Encore™ XL Powder Feed Center

Customer Product Manual
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– English –
Issued 04/25

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1607027-02

Table of Contents

Change Record

Revision	Date	Change
01	12/21	Initial Release
02	04/25	Updated Sieve PN 1602824 with PN 1602953 and removed PN 1070199. Updated Pneumatic module drawings

Section 1
Safety

Introduction

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include:

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

Regulations and Approvals

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

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

Personal Safety

To prevent injury follow these instructions.

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

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Ground all conductive equipment. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored. Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.
- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material SDS for guidance.
- Do not disconnect live electrical circuits when working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

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

Grounding inside and around the booth openings must comply with NFPA requirements for Class II, Division 1 or 2 Hazardous Locations. Refer to NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

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

Action in the Event of a Malfunction

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

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

Disposal

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

Section 2
Overview

Introduction

See Figure 2-1. The Encore™ XL powder feed center conditions and supplies powder for up to 36 Venturi pumps. It contains a sieve, hopper table, lance and lift assembly, Venturi-type in-line powder pumps, level sensors, purge manifold, dust collector, fan, and electrical and pneumatic controls.

The feed center provides quick color changes and automatic purge cleaning. Powder is drawn from a box or fluidized hopper powder source by the lance-mounted, in-line powder pumps. The powder is then delivered through feed hoses to the spray guns. The feed center can be equipped with up to 36 Venturi pumps, and is furnished with a vibratory table to aid in the fluidization of powder in boxes.

The feed center controls are designed to accommodate one to two HDLV® reclaim pumps to transport over-sprayed powder from the powder recovery system to the feed center, and an optional HDLV pump to transport virgin powder to the system as needed.

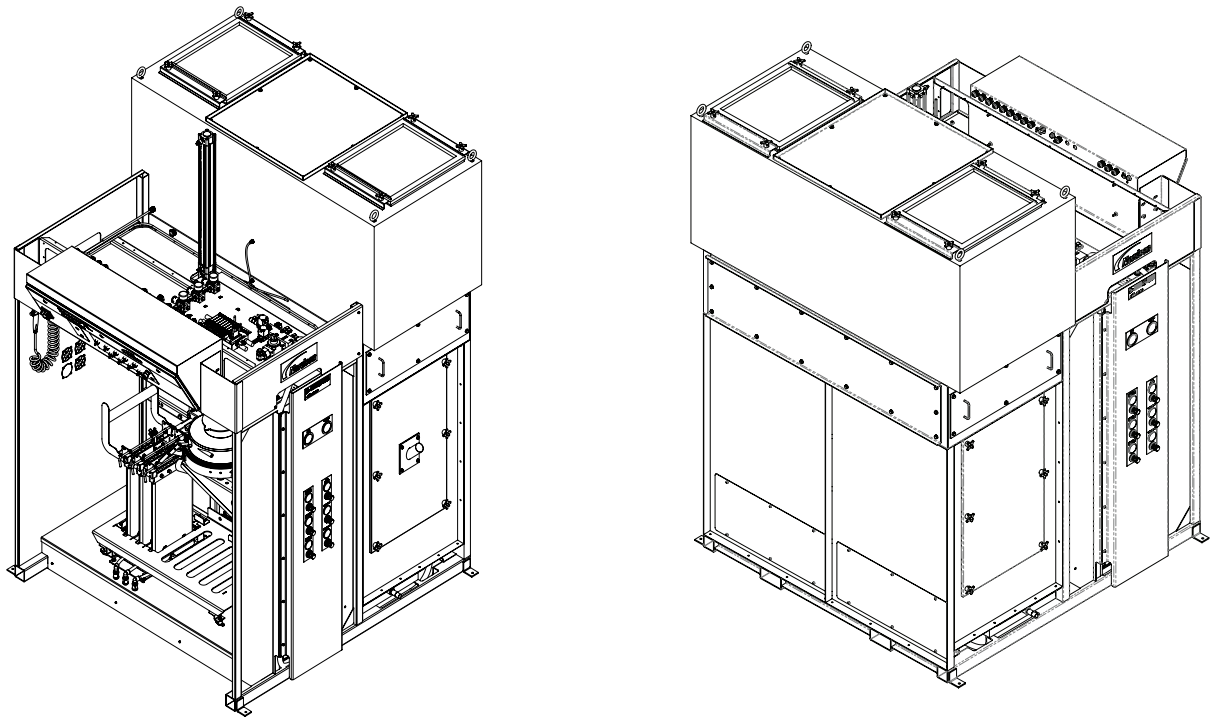


Figure 2-1 Powder Feed Center

Introduction *cont...*

Both HDLV transfer pumps deliver the powder to the vibratory sieve, where it is conditioned before delivery to the powder spray guns. The sieve is equipped with a 20 mesh ultrasonic sieve screen. Other screen sizes are available as an option.

The color change operation is partially automatic. At the start of a color change, the lances are raised out of the powder source so they can be removed from the feed center. Then, when the operator initiates the gun purge, the lances are automatically lowered onto a purge manifold assembly and clamped in place. High-pressure purge air is then pulsed through the lances, in-line powder feed pumps, hoses, and guns to clean them of powder. The reclaim and virgin HDLV transfer pumps are purged manually when the operator is ready.

The Encore XL Powder Feed Center has an integrated air extraction system that provides a constant airflow through the feed center enclosure, preventing powder from escaping into the spray room. The extraction system includes an exhaust fan, 3 cartridge filters, 3 pulse valves and controls, and final filters.

Components List

Standard Components

See Figure 2-2. The feed center consists of the following components:

- Enclosure
- Control cabinet for pneumatic and electrical controls
- LED lighting
- Lance lift assembly with locking lift cylinder
- 2−4 lance assemblies, each holding 1−9 in-line pumps (36 pumps total)
- Lance-mounted fluidizing bars for use with powder boxes
- Lance-mounted level sensors for feed hopper and box
- Lance-mounted suction tube holders for Prodigy® or Encore® manual guns
- High pressure purge manifolds, one per lance, with air cylinder clamping mechanism
- Square or rectangular fluidized feed hoppers
- Vibratory table for powder boxes
- Vibratory sieve
- Exhaust fan
- Cartridge filters
- Pulse valves
- Final filters

Optional Component List

Optional components include:

- Ultrasonic sieve screens
- HDLV virgin powder bulk feed system

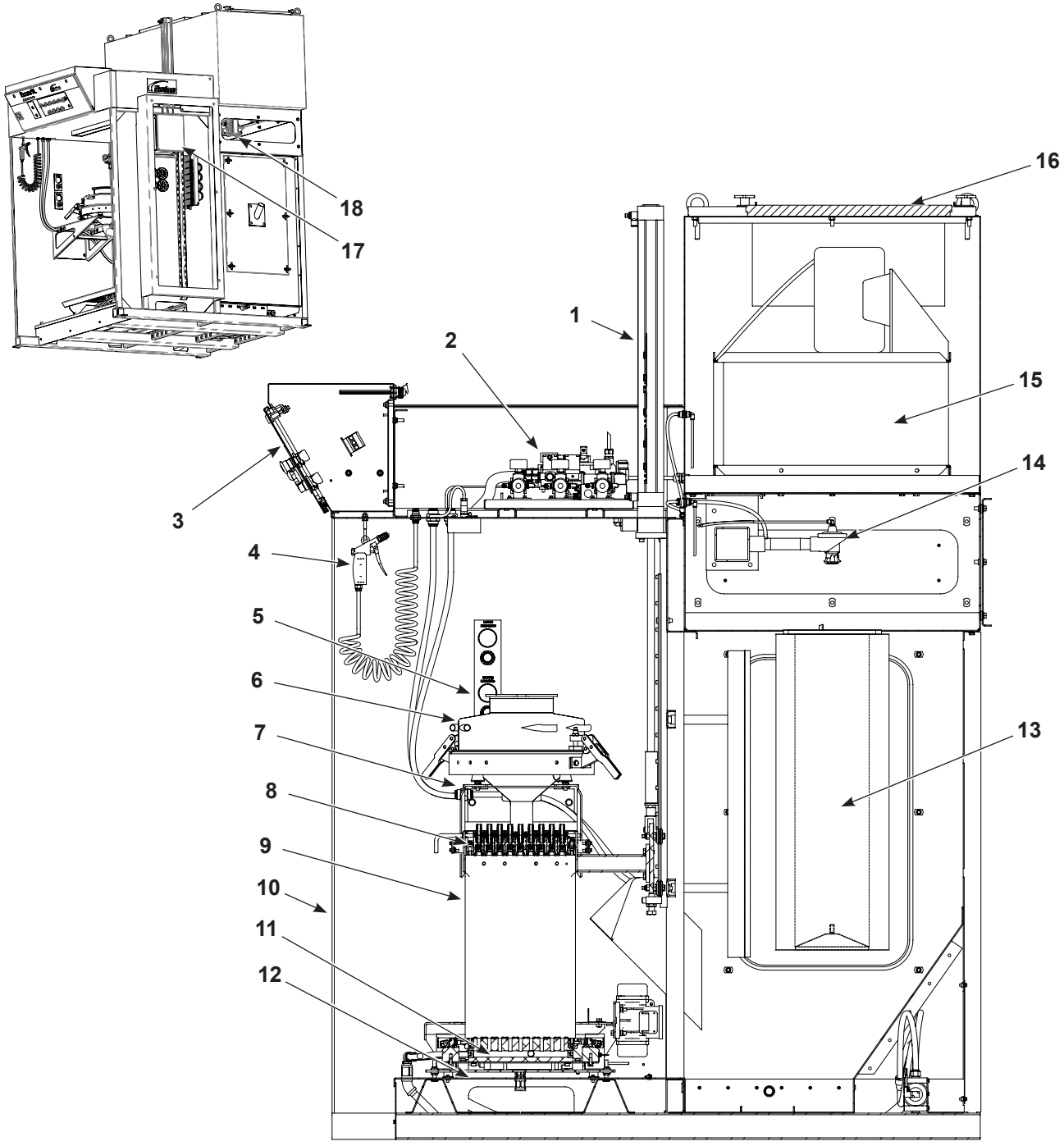


Figure 2-2 Major Components (shown with 4 lance right hand system)

1. Lift assembly
2. Pneumatic panel
3. Control panel
4. High flow blow-off gun (low flow blow-off gun on opposite side not shown)
5. Fluidizing air regulators
6. Sieve
7. Purge ports − transfer hoses
8. Level sensor
9. Lance assembly
10. Enclosure
11. Purge manifold
12. Vibratory table
13. Cartridge filters
14. Pulse valves
15. Exhaust fan
16. Final filters
17. Blow-down timer
18. Blow-down solenoids

NOTE: Refer to *Operation* section for a description of the feed center controls.

Feed Center Control Panel

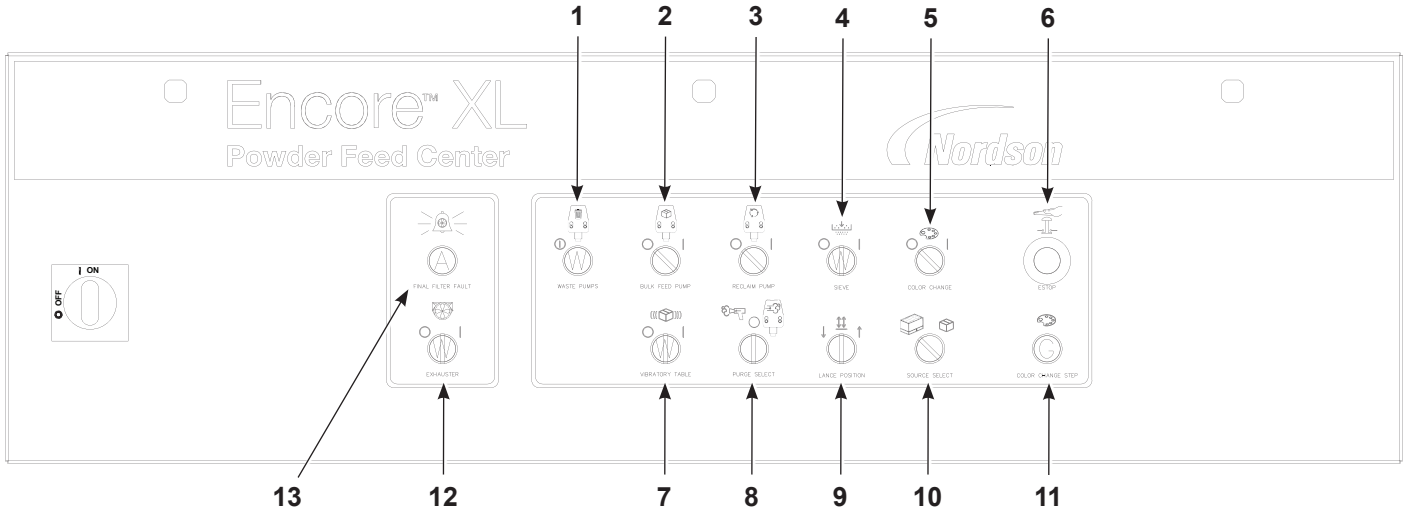


Figure 2-3 Control Panel Functions

Table 2-1 Powder Feed Center Components

Item	Description	Item	Description
1	**Waste Pumps**	8	**Purge Selection** **Left:** Internal Gun Purge **Center:** Off **Right:** Pump Purge
2	**Bulk Feed Pump Control** **Left:** Off **Right:** On	9	**Lance Position Control** **Left:** Down **Center:** Neutral (stop) **Right:** Up
3	**Reclaim Pump Control** **Left:** Off **Right:** On	10	**Powder Source Selection** **Left:** Hopper **Right:** Box
4	**Sieve Control** **Left:** Off **Right:** On	11	**Color Change Indicator** (Green) **Off:** Disable Blinking: In cycle **On:** Complete
5	**Color Change Enable** **Left:** Off **Right:** On	12	**Exhaust Fan**
6	**Emergency Stop** **Pressed In:** Stop **Rotate and Pull Out:** Start	13	**Final Filter Fault Indicator** (Amber)
7	**Vibratory Table Motor Control** **Left:** Off **Right:** On		

Lance Assemblies

Two, three, or four lance assemblies are attached to the lift assembly. Up to nine in-line powder pumps can be mounted on each lance assembly. The pumps are installed in the lance ports, and held into place with a retaining rod. If a lance pump port is not used, it is plugged with a plug module.

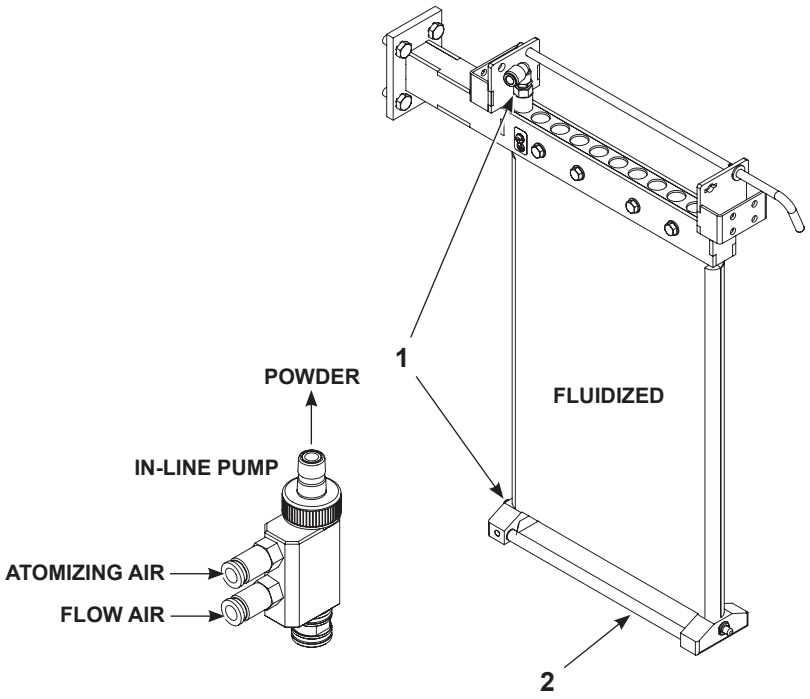


Figure 2-4 Lance Assembly

1. Fluidizing latch block assembly
2. Fluidizing bars

Lift Assembly

The lift assembly uses a locking air cylinder to raise and lower the lance assemblies in and out of the feed hoppers or powder boxes:

- If a feed hopper is selected as the powder source, the lance is lowered until it is a set distance above the fluidizing plate, as determined by the position of a proximity sensor on the lift cylinder.
- If a powder box is selected, the lance is lowered until the level sensor on the lance contacts the powder, and then lowered gradually as the powder is used.

The cylinder motion and locking action are controlled by three solenoid valves that are part of the control manifold on the roof of the feed center.

The lift cylinder has a spring-actuated locking mechanism released by air pressure. The cylinder is locked when the air line is vented; unlocked when pressurized. The cylinder also uses a balancing air circuit, which applies air pressure to both sides of the piston to prevent lurching when restarting motion after a locked stop.

Lift Assembly *(contd)*

When the cylinder moves the lance up, the lance down circuit is vented, allowing the lance up circuit air to push the piston up. When the cylinder moves the lance down, the lance up circuit is vented, allowing the lance down circuit air to push the piston down.

The flow control valves installed in the cylinder air ports control the travel speed of the piston rod. Three proximity sensors mounted on the cylinder sense when the cylinder piston is in the hopper, box empty, or purge positions.

