Powder Feed Center

Customer Product Manual
Part 334590–04
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For parts and technical support, call the Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

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Notice

Trademarks

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Section 1

Safety

Introduction

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include

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

Regulations and Approvals

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

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

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.

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

Grounding

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

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

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

Action in the Event of a Malfunction

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

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

Disposal

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

Section 2
Description

Introduction

The Nordson powder feed center delivers powder to up to 27 powder spray guns, while simultaneously receiving and conditioning reclaimed powder and introducing it back into the virgin powder source. The powder feed center efficiently reclaims powder and helps a powder coating system achieve fast, efficient color changes.

Refer to Table 2-1.

The powder feed center may be used with two types of powder coating systems:

Table 2-1 Compatible Powder Coating Systems

System Type	Description
Quick Color Change	These systems are specially equipped to quickly perform color changes. Quick color change systems include the following Nordson product lines: • Colormax • Sure Clean
Conventional	These systems use conventional cyclone or cartridge technology. Conventional color change systems include the following Nordson product lines: • Cyclo-Kinetic • Excel • Horizon

Components

Refer to Table 2-2 and Figure 2-1 for a description of the feed center standard components.

Table 2-2 Powder Feed Center Components

Item	Component	Description
1	Fan/Filter Section	Filters the air in the powder feed center enclosure before returning it to the spray room.
2	Enclosure	Area where powder is distributed to and returned from the powder coating system.
3	Control Panel	Houses the feed center operator interface and electrical and pneumatic controls; refer to *Operator Interface* for information about the operator interface.
4	Sure Max Powder Transfer System	**NOTE:** The Sure Max powder transfer system is used only with the Colormax and Sure Clean powder coating systems. Your system may not have the Sure Max powder transfer system. In quick color change systems, draws powder from cyclones and drops powder into sieve. Refer to *Sure Max Powder Transfer System Operation* in this section for more information.
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 tube manifold and up to nine inline powder pumps. A pneumatic cylinder raises and lowers the lance assemblies 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	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.

Continued...

Item	Component	Description
7	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. **NOTE:** Optional fluidizing hopper is shown. Refer to the *Options* section for more information.
8	Vibratory Table	Vibrates to prevent cavitation when feeding powder from a standard box of powder. **NOTE:** The vibratory table only vibrates for a short time while the optional fluidizing hopper is being used.
9	Purge Manifold	Pulses compressed air through the pickup tubes, pumps, powder feed hoses, and spray guns to blow out all loose powder. Consists of one manifold block for each lance assembly. Each manifold block is equipped with up to nine open ports to match the number of pumps and spray guns in the system.

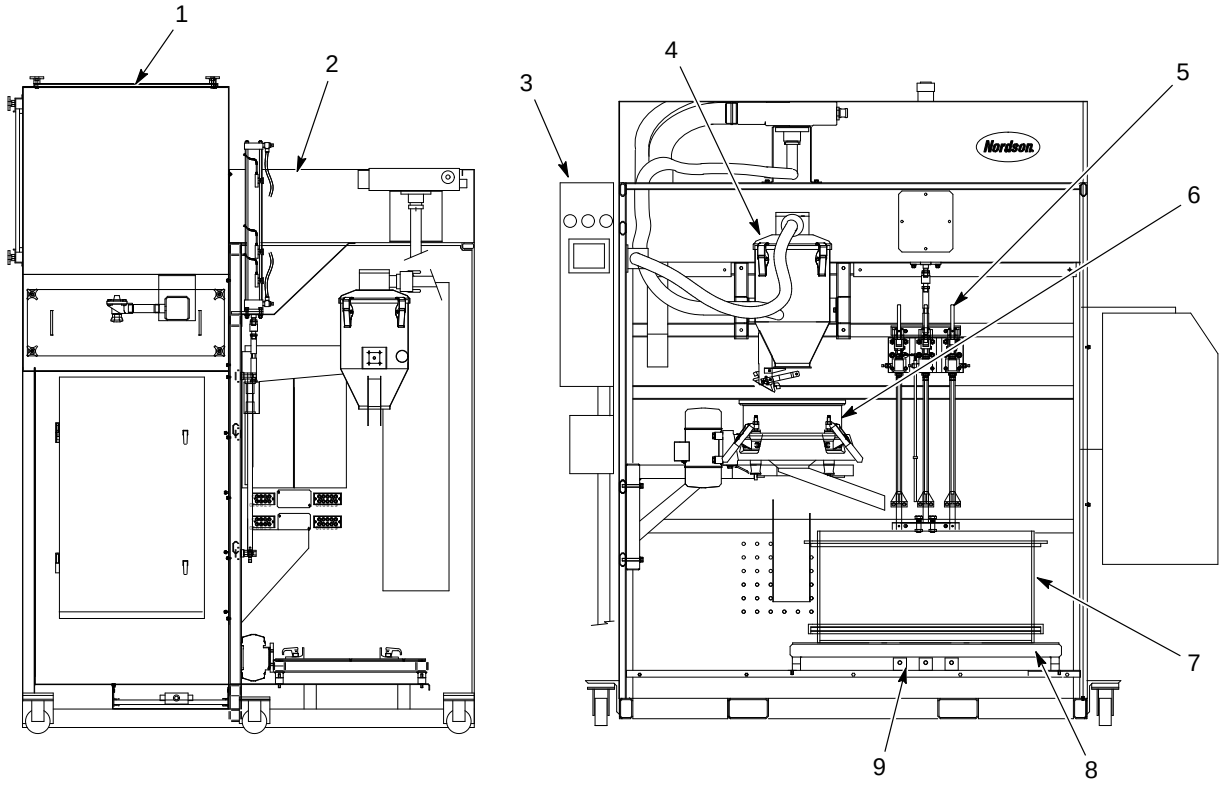


Figure 2-1 Powder Feed Center Components

Operator Interface

The control panel houses a PLC that controls the powder feed center's operations. The operator can adjust and start or stop the automated functions using the touch screen operator interface located in the control panel. 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.

Theory of Operation

The following paragraphs explain how the powder feed center operates.

Powder Fluidization and Transfer

See Figure 2-2.

A feed source (5) is placed directly on the vibratory table (6). Powder in the feed source is fluidized and the lance assembly (4) 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 (3) draws the fluidized powder up the lance assembly 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.

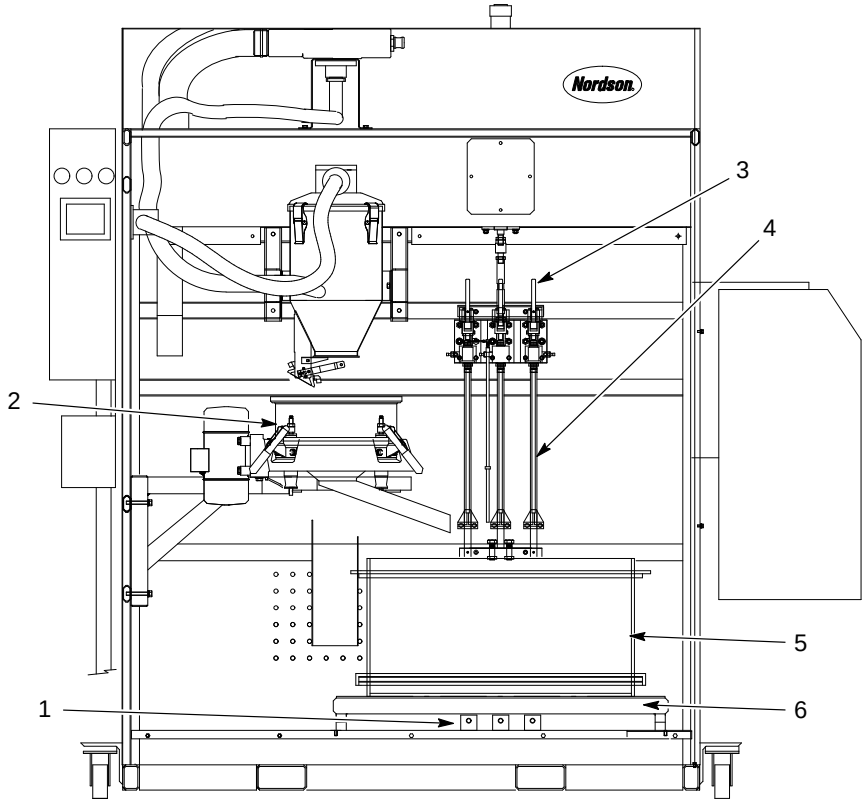


Figure 2-2 Powder Feed Center Operation

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

Note: Optional fluidizing hopper shown.

Air Filtration

See Figure 2-3.

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's transfer pump.

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.

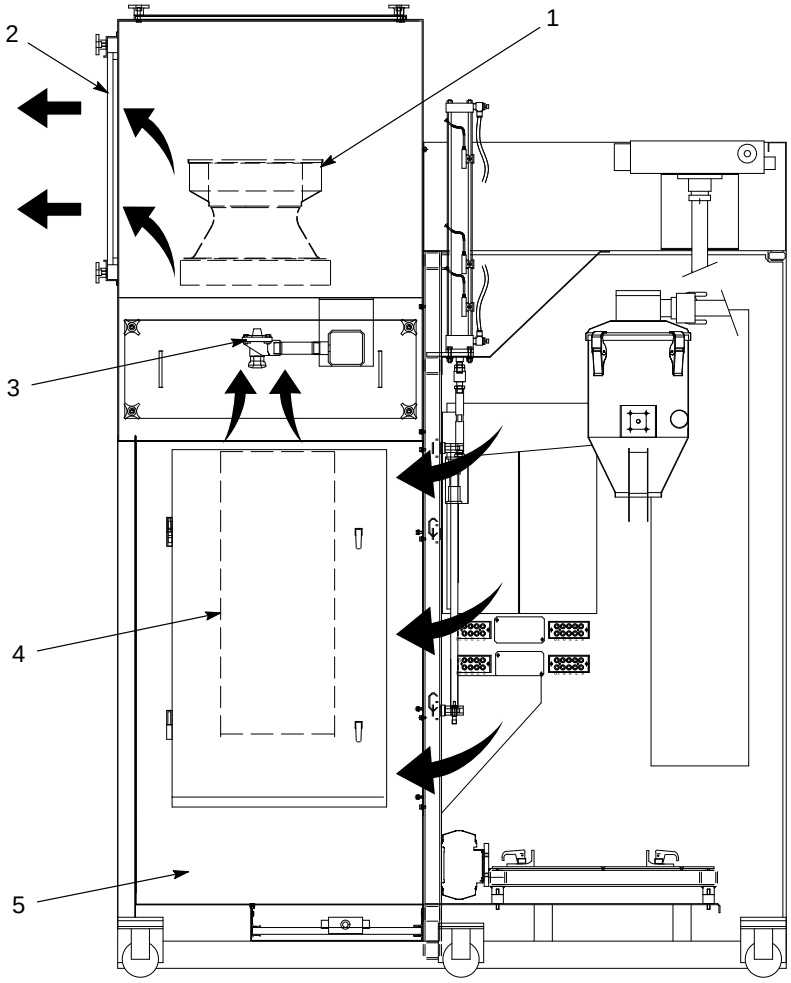


Figure 2-3 Powder Feed Center Air Filtration

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

Purge Cycle

See Figure 2-2.

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 raises up out of the feed source. The operator blows powder off the lance assembly, then removes the feed source from the vibratory table.

The operator lowers the lance assembly until the pickup tubes contact the purge manifold (1). The purge manifold sends timed pulses of air through the pickup tubes, powder pumps, 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.

Sure Max Powder Transfer System Operation

NOTE: In powder coating systems that do not have the Sure Max powder transfer system, oversprayed powder collects in either a surge hopper at the bottom of the cyclones or the booth collector module. A transfer pump pumps the powder back to the powder feed center.

Refer to the following paragraphs for the Sure Max powder transfer system's process during normal and color change operations.

Normal Operation

See Figure 2-4.

During normal operation, reclaimed powder collects in the transfer pan (11) at the bottom of the cyclones. The scrap port on the transfer pan is plugged with the scrap cap (9), and both reclaim plugs (3) are disconnected. The vacuum amplifier (1) draws the reclaimed powder out of the transfer pan and through the reclaim conveyor line (8). The powder collects in the reclaim receiver (5), which filters the powder from the air before it gets to the vacuum amplifier.

The reclaim receiver's discharge door (6) periodically opens, dropping the reclaimed powder into the sieve (7). The sieve separates contaminates from the reclaimed powder before dropping the powder back into the feed source.

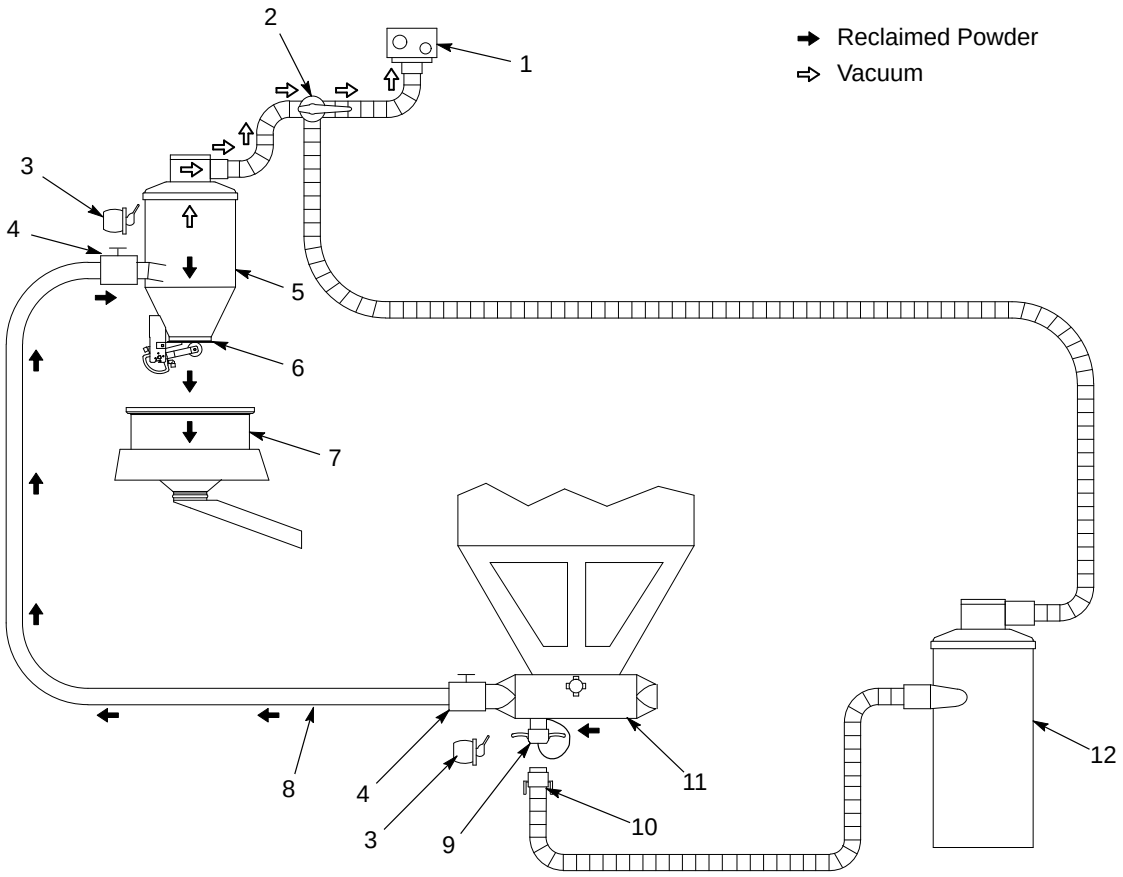


Figure 2-4 Sure Max Powder Transfer System: Normal Operation

1. Vacuum amplifier
2. Vacuum diverter handle
3. Reclaim plug
4. Reclaim couplings
5. Reclaim receiver
6. Discharge door
7. Sieve
8. Reclaim conveyor line
9. Scrap cap
10. Scrap conveyor line
11. Transfer pan
12. Scrap receiver

Color Change Operation

See Figure 2-5.

At the beginning of the color change process, the discharge door (6) remains open. Pulses of air are forced through the filter in the reclaim receiver (5), blowing loose powder off the filter.

At the end of the color change process, the operator disconnects the reclaim couplings (4) attaching the reclaim conveyor line (8); cleans and plugs (3) the reclaim conveyor line; removes the scrap cap (9) and installs the scrap conveyor line (10). The operator then turns the vacuum diverter handle (2) counterclockwise to cause oversprayed powder to be drawn out of the transfer pan (11) and into the scrap receiver (12). Spraying 0.5 kg (one lb) of overspray to waste seasons the ducts and cyclones, allowing for efficient powder reclaim during normal operation.

After 0.5 kg (one lb) of overspray has been collected in the scrap receiver, the operator disconnects the scrap conveyor line; installs the scrap cap; uncaps and connects the reclaim conveyor line; and turns the diverter handle clockwise to return the system to normal operation (reclaim mode).

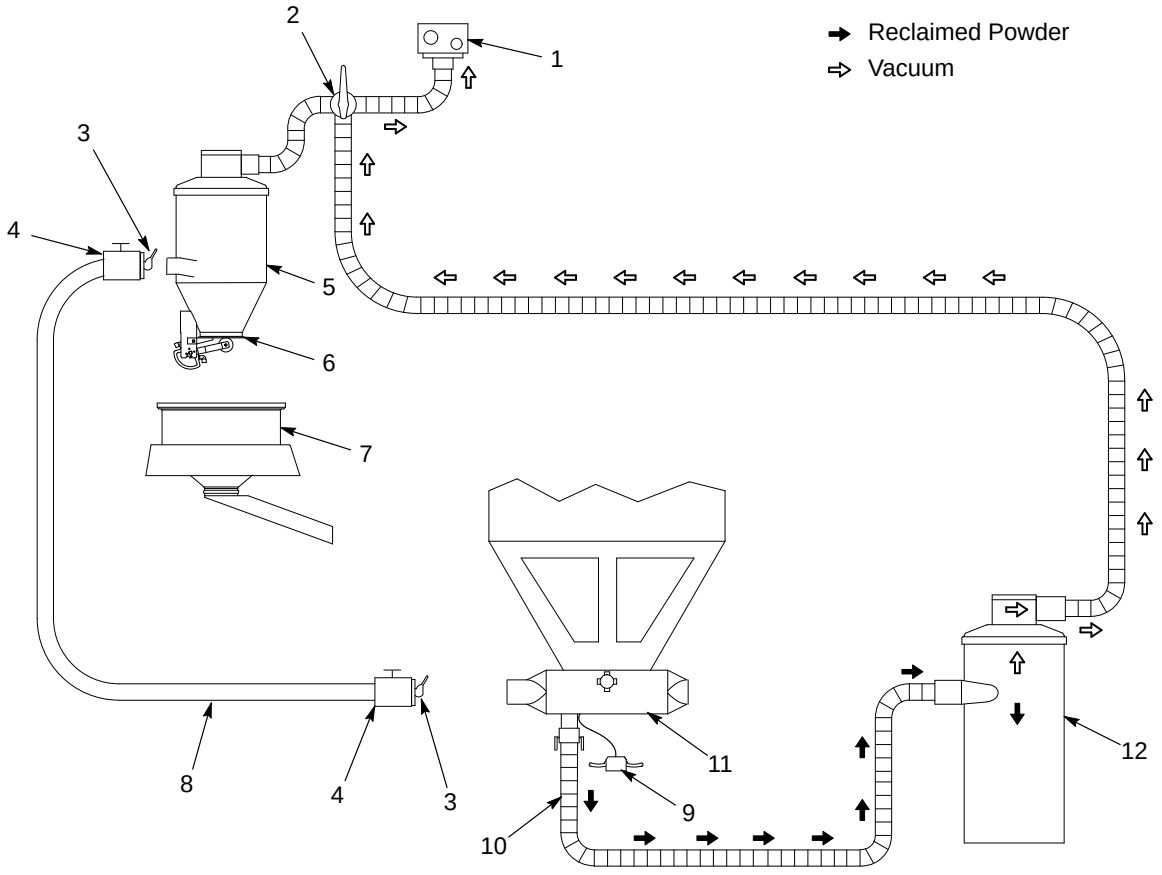


Figure 2-5 Sure Max Powder Transfer System: Color Change Operation

1. Vacuum amplifier
2. Vacuum diverter handle
3. Reclaim plug
4. Reclaim couplings
5. Reclaim receiver
6. Discharge door
7. Sieve
8. Reclaim conveyor line
9. Scrap cap
10. Scrap conveyor line
11. Transfer pan
12. Scrap receiver

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
Feed Center Configuration Menu	Setting up the operator interface to recognize the optional hardware that is included with your feed center
Spray System Configuration Menu	Setting up the operator interface to recognize the optional hardware that is included in the powder coating 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 **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.

