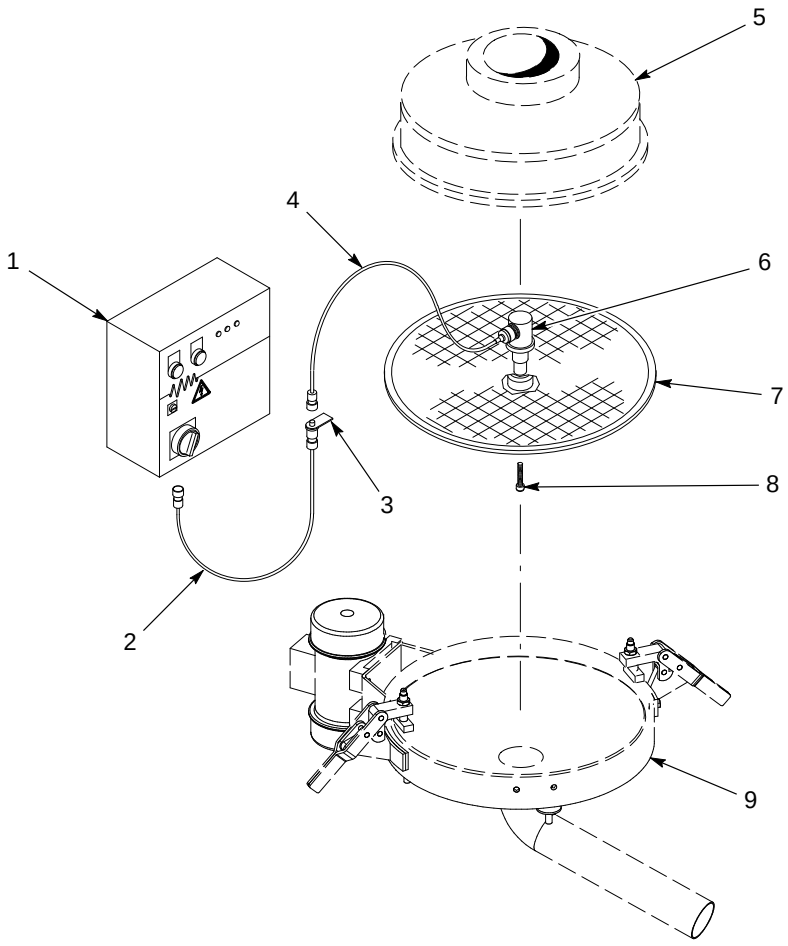


Figure 9-3 Vibrasonic System Components

1. Vibrasonic System control box
2. Four-meter control cable
3. Support bracket
4. Transducer cable
5. Sieve deck
6. Vibrasonic transducer
7. Sieve screen
8. Cap screw
9. Vibratory sieve

Note: Shown with Prodigy HDLV transfer system sieve. Your sieve may look different

Installation

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

WARNING: Turn off and lock out system electrical power before performing the following tasks. Failure to observe this warning may result in personal injury or equipment damage.

NOTE: Inspect all Vibrasonic system components for cleanliness and damage. Contact your Nordson representative if any components are damaged.

Vibrasonic Transducer and Sieve Screen Installation

1. See Figure 9-3. Clean the sieve screen's (7) center hub and the bottom of the transducer (6) with acetone.

   NOTE: The transducer must be secured to the flat side of the sieve screen.

2. Set the transducer onto the center hub of the sieve screen. Hand tighten the cap screw (8) through the bottom of the sieve screen.
3. Hold the base of the transducer with the supplied pin wrench and turn the cap screw with the supplied torque wrench until you hear a click.
4. Install the sieve gasket onto the sieve screen.
5. Set the sieve screen into the vibratory sieve (9). Route the transducer cable (4) through the sieve deck (5) and clamp the sieve deck onto the vibratory sieve.

Control Box and Cable Installation

1. See Figure 9-3. Make sure that the voltage selector on the control box (1) is set to your system's electrical supply specification.
2. Mount the control box near the powder feed center control panel.
3. Connect the four-meter cable (2) to the control box. Route the other end into the front of the powder feed center.
4. Mount the cable support bracket (3) to the framework on the inside of the powder feed center. Make sure that the transducer cable (4) will be able to reach the support bracket.
5. Connect the transducer cable plug to the four-meter cable plug. Rotate the transducer cable plug until the location dots on the two plugs align.