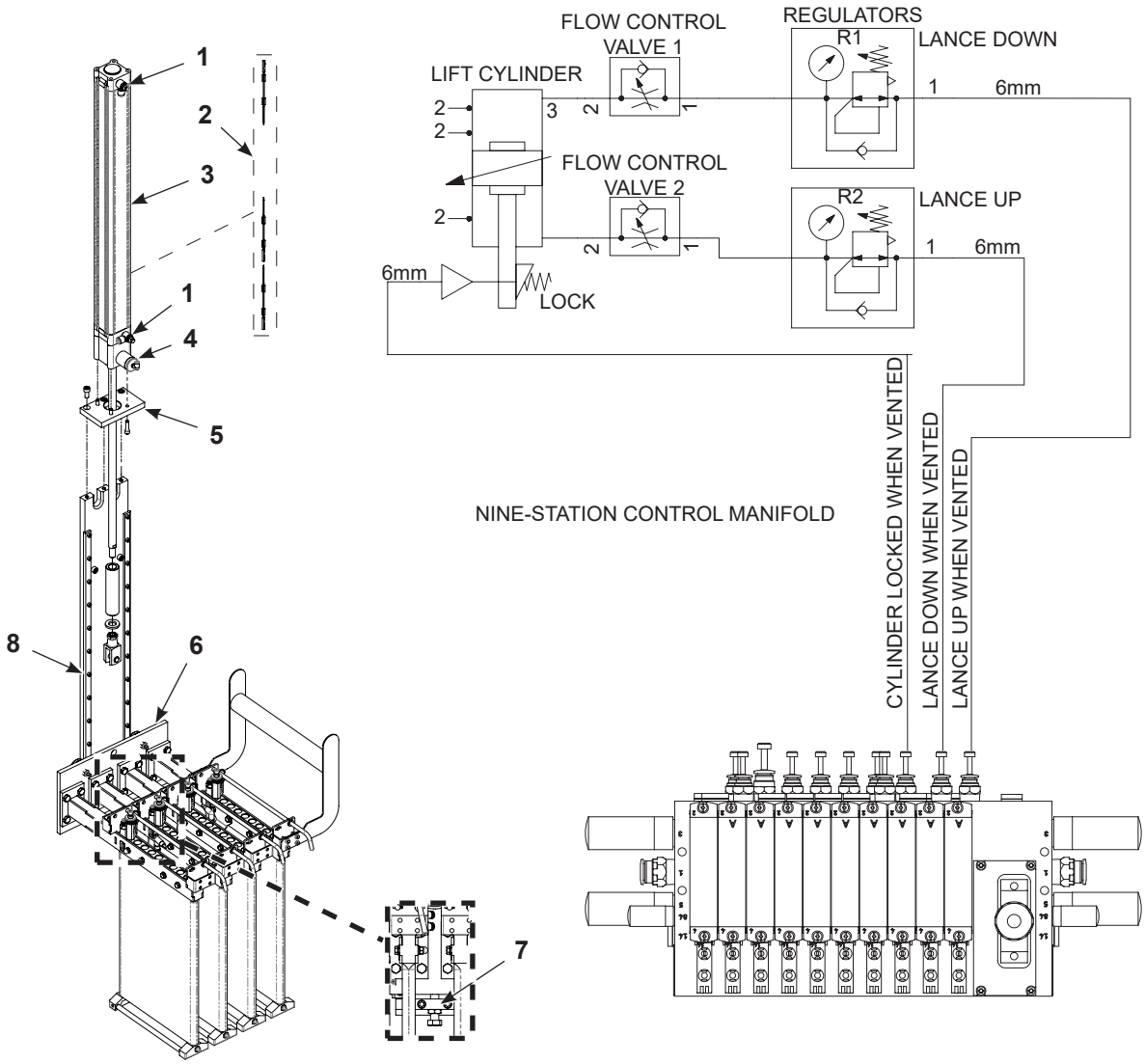


Figure 2-5 Lance Lift Assembly

1. Flow control valves
2. Proximity sensors
3. Lift cylinder
4. Locking mechanism
5. Support block/flange
6. Lift plate with wheels
7. Carriage stop
8. Linear V-guide

Lance Lift Operation

See Figure 2-5.

Static State

- Lance lock solenoid valve non-energized, air line to lock vented, cylinder rod locked by spring force.
- Lance down and lance up solenoid valves non-energized, air lines to up and down flow control valves pressurized, lance up and lance down regulators supplying balanced pressure to both sides of the lift cylinder piston.

Dynamic State UP

- Lance lock solenoid valve energized, lock air line pressurized, cylinder rod unlocked.
- Lance up solenoid valve energized, venting line to lance down regulator and top of piston. Pressure to lance up regulator and bottom of piston forces piston up.

Dynamic State DOWN

- Lance lock solenoid valve energized, lock air line pressurized, cylinder rod unlocked.
- Lance down solenoid valve energized, venting line to lance up regulator and bottom of piston. Pressure to lance down regulator and top of piston forces piston down.

Level Sensor Modules

Lance Mounted Level Sensor Function

When the powder source switch is set to **Hopper**, the lance is lowered down into the powder in the hopper to the position determined by the hopper proximity switch on the lift cylinder. The hopper level sensor is positioned to maintain the desired level of powder in the hopper, turning on and off the virgin transfer pump as the powder level rises and falls. If the level sensor detects a low powder condition for greater than 3 minutes (field adjustable), the low powder alarm is turned on.

When the powder source switch is set to **Box**, the lance is lowered until the box level sensor contacts the powder. When the powder level falls below the level sensor, the lance is lowered further into the box. The box proximity sensor on the lift cylinder prevents the lance from crashing into the bottom of the box.

See Figure 2-6. To adjust the position of each level sensor for the application, loosen the clamp screw (4) with a hex key.

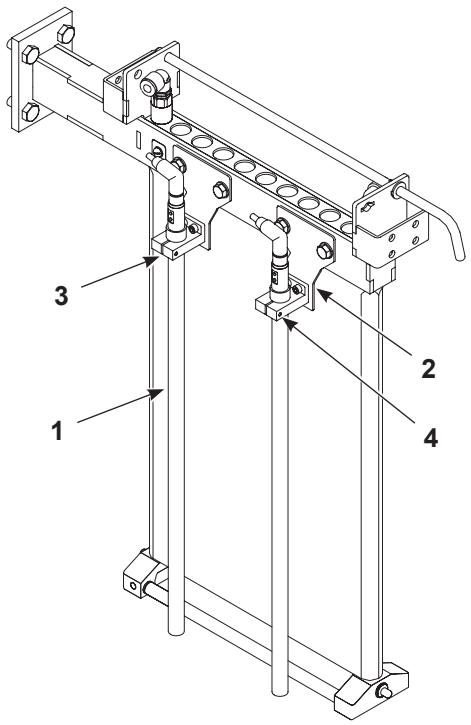


Figure 2-6 Level Sensor Modules

1. Level sensor
2. Bracket
3. Clamp
4. Clamp screw

Purge Manifolds

See Figure 2-7.

During a color change procedure, the purge manifolds blow powder out of the lances, in-line pumps, powder feed hoses, and spray guns. When the operator activates the gun purge mode during a color change procedure, the lance assemblies are lowered onto the purge manifolds (7). The latch cylinder (3) is extended, causing the latches (5) to clamp the lances to the purge manifolds. Compressed air is then pulsed through the lances, in-line pumps, feed hoses, and spray guns, one manifold at a time. The purge sequence is controlled by the feed center PLC. Air is supplied by the purge valves mounted on the back of the feed center.

The latch assemblies can be adjusted to change the clamping force exerted on the lance assemblies, depending on the purge air pressure. Refer to the *Repair* section for adjustment procedures.

NOTE: Two and three lance systems will only have one purge clamp cylinder.

Clamping Cylinder Operation

Extend (Clamp): The air line to the regulator and extend flow control valve (4) at the fixed end of the cylinder is pressurized with regulated air, forcing the cylinder piston and rod out of the cylinder. The retract air line is vented.

Retract (Unclamp): The air line to the retract flow control valve (1) at the rod end of the cylinder is pressurized with line air pressure, forcing the cylinder piston and rod into the cylinder. The extend air line is vented.

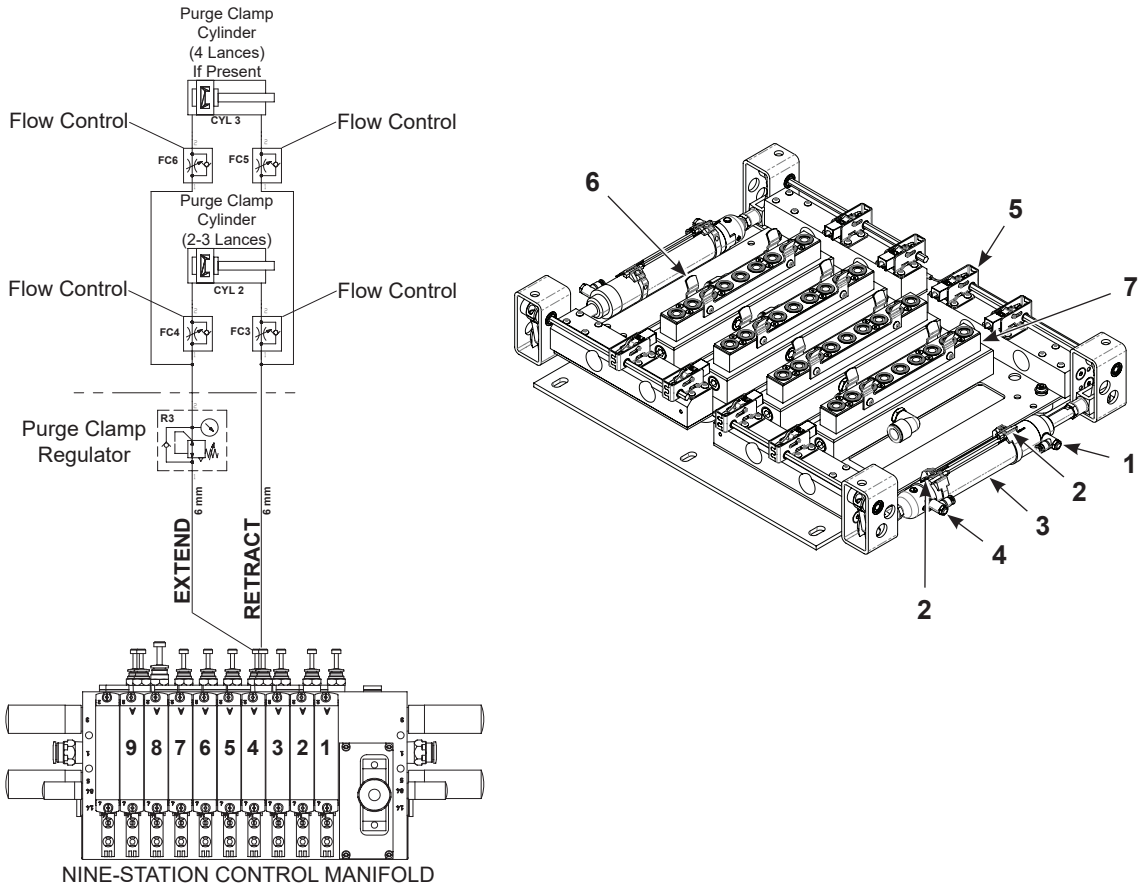


Figure 2-7 Purge Manifold Assembly (4 lance assembly shown with cylinder and latches in clamping position)

1. Retract flow control valve
2. Piston proximity sensors
3. Latch cylinder
4. Extend flow control valve
5. Latches
6. Lance guides
7. Purge Manifold

Sieve

See Figure 2-8.

The vibratory sieve is mounted onto a bracket assembly (5).

The sieve lid (3), 20 mesh sieve screen (13), and screen gasket (12) are clamped to the pan by two latches (11). Optional screens are available in different mesh (micron) sizes. When the latches are released, the sieve pan can be rotated so that the discharge chute (8) deposits the screened powder into the powder source, or when purging, so the chute is pointing toward the exhaust duct intake.

For hard-to-screen powders, a Vibrasonic system with an ultrasonic screen is available. Refer to *Options* for more information.

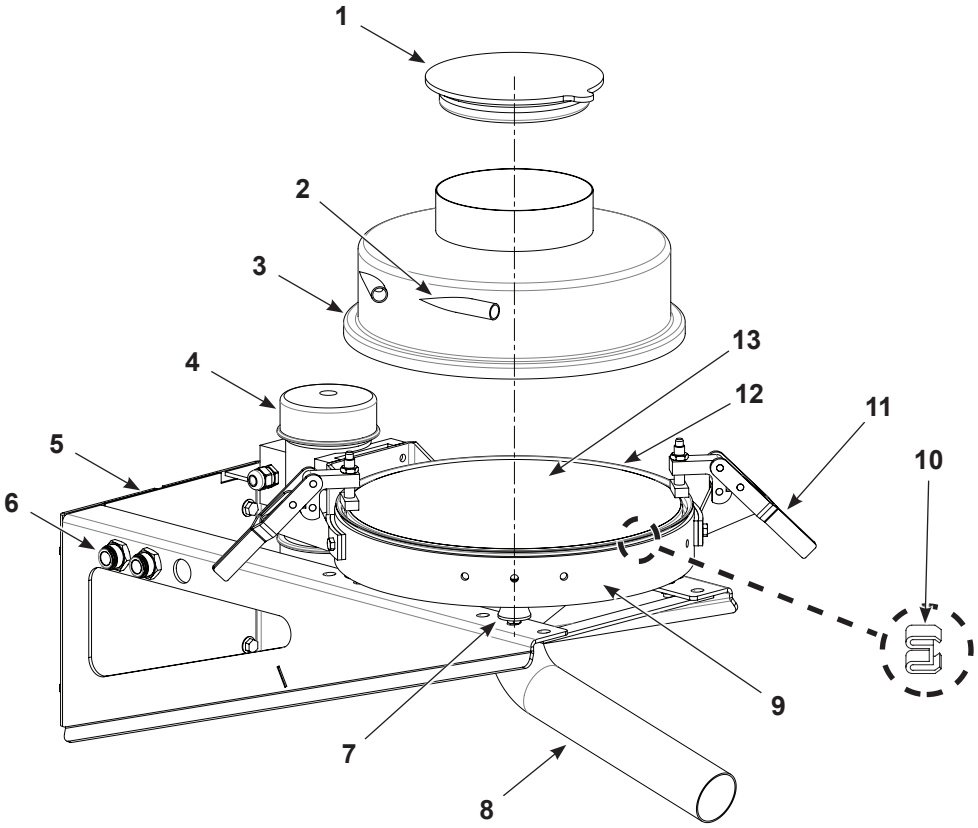


Figure 2-8 Sieve and Mounting Bracket Assembly (Standard Screen Shown)

1. Deck plug
2. Powder inlet stubs (4)
3. Sieve lid
4. Vibrator motor
5. Mounting bracket assembly
6. Powder purge ports
7. Vibration isolators
8. Sieve pan discharge chute
9. Sieve ring
10. Ground clip
11. Latches
12. Screen gasket
13. Sieve screen

Pneumatic Panel Components

Refer to Figure 2-9 for an explanation of the 9-station control manifold functions. Refer to *Drawings* section for the feed center pneumatic diagram.

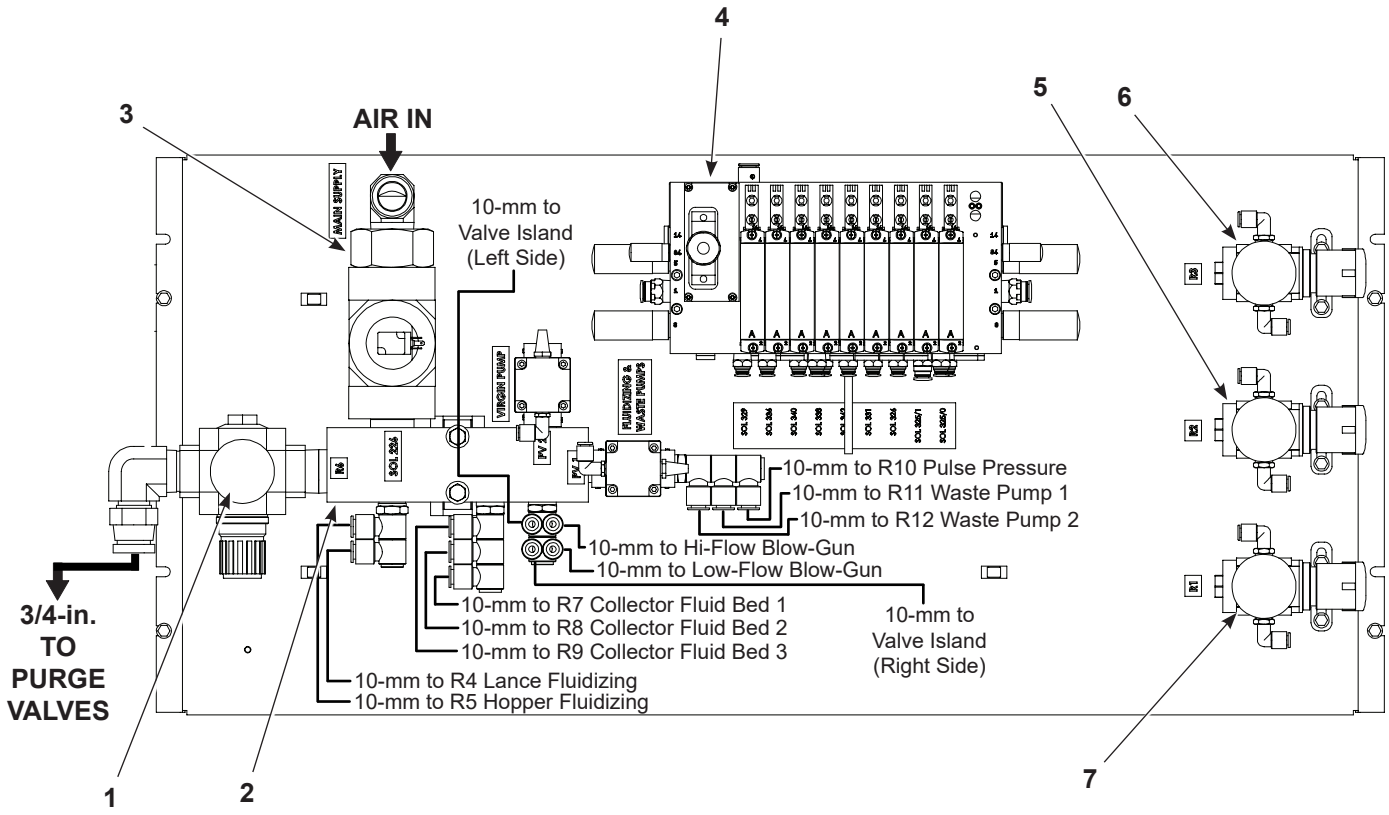


Figure 2-9 Pneumatic Components

1. Purge air regulator/gauge
2. Air manifold
3. Interlock valve
4. Control manifold
5. Lance UP regulator/gauge
6. Lance DOWN regulator/gauge
7. Purge clamp regulator/gauge

NOTE: Refer to *Setup* and *Operation* section for air pressure and control settings and usage.