Table 3-1 User Access Levels

User Access Level	Password
Operator	0
Lead Operator	108
Supervisor	1597

Feed Center Configuration Menu

See Screen 3-1. The **Feed Center Configuration** menu appears the first time that the powder feed center is powered up. This menu allows you to identify the components that are used in your powder feed center.

All configuration settings on the menu are **YES/NO** selections. Touch a button to change the current selection from **NO** to **YES**. Touch the button again to change it back to **NO**. Refer to Table 3-2 for a description of the buttons on the menu.

NOTE: To access the **Feed Center Configuration** menu from the **Main Menu**, touch the **Special Functions** button, then the **System Config** button.

Screen 3-1 Feed Center Configuration Menu

Table 3-2 Feed Center Configuration Menu

Selection	Description	Note
Sure Clean Spray System	Select **YES** if the feed center is used with a Sure Clean system	
Colormax Spray System	Select **YES** if the feed center is used with a Colormax system	
Sure Max System	Select **YES** if the feed center is equipped with a Sure Max powder transfer system	
Gun Purge Valve #1	Select **YES** if purge valve #1 is used	A
Gun Purge Valve #2	Select **YES** if purge valve #2 is used	A
Gun Purge Valve #3	Select **YES** if purge valve #3 is used	A
Sieve Vibrator	Select **YES** if the feed center is equipped with a vibratory sieve motor (feed center does not have a feed chute vibrator)	B
Vibrasonic Sieve Screen	Select **YES** if the feed center is equipped with the Vibrasonic sieve screen system	
Feed Chute Vibrator	Select **YES** if the feed center is equipped with a feed chute vibrator (feed center does not have a vibratory sieve motor)	B
Four Filter Pulse Valves	Select **YES** if there are four cartridge filters (the standard number is three)	
Configuration Completed	Select **YES** if the configuration process has been completed • The **Spray System Configuration** menu will appear when you touch this button if either **Sure Clean System** or **Colormax System** is set to **YES** • The **Special Functions** menu will appear when you touch this button if either **Sure Clean System** or **Colormax System** is set to **NO**	
Special Functions	Opens the **Special Functions** menu	C
Log-On	Allows you to change to a different user access level	
Config System	Opens the **Spray System Configuration** menu	C

NOTE A: Each gun purge valve can purge up to nine spray guns. Enable the appropriate number of gun purge valves based on how many spray guns are in your system.

B: The powder feed center has either a sieve vibrator motor or a feed chute vibrator.

C: This button is visible only if **Configuration Completed** is set to **YES**.

Spray System Configuration Menu

See Screen 3-2. The **Spray System Configuration** menu allows you to identify the components that are used in your powder coating system.

Screen 3-2 Spray System Configuration Menu

All configuration buttons on the menu are **YES/NO** selections. Touch a button to change the current selection from **NO** to **YES**. Touch the button again to change it back to **NO**. Refer to Table 3-3 for a description of the buttons on the menu.

Table 3-3 Spray System Configuration Menu

Selection	Description	Note
Remote Exhauster Panel	Select **YES** if your system has a remote after filter and exhauster panel	
Oscillator #1	Select **YES** if your system has one or more vertical oscillators	
Oscillator #2	Select **YES** if your system has two vertical oscillators	
Automatic Gunmovers	Select **YES** if your system has one or more horizontal in/out positioners	
Booth Mover	Select **YES** if your system is equipped with a roll-on/roll-off system	A
After Filter Rolls w/ Booth	Select **YES** if the after filter moves with the rest of the booth and **Booth Mover** is set to **YES**	A
Configuration Completed	Select **YES** if you are finished making the selections on the **Spray System Configuration** menu	
Special Functions	Opens the **Special Functions** menu	B
Log-On	Allows you to change to a different user access level	
Previous	Opens the **Feed Center Configuration** menu	B
NOTE A: These settings are only applicable to powder coating systems equipped with roll-on/roll-off systems. Leave all of these set to **NO** if your system does not have a roll-on/roll-off system. B: These buttons are visible only if **Configuration Completed** is set to **YES**.		

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 3-4 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 3-4 Typical Operating Air Pressures

Air Pressure	Setting
Input (Minimum)	6 bar (90 psi)
Cartridge Filter Pulse	2.75 bar (40 psi)
Waste Hopper Fluidizing	0.5 bar (8 psi)
Fluidizing Hopper (Optional)	0.3 bar (5 psi)
Waste Hopper Transfer Pump	2.75 bar (40 psi)
Lance Assembly	
Raise	5.5 bar (80 psi)
Lower	3 bar (45 psi)

Cartridge Filter Pulse Valve Timing Settings

Refer to Table 3-5 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.

NOTE: The pulse valves are typically set to PULSE-ON-DEMAND. Most systems are normally set to automatically pulse the cartridge filters when the differential pressure across the filters reaches approximately 3-in. wc, which is approximately 1-in. wc higher than the pressure drop at startup. The exact reading will depend on the life of the cartridge filters.

Table 3-5 Typical Pulse Valve Timer Board Settings

Timer	Setting
Filter Pulse On Duration	0.07 seconds
Filter Pulse Off Duration	90 seconds

Level Sensor Programming

The level sensor probe signals the lance assembly to raise or lower to the appropriate level in the powder feed source. 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.

Operation

The level sensor probe has two operating states: empty powder and full. The function of these operating states is dependent on whether the feed source is a box of powder or the optional fluidizing hopper.

Operating State	Box of Powder	Fluidizing Hopper
Empty (no powder)	The lance assembly lowers until the probe senses powder, then stops. When the probe no longer senses powder, the lance assembly lowers until it senses powder in the full range.	When the probe does not sense powder in the full range, it activates either a low powder alarm or automatic bulk feed.
Full	When the probe senses powder in the full range, the lance assembly stops. When the lance assembly is at its lowest allowable level and the powder level falls below the full range, the probe activates either a low powder alarm or automatic bulk feed. If the probe senses powder above the full range, the lance assembly raises to maintain the optimum level for fluidization by the lance assembly.	When the probe senses powder the low powder alarm and bulk feed are turned off.

One Button Level Sensor Probe Programming

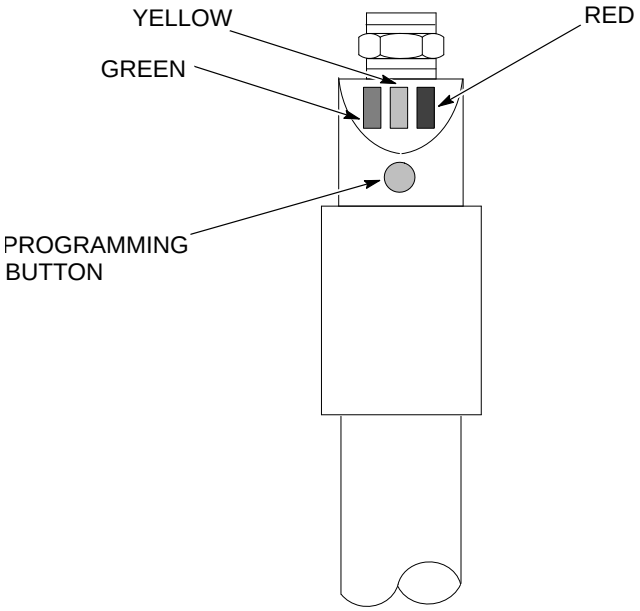


Figure 3-1 Programming the Level Sensor Probe

LED Functions for Operation

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 Powder Adjustment* overwrites the values set in the *Full Adjustment*. If you complete a *Empty Powder Adjustment,* be sure to complete a *Full Adjustment*.

The level sensor probe is operational after the empty powder adjustment, but completing the full adjustment allows the level sensor probe to operate at its fullest potential.

1. Make sure that the level sensor probe is in the fully down position. Refer to *Powder Box Installation* in the *Operation* section.
2. Put a box or hopper of powder on the vibratory table and turn on fluidizing air to the lance assembly. If using a hopper, allow the powder in the box to thoroughly fluidize.
3. From the **Main Menu**, touch the **Auto Menu** button to open the **Auto Menu**. On 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 fluidized powder.
4. See Figure 3-1. 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 Powder Adjustment* value.

1. Place a box or hopper of powder on the vibratory table. If using a hopper, allow the powder to thoroughly fluidize.
2. From the **Auto Menu**, touch the **LANCE DOWN** button. Lower the lance assembly until the fluidized powder covers at least 25 mm (1 in.) of the tip of the level sensor probe.
3. See Figure 3-1. 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 the yellow LEDs are lit continuously, the Full Adjustment is complete.

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 signal difference between the empty powder and full states is too small (the level between empty powder and full was not great enough). • The empty powder 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 powder adjustment, the distance between the level sensor probe and the powder was too short.

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.

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.

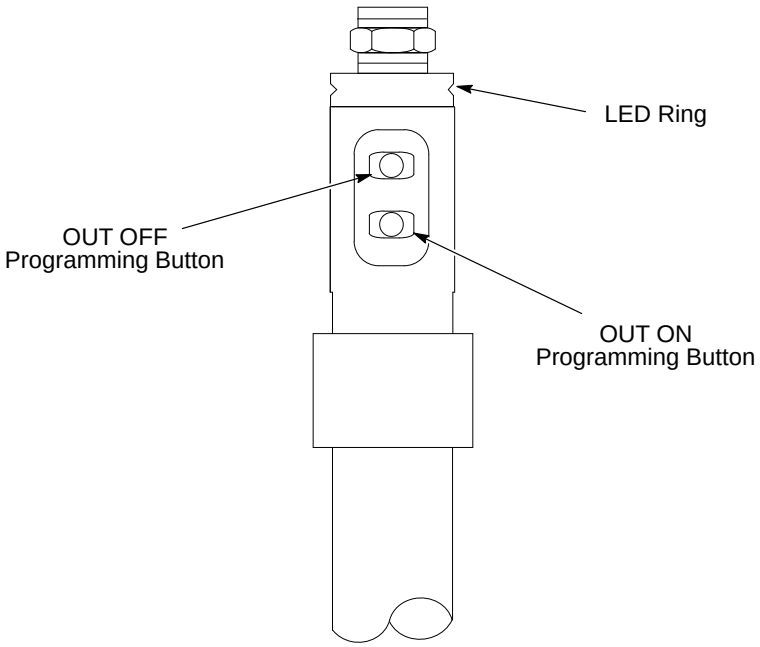


Figure 3-2 Programming the Two Button Level Sensor Probe

LED Functions for Operation

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

Empty (no powder) Adjustment

1. Put a box or hopper of powder on the vibratory table.
2. Make sure that the level sensor probe is in the fully down position. Refer to *Powder Box Installation* in the *Operation* section.
3. Put a box or hopper of powder on the vibratory table and turn on fluidizing air to the lance assembly. If using a hopper, allow the powder in the box to thoroughly fluidize.
4. 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.
5. 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.
6. See Figure 3-2 Press the OUT OFF programming button until the LED ring slowly flashes yellow.
7. 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 3-2. 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's operator interface. The menus shown are typical. Your feed center's menus may appear slightly different.

Main Menu

See Screen 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.

The **Auto**, **Manual**, **Setup**, and **Special Functions** buttons appear at the bottom of every screen.

- Touching the **Auto** button causes the **Auto Menu** to appear.
- Touching the **Manual**, **Setup**, and **Special Functions** buttons causes a row of buttons to appear directly above the existing buttons.

NOTE: Refer to *Manual Functions* in this section for more information about the **Manual** functions. Contact your Nordson representative for information about the **Setup** and **Special Functions** buttons.

Screen 4-1 Main Menu

Auto Menu

The **Auto Menu** allows the operator to control the automated functions of the powder feed center. Refer to Table 4-1 for a description of the typical functions of the buttons on the **Auto Menu**.

See Screen 4-2.

Screen 4-2 Auto Menu

Table 4-1 Auto Menu Functions

Button	Function
Alarm	Appears in the upper right-hand corner of the menu when an alarm is present. Opens the **Alarm Display** menu. **NOTE:** Refer to your quick color change system manual's *Troubleshooting* section for more information about the **Alarm Display** menu.
SYSTEM START/STOP	Starts and stops all normal powder feed center functions.
LANCE UP/DOWN	Raises and lowers the lance assembly (when the **Lance/Purge Mode** is set to **MANUAL**).
GO TO COLOR CHANGE MENU	Opens the **Color Change** menu. **NOTE:** Refer to the *Color Change* section for more information about the **Color Change** menu.
FINISH COLOR CHANGE	Returns the system to normal operation after the color change process is complete.

Continued...

Auto Menu *(contd)*

Table 4-1 Auto Menu Functions (contd)

Button	Function
Select Box	When using a box of powder as a feed source, the • vibratory table turns on; • lance assembly fluidizing air turns on; and • lance assembly lowers as the powder level lowers. (Bulk powder can be added automatically when the lance assembly reaches the box of powder limit switch position.) The button displays **BOX Selected** when it is touched. **NOTE:** The low powder alarm will be activated when the lance assembly stays at the box of powder limit switch position for an extended period of time.
Select Hopper	When using the optional fluidizing hopper as a feed source, the • vibratory table turns off; • lance assembly fluidizing air turns off; and • lance assembly maintains fixed position and activates bulk feed as the powder level lowers. The button displays **HOPPER Selected** when it is touched. **NOTE:** The low powder alarm will be activated if the level of powder remains below the lance's powder sensor for an extended period of time.
Enable Reclaim Spray	Enables system to collect and reuse oversprayed powder.
Enable Virgin Powder	Allows powder from a bulk source to be automatically added to the feed source in the powder feed center.
Enable Vibrasonic	Starts the optional Vibrasonic system. Refer to *Vibrasonic Sieve Screen* in the *Options* section for more information.
Lance/Purge Mode	Switches between **MANUAL** and **AUTO** lance assembly/purge operating modes. Interrupts the automated purge process.
Blowoff Mode	Switches between **MANUAL** and **AUTO** gun blow-off operating modes. Interrupts the automated gun blow-off process.
Main	Opens the **Main Menu**.
DISABLE SURE MAX SYSTEM	Stops the Sure Max powder transfer system.

Manual Functions

Touch the **Manual** button on the **Main Menu** to display the manual function buttons. Following is a list of the manual function buttons.

NOTE: Your system may have other manual functions. Refer to your powder coating system manual for information about functions not explained in this manual.

- fan motor (start/stop)
- waste pumps (start/stop)
- sieve (start/stop)
- collector filter pulsing (continuous/on-demand)
- lance assembly (raise/lower)
- purge process (start/stop)

Setup and Special Functions

The **Setup** and **Special Functions** buttons display buttons that can adjust advanced operating parameters and other functions. These functions are customized to your system and should only be adjusted under the supervision of your Nordson representative.

Daily Startup

Use the following procedures to start up the powder feed center on a daily basis.

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. Start up your powder coating system by performing the startup procedure in the powder coating system manual.
3. Touch the **Auto** button on the **Main Menu** to display the **Auto Menu**.
4. See Screen 4-3. Touch the **SYSTEM START** button. All of the motors in the system turn on.

Screen 4-3 Auto Menu

5. 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**.

6. 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 to the position appropriate for the feed source.

NOTE: If you touch either the **BOX Selected** or **HOPPER Selected** buttons, the lance will automatically raise to the fully up position.

7. 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's pneumatic panel. (Recommended setting: 0.3 bar (5 psi))
8. Touch the following buttons (as applicable) to activate options for your feed center:
   - **Enable Reclaim Spray**
   - **Enable Virgin Powder**
   - **Enable Vibrasonic**
9. Start spraying powder.

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. See Figure 4-1. Touch the **LANCE UP** button to raise the lance assembly (5).
3. Loosen the thumb screw (1) and slide the level sensor probe (4) down until it stops against the top of the probe bracket (2). Tighten the thumb screw.
4. Open the box of powder and place it on the vibratory table.
5. 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.
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 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. See Figure 4-1. Touch the **LANCE UP** button to raise the lance assembly (5).
3. Loosen the thumb screw (1). Slide the level sensor probe (4) up until the collar (3) stops against the bottom of the probe bracket (2), then tighten the thumb screw.
4. Remove the front box guide from the vibratory table and set it aside.
5. 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.
6. 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.
7. Set the **Lance/Purge Mode** to **AUTO**.

When all feed center modes are set to **AUTO**, the lance assembly stays at a fixed position. When the level sensor senses that the powder level has fallen below the hopper limit, the sensor activates either a low-powder alarm or automatic bulk feed.

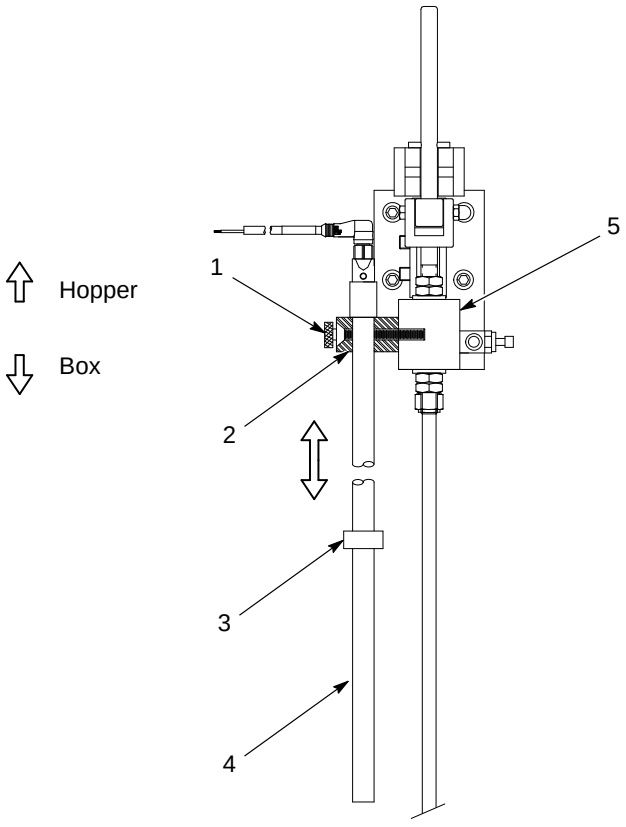


Figure 4-1 Level Sensor Probe Adjustment

1. Thumb screw
2. Probe bracket
3. Collar
4. Level sensor probe
5. Lance assembly

Note: Level sensor probe shown in the powder box (down) position.

Shutdown

Use the following procedure to shut down the powder feed center.

1. Move the system offline, if applicable.
2. Clean the system by performing the color change process, but do not install a new powder source. Refer to the *Color Change* section for more information.

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

3. See Screen 4-3.

   From the **Auto Menu**, touch the **SYSTEM STOP** button. All of the motors in the 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 disconnect switch on the powder feed center control panel to the off position.

Section 5
Color Change

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

Introduction

Use the following procedures to change colors in the powder feed center. Follow the procedures listed in your system and application equipment manuals to clean the booth canopy and powder application equipment.

The operators start the automated tasks of the color change process by using the **Color Change** and **Auto Menu** screens.

NOTE: Your powder coating system may not have all of the equipment or functions described in this section. Disregard any steps that refer to equipment or functions that are not present in your system.

Types of Color Changes

Refer to Table 5-1 for descriptions of the two types of color changes.

Table 5-1 Types of Color Changes

Color Change Type	Description
Similar Shade	When changing from either • a light powder to another light powder, or • a dark powder to another dark powder.
Different Shade or Different Powder Type	When changing from either • a light powder to a dark powder, • a dark powder to a light powder, • a standard powder to a special powder, or • a special powder to a standard powder.
NOTE: The time that it takes to perform a different shade/powder type color change will depend on how many spray guns are in your system.	

Types of Color Changes *(contd)*

Refer to Table 5-2.

The powder feed center may be used with two types of powder coating systems. The powder feed center has a specific color change process for each type of system.

Table 5-2 Compatible Powder Coating Systems

System Type	Description
Quick Color Change	These systems are specially equipped to quickly perform color changes. Quick color change systems include the following Nordson product lines: • Colormax • Sure Clean
Conventional	These systems use conventional cyclone or cartridge technology. Conventional color change systems include the following Nordson product lines: • Cyclo-Kinetic • Excel • Horizon

Performing a Color Change

Two operators typically perform the color change process. The two operators are responsible for cleaning the following things:

Operator	Responsible for these Booth Components	Refer to this Documentation
A	• Booth interior • Cyclones and/or color module	Powder coating system manual
B	Powder feed center	• Appropriate color change procedure in this section, or • Quick color change powder coating system manual

Operators A and B typically perform their respective color change procedures at the same time.

Color Change Control Menu

The operators start the automated tasks of the color change process by using the **Color Change Control** and **Auto Menu** screens.

Menu Navigation

Figure 5-1 shows how to navigate through the menus used to perform a color change.