Operation

To turn on the Vibrasonic system, turn the red switch on the control box clockwise 90 degrees. The POWER and VIBRASONICS indicators on the control box will light. There are five LEDs on the control box door. During operation, LED 1 will light to indicate normal operation.

To enable the Vibrasonic sieve screen during normal operation, touch the **Enable Vibrasonics** button on the **Auto Menu**. The button's text will change to **Disable Vibrasonics**; touch this button to turn off the Vibrasonic sieve screen.

Troubleshooting

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

Fault Conditions

The LEDs and indicators on the control box indicate faults with the Vibrasonic system.

Refer to Table 9-1 for a description of operating conditions indicated by the LEDs and indicators.

Refer to *Causes and Corrective Actions* to identify and correct error conditions indicated in Table 9-1.

Table 9-1 LED Functions

Condition	POWER Indicator	VIBRASONICS Indicator	LED 1	LED 2	LED 3	LED 4	LED 5
Normal	On	On	On	Off	Off	Off	Off
Under Voltage	On	On or Off	Off	On	Off	Off	Off
Over Voltage	On	On	Off	Off	On	Off	Off
Open Circuit	On	Flashing	Off	On	Off	On	Off
Short Circuit	On	On	Off	On	Off	Off	On

Causes and Corrective Actions

Use the following chart to correct faults conditions indicated by the LEDs.

Problem	Possible Cause	Corrective Action
1. Under voltage (output voltage too low)	Supply voltage too low	Increase the supply voltage.
	Sieve screen center hub bonding damaged	Replace the sieve screen.
	Damaged generator	Contact the Vibrasonic system manufacturer.
2. Over voltage (output of generator too high)	Poor contact surfaces between transducer and sieve screen	Remove the transducer from the screen and clean the mating surfaces with acetone. Assemble the transducer to the screen using the *Vibrasonic Transducer and Sieve Screen Installation* procedure.
	Loose transducer	Tighten the transducer using the supplied torque wrench. Refer to the *Vibrasonic Transducer and Sieve Screen Installation* procedure.
	Damaged sieve screen mating surface	Replace the sieve screen.
	Damaged transducer mating surface	Replace the transducer.
3. Open circuit (open circuit in output from control box)	Disconnected transducer cable	Check the transducer cable connections.
	Damaged four-meter cable or connector	Replace the four-meter cable.
	Loose or damaged wiring in the control box	Check the control box wiring. Tighten any loose connections.
	Damaged transducer	Replace the transducer.
4. Short circuit (short circuit in output from control box)	Short circuit in four-meter cable	Replace the four-meter cable.
	Short circuit in either four-meter or transducer cable connectors	Thoroughly clean the connectors.
	Short circuit in transducer	Replace the transducer.

VIBRASONICS/POWER Indicator Troubleshooting

Use the following chart to correct fault conditions indicated by the POWER and VIBRASONICS indicators.

Indicator Status	Possible Cause	Corrective Action
POWER: on **VIBRASONICS: off**	Faulty indicator bulb	Check the indicator light bulb and replace if necessary.
	Loose cable connection	Check all cable connections.
	Poor contact surfaces between transducer and sieve screen	Remove the transducer from the screen and clean the mating surfaces with acetone. Assemble the transducer to the screen using the *Vibrasonic Transducer and Sieve Screen Installation* procedure.
POWER: off **VIBRASONICS: off**	Control box power is off	Turn on power to the control box.
	Circuit breaker tripped	Open the control box and reset the miniature circuit breaker.
	Faulty indicator bulbs	Check the indicator light bulbs and replace if necessary.
POWER: off **VIBRASONICS: on**	Faulty indicator bulb	Check the indicator light bulb and replace if necessary.
POWER: on **VIBRASONICS: flashing**	Break in continuity or change in polarity in four-meter or transducer cable	Turn off control box power and check the transducer cap screw for the proper torque. Turn on control box power and check indicators. If the condition persists, replace the cables.