Control Manifold Functions

The control manifold controls most of the pneumatic equipment in the feed center. It is connected to the feed center control panel by a single cable.

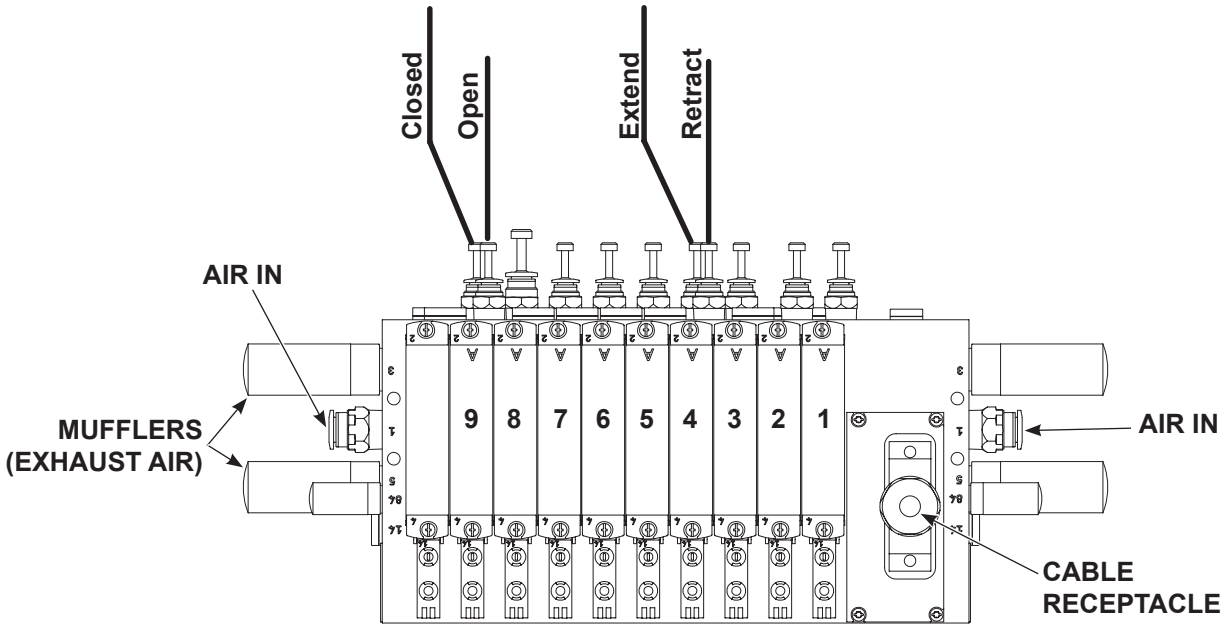


Figure 2-10 Control Manifold Functions

Valve No.	Solenoid Designation	Function
1	SOL 325/0	Lance Up (vented when energized, allowing Lance Up)
2	SOL 325/1	Lance Down (vented when energized, allowing Lance Down)
3	SOL 326	Lance Lock (energized to unlock cylinder, vented to lock cylinder)
4	SOL 331	Purge Clamp (extend/retract)
5	SOL 342	HDLV Virgin Pump Purge
6	SOL 338	HDLV Virgin Pump On
7	SOL 340	HDLV Reclaim Pump Purge
8	SOL 336	HDLV Reclaim Pump On
9	SOL 329	Damper (open/closed)

Optional HD Tube Assembly

The optional Prodigy/ Encore HD siphon tube provides powder to a Prodigy or Encore HD manual gun. The siphon tube bracket (3) is secured to the lance arm with the existing lance spring clips (2). The quick-disconnect fitting on the top of the siphon tube (1) accommodates 8-mm tubing.

NOTE: This option can only be used with fluidized hoppers.

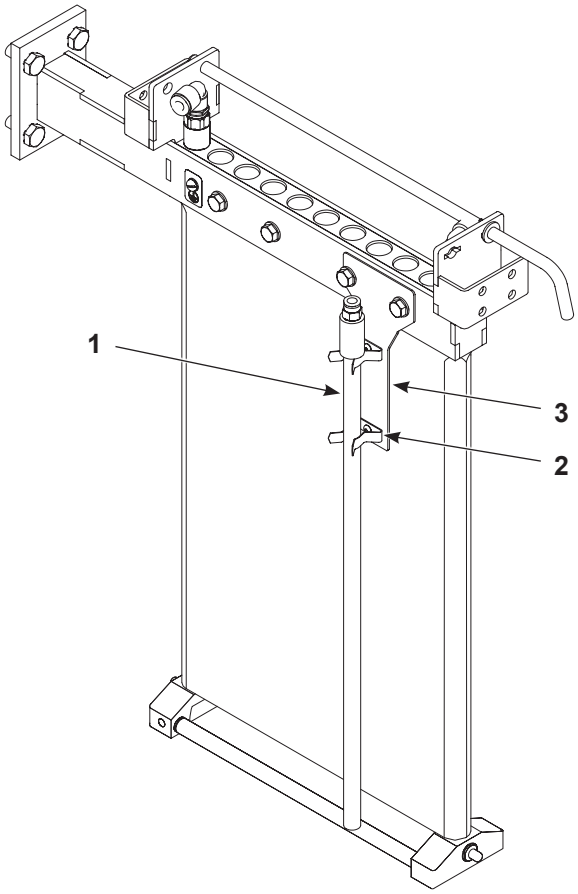


Figure 2-11 Siphon Tube Assembly (Optional)

1. Siphon tube
2. Spring clips
3. Bracket

Optional Powder Hoppers

The feed center can accommodate rectangular 75-lb (34 kg) and square 50-lb (22.7 kg) fluidizing hoppers and different sizes of powder boxes.

The fluidizing hoppers are equipped with replaceable fluidizing plates and 10-mm tube fittings in the plenum. An optional cart is available for the 75-lb hopper.

Refer to the *Options* section of this manual for the square and rectangular hopper part numbers and repair parts.

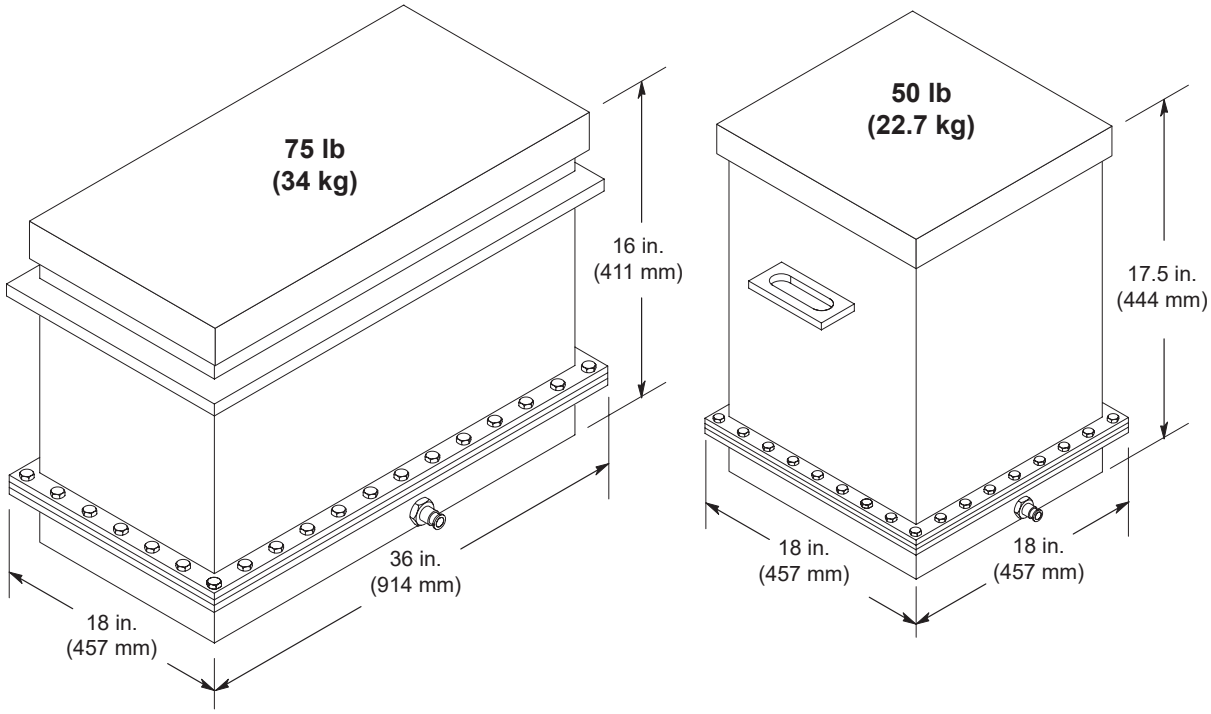


Figure 2-12 Optional Fluidizing Feed Hoppers

Specifications

Size and Weight

Approximate Maximum Weight when Fully Equipped: 2900 lb (1316 kg)

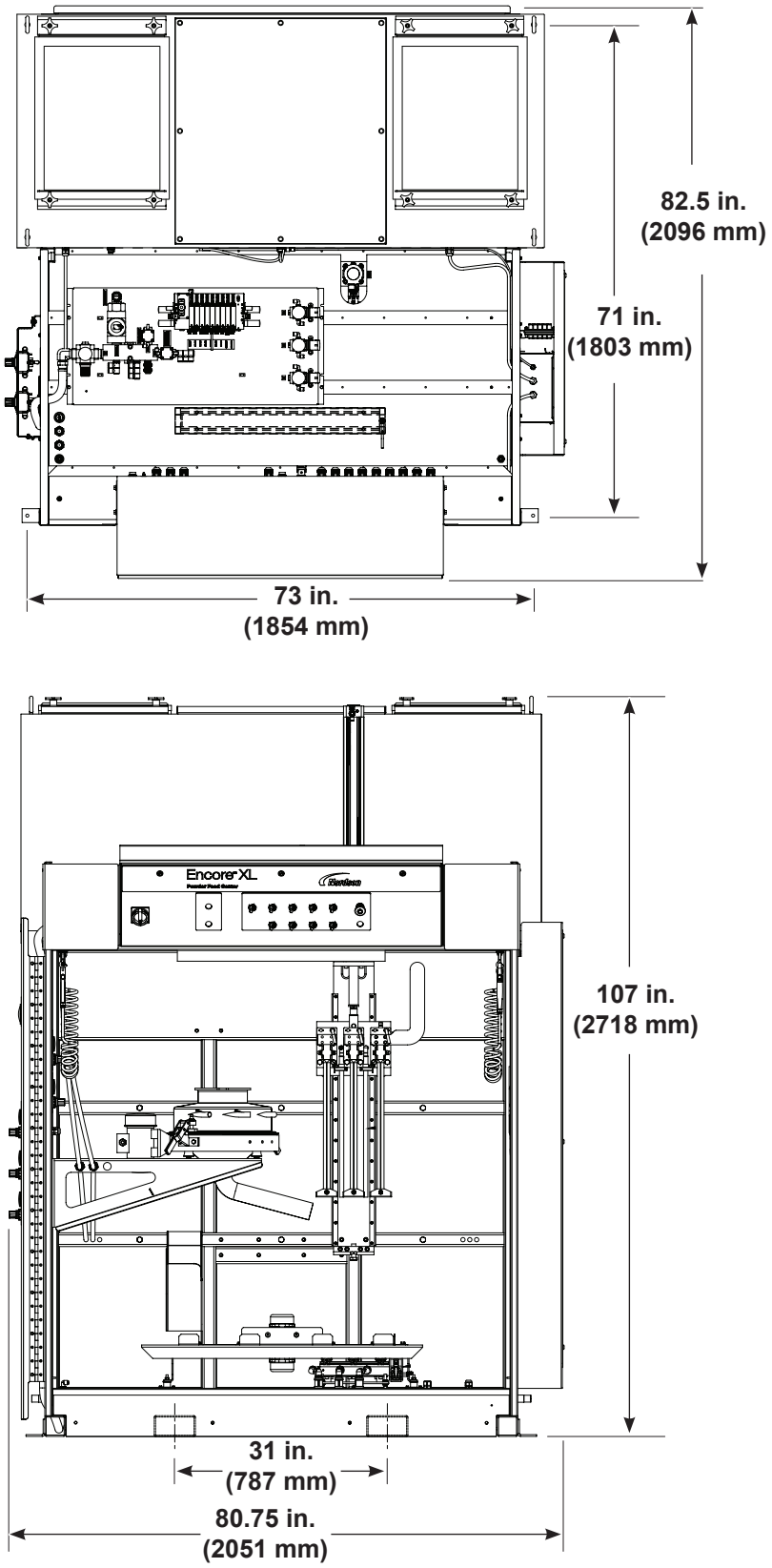


Figure 2-13 Feed Center Dimensions

Electrical Requirements

200V, 3 phase, 50 Hz, 6.6 amps (optional)

200V, 3 phase, 60 Hz, 6.6 amps (optional)

230V, 3 phase, 60 Hz, 6.1 amps (optional)

380V, 3 phase, 50 Hz, 3.6 amps (optional)

380V, 3 phase, 60 Hz, 3.6 amps (optional)

415V, 3 phase, 50 Hz, 3.5 amps (optional)

460V, 3 phase, 60 Hz, 3.5 amps (standard)

575V, 3 phase, 60 Hz, 2.5 amps (optional)

Air Requirements

Compressed Air Supply

Air input: 1 in. JIC hose

Air consumption at 6.9 bar (100 psi):

Air consumption	Operation
≈136 m3/hr (≈80 SCFM)	Normal Operation
≈272 m3/hr (≈160 SCFM)	Maximum Output
≈399 m3/hr (≈235 SCFM)	Instantaneous flow during color change with bank purging enabled
≈1546 m3/hr (≈910 SCFM)	instantaneous flow maximum during color change purging 36 guns all at one time
NOTE: Specifications based on 36 pumps.	

The air must be clean and dry. Use a dedicated, refrigerated or regenerative-desiccant air dryer that can produce a 3 °C (38 °F) or lower dewpoint at 6.9 bar (100 psi), and filter/separators with automatic drains.

Air Pressures

Function	Recommended Pressure
Lift Cylinder Up	Lance: 4.1 bar (60 psi) Lances: 4.8 bar (70 psi) Lances: 5.5 bar (80 psi)
Lift Cylinder Down	3.4 bar (50 psi)
Lift Cylinder Flow Control Valves	6 seconds full travel both directions
Purge Air	6.2 bar (90 psi)
Lance Purge Clamp Cylinder(s)	3.4−4.1 bar (50−60 psi)
Clamp Cylinder Flow Control Valves	3 seconds full travel both directions
Feed Hopper Fluidizing	0.3−0.7 bar (5−10 psi) (see Note)
Lance Fluidizing	0.3−0.7 bar (5−10 psi) (see Note)
NOTE: Adjust fluidizing air as needed. Powder should be gently boiling, without geysering.	

Sieves

Available Sieve Screens

381 mm (15 inch) Sieve:

864 Micron, 20 mesh without ultrasonics (standard)

381 Micron, 40 mesh without ultrasonics

234 Micron, 60 mesh, without ultrasonics

178 Micron, 80 mesh with ultrasonics

140 Micron, 100 mesh with ultrasonics

Air Filtration

See Figure 2-14.

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

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

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

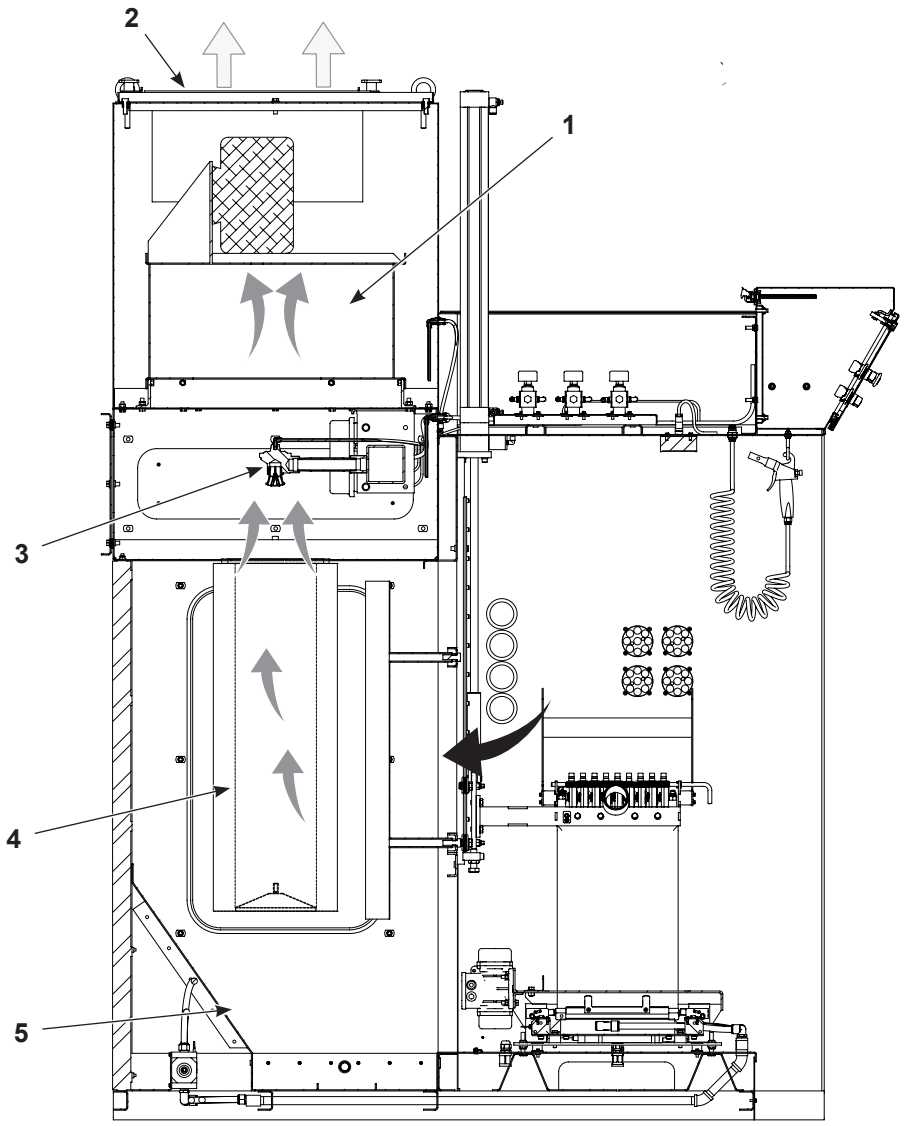


Figure 2-14 Powder Feed Center Air Filtration

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

Section 3

Installation

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

NOTE: The feed center is typically shipped by truck or in a container. All internal air and electrical connections are made at the factory. Refer to your system drawings for final connections.