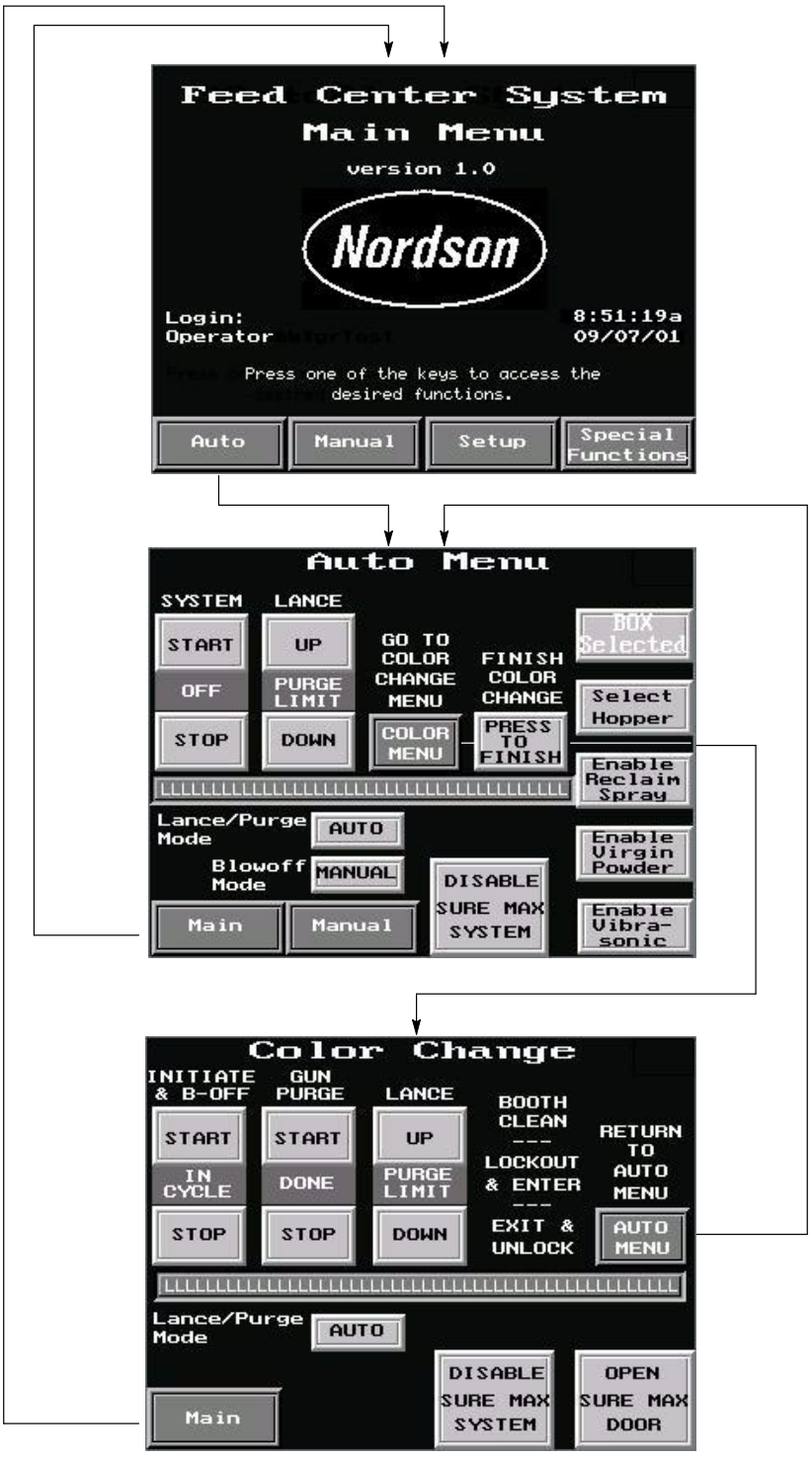


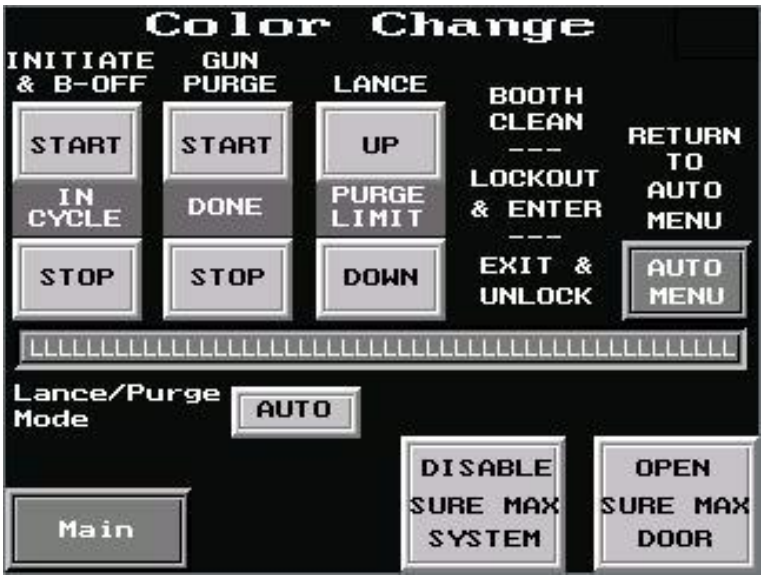
Figure 5-1 Color Change Menu Navigation

Color Change Menu Functions

Refer to Table 5-3 and Screen 5-1 for a description of the functions of the **Color Change** menu.

Table 5-3 Color Change Menu Functions

Button	Function
Alarm	Appears in the upper right-hand corner of the menu when an alarm is present. Opens the **Alarm Display Menu**. **NOTE:** Refer to the *Troubleshooting* section of your quick color change system manual for more information about the **Alarm Display Menu**.
INITIATE & B-OFF START/STOP	Starts or stops the gun blow-off cycle. Moves the lance assembly to fully raised position and stops oscillators at gun blow-off position.
GUN PURGE START/STOP	Starts or stops the gun purge cycle. Moves the lance assembly to the fully lowered position.
LANCE UP/DOWN	Raises or lowers the lance assembly (when **Lance/Purge Mode** is set to **MANUAL**).
AUTO MENU	Opens the **Auto Menu**.
Message Text Area	Displays alarm messages and the status of the color change process.
Lance/Purge Mode	Selects either **AUTO** or **MANUAL** lance purge mode; allows operator to override automated lance and purge functions.
Main	Opens the **Main Menu**.
ENABLE/DISABLE SURE MAX SYSTEM	Enables and disables the Sure Max powder transfer system.
OPEN/CLOSE SURE MAX DOOR	Opens and closes the Sure Max reclaim receiver door.



Screen 5-1 Color Change Menu

Quick Color Change System Color Change Process

Use the following chart to complete the color change process in a Colormax or Sure Clean powder coating system.

NOTE: Refer to the *Color Change* section in your quick-color change powder coating system manual for a more detailed description of the color change process.

Procedure	Tasks	
	Operator A **See Figure 5-2**	**Operator B** **See Figure 5-3**
1	Close the booth doors and, if applicable, move the booth offline.	
2	From the **Auto Menu**, touch the **COLOR MENU** button to access the **Color Change** menu. Touch the **INITIATE & B-OFF START** button. The system automatically performs the following tasks: **NOTE:** Perform procedure 3 while the system is performing these tasks. **NOTE:** To interrupt the gun blow-off cycle, touch the **INITIATE & B-OFF STOP** button. • Oscillators (if used) stop and the spray guns move into the fully extended position. • Sieve, fluidizing air, and vibrating table stop and lance assembly raises. • In/out gun positioners retract (one at a time) and powder is blown off the spray guns. When the gun blow-off cycle is complete, the COLOR CHANGE CYCLE DONE indicator flashes.	
3	1. Disengage the coupling (2) connecting the reclaim conveyor line (1) to the reclaim port (4). 2. Remove the scrap cap (7) from the scrap port (5). 3. Open the transfer pan (8) and and blow out all powder remaining in the pan. 4. Send three cleaning sponges through the reclaim conveyor line. 5. Install the reclaim plug (3) in the reclaim conveyor line (1). **NOTE:** Do not close the transfer pan at this time.	1. Unclamp the underpan (3) and turn it counterclockwise until the chute is directly over the chute on the back wall of the feed center. **NOTE:** If you are using the optional fluidizing hopper, disconnect the air tubing before removing the hopper from the feed center. 2. Remove the powder source from the feed center.

Continued...

Procedure	Tasks	
	Operator A **See Figure 5-2**	**Operator B** **See Figure 5-3**
4	Touch the **GUN PURGE START** button. The system automatically performs the following tasks: **NOTE:** Perform procedure 5 while the system is performing these tasks. **NOTE:** To interrupt the gun purge cycle, touch the **GUN PURGE STOP** button. • Lance assembly lowers onto the purge manifold. • Purge manifold sends pulses of air through the lances, pumps, feed hoses, and spray guns. • Lance assembly raises and sieve restarts. When the gun purge cycle is complete, the COLOR CHANGE CYCLE DONE indicator flashes.	
5	Blow off all door seams from the outside of the booth.	Blow powder off the lance assembly (7).

Continued...

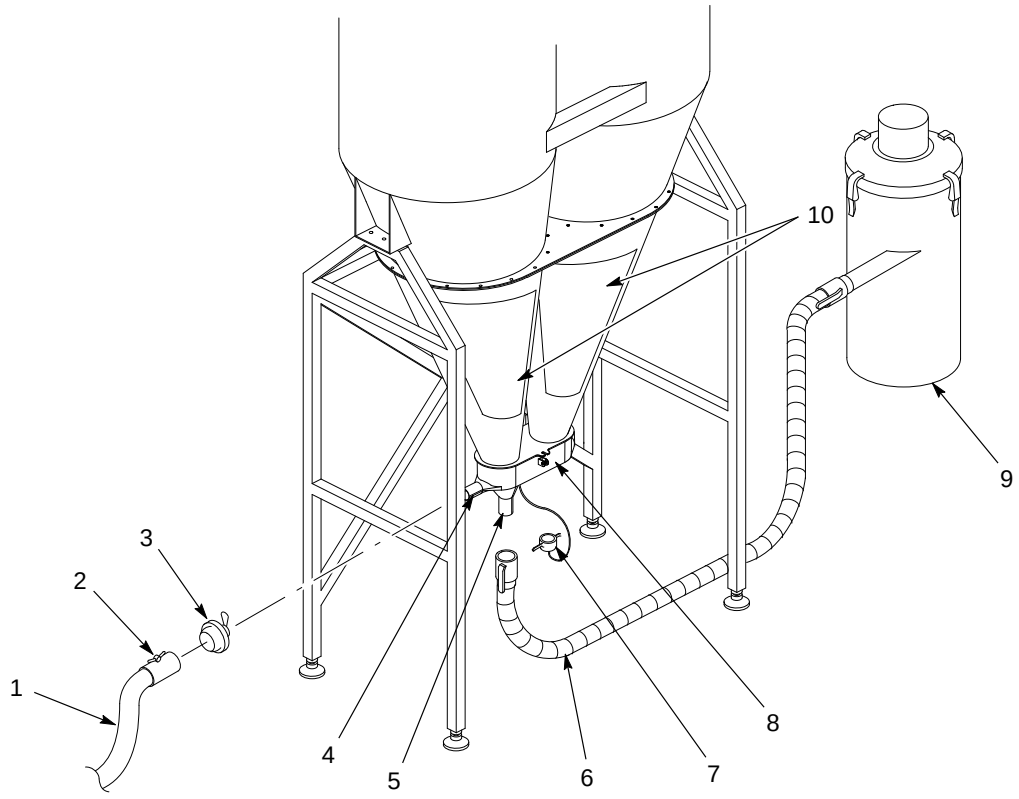


Figure 5-2 Operator A Color Change Tasks

1. Reclaim conveyor line
2. Reclaim conveyor line coupling
3. Reclaim plug
4. Reclaim port
5. Scrap port
6. Scrap conveyor line
7. Scrap cap
8. Transfer pan
9. Scrap receiver
10. Cyclone access doors

Quick Color Change System Color Change Process *(contd)*

Procedure	Tasks	
	Operator A **See Figure 5-2**	**Operator B** **See Figure 5-3**
6	1. Turn the LOCKOUT keyswitch on the system control panel to the LOCKED position. This locks out in/out gun positioner and oscillator operation. 2. Clean the booth interior. Refer to your powder coating system manual for booth cleaning instructions.	1. Touch the **ENABLE SURE MAX SYSTEM** button. This causes the following things to happen: • The sieve and Sure Max powder transfer system are disabled and the **DISABLE SURE MAX SYSTEM** button appears. • The reclaim receiver discharge door opens. • The reclaim filter is pulsed 3 times (10 seconds total). 2. Disconnect the amplifier hose and pulse air tubing from the top of the reclaim filter assembly (6). 3. Disengage the coupling connecting the reclaim conveyor line to the reclaim receiver (5). Install the reclaim plug into the reclaim conveyor line. 4. Rotate the reclaim receiver so that it is at a 45° angle. 5. Remove the reclaim filter assembly. Remove the filter element and place it in its dedicated plastic container. 6. Remove the three cleaning sponges from the reclaim receiver and place them in their dedicated plastic container. 7. Rotate the reclaim receiver so that the small opening is facing the operator, then blow as much powder out of the receiver as possible. Rotate the reclaim receiver so that the large opening is facing the operator, then blow out any powder remaining in the receiver.

Continued...

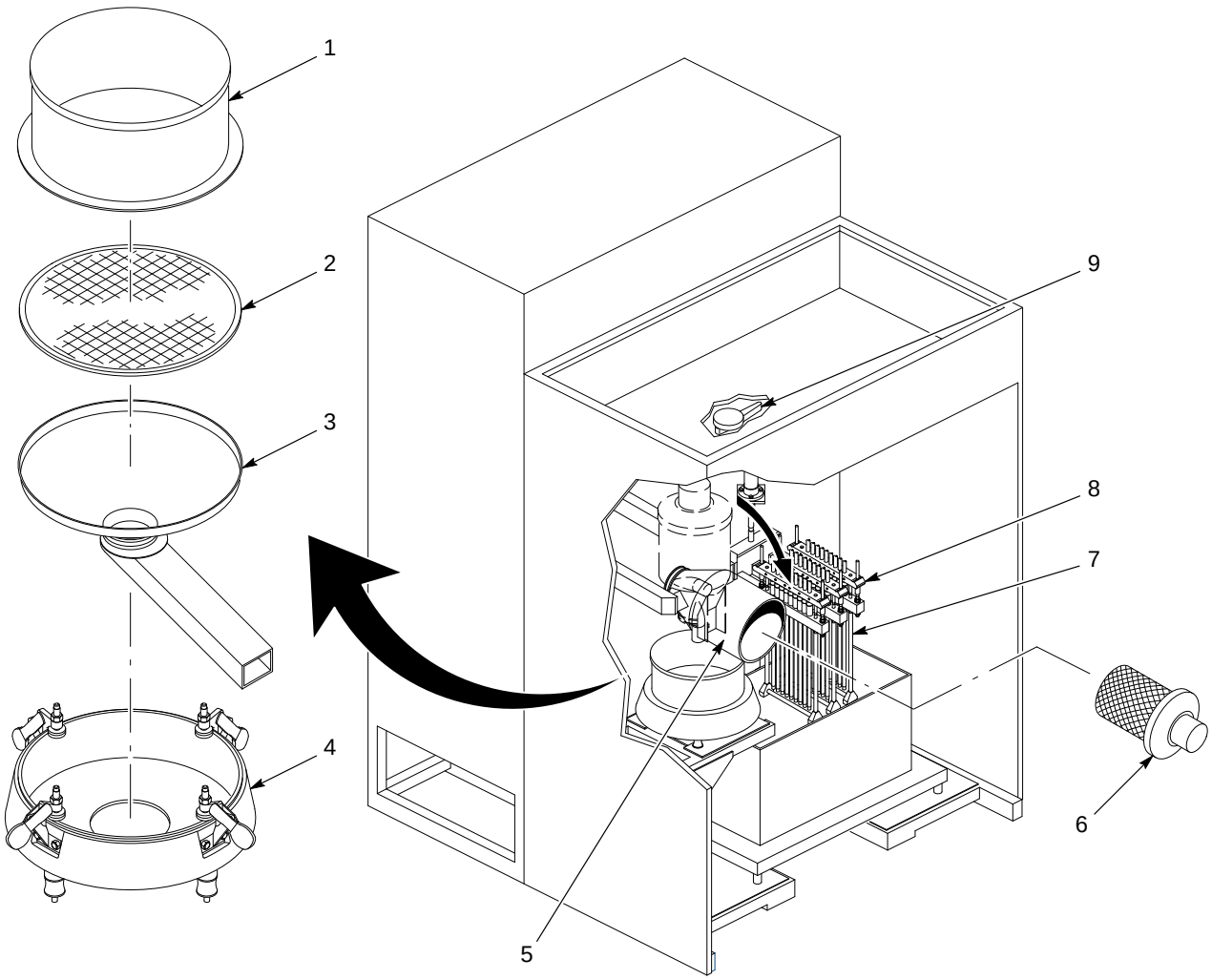


Figure 5-3 Operator B Color Change Tasks

1. Sieve deck
2. Sieve screen
3. Sieve underpan
4. Sieve
5. Reclaim receiver
6. Reclaim filter assembly
7. Lance assembly
8. Feed hose manifold
9. Vacuum diverter handle

Procedure	Tasks	
	Operator A **See Figure 5-2**	**Operator B** **See Figure 5-3**
7	1. Open the access doors on the cyclones vertical ducts and blow all powder out of the vertical duct. Close and latch the access doors when done. 2. Blow off any powder remaining in the transfer pan. 3. Remove the plug (3) from the conveyor line (1) and install it into the reclaim port (4). 4. Open the cyclone access doors (10) and blow off all interior surfaces of the cyclones. 5. Depending on whether the system will be operating in either spray-to-reclaim or spray-to-waste mode, follow one of these procedures: **Spray-to-Reclaim Mode Operation:** a. Close and latch the cyclone access doors (10). b. Close and latch the transfer pan (8). c. Install the scrap conveyor line (6) onto the scrap port (5). **Spray-to-Waste Mode Operation:** Leave the cyclone access doors (10) and transfer pan (8) open.	**NOTE:** Each color must have a dedicated reclaim filter element. Using a filter element for multiple colors will result in cross contamination. 1. Install the appropriate color-specific filter element and install the filter assembly (6) into the reclaim receiver (5). 2. Rotate the reclaim receiver so that it is in the upright position. 3. Connect the amplifier hose, pulse air tubing, and reclaim conveyor line to the reclaim receiver. 4. Touch the **CLOSE SURE MAX DOOR** button to close the reclaim receiver door. **NOTE:** If your system has the optional Vibrasonic sieve screen, unplug the Vibrasonic transducer cable from its support bracket and use caution when cleaning around the screen's Vibrasonic transducer. 5. Remove the sieve deck (1) and screen (2). • **Similar Shade Color Change:** Blow off the sieve screen. • **Different Shade Color Change:** Set the sieve screen aside and clean it later. Install a clean sieve screen. 6. Blow off the sieve deck and underpan (3). Turn the underpan clockwise until the chute is directed toward the lance assembly (7). 7. Install the appropriate sieve screen and the sieve deck, and connect the Vibrasonic transducer cable if applicable. 8. Touch the **DISABLE SURE MAX** button to enable the Sure Max powder transfer system. Turn the vacuum diverter handle to the counterclockwise position. • **Similar Shade Color Change:** Install the powder source into the feed center and connect the fluidizing air tubing (if applicable). • **Different Shade Color Change:** Do not install a new powder source until the end of procedure 8.

Continued...

Procedure	Tasks	
	Operator A **See Figure 5-2**	**Operator B** **See Figure 5-3**
NOTE: Perform procedure 8 only if you are performing a different shade color change. If you are performing a similar shade color change, proceed to procedure 9.		
8	Remove the powder feed hose from each spray gun and install the other feed hose.	1. Remove the feed hose manifolds (8) from the lance assembly (7). 2. Blow down into the powder pumps on the lance assembly to clear away any remaining powder. 3. Store the feed hoses and manifold assemblies in the appropriate hose locker. 4. Remove the appropriate feed hoses and manifold assemblies from the hose locker and install them onto the lance assembly. 5. Install the new powder feed source and connect the fluidizing air tubing, if applicable.
9	1. Turn the LOCKOUT keyswitch on the system control panel to the NORMAL position. 2. From the **Auto Menu**, touch the **FINISH COLOR CHANGE PRESS TO FINISH** button. The spray guns move back into the booth and begin oscillating, if applicable. 3. Touch either the **Select Box** or **Select Hopper** button to lower the lance assembly to the appropriate location. 4. If you want to operate the booth in spray-to-reclaim mode, touch the **Enable Waste Spray** button. The button's text changes to **Enable Reclaim Spray** to indicate the currently selected operating mode. **NOTE:** After a few minutes, the powder in the feed source will fluidize and the system will start spraying powder. Spray approximately 0.5 kg (one lb) of powder to waste before performing procedure 10. The amount of time that it will take to spray 0.5 kg (one lb) of powder will vary depending on the components in your system. Spraying the powder to waste seasons the ducts and cyclones to allow for more effective powder reclaim.	
10	**Spray-to-Reclaim Mode Operation Only:** 1. Disengage the scrap conveyor line (6) from the scrap port (5) 2. Remove the plug (3) from the reclaim port (4) and set it aside. 3. Install the scrap cap (7) onto the scrap port (5). 4. Install the reclaim conveyor line (1) and coupling (2) onto the reclaim port (4).	**Spray-to-Reclaim Mode Operation Only:** Turn the vacuum diverter handle (9) to the fully clockwise position.