Vibrasonic System Parts

See Figure 9-4.

Item	Part	Description	Quantity	Note
—	1014564	SYSTEM, Vibrasonic, with interface card	1	
1	- - - - - -	• BOX, control, Vibrasonic	1	
1A	10600480	• • BOARD, controller, Vibrasonic	1	
2	- - - - - -	• CABLE, 4-meter, with support bracket	1	
3	- - - - - -	• CABLE, transducer	1	
4	- - - - - -	• TRANSDUCER, Vibrasonic	1	
5	1014565	• SCREEN, Vibrasonic, 80 mesh, with gasket	1	A
6	- - - - - -	• SCREW, cap, socket head, M8	1	
NS	1600759	• GROMMET, cord feed thru	1	B

NOTE A: Other mesh sizes are available. Contact your Nordson representative for more information.

B: Not used on all Spectrum II Feed Centers.

NS: Not Shown

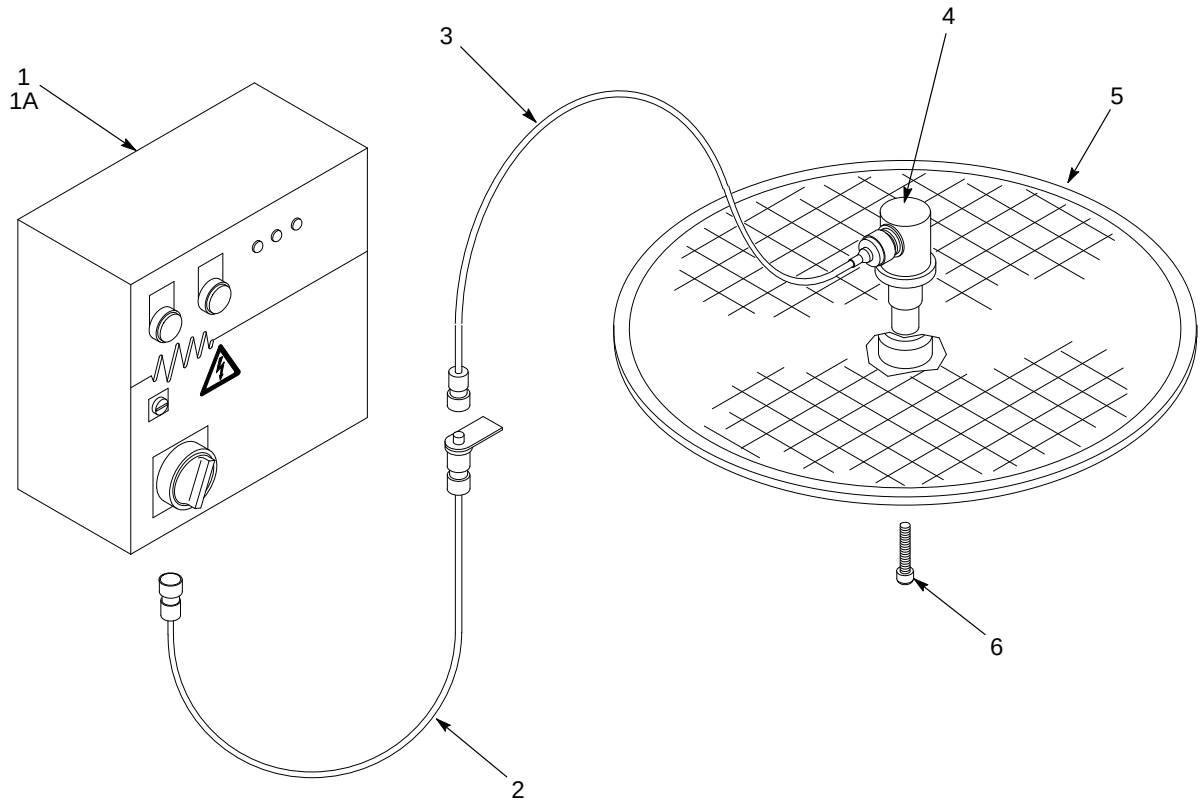


Figure 9-4 Vibrasonic System Parts

Section 10
Control Panel Diagrams

The following diagrams illustrate the pneumatic and electrical layout of the powder feed center's main control panel. Refer to your powder transfer system manual for other diagrams.