Unpacking

Upon receipt, unpack the feed center carefully to avoid damage. Report any damage immediately to the shipper and to your Nordson representative. Save packing materials for possible later use, or dispose of properly according to local regulations.

Preparing for Installation

Position the feed center on a level floor according to the system layout drawing supplied by Nordson application engineering.

To ensure easy maintenance, provide a clear operating and access zone of at least 1m (3 ft) wherever possible.

Electrical Connections

CAUTION: Equipment damage may occur if the electrical panel is connected to any line voltage other than that stated on the identification plate.

WARNING: Power to the feed center must be supplied from a locking disconnect switch or breaker. Failure to observe this warning may result in a severe shock during installation or repair.

Make sure that all customer-supplied electrical cables are correctly rated and suitable for the ambient temperature of the installation area. Provide adequate fuse/circuit protection from the power supply. Refer to the wiring diagrams and system drawings supplied by Nordson application engineering for more information.

See Figure 3-1. The feed center is shipped with cables for power, E-stop, and control connections to the main system electrical panel. Refer to your system wiring diagrams for connection information. The wiring diagrams for the feed center control panel are included at the back of this manual.

Before starting the feed center, turn on the feed center power and refer to the Setup procedures to program the controls for the application. This should be performed only by a Nordson field engineer, or a qualified customer controls engineer.

External Powder Hose and Air Connections

Air Connection: JIC hose or NPT (National Pipe Thread)

The feed center is supplied with a 1-in. JIC male hose adapter located at the main supply air valve. Remove the adapter if you are using NPT fittings to connect to your main air supply.

Air Connection: ISO 7/1 Rc1 (BSPT 1 inch)

Remove the 1-in. JIC hose adapter and the 1-in. NPT adapter from the main supply air valve if you are using ISO7/1 Rc1 fittings to connect to your main air supply.

Clean, dry, compressed air should be supplied from a refrigerated or desiccant air dryer and filter/separators. Refer to the *Specifications* section for compressed air specifications.

Refer to the pneumatic diagram on the 11 x 17 foldouts at the end of this manual for more information.

Pump Flow and Atomizing Air Connections: Route 8-mm black (flow) and blue (atomizing) air tubing from the Encore® Engage control console to the air manifolds on the side of the feed center. Refer to your system drawings for the correct connections.

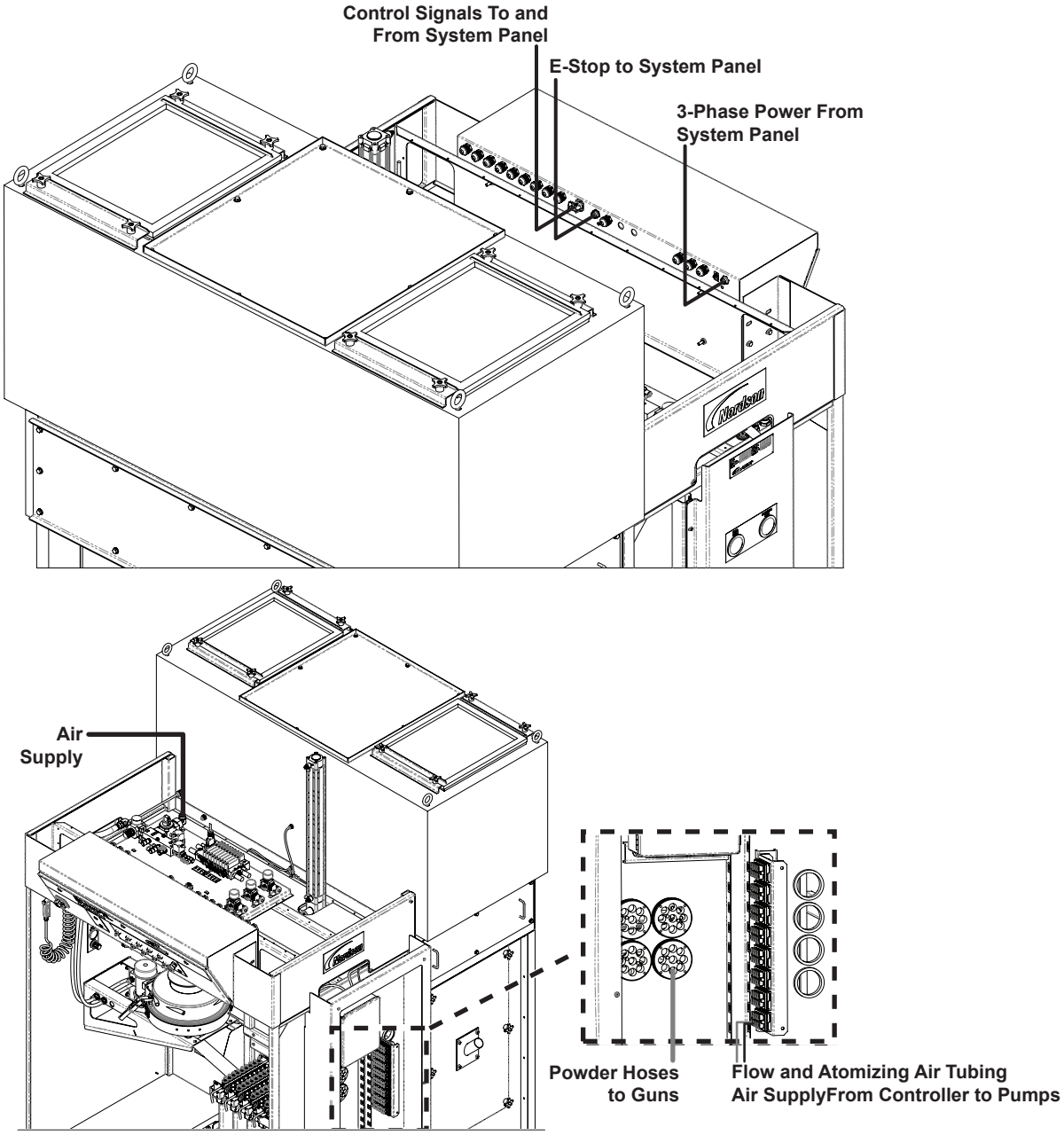


Figure 3-1 Electrical and Pneumatic Connections to Feed Center

Powder Pump Installation and Connections

Pump Installation

See Figure 3-2 and Figure 3-3. Typically, the pumps are installed at the factory. If not, install the powder pumps into the lance ports, with all the pump air fittings pointing in the same direction. Install the retaining rods into the brackets to lock the pumps in place. The pump connections are application specific; refer to your system drawings for the correct connections.

Pump Flow and Atomizing Air Tubing

See Figure 3-2 and Figure 3-3. If the pumps are installed at the factory, the flow (black) and atomizing (blue) air tubing is also installed from the pumps to the air manifolds on the side wall of the feed center. If not, the pumps are numbered and the tubing must be connected from the pumps to the appropriate fittings in the air manifolds on the side wall of the feed center.

Powder Feed Hose Connections

See Figure 3-2 and Figure 3-3. Label and route the powder feed hoses (7) from the spray guns through the multi-tube grommets (6) on the side wall of the feed center and connect the hoses to the appropriate pump outlet fittings (1). Refer to your system drawings for the correct connections.

Hose and Tubing Routing

See Figure 3-3. Allow enough slack in the hoses (7) and air tubing (4, 5) to allow the lance assembly to travel through its full range of movement without stretching or kinking the hoses or tubing. Use the bar (3) to support tubing and hoses.

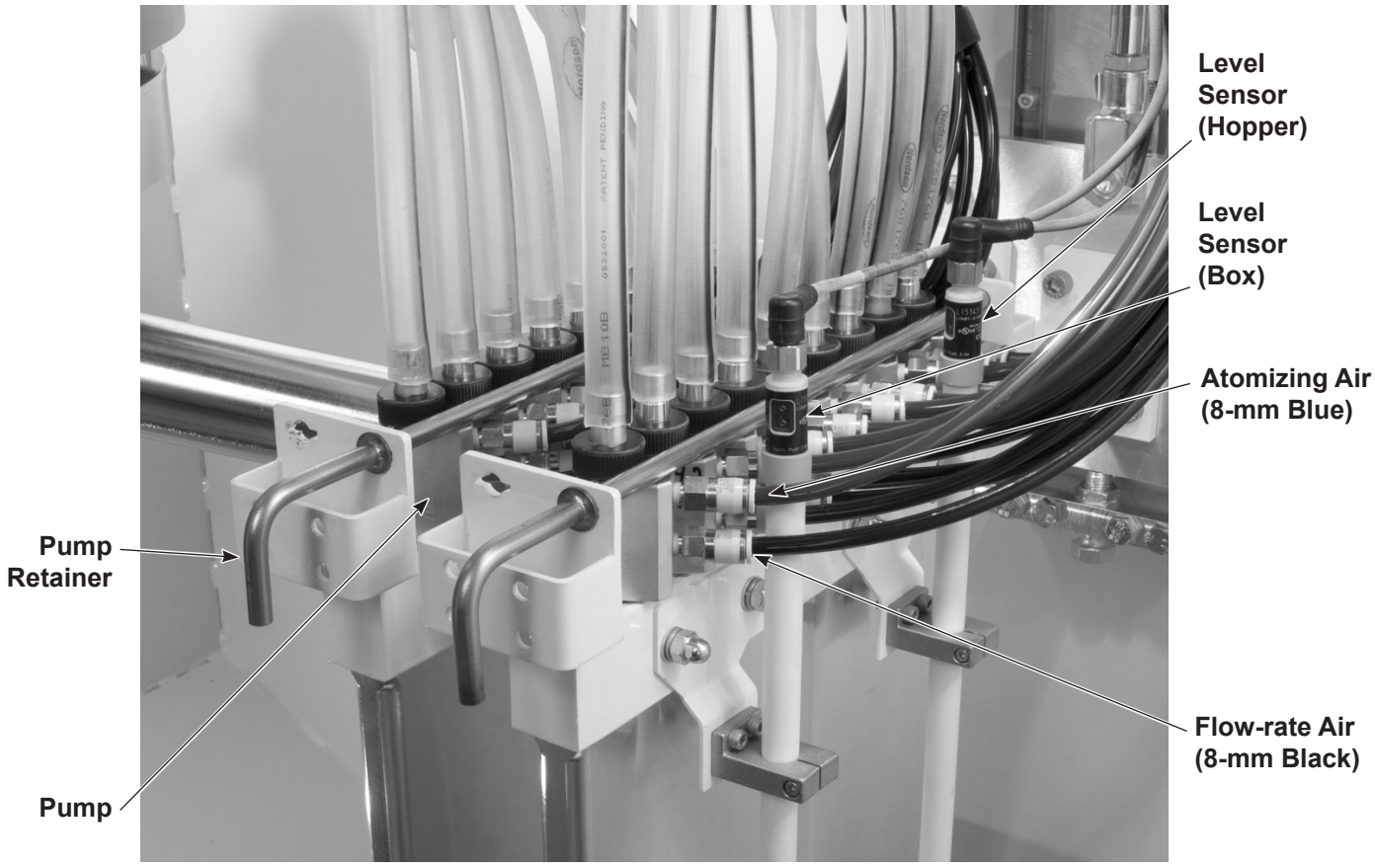


Figure 3-2 Pump, Air Tubing, and Powder Feed Hose Installation

Lance Fluidizing Air Connection

See Figure 3-3. If not done, connect 6-mm blue air tubing (5) from the fluidizing air regulator on the side wall of the feed center through the multi-tube gasket (8) and connect the tubing to the fitting on the lance, as shown. Use the bar (3) to support tubing and hoses.

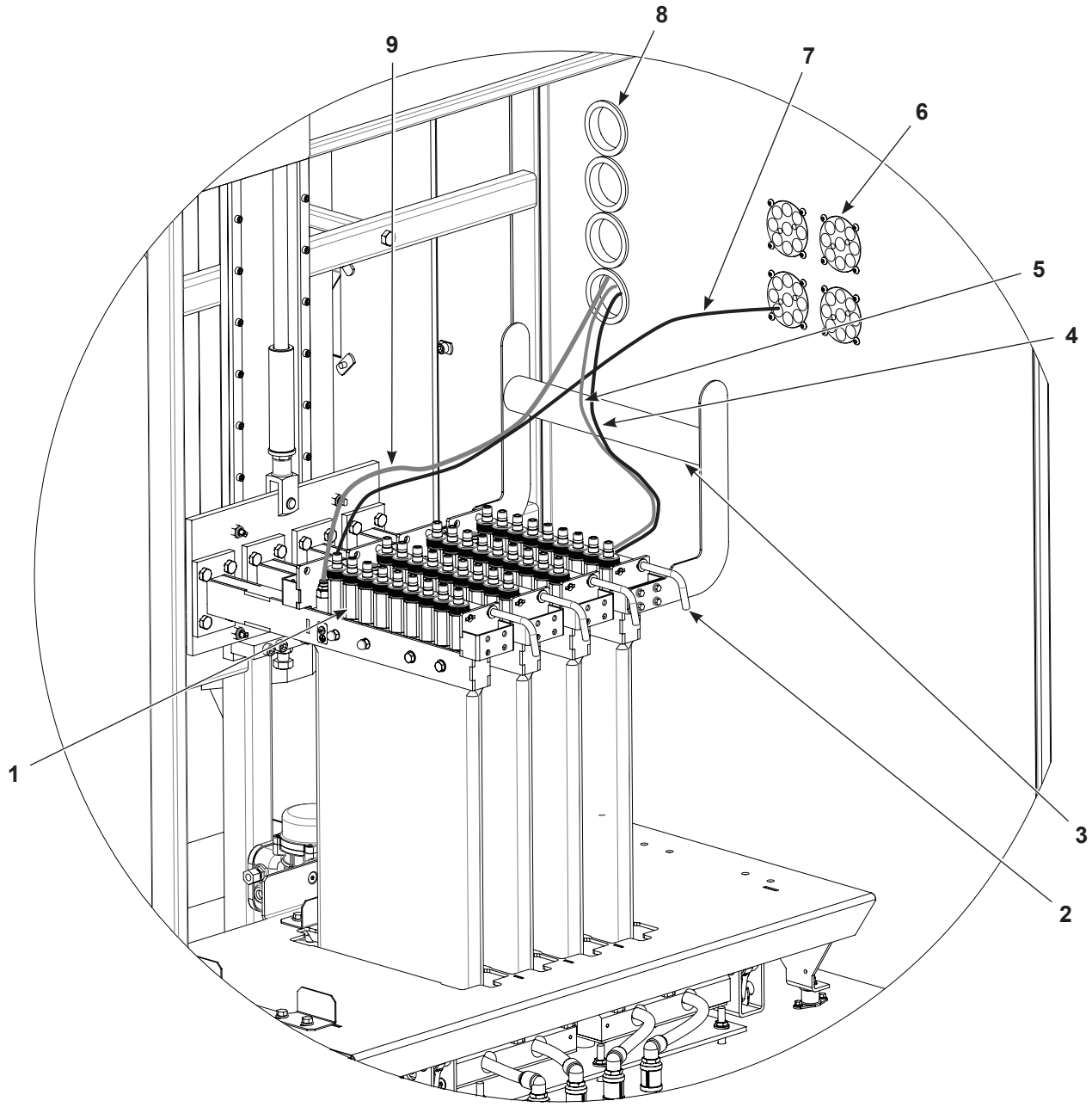


Figure 3-3 Pump, Powder Feed Hose, and Air Tubing Connections to Lance Assembly

1. Pumps
2. Retaining rod
3. Bar
4. Flow-rate air tubing (black)
5. Atomizing ar tubing (blue)
6. Powder hose grommet
7. Powder feed hose
8. Air multi-tube gasket
9. Fluidizing air

Reclaim and Virgin Powder Feed Options

Bulk feed systems are optional. Most systems will use at least one HDLV reclaim pump. Dual reclaim systems are often specified for coating wire goods or for use with high gun counts.

Figure 3-4 and Figure 3-5 illustrate typical connections and equipment required for reclaim and virgin powder feed systems. Refer to your system drawings for additional information and installation information.

Reclaim Powder Systems: The pump panel and HDLV transfer pump are mounted on the cyclone stand. The purge valve is plumbed into an air drop and the shuttle valve is mounted next to the purge valve. When the operator turns on the reclaim pump, air flows from a solenoid-operated valve through 8-mm tubing to the pump operating air regulator. 6-mm tubing supplies regulated air to the transfer pan fluidizing air regulator and line pressure to the manual purge push button valve. This valve allows the operator to purge the reclaim pump as needed.

During a color change cycle, the operator disconnects the reclaim transfer hose from the sieve deck and connects it to one of the purge ports on the side of the sieve bracket. The operator then turns the purge switch to the Pump Purge position. A signal from the feed center opens a solenoid valve in the control manifold, sending pilot air to the reclaim pump purge valve.

The valve opens and allows air at line pressure to flow through the pump and the 16-mm suction and delivery powder tubing to clean them. The purged powder is dumped into the feed center exhaust duct to the afterfilter.

Virgin Powder Feed System: A typical bulk feed system includes a HDLV transfer pump and pump panel as well a process valve to control system operation. The process valve is connected directly to the main air manifold on the feed center.

When a hopper is selected as the powder source and the lance level sensor tells the system that the powder level is low, pilot air flows from the control manifold through 6-mm tubing to the process valve, which opens and supplies air at line pressure to the virgin powder system and turns on the pump. Powder is pumped out of the bulk powder container to the feed center hopper. The pump panel has regulators to control air pressure to the pump and air pressure to an auxiliary function, such as a vibrator motor.