Changing the Sure Max Filter Element

Use the following procedure to change the filter element in either the reclaim or scrap receiver.

Removal

See Figure 5-4.

1. Loosen and remove the hose clamp (7) using the flexible nut driver supplied with the Sure Max powder transfer system.
2. Remove the filter retaining nut (5) using the flexible nut driver.
3. Remove the filter element (6) from the filter basket (3).
4. Reach inside the top (clean side) of the filter element and push out the filter element's inner cone.

CAUTION: Do not vacuum the inside surface (clean side) of the filter element. Failure to observe this caution may cause the powder to become more embedded in the filter media, making it more difficult to clean and causing further blockage.

5. Using a soft brush attachment, vacuum the outside surface of the filter element, then put the filter in its storage container.
6. Remove the grommet (4) from around the air shock tank stem (2).
7. Remove the filter basket (3) and seal (1).
8. Blow off all powder from the Sure Max filter assembly and its components.

NOTE: The Sure Max filter element can be washed if it is either clogged or needed for use with another color powder. Refer to *Washing the Sure Max Filter Element* for more information.

Installation

See Figure 5-4.

1. Install the seal (1) onto the top of the filter basket (3).
2. Slide the new filter element (6) onto the filter basket. Make sure that the bottom of the filter element covers the basket seal.
3. Install the hose clamp (7) over the filter basket so that it covers the basket seal. Tighten the hose clamp only enough to hold it in place on the filter basket assembly.
4. Install the filter basket assembly onto the filter housing assembly, making sure that the air shock tank stem (2) goes through the hole in the filter element.
5. Install the grommet (4) around the air shock tank stem.
6. Install the filter retaining nut (5) onto the air shock tank stem. Tighten the retaining nut using the flexible nut driver.

CAUTION: Make sure that there are no folds in the filter element when you tighten the hose clamp. Folds in the filter element may cause powder to pass the filter, causing powder cross contamination and vacuum amplifier damage.

7. Tighten the hose clamp using the flexible nut driver.

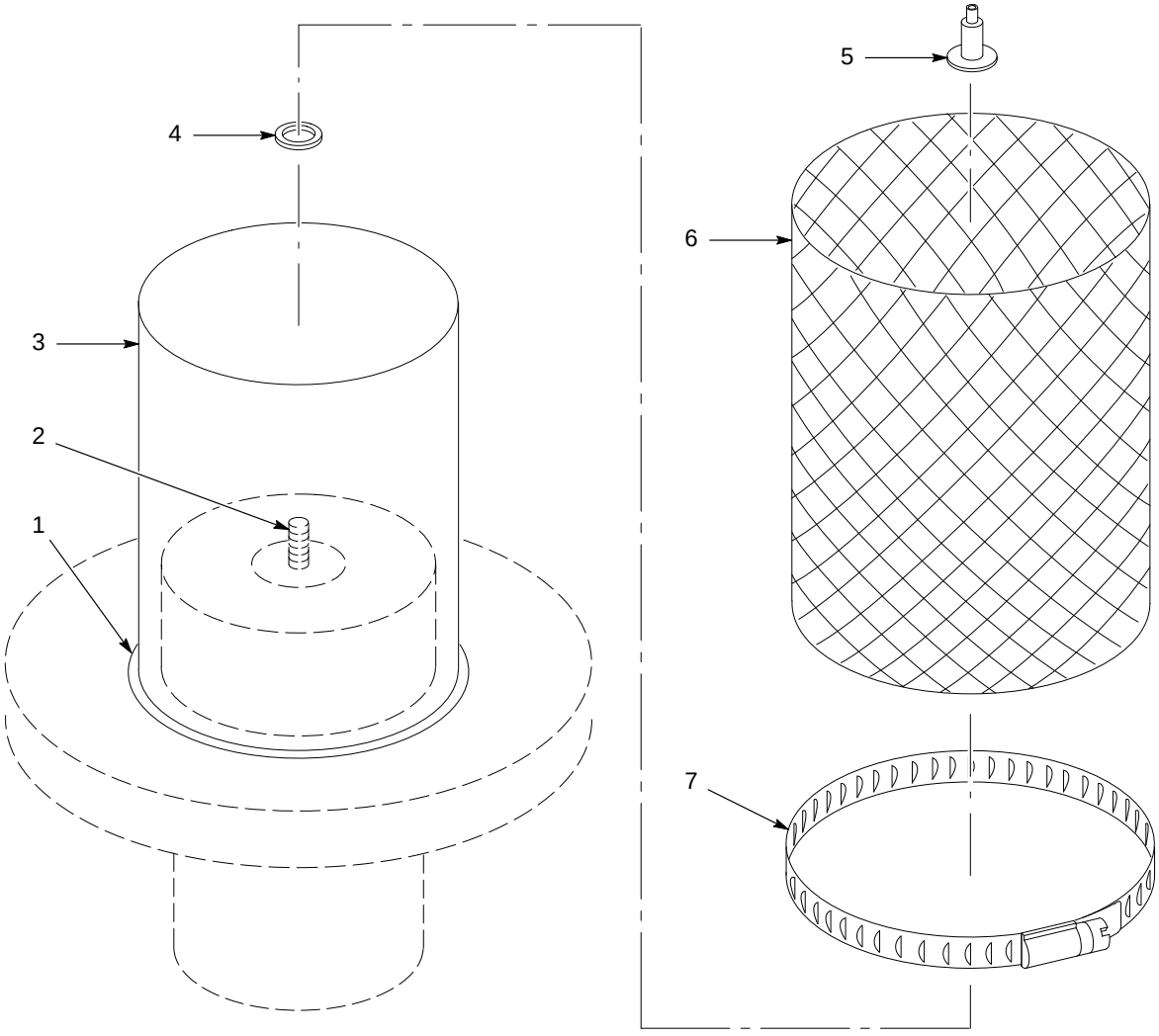


Figure 5-4 Changing the Sure Max Filter Element

1. Basket seal
2. Air shock tank stem
3. Filter basket
4. Grommet
5. Filter retaining nut
6. Filter element
7. Hose clamp

Washing the Sure Max Filter Element

NOTE: Repeated washing can degrade the filter element performance. How many times the filter element may be washed will depend on how much it is used in between washes. Nordson Corporation recommends replacing the filter element with a new one after 2–4 washes.

The Sure Max filter element can be washed if the filter element is either

- needed for use with a different powder, or
- clogged due to continuous use.

  These are indications that the filter element is clogged:

  - The transfer pan has large amounts of powder in it while the Sure Max system is operating.
  - During the color change process, the cleaning sponges do not come through the vacuum conveyor line easily.
  - The Sure Max differential pressure gauge reading is higher than 8-in. wc.

Use this procedure to wash the Sure Max filter element.

1. Remove the filter element from the filter assembly. Refer to *Changing the Sure Max Filter Element* for instructions.
2. Gently knock the filter element against the screen in front of the feed center cartridge filters and shake it to remove as much powder as possible.
3. Reach inside the top (clean side) of the filter element and push out the filter element's inner cone.

CAUTION: Do not vacuum the inside surface (clean side) of the filter element. Failure to observe this caution may cause the powder to become more embedded in the filter media, making it more difficult to clean and causing further blockage.

4. Using a soft brush attachment, vacuum the outside surface of the filter element.

CAUTION: Do not use detergent when washing the filter element. Using detergent will damage the filter.

5. Wash the filter element in a standard commercial or residential washing machine in the Hand Wash cycle using cold water (40 °C).
6. Remove the filter element from the washing machine and form the filter element into its normal shape.
7. Before installing the filter element, allow it to air dry for 24 hours or until it is completely dry.

Conventional System Color Change Process

Use the following chart to complete the color change process in a Cyclo-Kinetic, Excel, or Horizon powder coating system.

NOTE: Refer to your powder coating system manual for instructions for cleaning your booth during the color change process.

Procedure	Tasks See Figure 5-5
1	If applicable, move the booth offline.
2	From the **Auto Menu**, touch the **COLOR MENU** button to access the **Color Change** menu. Touch the **INITIATE & B-OFF START** button. The system automatically performs the following tasks: **NOTE:** Perform procedure 3 while the system is performing these tasks. **NOTE:** To interrupt the gun blow-off cycle, touch the **INITIATE & B-OFF STOP** button. • Oscillators (if used) stop. • Sieve, fluidizing air, and vibrating table stop, and lance assembly raises. When the gun blow-off cycle is complete, the COLOR CHANGE CYCLE DONE indicator will flash.
3	1. Unclamp the underpan (3) and turn it counterclockwise until the chute is directly over the chute on the back wall of the feed center. **NOTE:** If you are using the optional fluidizing hopper, disconnect the air tubing before removing the hopper from the feed center. 2. Remove the powder source from the feed center.
4	Touch the **GUN PURGE START** button. The system automatically performs the following tasks: **NOTE:** Perform procedure 5 while the system is performing these tasks. **NOTE:** To interrupt the gun purge cycle, touch the **GUN PURGE STOP** button. • Lance assembly lowers onto the purge manifold. • Purge manifold sends pulses of air through the lances, pumps, feed hoses, and spray guns. • Lance assembly raises. When the gun purge cycle is complete, the COLOR CHANGE CYCLE DONE indicator will flash.
5	Blow powder off the lance assembly (6).
6	Turn the LOCKOUT keyswitch on the system control panel to the LOCKED position. This locks out oscillator operation so that an operator may enter the booth to clean the interior.

Continued...

Conventional System Color Change Process *(contd)*

Procedure	Tasks See Figure 5-5
7	**NOTE:** If your system has the optional Vibrasonic sieve screen, unplug the Vibrasonic transducer cable from its support bracket and use caution when cleaning around the screen's Vibrasonic transducer. Refer to the *Options* section for Vibrasonic system component locations. 1. Remove the sieve deck (1) and sieve screen (2). • **Similar Shade Color Change:** Blow off the sieve screen. • **Different Shade Color Change:** Set the sieve screen aside and clean it later. 2. Blow off the sieve deck and underpan (3). Turn the underpan clockwise until the chute is directed toward the lance assembly (6). 3. Install the appropriate sieve screen and the sieve deck, and connect the Vibrasonic transducer cable, if applicable.
NOTE: Only perform procedure 8 if you are performing a different shade color change. If you are performing a similar shade color change, proceed to procedure 9.	
8	1. Remove the feed hose manifold (5) from the lance assembly (6). 2. Blow down into the powder pumps on the lance assembly to clear away any remaining powder. 3. Install the other feed hose manifold. Switch the powder feed hoses at the back of each spray gun.
9	Install a new powder source into the powder feed center. Refer to *Powder Feed Source Installation* in the *Operation* section for instructions. **NOTE:** If you are using the optional fluidizing hopper, connect the air tubing after installing the hopper into the feed center.
10	1. Turn the LOCKOUT keyswitch on the system control panel to the NORMAL position. 2. From the **Auto Menu**, touch the **FINISH COLOR CHANGE PRESS TO FINISH** button. 3. Touch either the **Select Box** or **Select Hopper** button to lower the lance assembly to the appropriate location.

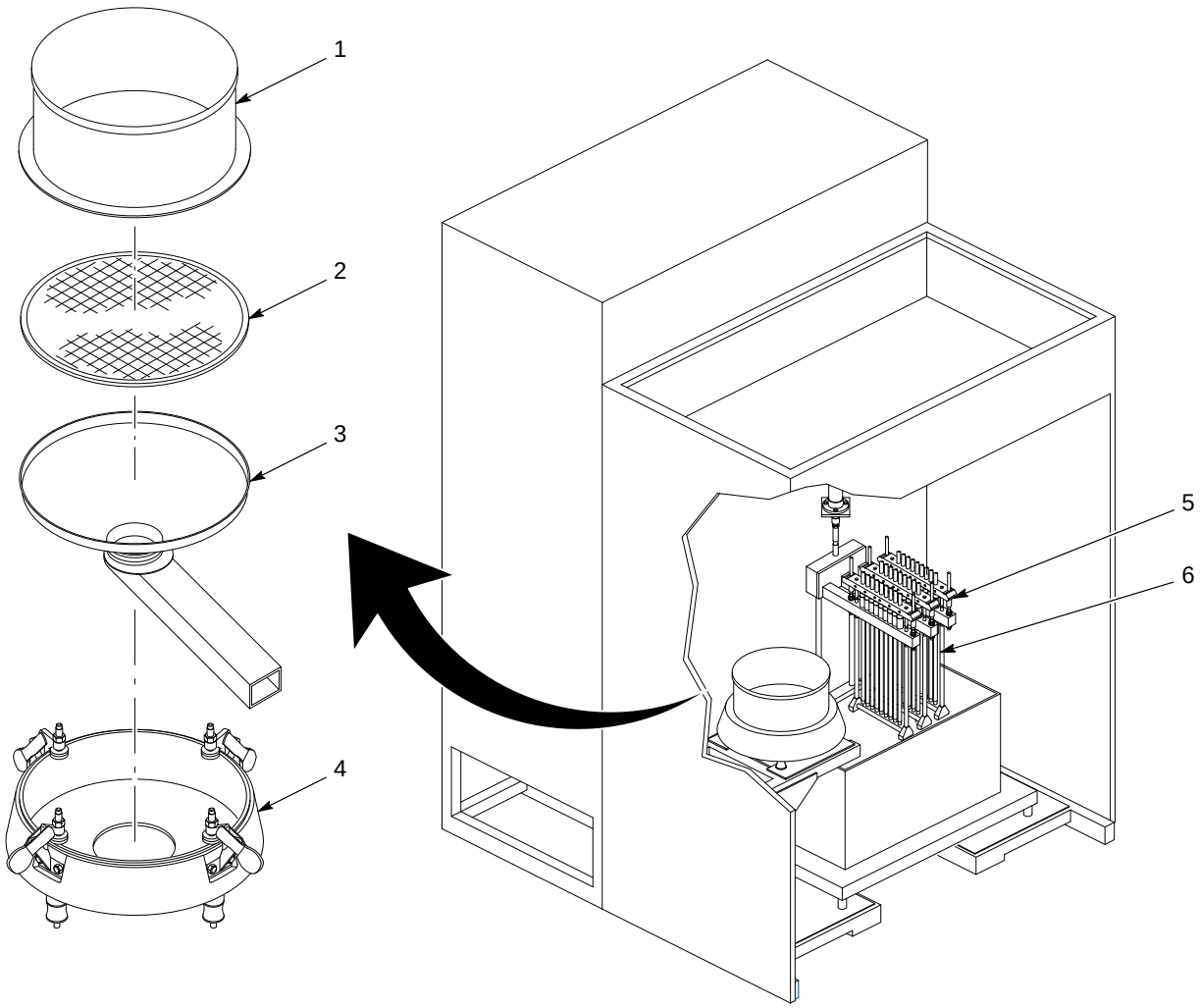


Figure 5-5 Conventional System Color Change Process

1. Sieve deck
2. Sieve screen
3. Sieve underpan
4. Sieve
5. Feed hose manifold
6. Lance assembly

Section 6
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 6-1 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.
Sure Max Powder Transfer System (If Applicable)	Disassemble and clean the Sure Max reclaim receiver. Inspect each color's reclaim filter and replace if damaged. Empty the Sure Max scrap receiver. Inspect the scrap filter and replace if damaged. Check all vacuum hoses for blockages. Clean or replace them if necessary.
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* in this section for instructions.
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 afterfilter. In this application, the feed center's scrap transfer hose may remain connected to the scrap drum at all times, allowing you to frequently empty the feed center's waste hopper to keep the powder level down.

See Figure 6-1.

1. Secure the waste lid (6) to an empty 55-gallon drum (3).
2. Connect the ground clamp (7) to a true earth ground.
3. Attach a $^{3}/_{4}$-in. transfer hose (8) between the transfer pump (9) and a hose connector (5) on 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 (2) to the waste lid vent stub (4). Attach the other end of the vent hose to the vent stub (1) on the opposite side of the feed center.
5. Touch the **TRANSFER PUMP ON** button on the **Manual 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 bar (30 psi). The normal fluidizing air pressure is 0.5 bar (8 psi). Adjust the air pressures as needed at the feed center pneumatic panel.

6. While standing at the transfer pump side of the feed center, use a rubber squeegee to pull the powder in the waste hopper toward the pick-up tube (10). Be careful not to damage the fluidizing plate at the bottom of the waste hopper.
7. When the transfer pump is not drawing any more powder out of the waste hopper, touch the **TRANSFER PUMP OFF** button.

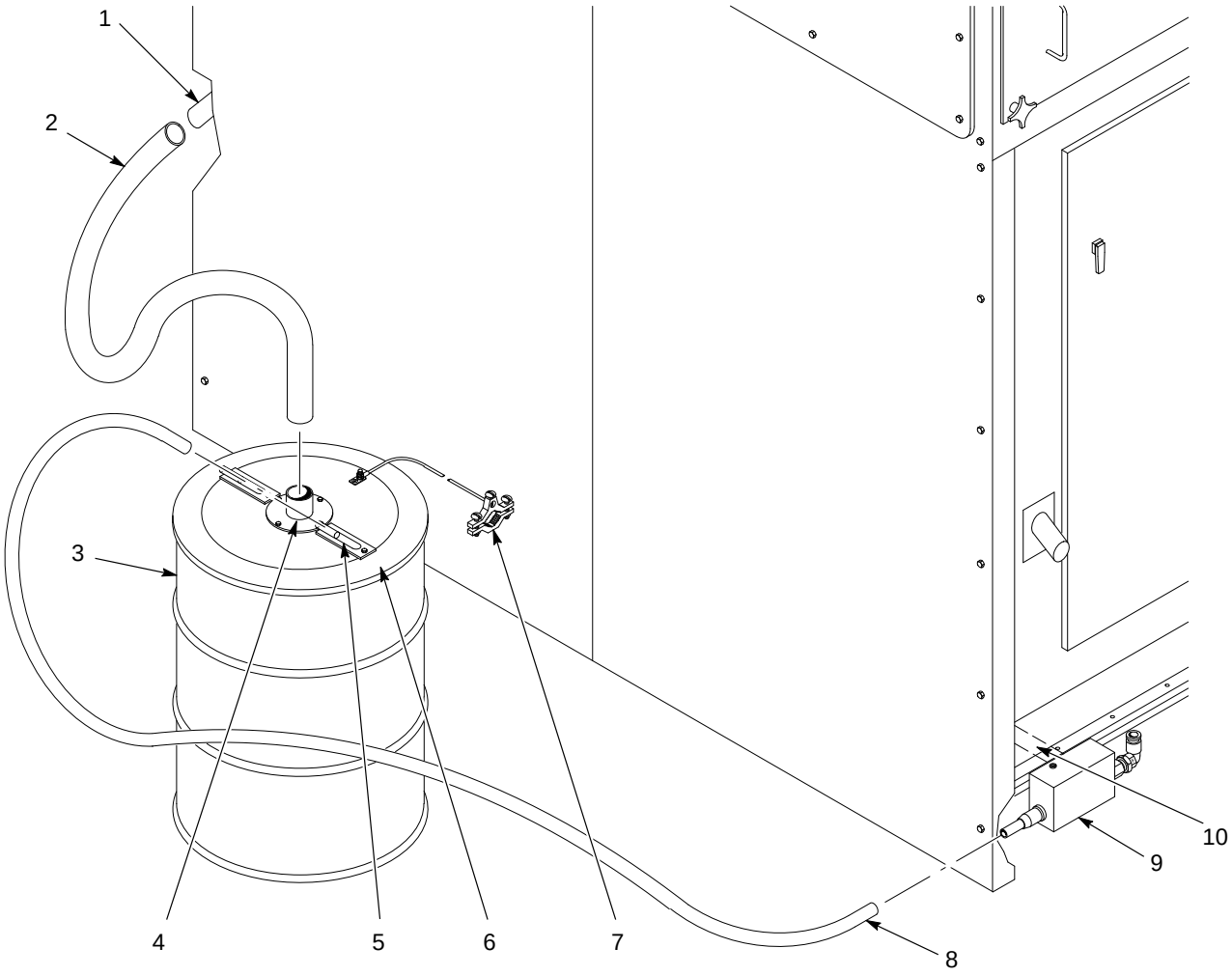


Figure 6-1 Emptying the Waste Hopper

1. Feed center vent stub
2. Vent hose
3. 55-Gallon waste drum
4. Waste lid vent stub
5. Hose connector
6. Waste lid
7. Ground clamp
8. $^{3}/_{4}$-in. Transfer hose
9. Transfer pump
10. Pick-up tube

Periodic Maintenance

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

Table 6-2 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 7
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 7-1 Powder Supply Problems

No.	Problem	Page
1.	Spray guns are surging or spitting; powder flow is inadequate or intermittent	7-2
2.	Powder in feed source contaminated	7-2
3.	Powder in feed source not fluidizing, or clouds of powder erupting from surface	7-2
4.	Powder escaping from enclosure openings	7-3

Table 7-2 Purge Cycle Problems

No.	Problem	Page
1.	Purge cycle will not start	7-4

Table 7-3 Sieve Problems

No.	Problem	Page
1.	Vibrator does not start	7-6
2.	Powder build up on sieve mesh	7-6
3.	Excessive sieve noise	7-6
4.	Contaminants in powder in feed source	7-6

Table 7-4 Filter Section Problems

No.	Problem	Page
1.	Fan will not start	7-7
2.	Loss of extraction	7-7
3.	Final filters clogged; powder in the fan section	7-7

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	Change the transfer pump air pressure to 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 knobs on 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.