Wiring Diagrams

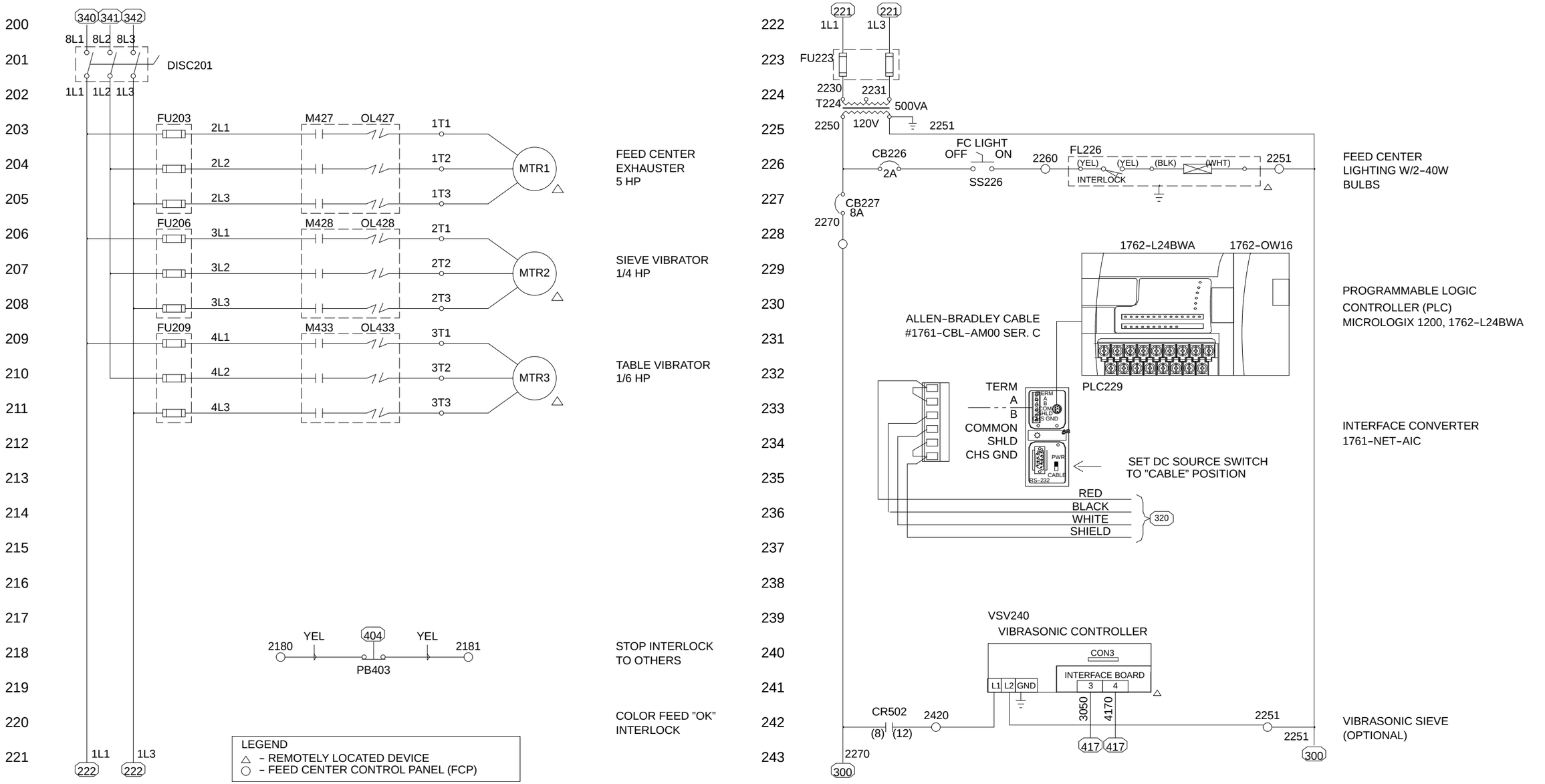
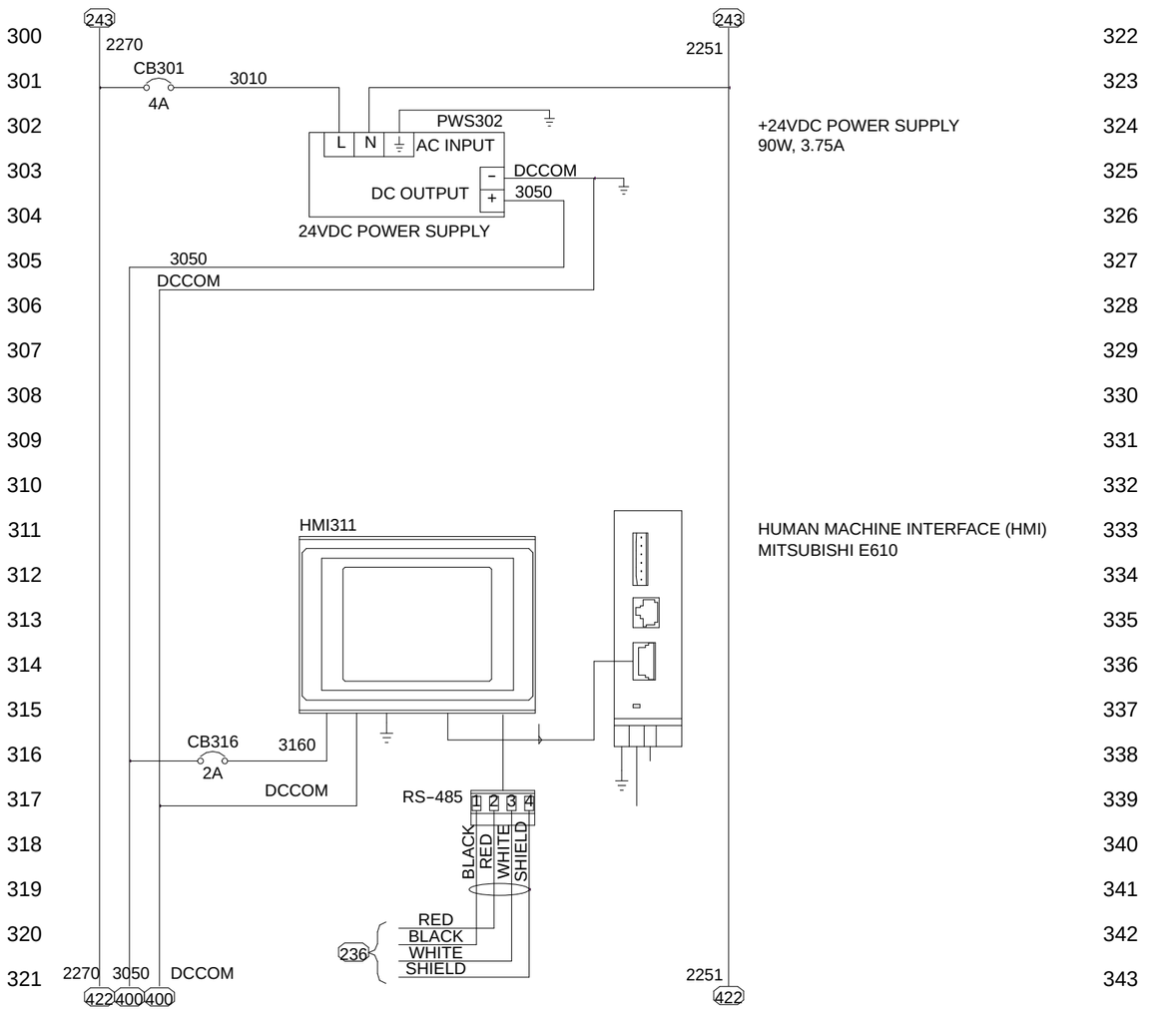


Figure 10-1 Control Panel Wiring Diagrams (sheet 1 of 4)