During a color change cycle, the operator disconnects the virgin transfer hose and suction hose from the sieve deck and connects it to one of the purge ports on the side of the sieve bracket. The operator then turns the purge switch to the Pump Purge position. A signal from the feed center opens a solenoid valve in the control manifold, sending pilot air through 6-mm tubing to the virgin pump purge valve. The valve opens and allows air at line pressure to flow through the pump and the 16-mm suction and delivery powder tubing to clean them. The purged powder is dumped into the feed center exhaust duct to the afterfilter.

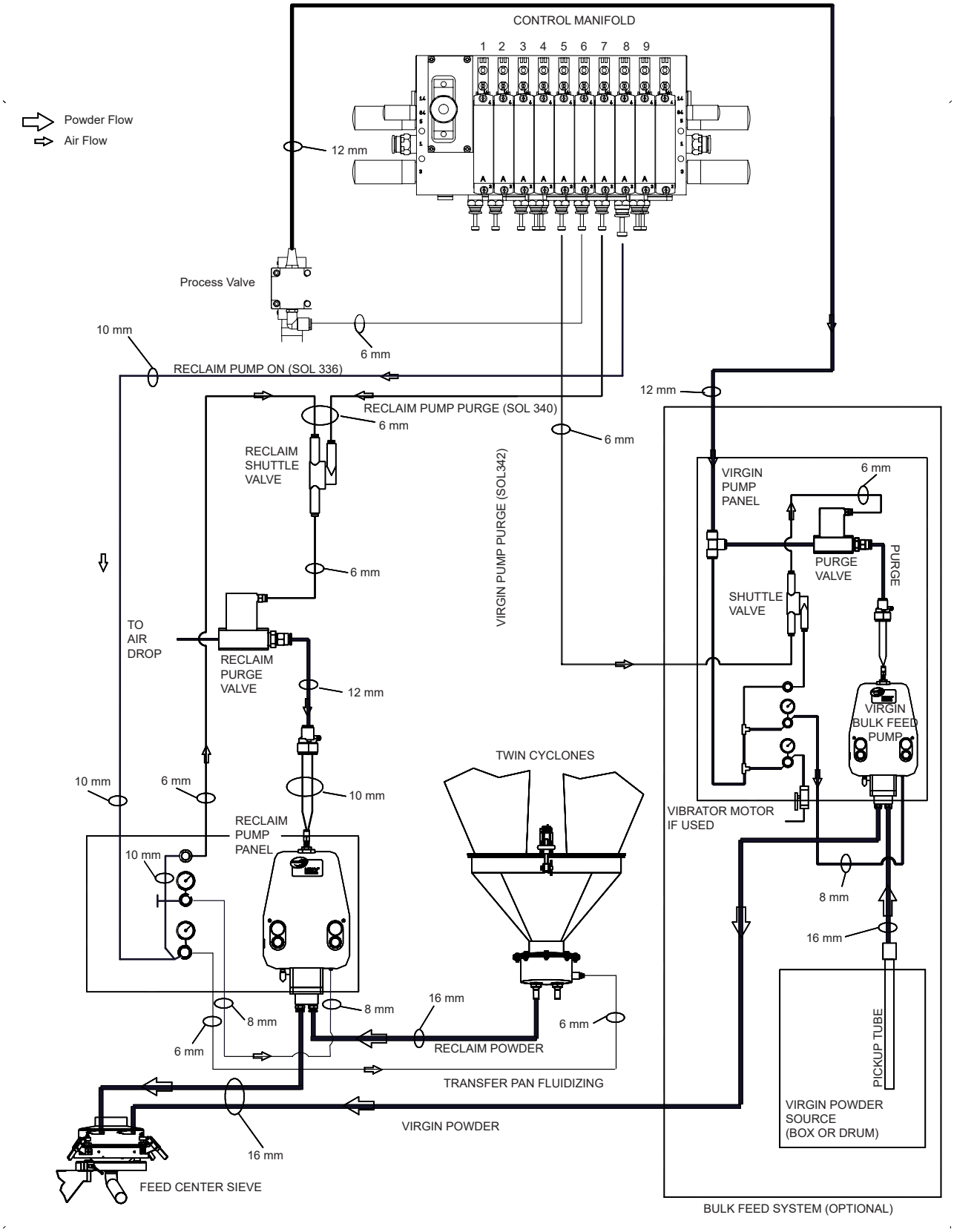


Figure 3-4 Single Reclaim Pump and Optional Virgin Powder Connections and Equipment

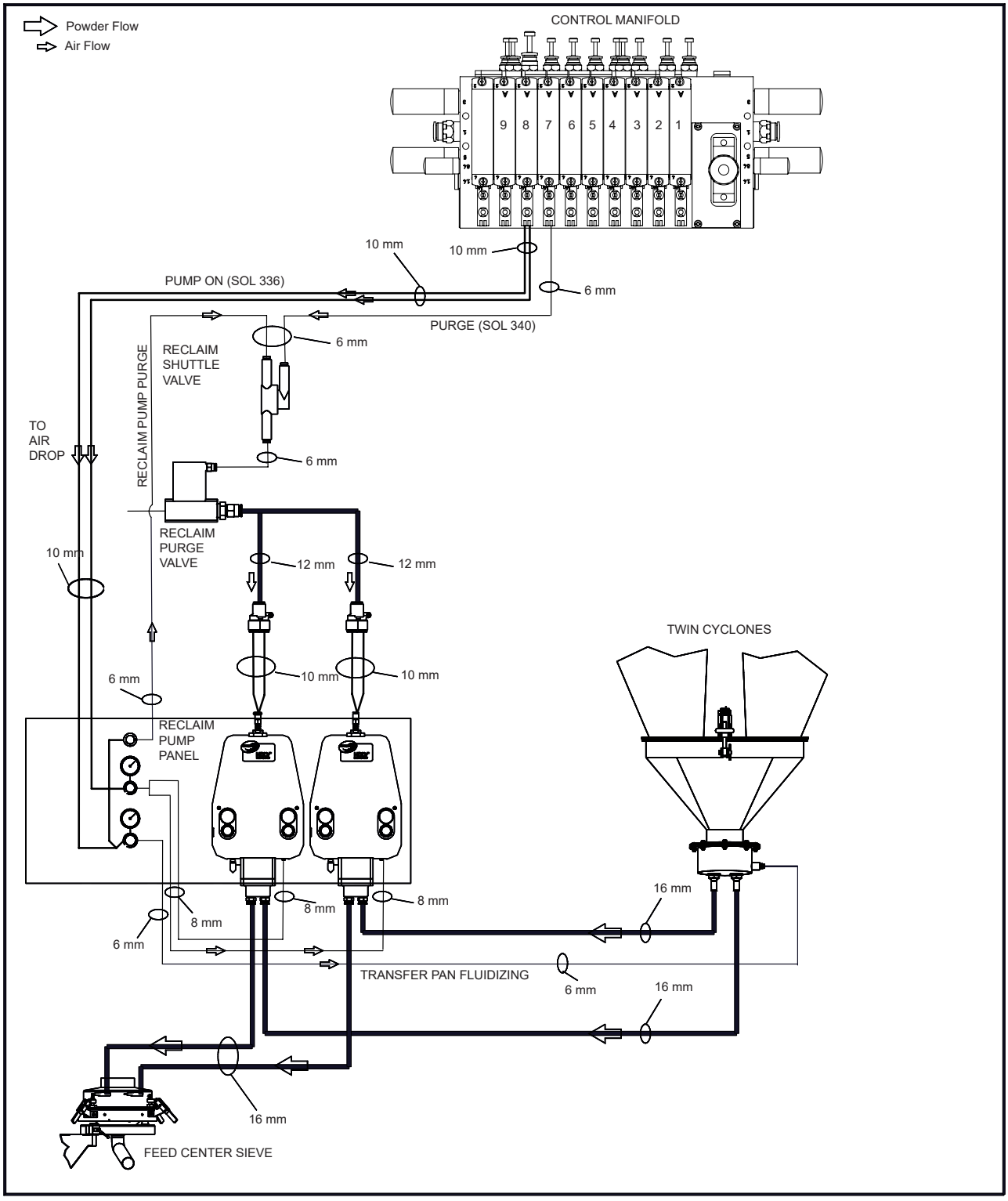


Figure 3-5 Dual Reclaim Pump Connections and Equipment

Lift Cylinder Proximity Switch Adjustment

There are three proximity switches on the lift cylinder. They sense the position of the cylinder piston, and therefore the bottom of the lance, in relation to the hopper fluidizing plate, the bottom of a powder box, and the purge manifold. Each switch has an LED that turns on when the switch is closed through the use of a magnet embedded in the cylinder piston.

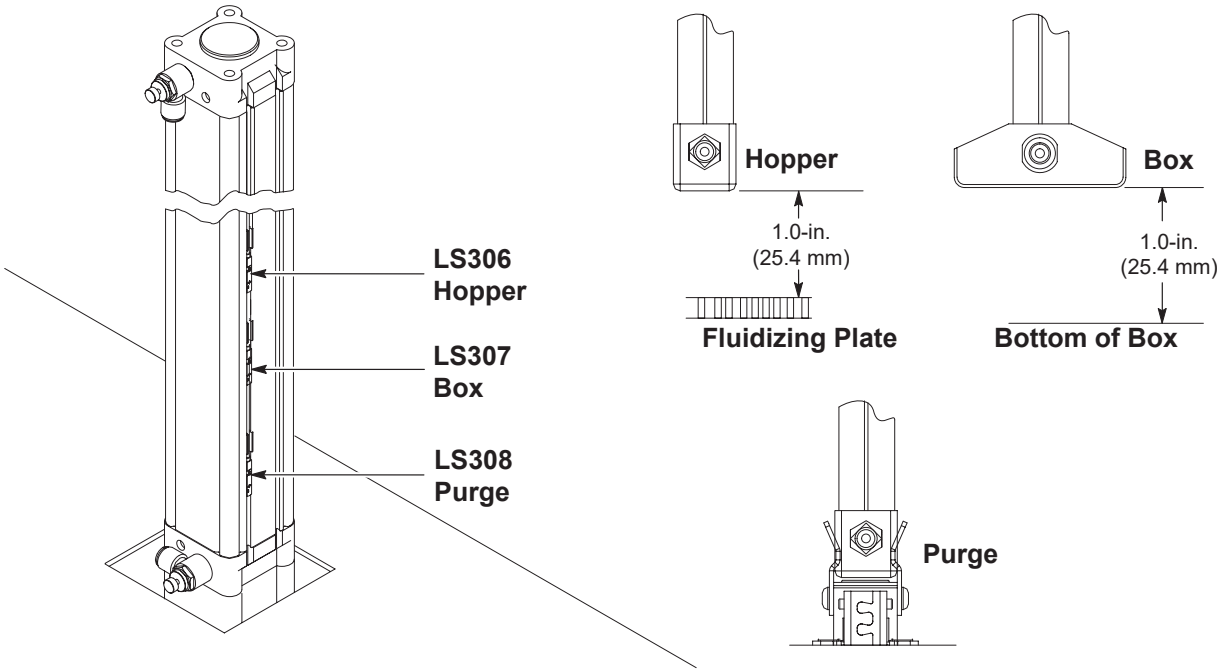


Figure 3-6 Proximity Switches and Settings (Typical Lift Cylinder Shown)

NOTE: The lance assembly will stop at the Box or Hopper switch, depending on the powder source selected. To override the switch, continue to hold the Lance Control switch in the down position for 3 seconds after it stops.

LS308 Purge Switch (Bottom Switch): Lower the lance down onto the stop bolt. Slide the switch up and down while watching the LED. Mark the positions at which the switch LED turns on in both directions, then secure the switch midway between the on positions.

LS307 Box Switch (Middle Switch): Position an empty powder box on the table. Lower the lance assembly down until it is at the recommended height above the bottom of the box. Slide the switch up or down until the switch LED turns on. Mark the positions at which the switch LED turns on in both directions, then secure the switch midway between the on positions.

LS306 Hopper Switch (Top Switch): Position an empty hopper on the table. Lower the lance assembly down until it is at the recommended height above the fluidizing plate. Slide the switch up or down until the switch LED turns on. Mark the positions at which the switch LED turns on in both directions, then secure the switch midway between the on positions.

Level Sensor Position Adjustment

Adjust the level sensor position by loosening the clamp screw with a hex wrench and sliding the sensor up and down.

Hopper Level Sensor: Adjust the level sensor so that when the lance proximity sensor stops the lance, the bottom of the level sensor is at the position where you want the virgin transfer pump delay to start. This position must take into account both the delay time and the usage rate, since the powder level will continue to fall until the delay timer runs out and the virgin pump is turned on.

Box Level Sensor: Adjust the level sensor so that the fluidizing bars and lance are submerged in the powder when the level sensor contacts it. Each time the powder level falls below the level sensor, the lance will be moved down until the sensor is again in contact with the powder. The box proximity sensor stops the lance before it contacts the bottom of the box.

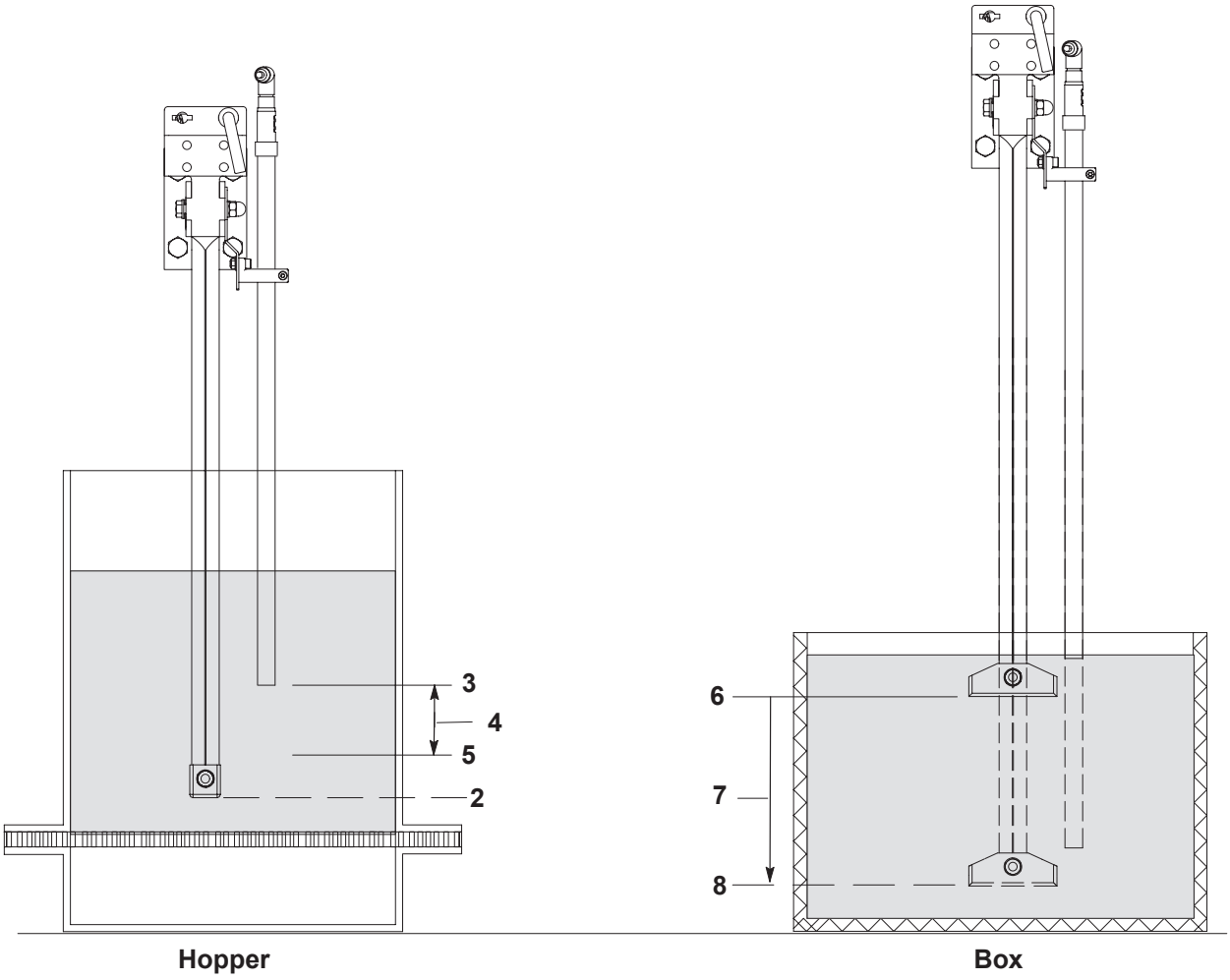


Figure 3-7 Level Sensor Position Adjustments

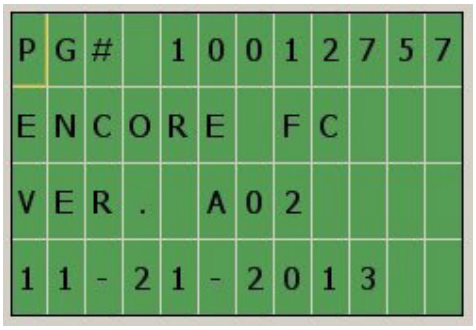
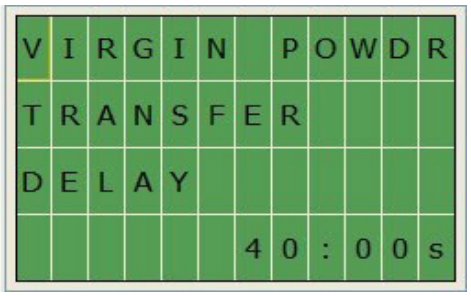
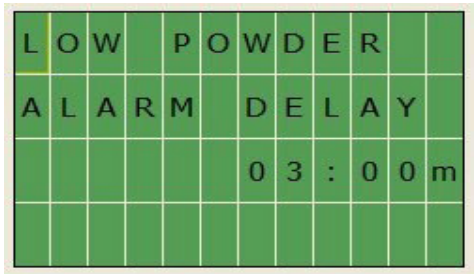
1. Clamp screw
2. Hopper proximity switch stop
3. Low powder delay start
4. Powder used during delay
5. Delay runs out, virgin pump starts
6. Box level sensor stop
7. Total lance travel length
8. Box proximity switch stop

Section 4
Setup

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

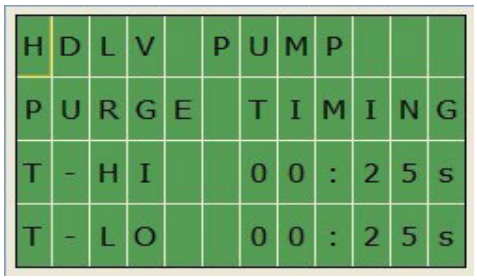
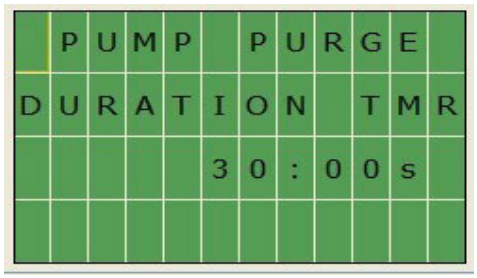
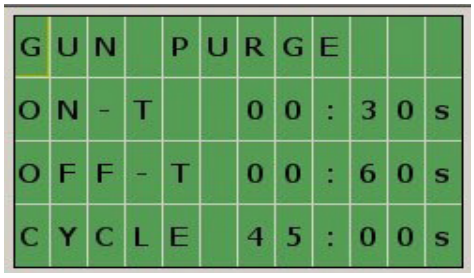
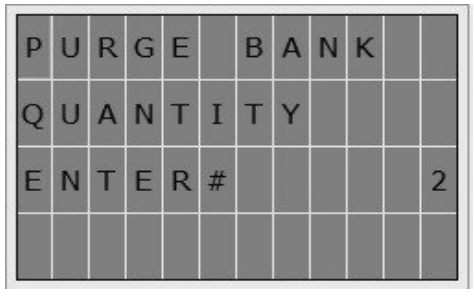
Feed Center Function Settings

The feed center functions are controlled by a PLC inside the feed center control panel, on the front of the feed center. The following function values are programmed into the controller at the factory and can be adjusted as needed for the application.