Purge Cycle Problems

Problem	Possible Cause	Corrective Action
1. Purge cycle will not start	Bottom of stroke sensor and stop bolts out of alignment	Realign the sensor and stop bolts using the *Bottom of Stroke Sensor and Stop Bolt Realignment* procedure.

Bottom of Stroke Sensor and Stop Bolt Realignment

See Figure 7-1.

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 tubes (9) fully engage with the purge nozzles (10).

   If the pickup tubes do not engage the purge nozzles, turn both stop bolts (7) 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 (8).

NOTE: Figure 7-1 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 tubes engage the purge nozzles. Readjust the stop bolts and sensor if necessary.

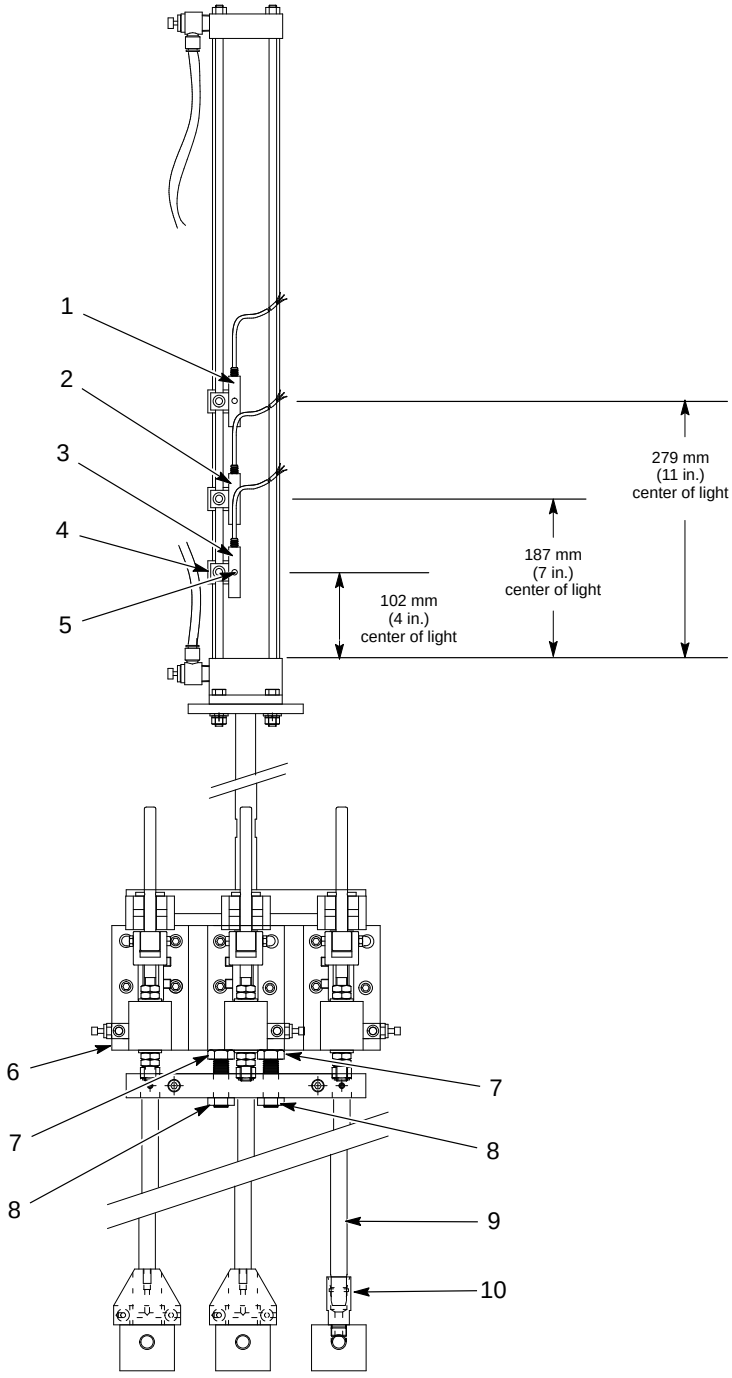


Figure 7-1 Bottom of Stroke Sensor and Stop Bolt Realignment

1. Hopper stop sensor
2. Box stop sensor
3. Bottom of stroke (purge) sensor
4. Sensor bracket
5. Sensor LED
6. Linear slide
7. Stop bolts
8. Jam nuts
9. Pickup tubes
10. Purge nozzles

Sieve Problems

Problem	Possible Cause	Corrective Action
1. Vibrator does not start	No input power	Check the power supply. Check the sieve power cable.
	Vibrator capacitor failed	Replace the vibrator.
	Vibrator failed	Replace the vibrator.
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.
	Motor overload protector tripped	Reset the overload protector.
	Wiring fault	Check the feed center 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. Check the motor push button wiring.
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 tension screws 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.

Section 8
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 8-1.

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 access panel (2) by removing the four knobs (1). Open the cartridge filter access panel.
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 (3), lock washer (4), flat washer (5), and mounting bracket (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 8-1.

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 and 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's 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 (5), lock washer (4), and nut (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 filter gasket (11) and seal the cartridge against the mounting plate.
9. Close the cartridge filter access panel and install the pulse valve access panel (2) using the four knobs (1).

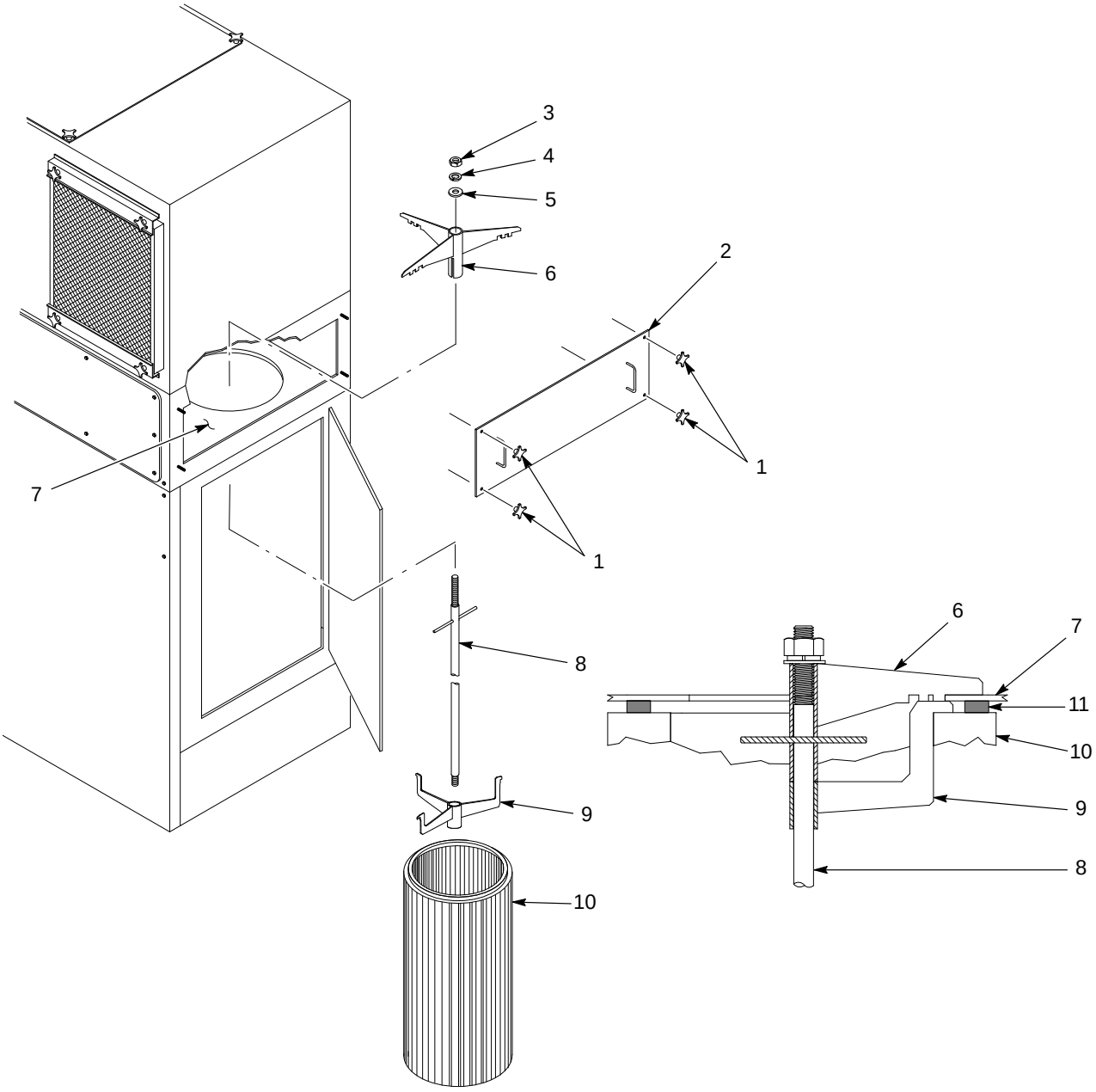


Figure 8-1 Cartridge Filter Replacement

1. Knobs
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 8-2. Remove the upper and lower final filter brackets (2) by removing the knobs (3).
2. Pull the old final filter (1) 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. Slide the new final filter into the powder feed center.
6. Install the upper and lower final filter brackets and knobs.
7. Tighten the upper and lower clamping knobs to compress the final filter evenly on all four sides.

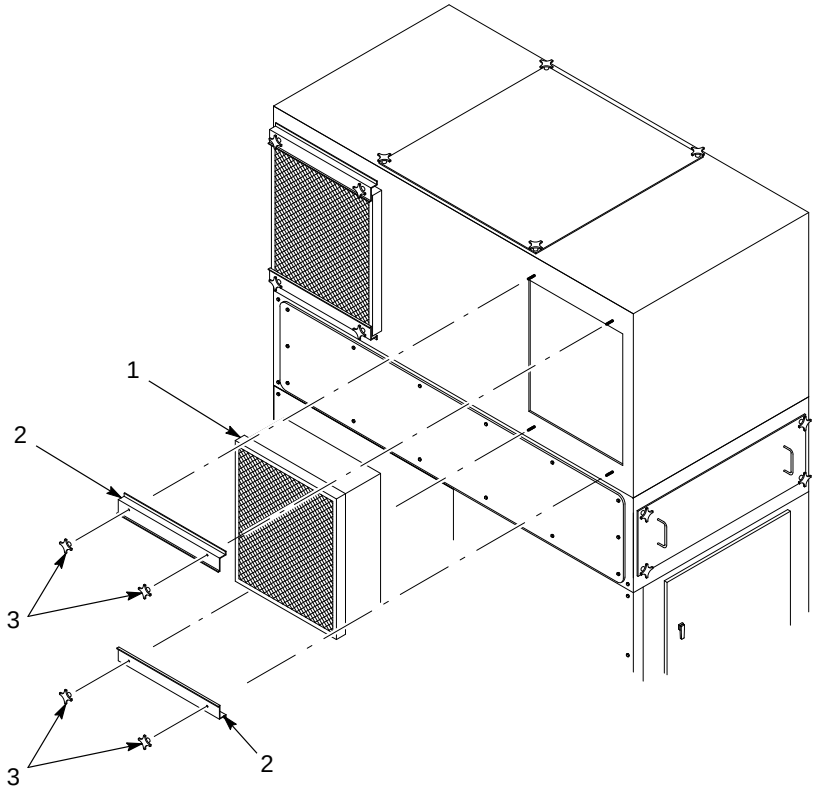


Figure 8-2 Final Filter Replacement

1. Final filter
2. Brackets
3. Knobs

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 8-3. Remove the pulse valve access panel (5) by removing the four knobs (6).
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.

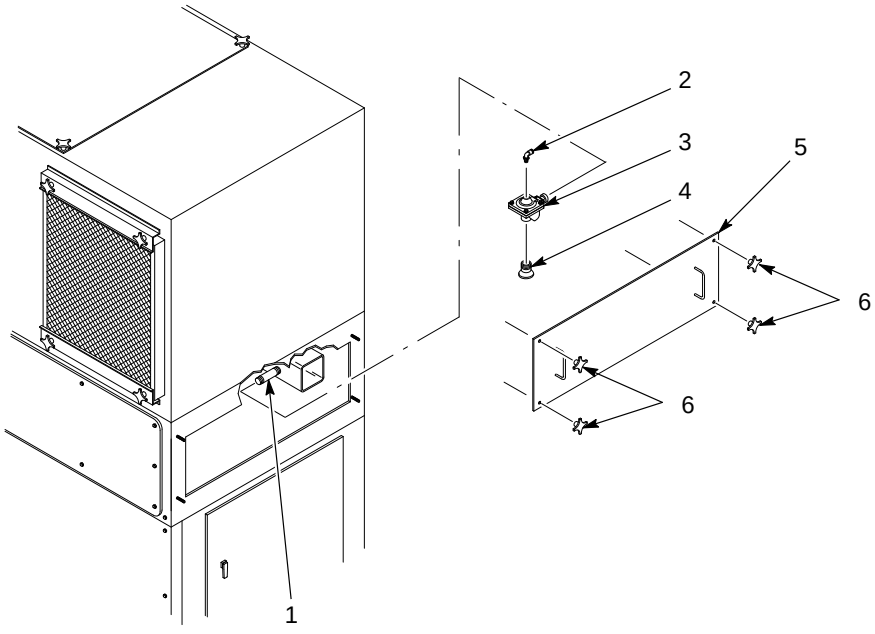


Figure 8-3 Pulse Valve Replacement

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

Waste Hopper Fluidizing Plate Replacement

1. See Figure 8-4. Empty as much powder as possible from the waste hopper. Refer to *Emptying the Waste Hopper* in the *Maintenance* section for more information.
2. Open the cartridge filter access panels 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 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.

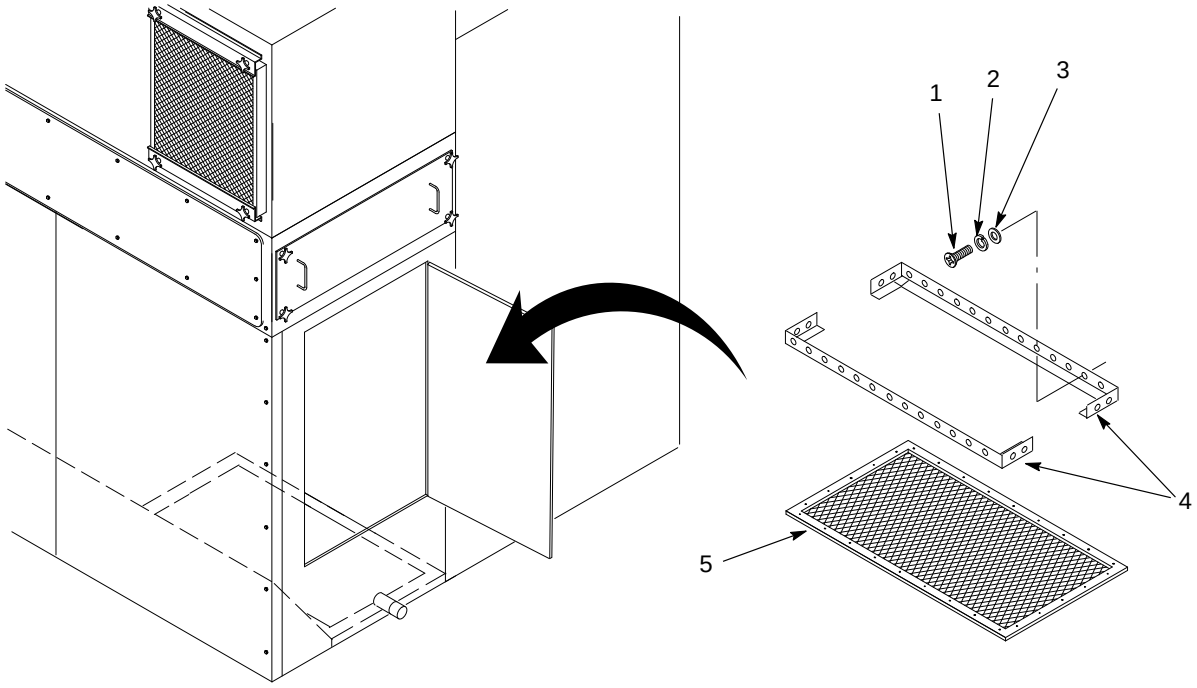


Figure 8-4 Waste Hopper Fluidizing Plate Replacement

1. Screws (M6 x 1 in.)
2. Lock washers (M6)
3. Flat washers (M6)
4. Retaining angles
5. Fluidizing plate

Vibratory Table Isolator Mount Replacement

1. See Figure 8-5. 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.

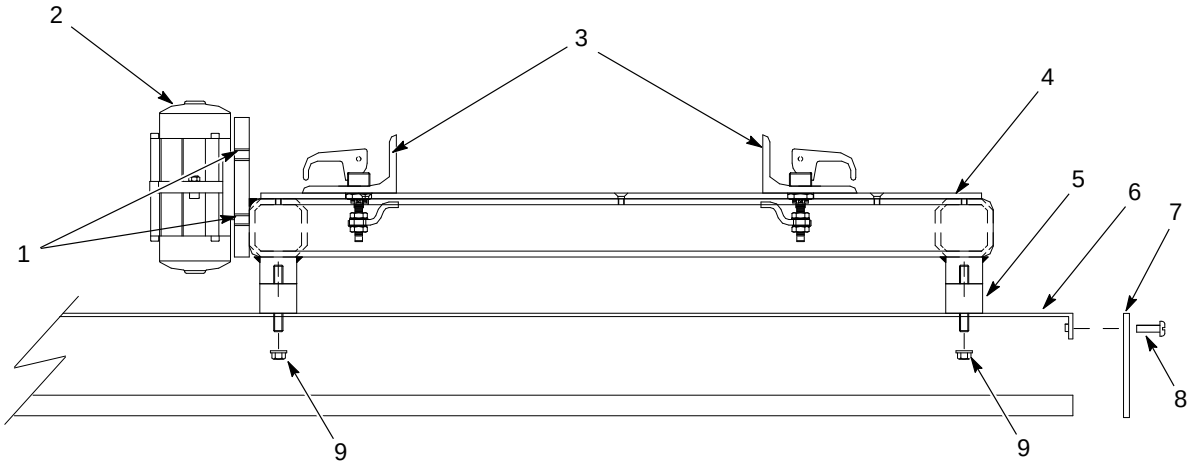


Figure 8-5 Vibratory Table Isolator Mount Replacement (Side View of Vibratory Table)

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 9
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 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

Use the following parts list to identify the subassemblies in the powder feed center. Subassembly parts are included in other parts lists in this section.

See Figure 9-1.

Item	Part	Description	Quantity	Note
1	- - - - - -	SURE MAX SYSTEM assembly	1	
2	- - - - - -	LANCE ARM assembly	AR	A
3	- - - - - -	VIBRATORY TABLE and purge assembly	1	
4	- - - - - -	SIEVE assembly	1	
5	- - - - - -	FAN HOUSING assembly	1	
6	- - - - - -	BLOWDOWN HOUSING assembly	1	
7	- - - - - -	CARTRIDGE FILTER HOUSING assembly	1	
8	- - - - - -	FLUID BED assembly	1	
9	249455	CONNECTOR, multi	AR	B
10	249461	SOCKET, multi connector	AR	B
11	1014550	LIGHT FIXTURE, 4 ft, 2 light	1	
12	- - - - - -	• BULB, light, florescent, 4 ft	2	
13	- - - - - -	PLATE, hose guide	AR	C
14	- - - - - -	SCREW, hex head, M6 x 1.0 x 16-mm long	70	
15	- - - - - -	WASHER, M6, standard	120	
16	- - - - - -	WASHER, lock, M6, standard	120	
17	- - - - - -	CONTROL PANEL assembly	1	D

NOTE A: Your powder feed center has 1, 2, or 3 lance assemblies, depending on how many spray guns are in your system.