+24VDC POWER SUPPLY
90W, 3.75A

HUMAN MACHINE INTERFACE (HMI)
MITSUBISHI E610

LEGEND
△ – REMOTELY LOCATED DEVICE
○ – FEED CENTER CONTROL PANEL (FCP)

Figure 10-2 Control Panel Wiring Diagrams (sheet 2 of 4)

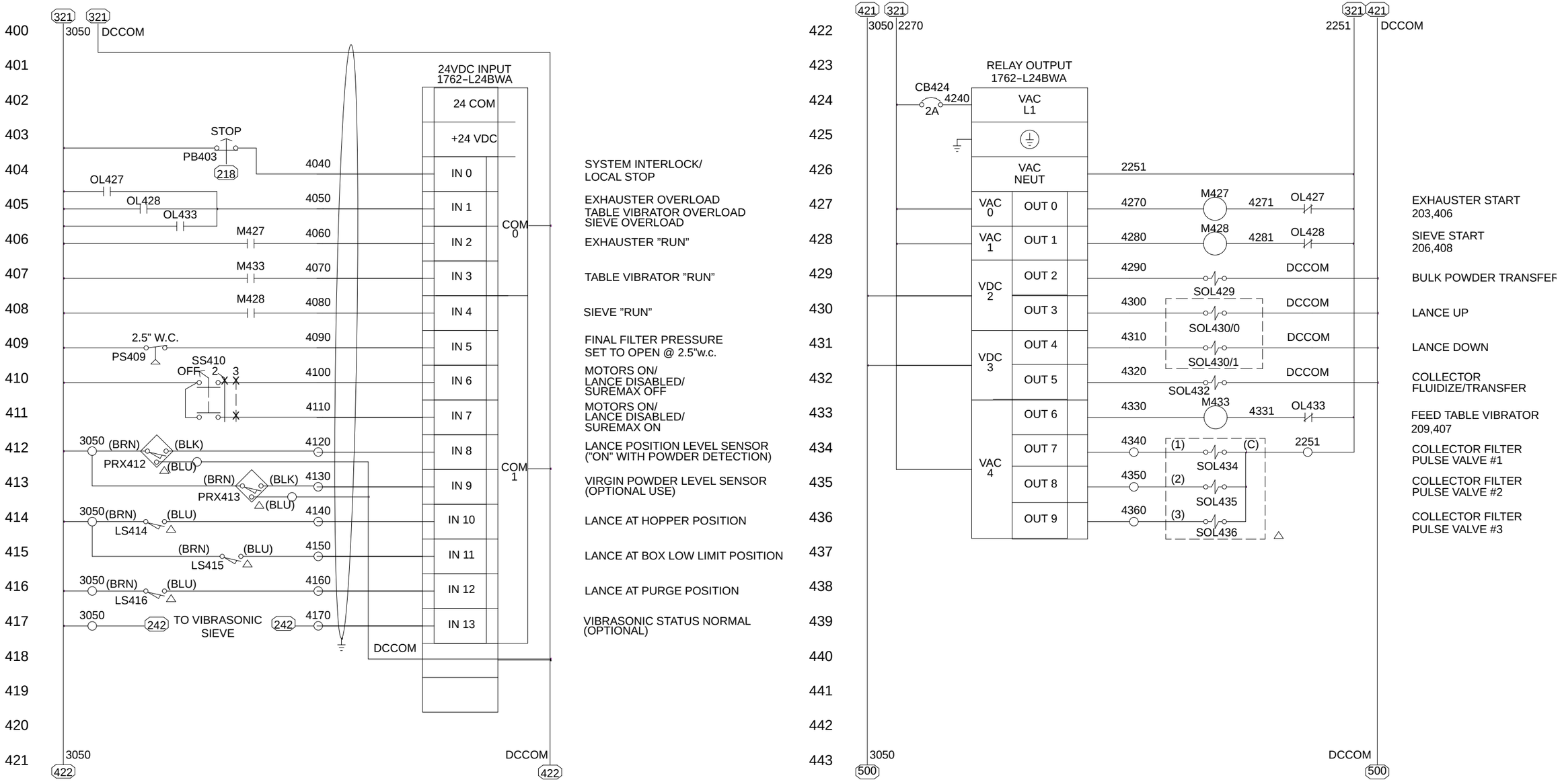


Figure 10-3 Control Panel Wiring Diagrams (sheet 3 of 4)