Screen	Function	Description	Default
	**SCREEN 1** Welcome Screen	Displays current version and date	
	**SCREEN 2** Virgin Powder Transfer Delay	Sets the time to wait after the powder level falls below the level sensor before turning on the virgin transfer pump. The virgin pump and sieve must be on. This delay prevents frequent pump starts and stops (chattering).	40.00 seconds
	**SCREEN 3** Low Powder Alarm Delay	Sets the time to wait after the powder level in the feed hopper falls below the level sensor before turning on the alarm buzzer. The virgin transfer pump must be on. If powder is detected before the timer runs out, the timer is cancelled. The buzzer can be silenced by switching Gun Purge on momentarily.	3.00 minutes

Continued...

Feed Center Function Settings *(contd)*

Screen	Function	Description	Default
	**SCREEN 4** HDLV Pump Purge Pulse Cycle Rate	Sets the on/off cycle rate for the reclaim and virgin HDLV transfer pump purge cycle. The purge cycle is active while the pump purge duration timer is running.	0.25 seconds
	**SCREEN 5** HDLV Pump Purge Duration	Sets the duration for the reclaim and virgin HDLV transfer pump purge cycle.The purge cycle stops when the duration timer runs out.	45.00 seconds
	**SCREEN 6** Gun Purge Pulse “ON” Duration	Sets the pulse duration of the internal gun purge during the gun purge cycle. The cycle is active while the gun purge duration timer is running.	0.50 seconds
	Gun Purge Pulse “OFF” Duration	Sets the duration of the delay between internal gun purge pulses during the gun purge cycle. The cycle is active while the gun purge duration timer is running.	1.30 seconds
	Gun Purge Duration Per Bank	Sets the duration for the purge cycle for each purge bank. The purge cycle stops when the duration timer runs out.	45.00 seconds
	**SCREEN 7** Gun Purge Bank Quantity	Configures the gun purge bank quantity per system.The maximum number of gun purge banks is three.	2

Changing Function Values

Swing down the control panel door to access the PLC.

NOTE: These instructions are also reproduced on a label on the inside the control panel door.

Figure 4-1 Feed Center PLC Interface

1. Press the **ESC** key to begin search mode.
2. Find the function screen to be changed by pressing the **UP** (.._) or **DOWN** (T) arrow keys.
3. While on the selected screen, press and hold the **ESC** key. A cursor will appear.
4. Use the **LEFT** (◄) and **RIGHT** (►) arrow keys to position the cursor on the value to be changed.
5. Press the **OK** key to highlight the value.
6. Use the **LEFT** (◄) and **RIGHT** (►) arrow keys to select the correct units (xx:xx) column, and then the **UP** (.._) and **DOWN** (T) arrow keys to change the value.
7. Press the the **OK** key to enter the value.
8. Make additional changes to the same page by moving the cursor as described in steps 4−7.
9. When data changes to the page are complete, press the **ESC** key twice.

Level Sensor Programming

The level sensor probe tells the feed center PLC what the powder level is in the powder 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, identified by the number of programming buttons on the probe.

Turn on the afterfilter exhaust fan and thoroughly fluidize the powder in the hopper or box before you program the level sensor probe.

One Button Level Sensor Probe Programming

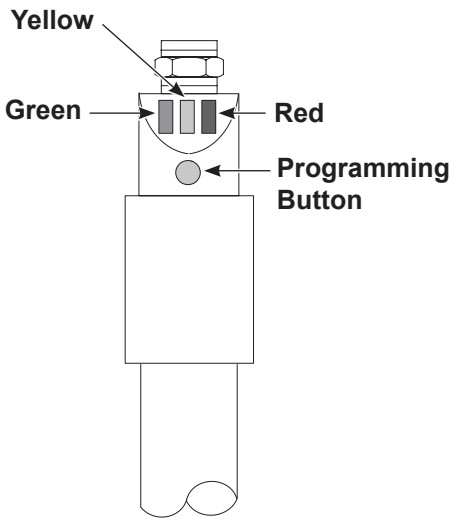


Figure 4-2 Programming the One Button Level Sensor Probe

LED Functions

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

Empty (No Powder) Programming

NOTE: Programming the level sensor for Empty overwrites the values set for Full. If you program the level sensor for Empty, be sure to also program it for Full.

1. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the level sensor probe.
2. Raise the lance assembly so that the bottom of the level sensor probe is at least 25 mm (1 in.) away from the surface of the powder.
3. See Figure 4-2. Press the programming button until the green LED flashes slowly, then release it. When the green LED stops flashing and the yellow LED turns off, the level sensor is programmed for Empty.

NOTE: The green LED will flash slowly for 5 seconds, then start flashing quickly. If you are still pressing the programming button when the green LED starts to flash quickly, you will be programming the level sensor for Full instead of Empty. Repeat the procedure from the beginning to program the level sensor for Empty, releasing the button while the green LED is flashing slowly.

Full Programming

NOTE: You can program the level sensor for Full as often as desired without overwriting the Empty value.

1. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the level sensor probe.
2. See Figure 4-2. Press the programming button until the green LED flashes quickly, then release the button.

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

Locking and Unlocking the Level Sensor

The level sensor can be locked to protect it from unauthorized adjustment.

NOTE: The level sensor is shipped unlocked.

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

Operational Faults (Red LED Flashing)

If either Empty or Full programming cannot be completed, the red LED flashes quickly.

Task	Procedure
Clearing a Fault	Clear the fault by either: • pressing the programming button once, or • cycling feed center power.
Correcting Faults	Check for and correct any of these possible causes for the fault: • The difference between Empty and Full is not great enough. Reprogram the level sensor. • Empty programming done while the probe was in the powder, or Full programming done while the probe was out of the powder. • During Empty programming, the distance between the probe and the powder was too short.

Two Button Level Sensor Probe Programming

When you program the level sensor probe, the powder feed center exhaust fan must be on and the powder in the hopper must be thoroughly fluidized.

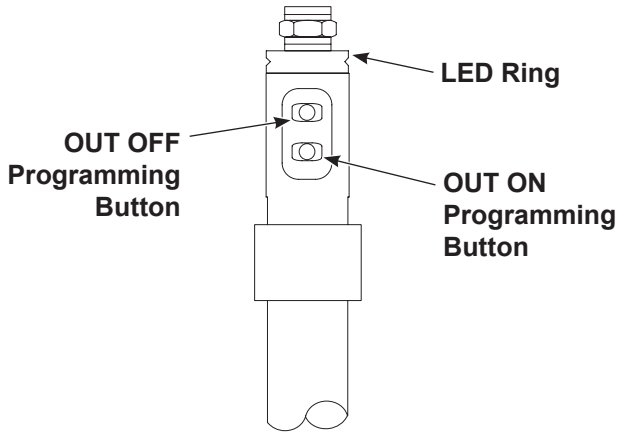


Figure 4-3 Programming the Two Button Level Sensor Probe

LED Functions

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

Empty (No Powder) Programming

1. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the level sensor probe.
2. Raise the lance assembly so that the bottom of the level sensor probe is at least 25 mm (1 in.) away from the surface of the powder.
3. See Figure 4-3. Press the OUT OFF programming button until the LED ring slowly flashes yellow.
4. Release the button and the yellow light will go off. Empty programming is complete.

Full Programming

1. Lower the lance assembly until the powder covers at least 25 mm (1 in.) of the level sensor probe.
2. See Figure 4-3. Press the OUT ON programming button until the LED ring switches from flashing slowly to flashing quickly.
3. Release the button and the LED ring lights yellow continuously. Full programming is complete.

Locking and Unlocking the Level Sensor

The level sensor can be locked to protect it from unauthorized adjustment.

NOTE: The level sensor is shipped unlocked.

Task	Procedure
Locking	Simultaneously press the two programming buttons for 10 seconds in the operating mode. When the LED ring light changes its status for a brief moment, release the buttons. The level sensor is now locked.
Unlocking	Simultaneously press the two programming buttons for 10 seconds in the operating mode. When the LED ring light changes its status for a brief moment, release the buttons. The level sensor is now unlocked.

Operational Faults

If the sensor deviates from normal operation, check for and correct any of these possible causes:

- The difference between Empty and Full is not great enough. Reprogram the level sensor.
- Empty programming was done while the probe was in the powder, or Full programming was done while the probe was out of the powder.
- During Empty programming, the distance between the probe and the powder was too short.

Air Pressure Settings

See Figure 4-4 and Figure 4-5, and refer to the table below. Refer to the *Drawings* section for feed center pneumatic diagrams.

Item	Function	Recommended Pressure
1	Lift Cylinder Down	3.4 bar (50 psi) 0.34 Mpa
2	Lift Cylinder Up	Lance: 4.1 bar (60 psi) 0.41 Mpa Lances: 4.8 bar (70 psi) 0.48 Mpa Lances: 5.5 bar (80 psi) 0.55 Mpa
−	Lift Cylinder Flow Control Valves	6 seconds full travel both directions
3	Purge Air	6.2 bar (90 psi) 0.62 Mpa
4	Lance Purge Clamp	3.4−4.1 bar (50−60 psi) 0.34−0.41 Mpa
−	Clamp Cylinder Flow Control Valves	3 seconds full travel both directions
5	Feed Hopper Fluidizing	0.3−0.7 bar (5−10 psi) (see Note) 0.03−0.06 Mpa
6	Lance Fluidizing	0.3−0.7 bar (5−10 psi) (see Note) 0.03−0.06 Mpa
NOTE: Adjust fluidizing air as needed. Powder should be gently boiling, without geysering.		

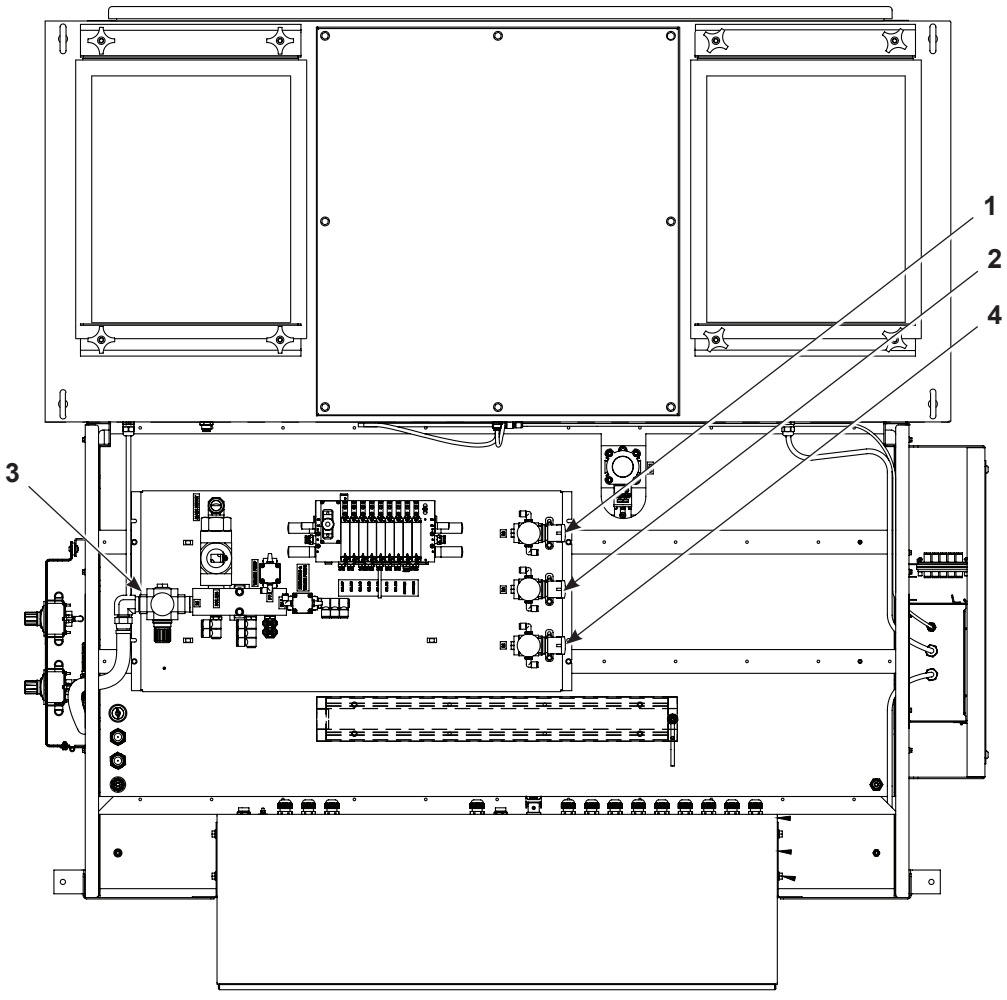


Figure 4-4 Pneumatic Controls (1 of 2)

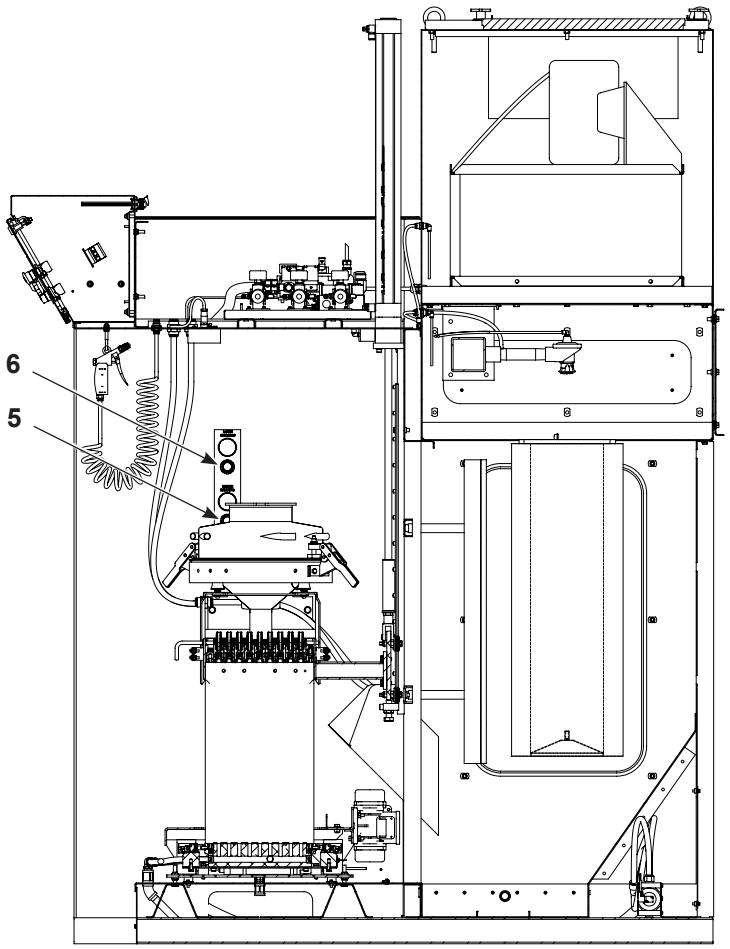


Figure 4-5 Pneumatic Controls (2 of 2)

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 4-1 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 4-1 Typical Operating Air Pressures

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

Cartridge Filter Pulse Valve Timing Settings

Refer to Table 4-2 for typical pulse valve timing settings. These settings are average starting points. You may need to adjust the settings if the feed center's cartridge filters are not being pulsed sufficiently.