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

C: One of these parts is included for each lance assembly.

D: Contact your Nordson representative for control panel replacement parts.

AR: As Required

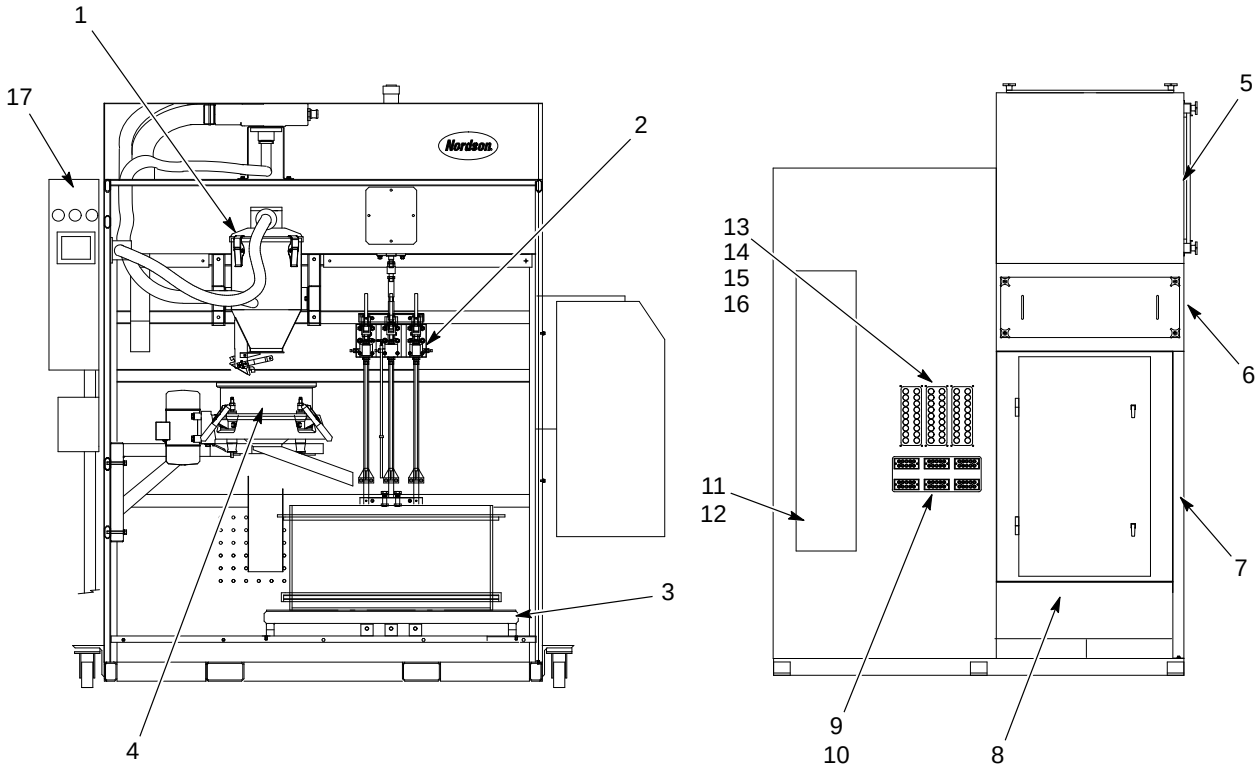


Figure 9-1 Powder Feed Center Assembly

Sieve Assembly

See Figure 9-2.

Item	Part	Description	Quantity	Note
1	1014560	SIEVE, vibratory, 15 in., 230/460 V, 60 Hz	1	
2	- - - - - -	• DECK, sieve	1	
3	1014562	• SCREEN, sieve, vibratory, 15 in., 60 mesh	1	A, B
4	1014563	• • GASKET, screen, sieve, 15 in.	1	
5	- - - - - -	• UNDERPAN, sieve	1	
6	1017602	• MOUNT, isolation, sieve	4	
7	1017601	• MOTOR, sieve, vibratory	1	
8	- - - - - -	SCREW, cap, socket head, M10 x 1.5 x 25 mm	4	
9	- - - - - -	RAIL, mounting, sieve	2	
10	- - - - - -	BRACKET, sieve	2	
11	- - - - - -	SCREW, hex head, M10 x 1.5 x 65 long	4	
12	- - - - - -	WASHER, lock, M10	4	
13	- - - - - -	WASHER, flat, M10	4	
NS	1014561	SCREEN, vibratory assembly, 40 mesh	1	A

NOTE A: Other mesh sizes are available. Contact your Nordson representative for information about other sieve screen mesh sizes.

B: An optional Vibrasonic sieve screen is available to replace the standard vibratory sieve screen. Refer to the *Options* section for more information.

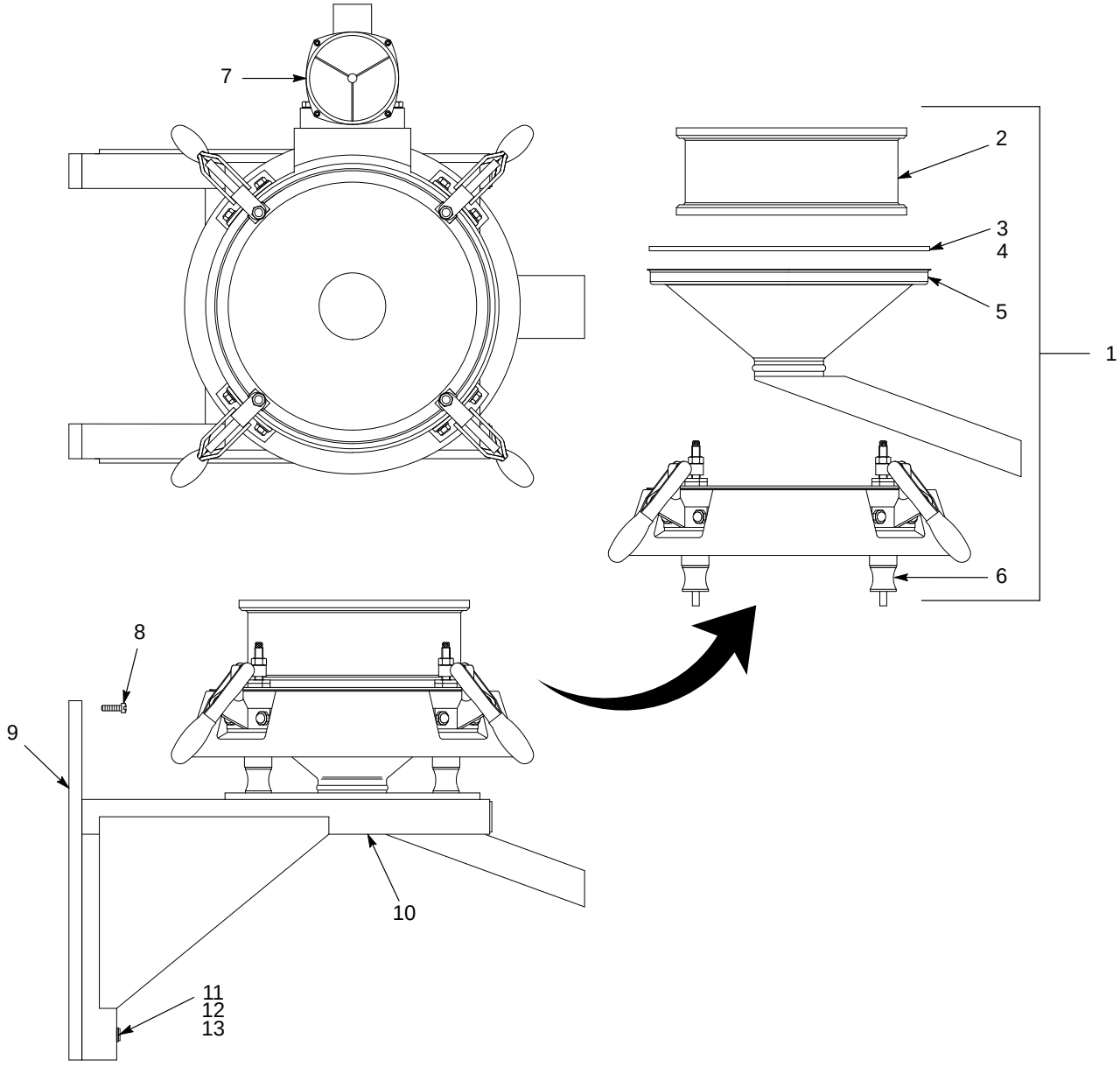


Figure 9-2 Sieve Assembly

Sure Max Powder Transfer System

Sure Max System Assembly

See Figure 9-3.

Item	Part	Description	Quantity	Note
1	1014514	HOSE, vacuum, $1^1/_2$ in.	AR	
2	- - - - - -	VALVE, diverter, $1^1/_2$ in.	1	
3	- - - - - -	TUBING, 6 mm	AR	
4	1014512	ADAPTER, hose parking	1	
5	1014513	HOSE, exhaust, Sure Max pump	6 ft	
6	1013149	PUMP, Sure Max, with exhaust adapter and fittings	1	
7	1013178	GASKET, inlet, outlet	2	
8	- - - - - -	COUPLER, shank, $1^1/_2$ in.	1	
9	- - - - - -	RECEIVER, vacuum, reclaim	1	A
NS	1015821	COUPLING, pipe, 51 mm, T-handle	2	B
NS	1014516	PLUG, quick-snap, $1^7/_8$ in.	2	C
NS	1013284	PADS, cleaning, Sure Max, 10 pack	1	
NS	1014509	DRIVER, nut, flexible, 6/7 mm	1	

NOTE A: Refer to *Sure Max Receiver and Filter* in this section for a breakdown of the parts included in this assembly.

B: The pipe couplings, part 1015821, connect the reclaim conveyor line to the reclaim vacuum receiver and transfer pan.

C: The quick-snap plugs, part 1014516, are used to plug the reclaim conveyor line during the color change process.

NS: Not Shown

AR: As Required

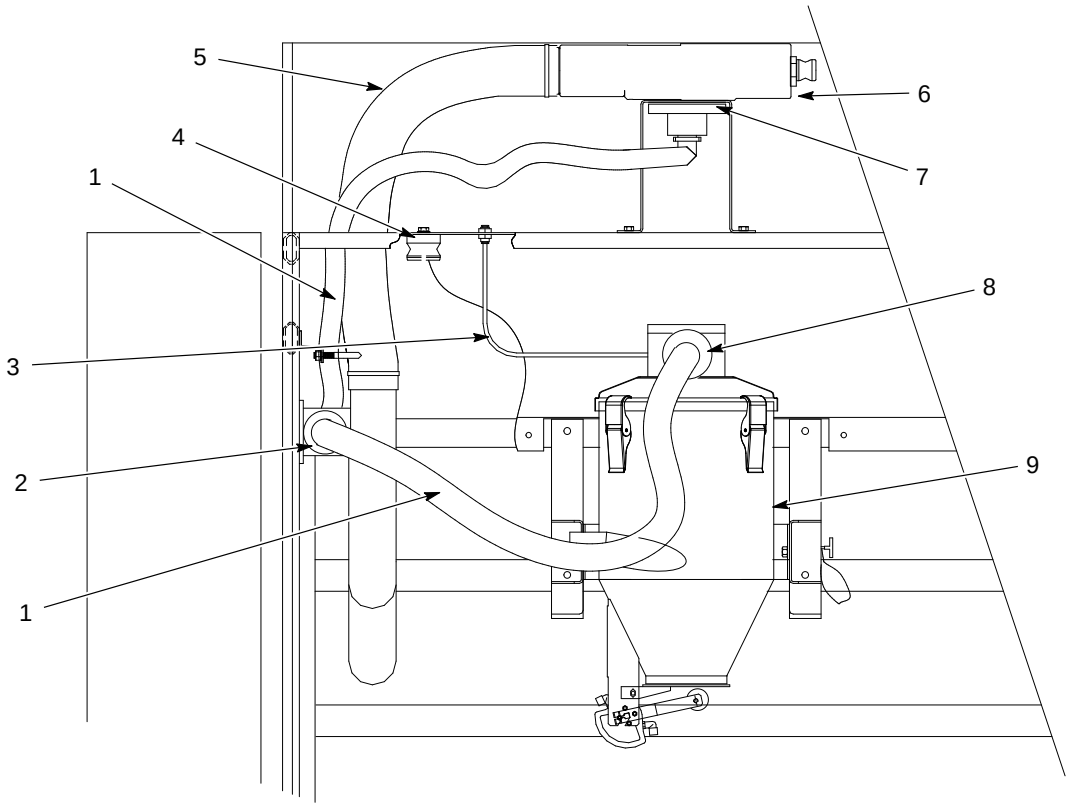


Figure 9-3 Sure Max System Assembly

Sure Max Receiver and Filter

See Figure 9-4.

Item	Part	Description	Quantity	Note
1	1015135	FILTER ASSEMBLY, Sure Max	2	A
2	- - - - - -	• FITTING, banjo, male adapter/male thread	1	
3	- - - - - -	• TUBING, 6 mm	AR	
4	- - - - - -	• ELBOW, 5 mm, 6-mm tubing	1	
5	- - - - - -	• ELBOW, 90 degree, $^1/_8$-in. NPS, 6-mm tubing	2	
6	1013178	• GASKET, filter head/inlet	2	
7	1014511	• SEAL, body/module	1	
8	- - - - - -	• SCREW, socket head, cap, M5 x 20, stainless steel	16	
9	1013286	• VALVE, air shock	1	
10	- - - - - -	• SCREW, hex head, M5 x 20, stainless steel	4	
11	- - - - - -	• WASHER, nylon, 5 mm	8	
12	- - - - - -	• TANK, air shock, 275	1	
13	970968	• CLAMP, hose, 6-in. diameter	1	
14	1013177	• SEAL, filter, outer, lid	1	
15	- - - - - -	• BASKET, filter, Sure Max	1	
16	1013179	• FILTER ELEMENT, Sure Max	1	
17	- - - - - -	CLAMP, toggle	4	
18	- - - - - -	ELBOW, $^1/_8$, 6 mm	2	
19	- - - - - -	BODY, Sure Max	1	
20	- - - - - -	COUPLER, shank, $1^1/_2$ in.	4	
21	1014514	HOSE, vacuum, $1^1/_2$ in.	AR	
22	- - - - - -	CANISTER, waste, Sure Max	1	

NOTE A: The filter assembly, part 1015135, is used in both the reclaim and waste receivers.

AR: As Required

Filter Containers

Use these containers to store color-specific Sure Max filters and cleaning sponges when they are not in use. Use one dedicated container to store the filter and cleaning sponges for each color used in your system.

Part	Description	Note
1017571	CONTAINER, filter element, Sure Max	A
1017572	CONTAINER, filter assembly, Sure Max	B

NOTE A: Use this container to store a spare Sure Max filter element, part 1013179, and cleaning sponges when they are not in use.

B: Use this container to store a complete, spare Sure Max filter assembly, part 1015135, when it is not in use.

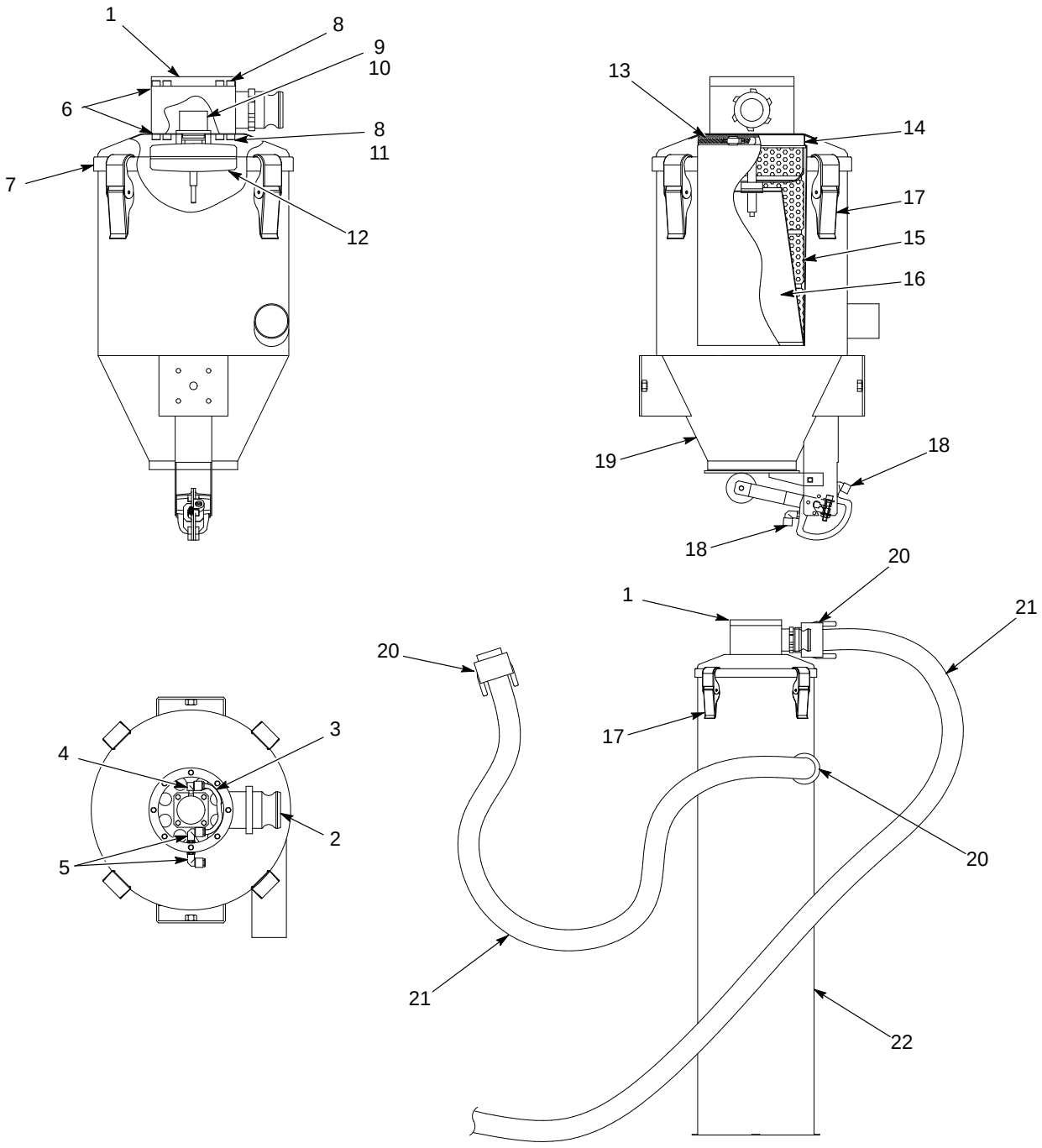


Figure 9-4 Sure Max Receiver and Filter

Lance Arm Assembly

See Figure 9-5.

Item	Part	Description	Quantity	Note
—	1014543	LANCE ARM assembly, pickup tubes	1	A
1	- - - - - -	• CAM lock	2	
2	1015680	• PLATE, hose, clamping	2	
3	- - - - - -	• GUIDE ROD, clamp plate	2	
4	- - - - - -	• WELDMENT, lance arm	1	
5	- - - - - -	• WASHER, plain, M10, standard	9	
6	1014546	• LANCE, with lock nut	9	
7	- - - - - -	• PLATE, steady	1	
8	- - - - - -	• SCREW, hex head, M4 x 0.7 x 25-mm long	4	
9	- - - - - -	• WASHER, plain, M4, standard	4	
10	1014557	• TUBE, fluidizing, assembly	1	
11	1017574	• VALVE, flow control, $^1/_4$-in. universal x 10-mm tube	1	
12	1003917	PUMP assembly, corona, inline, Tivar	AR	B, C
12	1003918	PUMP assembly, corona, inline, glass-filled PTFE	AR	B, D
13	1023136	CYLINDER assembly	1	
14	1015208	SLIDE, vertical, assembly	1	
15	1014553	PROBE, level sensor	1	
16	1023925	CABLE, 4 pin, M12 connector, 5-m long	1	

NOTE A: The powder feed center can be configured with one, two, or three lance assemblies.

B: Each lance assembly uses up to nine powder pumps.

C: Standard powder pump included with feed center.

D: Optional powder pump.