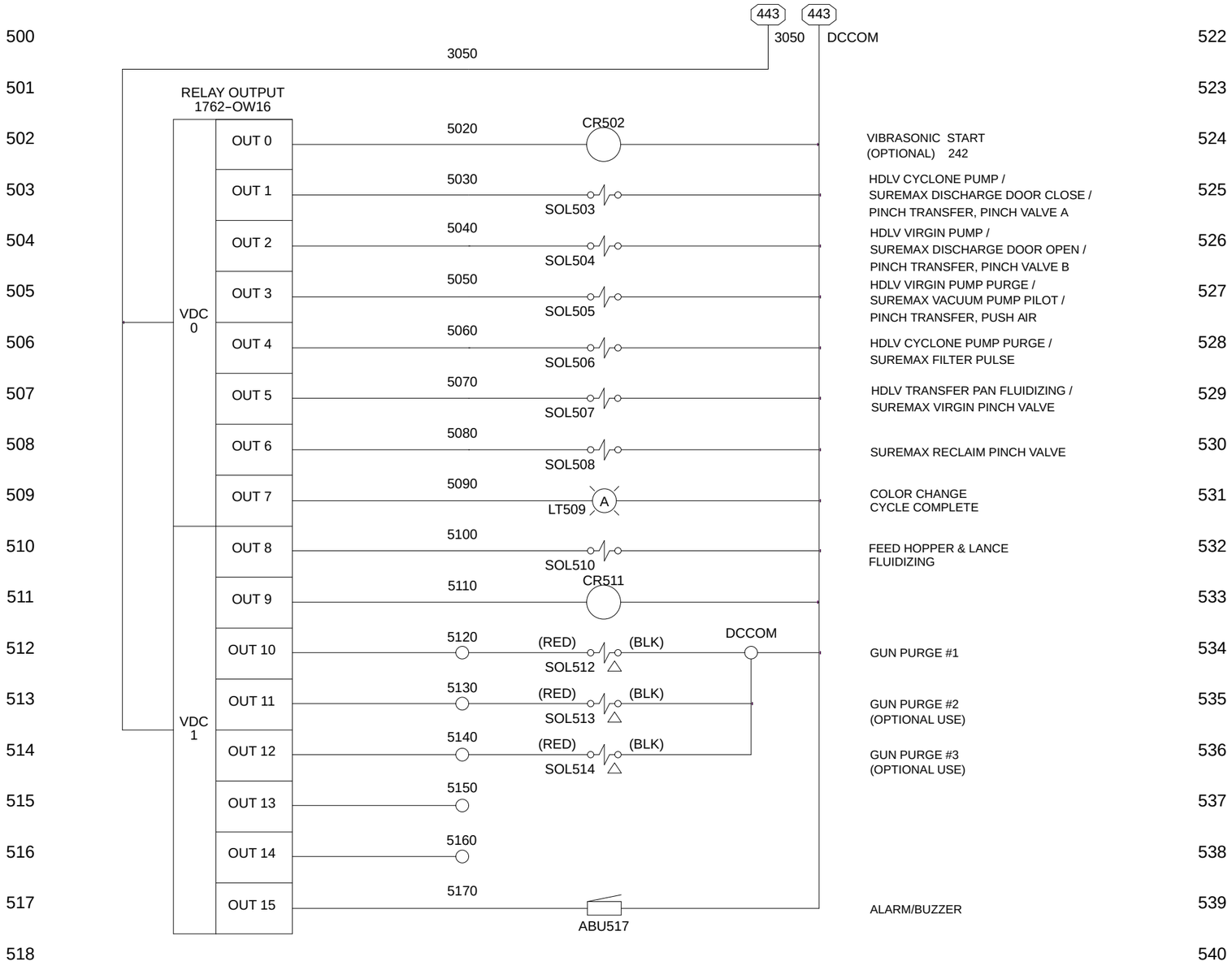


Figure 10-4 Control Panel Wiring Diagrams (sheet 4 of 4)