Table 4-2 Table 3-3 Typical Pulse Valve Timer Board Settings

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

Section 5

Operation

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

Controls

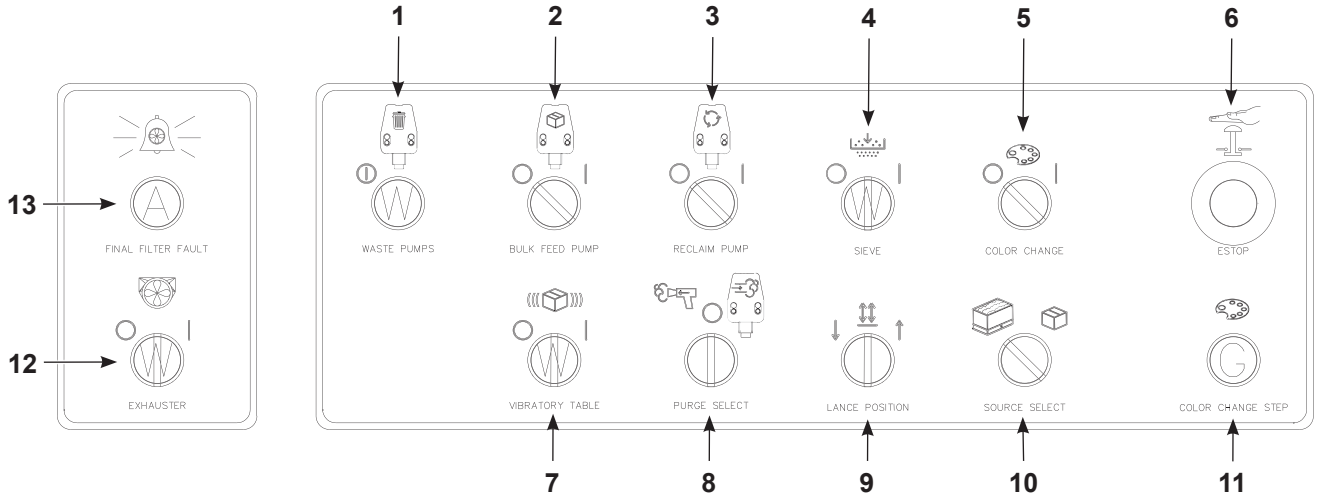


Figure 5-1 Feed Center Controls

Control	Function
1. Waste Pumps	When on and the exhauster is running, the transfer pumps are turned on to move powder from the feed center collector to a scrap hopper.
2. Bulk Feed Pump	Turns the virgin powder transfer pump on and off. Used when system is equipped with a bulk feed system. When on, the pump is turned on and off automatically as needed to satisfy the level sensor on the lance assembly.
3. Reclaim Powder Transfer Pump	Turns the reclaim powder transfer pump on and off. When on, the pump operates continually.
4. Sieve Control	Turns sieve vibrator motor on and off.
5. Color Change Enable	Starts color change sequence. If operator platform is equipped with an Ancillary Equipment Clean Cycle button, lances are automatically raised out of the hopper or box. If not, then it starts external gun blow off.
6. Emergency Stop	Shuts down powder coating system.
7. Table Vibrator	Turns table vibrator motor on and off.
8. Purge Selection	Left: Start internal gun purge cycle. Center: Off Right: Start transfer pump purge cycle.
9. Lance Lift	Raises and lowers lance assembly.
10. Powder Source Select	Selects hopper or box, controls where lances stop when lowered into powder.
11. Color Change Indicator Light(Green)	Off: Color change cycle is disabled Blinking: In color change cycle. On: Color change automatic operations complete.
12. Exhaust Fan	Turns exhaust fan on and off. Switch will illuminate when On.
13. Final Filter Fault Indicator	Off: Normal operation, no fault. On: High pressure sensed by final filter sensor. Exhaust fan will turn off.

Feed Center Operation

Refer to Figure 5-1 for the feed center operator controls, and *Setup* section for the PLC function settings.

Sieve Operation

See Figure 5-1. Powder is supplied to the feed center by HDLV reclaim and virgin powder transfer pumps. The powder is screened before flowing into the feed hopper. The sieve is turned on and off with the Sieve Control switch (4).

When the sieve is turned off, the reclaim and virgin powder transfer pumps are disabled.

Reclaim and Virgin Pump Selector Switch Operation

See Figure 5-1. The operation of the Reclaim and Virgin powder transfer pumps are controlled by separate selector switches (2, 3). Turning the switches to ON (**I**) enables the transfer pumps.

If the reclaim or virgin transfer pump selector switches are in the ON position when the feed center is turned on, or after a color change cycle is completed, then the pumps will be forced off. To re-enable the pumps, toggle the selector switches off then on.

The virgin transfer pump is disabled when the sieve is turned off.

Reclaim Transfer Pump Operation

The reclaim pump operates continuously as long as it is turned on.

Virgin Transfer Pump Operation

The virgin transfer pump operation is controlled by a level sensor on the lance. If the powder level in the feed hopper falls below the level sensor, a delay timer (Screen 2, Virgin Powder Transfer Delay) is started. When the delay timer runs out, the virgin powder transfer pump is started. The pump runs until the powder in the feed hopper reaches the level sensor, then turns off.

If the level sensor detects a low level of powder for too long (Low Powder Alarm Delay, Screen 3), a buzzer is turned on to warn the operator that the feed hopper powder supply has not been replenished.

The buzzer can be silenced by:

- filling the feed hopper until the powder contacts the level sensor.
- momentarily turning on gun purge.
- turning the virgin transfer pump off.

Transfer Pump Manual Purging

If a transfer pump becomes clogged during operation, purging the pump may clear it.

See Figure 5-1. Turn the Purge Control selector switch (8) to the Pump Purge position while the pump is on. Purge air is applied to the pump as long as the switch is in the purge position.

Powder Level Sensor Operation

Hopper Operation

See Figure 5-1. When the Powder Source selector switch (10) is set to Hopper, the lance is moved down into the hopper until the hopper proximity sensor on the lift cylinder is activated and stops the lance above the fluidizing plate. When the level of powder falls below the level sensor, a delay timer (field-adjustable) is started.

When the delay timer runs out, the virgin transfer pump is turned on to refill the hopper. When the level sensor detects powder, the virgin transfer pump is turned off. If the level sensor detects no powder for greater than 3 minutes (field-adjustable), the low powder alarm is turned on. Refer to the *Setup* section for instructions on setting the timers.

Box Operation

When the Powder Source selector switch (10) is set to Box, the system lowers the lance assembly into the box until the level sensor “sees” powder. As the powder is used, the level sensor automatically lowers the lance into the box until the box proximity sensor on the lift cylinder is activated and stops the lance. If the level sensor detects no powder for greater than 3 minutes (field-adjustable), the low powder alarm is turned on.

Silencing the Low Powder Alarm

Turn the Purge Selector switch (8) to Gun Purge momentarily to silence the low powder alarm buzzer.

Startup

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

Make sure all settings in the *Setup* section of this manual have been completed before starting up the system for the first time.

1. Turn on power and air to the feed center, if not already on.
2. Turn on the afterfilter exhaust fan.
3. Make sure compressed air is being supplied to the feed center at above 5.5 bar (80 psi) and that air pressures are adjusted properly. See Figure 2-9 for regulator locations.

Table 5-1 Feed Center Air Pressure Settings

Air Pressure	Typical Setting
Lance Fluidizing (typical)	0.3 bar (5 psi) 0.03 Mpa
Feed Hopper Fluidizing (typical)	0.3 bar (5 psi) 0.03 Mpa
Purge	5.5 bar (80 psi) 0.55 Mpa
Purge Clamp	3.4−4.1 bar (50−60 psi) 0.34−0.41 Mpa
Lance Cylinder:	
Up, 2 Lances	4.1 bar (60 psi) 0.41 Mpa
Up, 3 Lances	4.8 bar (70 psi) 0.48 Mpa
Up, 4 Lances	5.5 bar (80 psi) 0.55 Mpa
Down	3.4 bar (50 psi) 0.34 Mpa

4. Move a feed hopper or box into the feed center, and position it below the lance assembly, adjusting the table stops as necessary. Select Hopper or Box with the Powder Source Selector switch on the control panel.
5. If using a feed hopper:
   a. Connect the fluidizing tubing to the fitting on the feed hopper plenum.
   b. Fill the hopper 2/3 full of powder. Do not overfill; the powder expands when fluidizing air is turned on.
   c. Gradually increase the feed hopper fluidizing air pressure until the powder is gently boiling.
   d. Lower the lance assembly into the hopper with the Lance Control switch. The lance stops automatically above the fluidizing plate.
6. If using a powder box:
   a. Turn on the vibratory table.
   b. Lower the lance assembly into the box with the Lance Control Selector switch (left for down) until the fluidizing bars and end of the level sensor are covered by powder.
   c. Gradually increase the lance fluidizing air pressure until the powder is gently boiling.
7. Make sure the sieve discharge pan is positioned so that the discharge tube directs the screened powder into the feed hopper or box. Loosen the deck clamps to rotate the pan, then re-clamp the deck.
8. If used, make sure the reclaim and virgin powder transfer hoses are connected to the tubing stubs on the sieve deck. Turn on the reclaim transfer pump and enable the virgin transfer pump.
9. Turn on the sieve.
10. Turn on the spray guns and start spraying powder. Make sure everything is working correctly before starting production.

Color Change Operation

Refer to Figure 5-1 for the feed center operator controls. A color change sequence is started by turning the Color Change Enable selector to ON. The sequence is finished or aborted by turning the selector to OFF.

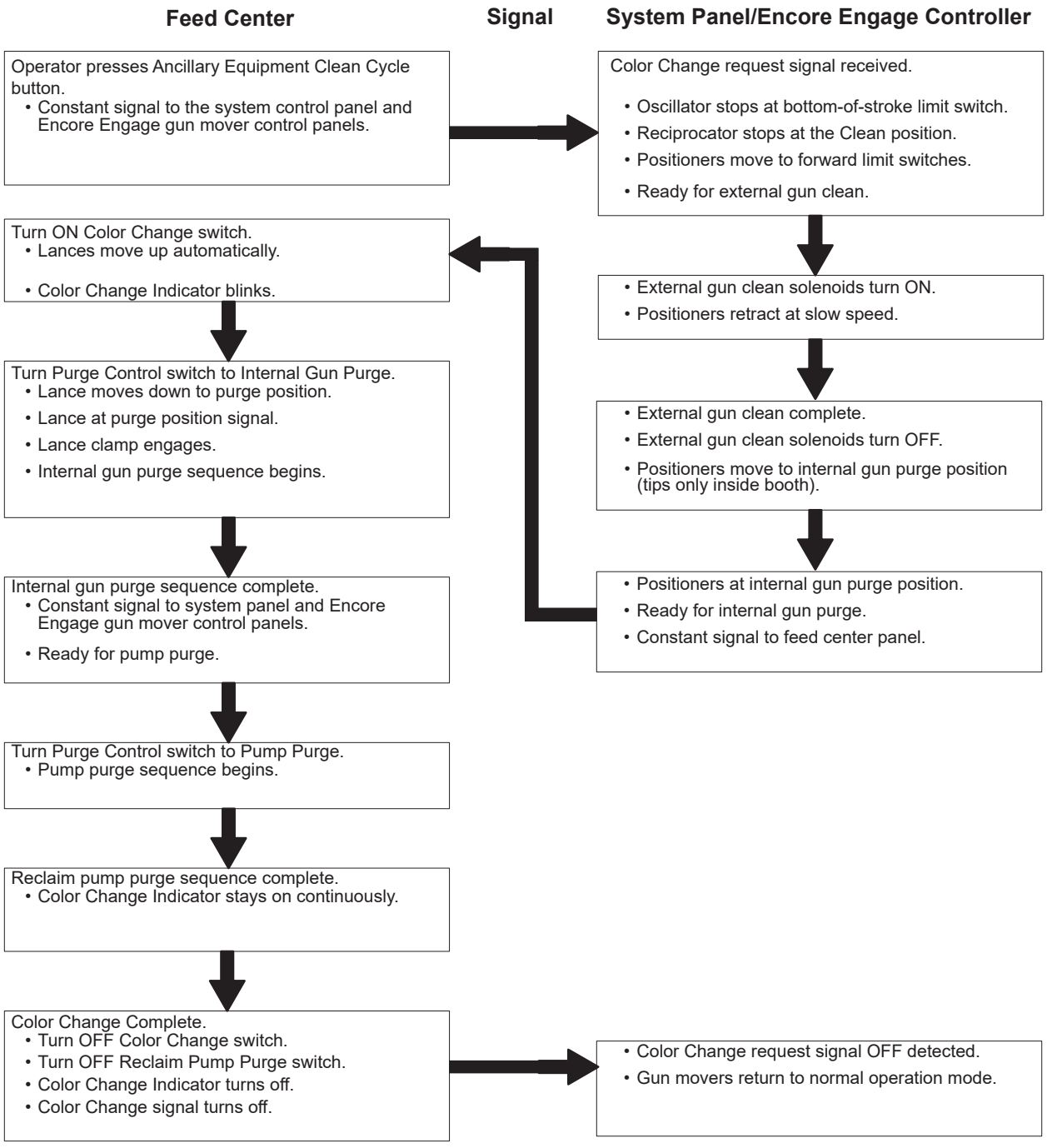


Figure 5-2 Color Change Sequence

Color Change Procedure

Refer to the Color Change Procedure included with your system manual for instructions on color changing a powder coating system with a ColorMax booth and this feed center.

During a color change sequence, the lances are withdrawn from the powder source, then lowered onto the purge manifold. High pressure air is directed through the lances, pumps, feed hoses, and guns, purging them of powder. The reclaim and virgin transfer pumps are also purged. The operator cleans the sieve, lances, and the interior of the booth, and readies the feed center for the next color. Meanwhile, another operator cleans the booth and cyclone.

The recommended sequence of steps is provided in the color change charts furnished by Nordson, but can be modified as desired depending on the customer needs and requirements.

Shutdown

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 or turn the pumps, sieve, or vibratory table on.
3. If you will be shutting down the powder feed center for maintenance, repair, or an extended period of time, perform these steps:
   a. Press the SYSTEM STOP button on the system control panel.
   b. Turn the electrical disconnect switch on the powder feed center control panel to the OFF position.

Section 6

Maintenance

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

NOTE: Maintenance procedures given here are for the feed center only. Refer to your system component manuals for maintenance procedures for all other system equipment.

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 pan and screen. Inspect the sieve screen and replace it if powder is fused to it or it is damaged. If applicable, make sure the ground clip is installed around the screen gasket so it grounds the screen to the pan and deck. More information on sieve styles is available in the *Parts* section.
Purge Manifold Assembly	Raise the lance assembly and blow off the purge manifolds, latches, yokes, and air cylinder. Make sure all quad ring seals are in place on the purge manifolds.
Lance Assemblies	Blow off the lance assemblies and check all powder hose and air tubing connections.
In-Line Pumps	Disassemble the pumps and blow off the parts with low-pressure compressed air. Replace any worn parts. Refer to the *Encore In-Line Pump* manual, part number 1095928, for repair procedures and replacement parts.
Cables, Tubing, and Feed Hoses	Check all external cables, powder hoses, and air tubing for damage. Repair or replace as necessary.
HDLV Transfer Pumps	Purge the pumps. Inspect the pinch valve body for signs of powder leakage. If powder is present in the pinch valve section, replace the pinch valves. Refer to the Prodigy HDLV High-Capacity pump with Electric Timing Valve manual, part number 1619979, for repair procedures and replacement parts.
Powder Supply	Check the powder supply level regularly and add powder as necessary.
Compressed Air Supply	Check the compressed air dryers and filters. Drain filters if needed. Perform maintenance as necessary.
Enclosure	Clean the interior and exterior of the feed center. Check all equipment ground connections.
Cartridge Filters	Check the seals around the cartridge filters. If the cartridge filters are not sealing properly, tighten them.

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
Air Flow	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:** (shows air pressure drop across the cartridge filters in w.c.) The gauge should read 4–6 in. w.c. The gauge reading increases as the filters load up with powder. • **Final Filters:** The gauge should read 1–2.5 in. w.c. The gauge reading increases as the filters clog. At 3.0 w.c., the system automatically shuts down. 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. Drain the air filters and change the elements as necessary.
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.
System Grounds	Check all equipment grounds. Electrical equipment must be grounded according to code. For maximum transfer efficiency and safety, electrostatic equipment must be grounded to provide a complete circuit from the spray guns through the workplace hangers, conveyors, and booth back to the gun controllers. Refer to *Grounding* in the *Safety* section of this manual and to publication number TCTT-06-3881 on the Nordson emanuals web site (http://emanuals.nordson.com/finishing) for more information on powder coating system grounding.
Air Tubing	Pressurize the system and listen for air leaks. Replace or repair any leaking tubing or fittings.

Emptying the Waste Hopper

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

1. See Figure 6-1. Secure the waste lid to an empty 55-gallon drum (3).
2. Connect the ground clamp (4) to a true earth ground.
3. Attach a 3/4-in. transfer hose (2) between the transfer pumps (5) and the waste lid. Use hose clamps on both ends of the transfer hose.