AR: As Required

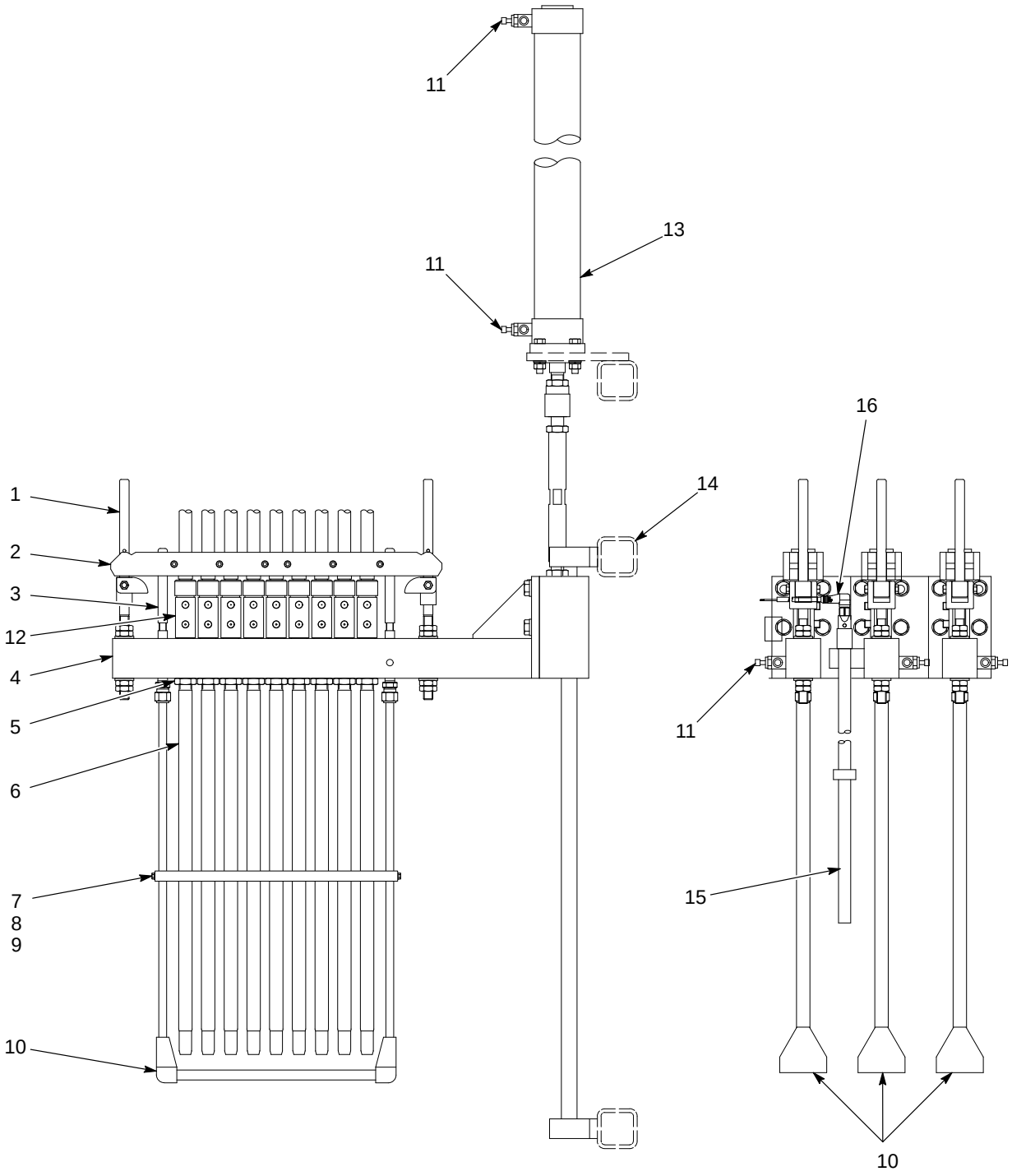


Figure 9-5 Lance Arm Assembly

Vibratory Table and Purge Assembly

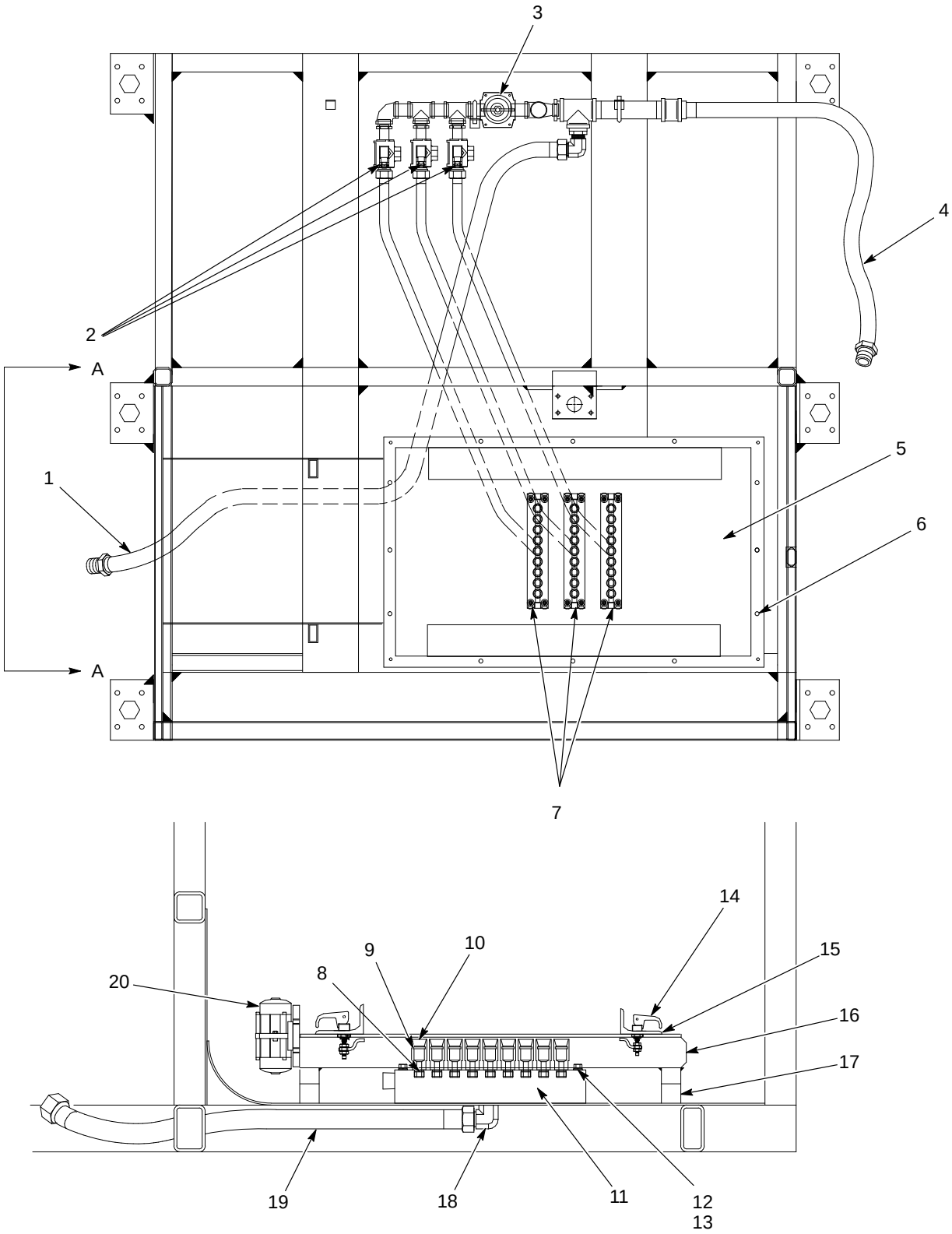
See Figure 9-6.

Item	Part	Description	Quantity	Note
1	- - - - - -	HOSE, $1^1/_2$ in., male NPT ends	1	
2	1014642	VALVE, assembly, $^3/_4$ in., with solenoid, 15-ft wire	AR	
3	1014643	REGULATOR, 1-in. NPT, 0–150 psi	1	
4	- - - - - -	HOSE, 1 in., 120-in. long, male NPT/female swivel ends	1	
5	- - - - - -	TABLE TOP, vibratory	1	
6	- - - - - -	SCREW, socket head, flat, M5 x 0.8 x 10-mm long	12	
7	1015207	MANIFOLD, purge assembly, pick-up tube	AR	A
8	1017557	• O-RING, 2.5-mm wide x 15-mm ID, Buna-N	9	B
9	1004110	• O-RING, 2-mm wide x 13-mm ID, Buna-N	9	B
10	- - - - - -	• NOZZLE, purge	9	B
11	- - - - - -	• MANIFOLD, cleaning	1	
12	- - - - - -	• SCREW, cap, socket head, M6 x 1.0 x 60-mm long, stainless steel	6	
13	1014549	PLATE, adapter, pick-up tube version	AR	
14	1028073	LATCH, vibratory table, powder feed center	4	
15	- - - - - -	GUIDE, box	2	
16	- - - - - -	TABLE, vibratory	1	
17	1017559	MOUNT, vibration $^5/_{16}$-18, $1^1/_4$ x $1^1/_4$ in.	4	
18	- - - - - -	ELBOW, $^3/_4$-in. NPT x $^3/_4$-in. JIC, 90 degree	AR	
19	- - - - - -	HOSE, $^3/_4$ in., 60-in. long, female swivel ends	AR	
20	1014539	VIBRATOR, M65, 115 V, 60 Hz	1	
NS	1014543	PLUG, purge, socket set screw, M16 x 16 mm	AR	B
NS	1014515	PLATE, blank, purge assembly	AR	

NOTE A: The feed center can be configured with one, two, or three purge manifolds. The parts indented under the assembly, part 1015207, are the quantities needed for a single purge manifold assembly.

B: The quantity of purge nozzles and O-rings in your powder feed center will match the number of guns in your system. Unused ports in the purge manifold will be plugged with the purge plug, part 1014543.

AR: As Required



View A-A Enlarged

Figure 9-6 Vibratory Table and Purge Assembly

Fan Housing Assembly

See Figure 9-7.

Item	Part	Description	Quantity	Note
1	176367	KNOB, final filter	12	
2	- - - - - -	COVER, access, fan	1	
3	- - - - - -	GASKET, adhesive back, $^1/_2$-in. wide x $^1/_4$-in. thick	AR	
4	1017573	FAN, motor	1	
6	176366	CLAMP, final filter, 18.5 x 2.75 in.	4	
5	156995	FILTER, final, internal, 20 x 24 in.	2	
AR: As Required				

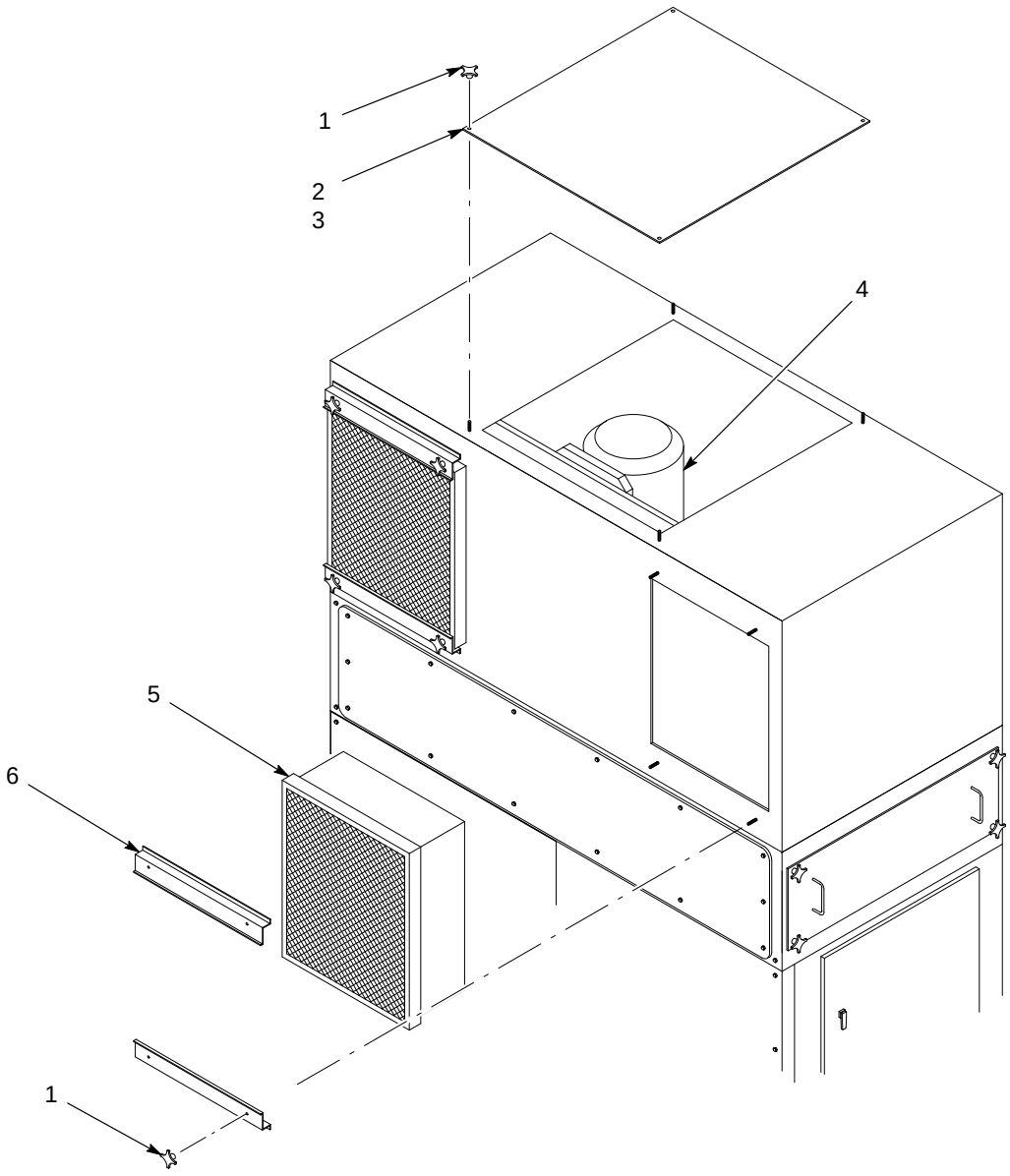


Figure 9-7 Fan Housing Assembly

Blowdown Housing Assembly

See Figure 9-8.

Item	Part	Description	Quantity	Note
1	- - - - - -	MANIFOLD, blowdown	1	
2	178970	SOLENOID BOX, 4 valve	1	
3	- - - - - -	ELBOW	3	
4	174710	VALVE, pulse, 1-in. NPT in, 1-in. NPT out	3	
5	165726	NOZZLE, cartridge pulse	3	
6	- - - - - -	DOOR, access	2	
7	- - - - - -	GASKET, adhesive back, $^1/_2$-in. wide x $^1/_4$-in. thick	AR	
8	176367	KNOB, final filter	8	
9	- - - - - -	HANDLE, pull	4	
10	- - - - - -	NIPPLE	3	
11	- - - - - -	SCREW, hex head, M6 x 1.0 x 10-mm long	14	
12	- - - - - -	COVER, access	1	
NS	- - - - - -	TUBING, 6 mm	AR	

AR: As Required
NS: Not Shown

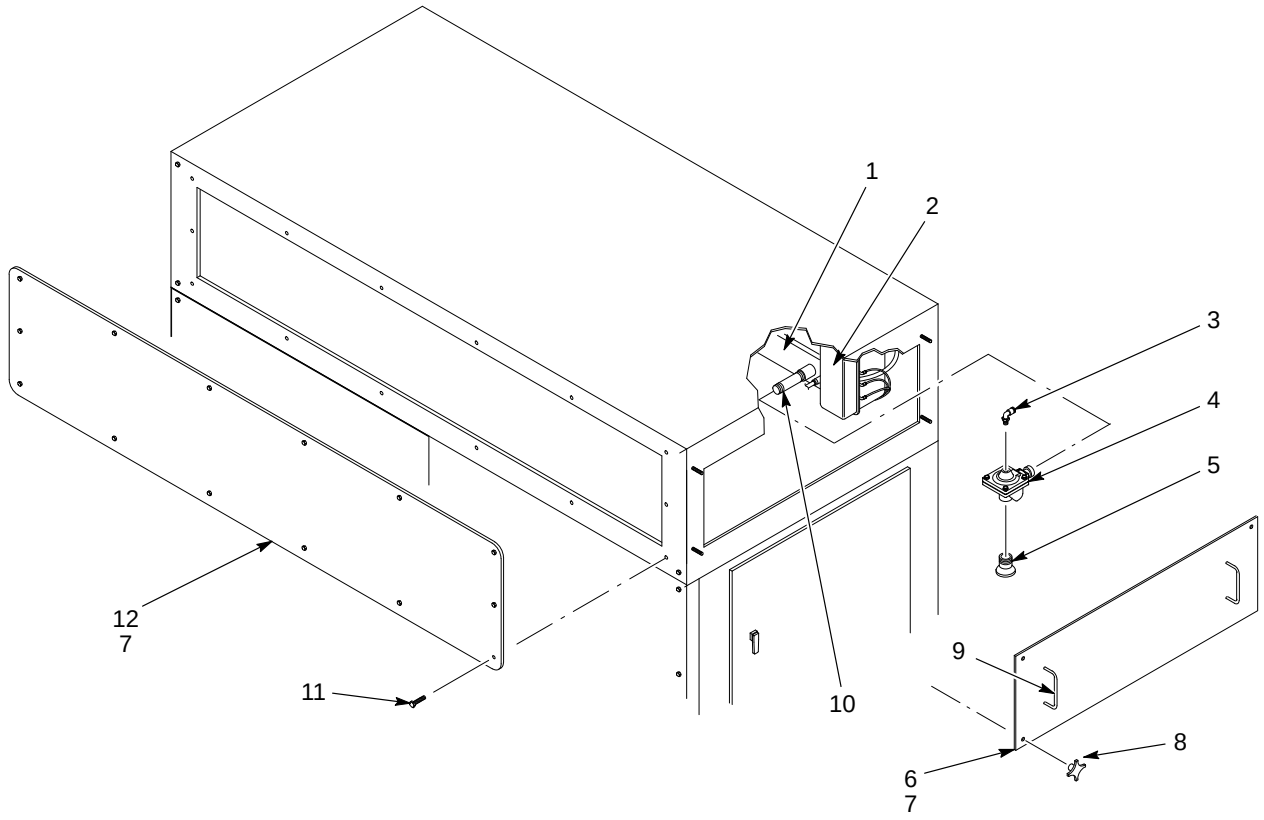


Figure 9-8 Blowdown Housing Assembly

Cartridge Filter Housing Assembly

See Figure 9-9.