Pneumatic Diagram

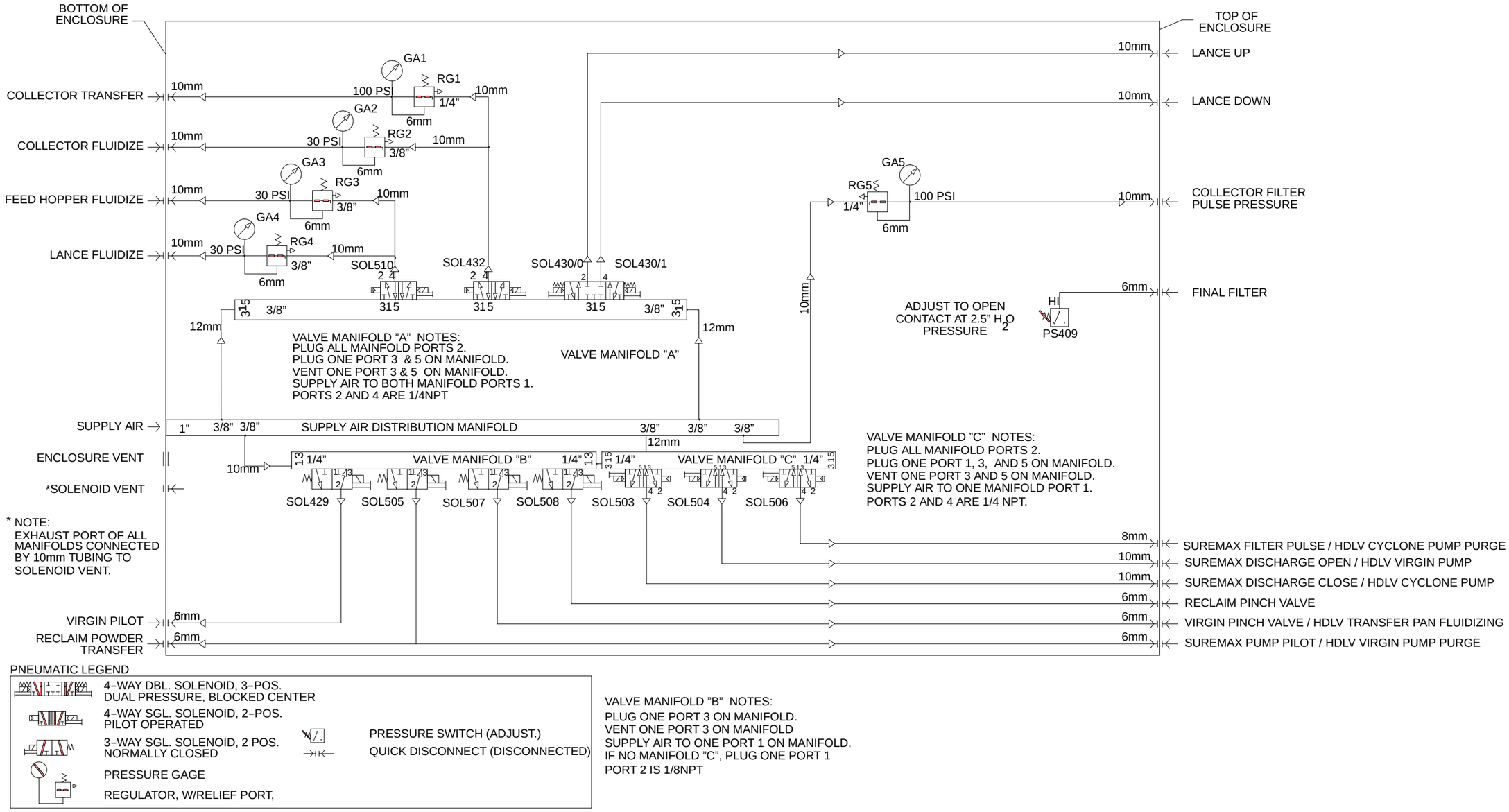


Figure 10-5 Control Panel Pneumatic Diagram