Item	Part	Description	Quantity	Note
1	- - - - - -	NUT, hex, $^5/_8$-11	3	
2	- - - - - -	WASHER, lock, $^5/_8$ in.	3	
3	- - - - - -	WASHER, flat, $^5/_8$ in.	3	
4	174722	BRACKET, filter centering	3	
5	176278	ROD, filter mount, 32 in., Excel	3	
6	174723	MOUNT, filter, centering, 36 in.	3	
7	156996	FILTER, 36 in., PowderGrid, center mount	3	
8	- - - - - -	DOOR, assembly, left side	1	
9	- - - - - -	• LATCH, door	2	
NS	1017560	• GASKET, compression, $^5/_{64}$-in. edge, $^3/_4$-in. bulb, C	107 in.	
10	- - - - - -	DOOR, assembly, right side	1	
11	- - - - - -	• LATCH, door	2	
NS	1017560	• GASKET, compression, $^5/_{64}$-in. edge, $^3/_4$-in. bulb, C	107 in.	
NS: Not Shown				

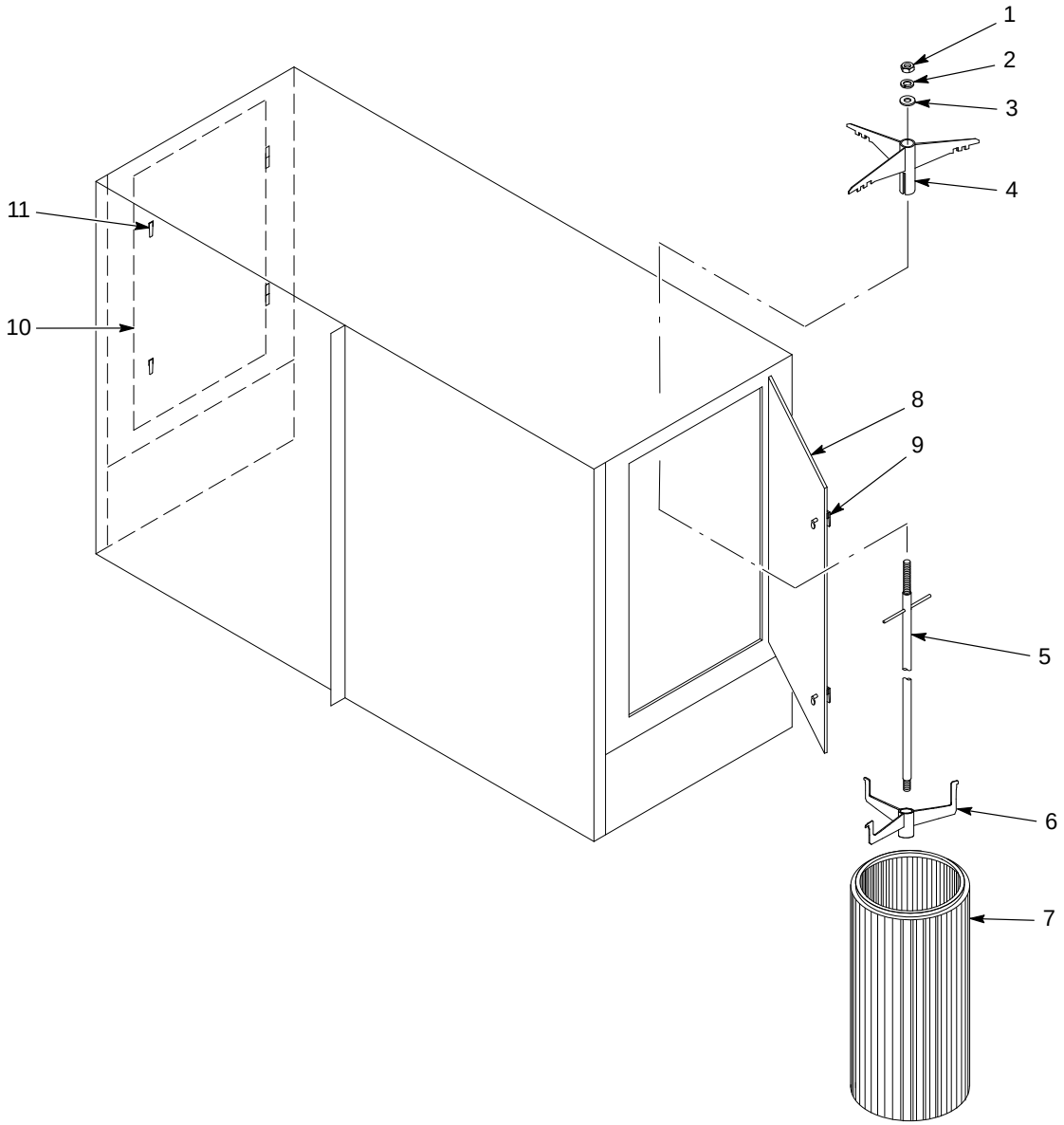


Figure 9-9 Cartridge Filter Housing Assembly

Fluid Bed Assembly

Part	Description	Note
244721	PUMP, powder, transfer, 0.75-in. outlet	
1016610	PLATE, fluidizing, 65 in. x 19 in.	

Section 10
Options

Introduction

This section contains information about optional equipment for the 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 feed center's vibratory table and lance assembly fluidizing air pressure are turned off while the fluidizing hopper is used as the feed source. The operator enables the hopper fluidizing air pressure and disables the vibratory table and lance assembly fluidizing air by touching the **Select Hopper** button on the **Auto Menu**.

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.

Installation *(contd)*

3. See Figure 10-1. Loosen the thumb screw (1). Slide the level sensor probe (4) up until the collar (3) stops against the bottom of the probe bracket (2), then tighten the thumb screw.

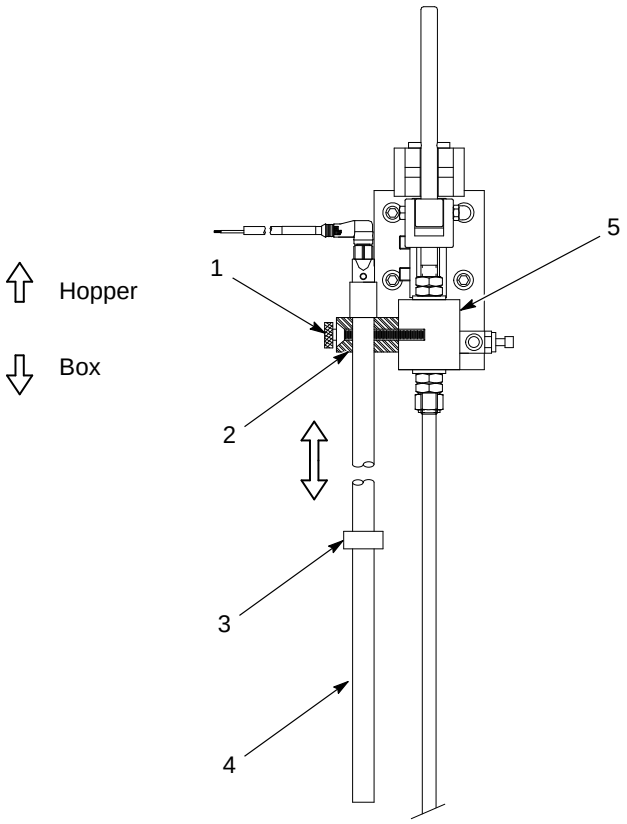


Figure 10-1 Level Sensor Probe Adjustment

1. Thumb screw
2. Probe bracket
3. Collar
4. Level sensor probe
5. Lance assembly

4. See Figure 10-2. Remove the front box guide (6) by disengaging the clamping levers (5). Set the front box guide aside.
5. Remove the lid and fill the fluidizing hopper (3) $^{2}/_{3}$ full of powder.

WARNING: Heavy equipment. Get assistance before trying to lift the full fluidizing hopper. Failure to observe this caution may result in personal injury.

6. Set the fluidizing hopper on the vibratory table (7) and slide it back against the rear box guide (1). Make sure that the fluidizing hopper is centered under the lance assembly (2).

7. Connect 10-mm air tubing between the 10-mm elbow (4) on the hopper and the 10-mm bulkhead fitting (8) on the rear wall of the feed center.
8. Touch the **Select Hopper** button on the **Auto Menu**.
9. Use the fluidizing hopper air regulator on the pneumatic panel to set the air pressure to 0.3 bar (5 psi).
10. Start up the system to test fluidizing hopper operation. Allow the powder in the hopper to fluidize for several minutes before coating parts.

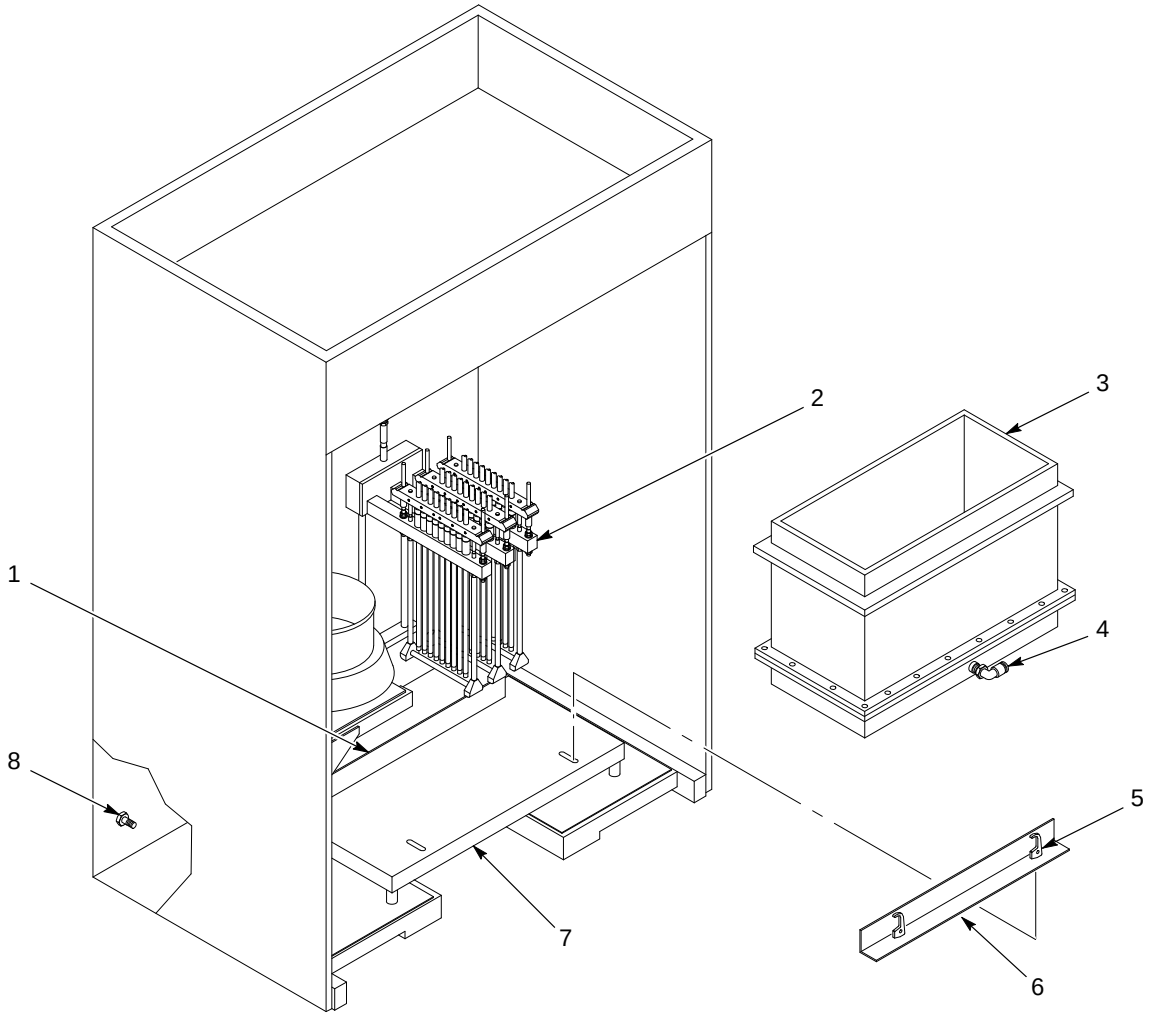


Figure 10-2 Fluidizing Hopper Installation

1. Rear box guide
2. Lance assembly
3. Fluidizing hopper
4. 10-mm elbow fitting
5. Clamping levers
6. Front box guide
7. Vibratory table
8. 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 10-3. 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 10-3.

Item	Part	Description	Quantity	Note
–	7404027	Hopper, fluidizing, feed center	1	
1	—	• Lid, hopper	1	
2	—	• Body, hopper	1	
3	7404155	• Plate, fluidizing, with gasket, powder feed center hopper	1	B
4	1604476	• • Gasket	2	B
5	—	• Base, hopper	1	
6	—	• Elbow, 1/2 in. NPT x 10 mm tubing	1	
7	7404032	• Nut, hex, M6, Nylon	40	B
8	7404031	• Washer, flat, M6, Nylon	80	B
9	7404030	• Screw, hex, M6 x 40, Nylon	40	B
NS	1024145	Cart, hopper	1	A

NOTE A: The optional cart allows the hopper to be transported easily and slid off the cart directly onto the vibrating table.

B: These parts included in 1086406 Kit, Service, Fluidizing Hopper, PFC.

NS: Not Shown

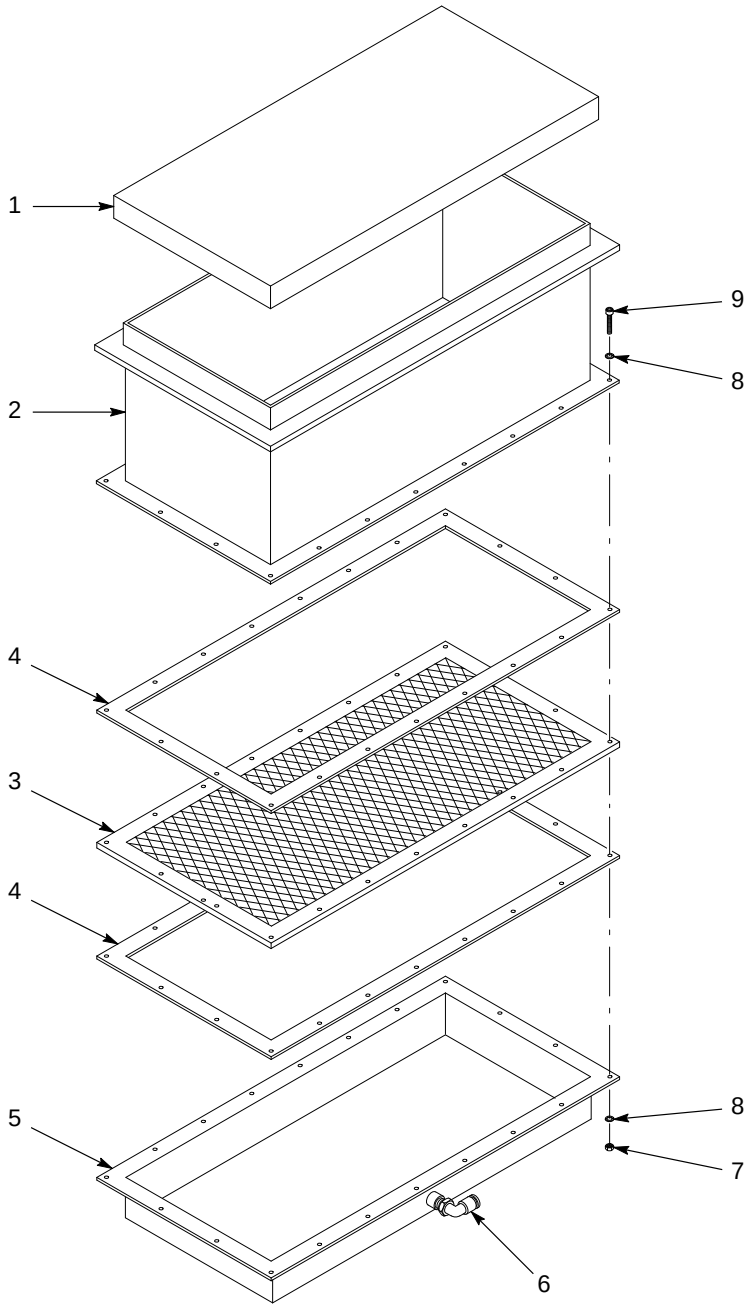


Figure 10-3 Fluidizing Hopper Parts

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 10-4.

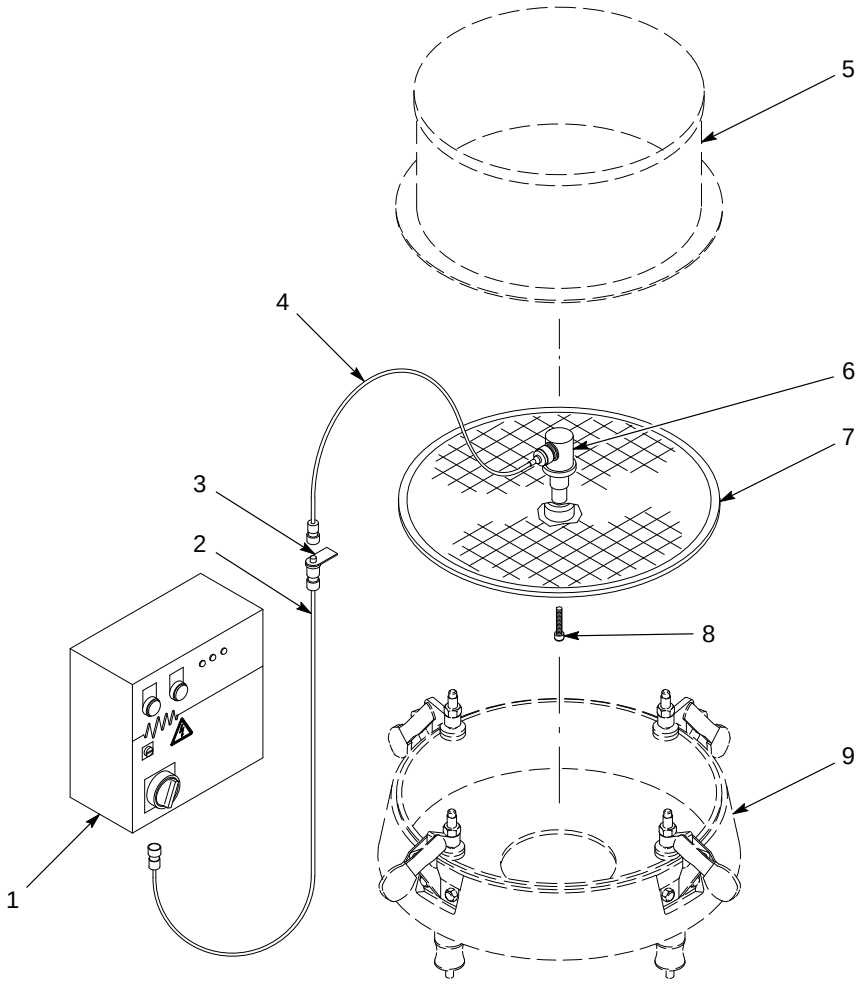


Figure 10-4 Vibrasonic System Components

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

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

See Figure 10-4.

1. 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

See Figure 10-4.

1. 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 pneumatic panel on the powder feed center.
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 four-meter cable's 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.

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 10-1 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 10-1.

Table 10-1 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 10-5.

Item	Part	Description	Quantity	Note
—	1014564	SYSTEM, Vibrasonic	1	
1	- - - - - -	• BOX, control, Vibrasonic	1	
2	- - - - - -	• CABLE, 4-meter, with support bracket	1	
3	- - - - - -	• CABLE, transducer	1	
4	- - - - - -	• TRANSDUCER, Vibrasonic	1	
5	1014565	• SCREEN, Vibrasonic, 100 mesh, with gasket	1	A
6	- - - - - -	• SCREW, cap, socket head, M8	1	
NOTE A: Other mesh sizes are available. Contact your Nordson representative for more information.				

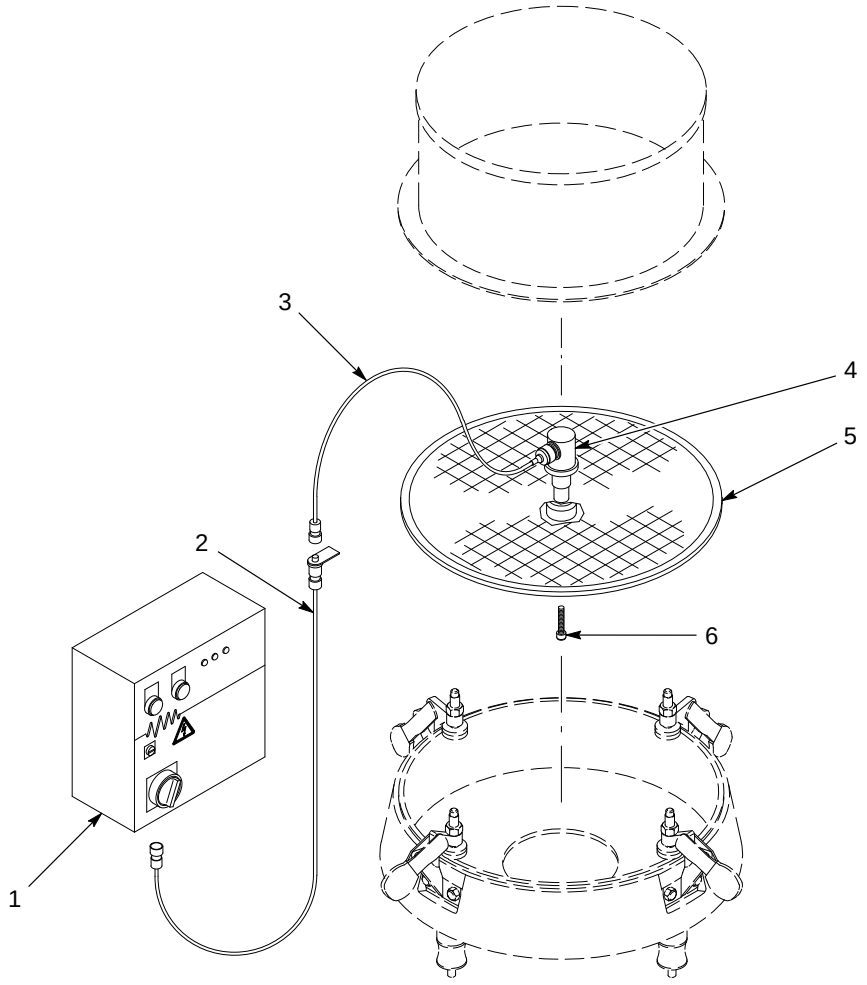


Figure 10-5 Vibrasonic System Parts