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

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

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

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

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

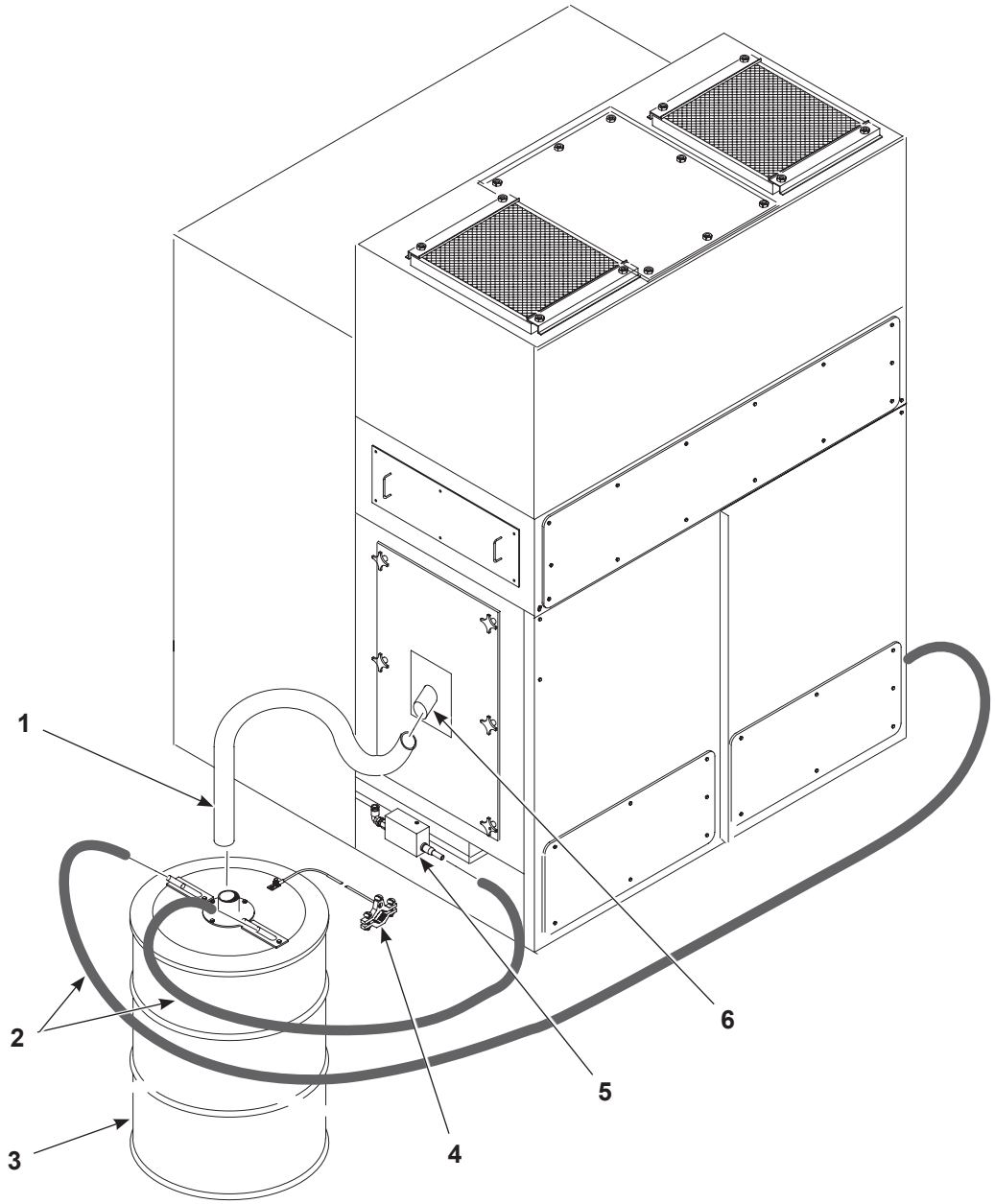


Figure 6-1 Emptying the Waste Hopper

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

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.

If you cannot solve your problem with the information in this manual or related equipment manuals, contact the Nordson Industrial Coating Systems Customer Support Center at (800) 433−9319 or your local Nordson representative.

Refer also to the wiring diagrams and schematics at the end of this manual.

Problem	Possible Cause	Corrective Action
1. Powder not contained within feed center enclosure, afterfilter fan not running	E-Stop button pressed	Reset the E-Stop.
	Final filters clogged	Check the final filters. The fan is shut off automatically if the pressure across the filters reaches 3 in. w.c. If the filters are clogged, check the cartridge filter media and gaskets for leaks. Replace damaged cartridge filters. Replace the final filters.
	Fan start/stop button or wiring defective	Check the fan motor control circuits (main system electrical panel).
	Fan motor overload tripped	Overload occurs when the motor operates at a greater amperage than designed for. Make sure the overload is set to the proper limit. Make sure nothing is stopping the motor and fan from turning. Check the fuses. Failure of one of three fuses in a 3-phase motor circuit can cause the overload to trip. Check the motor and electrical connections. Reset the overload.
	Fan motor fuse failure	Check the motor and electrical circuits. Replace the fuses.
	Fan motor failure	Replace the motor.

Continued...

Problem	Possible Cause	Corrective Action
2. Powder escaping from enclosure openings	Cartridge filters clogged; pulsing not cleaning filters	Pulse the cartridge filters to blow off powder. Check the pulse air pressure. Check the cartridge filter pulse sequence: • If the Off duration is too short, the pulse manifold may not build up enough pressure to blow off the cartridge filters. • If the On duration is too short, not enough air is released to blow off the filters. • If the On duration is too long, the pulse manifold may not be able to build up enough air pressure. Replace the cartridge filters if pulsing does not correct the problem.
	Pulse pressure too low	Increase the pulse pressure to the recommended level.
	Pulse valve failed	Replace the pulse valve.
	Cartridge filters leaking	Check the cartridge filter gaskets and media for damage. Tighten the mounting nut to compress the gaskets. Replace filters as 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 motor rotation.
	Access panels not sealed	Tighten all access panels. Check and replace the panel gaskets as necessary.
3. No feed hopper fluidizing air	Exhaust fan not running, interlock valve closed	Start the exhaust fan. Check feed center E-Stop. Check valve connections.
	Fan interlock circuit or solenoid valve circuit defective	Check the fan interlock wiring at the feed center. Check the wiring from the feed center panel to the solenoid valve assembly in the feed center blow-down housing.
	Fluidizing air regulator defective	Check the fluidizing air regulator.

Continued...

Problem	Possible Cause	Corrective Action
4. Powder in feed hopper not fluidizing, or clouds of powder erupting from surface	Fluidizing air pressure too low or too high	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	Check the air supply for water or oil. Check the filters, separators, and air dryer. Replace the powder in the feed source if it is contaminated. Refer to the next possible cause.
	Fluidizing plate gasket leaking, or fluidizing plate plugged, cracked, or installed incorrectly	Check for air leaks around the fluidizing plate gasket. If leaks are found, replace the gasket. Inspect the fluidizing plate for stains, discoloration, polished surfaces, or cracks. Replace it if contaminated, plugged, or damaged. The plate should be installed with the smooth surface up (in contact with the powder).
	Incorrect ratio of reclaimed to virgin powder	Increase or decrease the transfer rate. The powder supply should be no more than three parts reclaim to one part virgin powder.
	Uneven distribution of powder in feed source	Check the powder and the fluidizing plate for contamination as previously described.
5. Powder in box not fluidizing, or clouds of powder erupting from surface	Lance fluidizing air pressure too low or too high	Increase the lance 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	Check the air supply for water or oil. Check the filters, separators, and air dryer. Replace the box if the powder is contaminated. Refer to the next possible cause.
	Fluidizing bar assembly leaking or damaged	Raise the lance assembly and check the fluidizing bars.
	Vibratory table motor defective	Check the vibrator motor. Refer to Problem 6 for motor troubleshooting procedures.
6. Sieve or vibratory table turned ON, but no vibration	E−Stop button pressed	Reset the E-Stop button.
	Exhaust fan not running	Start the exhaust fan.
	Sieve switch or wiring defective	Check the switch and wiring. Replace the switch or repair the wiring as needed.
	Sieve motor overload	Overload occurs when motor operates at higher amperage than designed for. Make sure nothing is preventing motor vibration. Check the motor and electrical connections. Check the motor internal weights for proper adjustment. Make sure the overload protector is set to the proper limit. Reset the overload.
	Sieve motor failed	Replace the sieve motor.

Continued...

Problem	Possible Cause	Corrective Action
7. Powder buildup on sieve screen	Screen not cleaned frequently enough	Clean the sieve mesh at more frequent intervals. Upgrade to Vibrasonic sieve screen if necessary.
	Screen mesh size too small for powder being used	Use a sieve screen with a larger mesh size. Upgrade to Vibrasonic sieve screen if necessary.
8. Excessive sieve noise	Sieve deck or discharge pan not secure	Tighten the clamps securing the sieve deck.
	Knobs or clamps not tightened; vibration isolators loose or damaged; screen gasket damaged	Make sure the clamps are tight. Check the isolators for looseness or damage. Tighten the isolator mounting screws. Check the screen gasket and replace it if damaged.
9. Contaminants in feed hopper powder	Sieve screen torn	Replace the screen.
	Sieve screen not thoroughly cleaned before installation	Remove and clean the sieve screen.
10. Reclaim or virgin transfer pump turned on, but pump does not run	E-Stop button pressed	Reset the E-Stop button.
	Exhaust fan not running, or fan interlock circuit defective	Turn on the exhaust fan. Check the fan interlock wiring at the feed center panel.
	Sieve motor not running	During normal operation, the reclaim and virgin pumps will not run unless the sieve is on. Turn on the sieve.
	Reclaim or Virgin switch or wiring is defective	Check the switch and wiring. Repair or replace as needed.
	Reclaim or Virgin circuits disabled	Circuits are disabled if the switches are in the On position when feed center power is turned on, or when the Color Change Stop button is pressed. To reset the circuits, turn the Reclaim or Virgin switch Off then On.
	No air supply to control manifold, or solenoid valve not opening (reclaim SOL 336, virgin SOL 338)	Check the air supply to the control manifold on the roof of the feed center. Check for air output from solenoid valve. Check the control manifold cable wiring. Repair or replace as needed.
	Problem with transfer pump controls or pump	Check the pump and controls. Refer to High Capacity HDLV pump with electric timing valve manual 1619979 and Pump Station manual 1620734.
	Level sensor failed or wiring defective	Check the level sensor and wiring. Repair or replace as needed.

Continued...

Problem	Possible Cause	Corrective Action
11. Reclaim or virgin transfer pump turned off but continues to run	Solenoid valve in manual override (reclaim SOL 336, virgin SOL 338)	Check the solenoid valve in the control manifold. Make sure the manual operator on the valve is not in override position.
	Solenoid valve failed open	Replace the valve.
12. Virgin transfer pump is turned on but pump not running	Level sensor on feed hopper is detecting powder in hopper	The pump will not turn on until the powder level falls below the level sensor and the delay timer runs out.
	Refer to Problem 10 for other causes	
13. Virgin transfer pump does not stop automatically	No powder supply at bulk feed system	Check the virgin powder supply.
	Feed hopper level sensor not adjusted properly	Level sensor stops pump when it detects powder. Sensor indicating light should be yellow when powder is detected. Adjust the level sensor if it is not detecting powder. Refer to level sensor documentation.
	Level sensor failed or wiring defective	Check level sensor and wiring. Repair or replace as needed.
14. Reclaim and/or virgin transfer pump purge cycle does not start when Purge switch turned to Pump Purge position	Reclaim and virgin transfer pumps not turned on	Pumps must be on before purge can start. Turn on pump to be purged.
	Switch or wiring defective	No signal from switch to controller. Turning the switch to Pump Purge position should turn on signal. Check switch and wiring, repair or replace as needed.
	Control manifold purge solenoid valves or wiring defective	Check for air output from solenoid valve SOL 340 (reclaim), SOL 342 (virgin). Refer to the *Overview* section for the solenoid valve location. Check air supply to control manifold. Check cable wiring. Repair or replace as needed.
	Purge air process valve or pilot air tubing defective	Check pilot air tubing. Make sure air signal is reaching process valve in pump station. Check process valve operation. Check air supply to process valve. Repair or replace as needed. Refer to pump station manual 1620734.

Continued...

Problem	Possible Cause	Corrective Action
15. Feed center low powder level alarm buzzer on	Alarm buzzer delay timer has run out, level sensor not detecting powder	Alarm buzzer timer starts when the transfer pump turns on. If the timer runs out and the level sensor has still not detected powder, then the alarm buzzer is turned on. The timer default is 3 minutes. To turn off the buzzer, turn the Purge switch to Gun Purge momentarily.
	Problem with powder supply or virgin transfer pump	Refer to problems related to powder, sieve, or pump.
16. Color change does not start when Color Change switch turned on, light off	E-Stop button pressed	Reset E-Stop button.
	Exhaust fan not running, or fan interlock circuit defective	Turn on exhaust fan. Check fan interlock wiring between feed center panel and main system panel.
	Color Change switch or wiring defective	No signal from switch to controller. Check switch and wiring, repair or replace as needed.
	PLC not initiating color change sequence.	Check PLC operation. Contact your Nordson representative or technical support center for help.
17. Color change does not start with Color Change switch turned on, light on	Parts still in booth	Encore Engage system tracks parts through booth and will delay color change start until parts clear booth. Booth length is configurable through Encore Engage Configuration.
	Encore Engage gun positioners not in manual or auto mode	Set the gun positioners to either manual or auto mode.
	Encore Engage gun positioner controller did not receive Color Change start signal from feed center	The feed center passes signals for color change to the gun positioner controller which then communicates with the Encore Engage system. Check the wiring and connections between the feed center control panel and the gun positioner controller.
	Reciprocator not in auto mode	Reciprocator must be in auto mode for color change cycle to start. Set the reciprocator to auto mode.

Continued...

Problem	Possible Cause	Corrective Action
18. Color change cycle started, gun positioner stopped at forward limit switch	Oscillator not at bottom of stroke (USA only)	Oscillator must be at bottom of stroke for spray guns to be in position for gun blowoff. Blowoff will not start until bottom of stroke sensor is on and remains on. Check oscillator position.
	ColorMax not selected on Encore Engage gun positioner configuration screen (USA only)	Check gun positioner configuration.
	Oscillator not stopped	Oscillator gets stop command from gun positioner controller. Refer to your system electrical drawings. Contact Nordson technical support. USA only − Oscillator bottom of stroke sensor not sending signal to main system panel. Sensor detects rotating lever arm. Make sure sensor is positioned to detect arm and check wiring and connections to sensor.
	Reciprocator not at Park position	Reciprocator must be at Park position for spray guns to be in position for gun blowoff. Blowoff will not start until Park position is achieved. Check reciprocator position. Make sure Park position is configured within stroke range through Encore Engage controller.
19. Color change cycle started, blowoff air does not turn on	No air supply to solenoid valve or process valve, failed valve, or bad electrical connection	Solenoid valve in the main system panel is activated by a signal from the gun positioner control panel. Solenoid valve sends air signal to large pilot valve that provides air to the blowoff nozzles. Make sure main system panel air supply is on. Check solenoid valve output. If solenoid coil is energized but no air flows from valve, replace valve. Check air tubing to pilot valve. Check process valve operation. Check the wiring and connections between the gun positioner controller and solenoid valve.

Purge Position 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**.
3. Touch the **LANCE DOWN** button to lower the lance assembly. Lower the lance assembly until the pickup plates (8) fully engage with the purge manifolds (9).

   If the pickup plates do not engage the purge manifolds, turn the stop bolt (7) clockwise one turn and touch the LANCE DOWN button again. Repeat if necessary.
4. Turn the stop bolt counterclockwise until the head is firmly against the bottom of the linear slide (5). When the stop bolt is firmly in place, lock it into position using the jam nut (6).

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

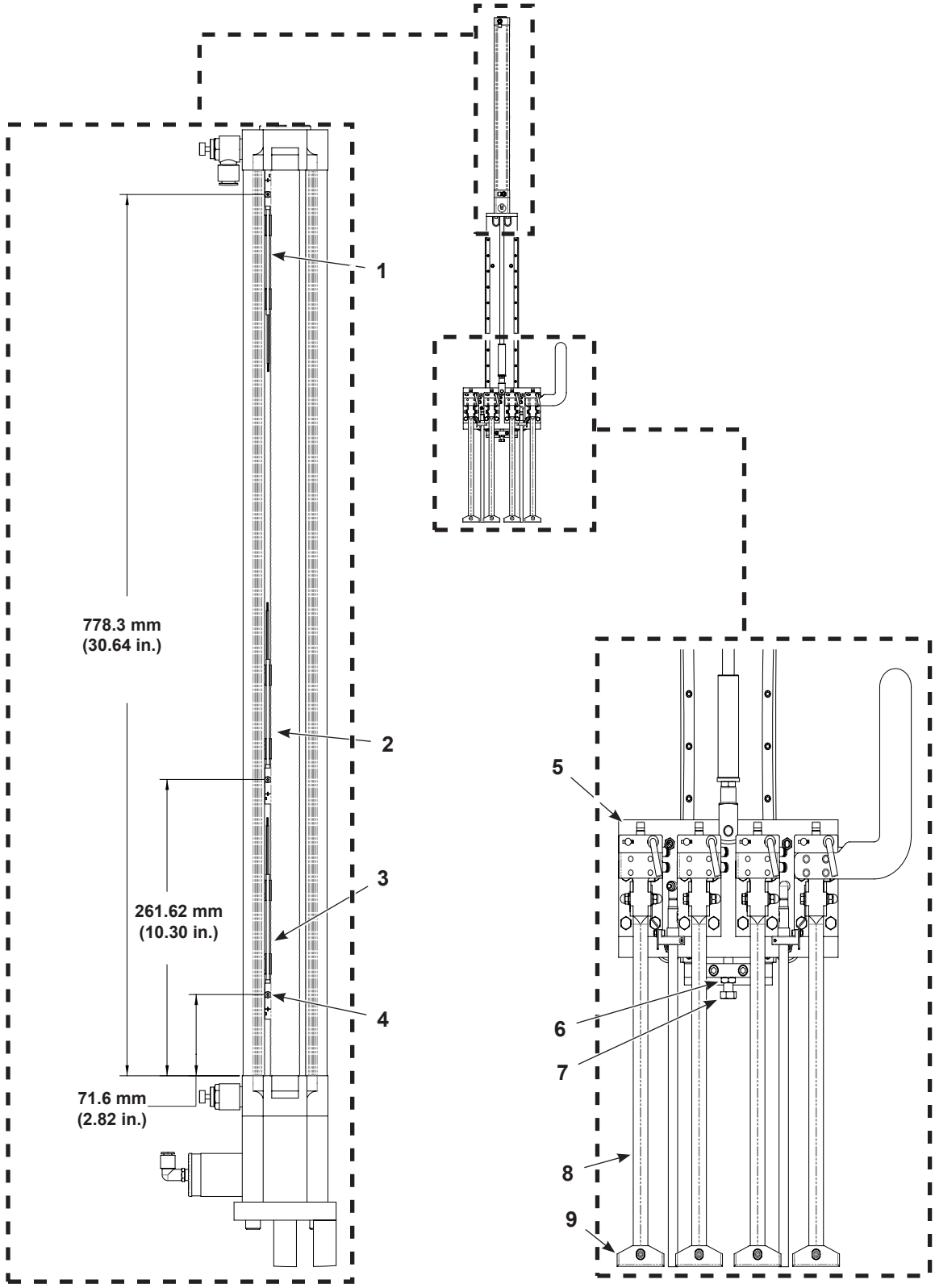


Figure 7-1 Purge Position Sensor and Stop Bolt Realignment

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

Filter Section Problems

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

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

Purge Manifold Assembly Repairs

Quad Ring Replacement

When replacing the purge manifold quad rings, make sure the lower portion of the ring is pressed into the pocket formed by the manifold block and the seal retainer plate. Use your fingernail or a tool to work the ring into the pocket. Be careful not to damage the rings when installing them.

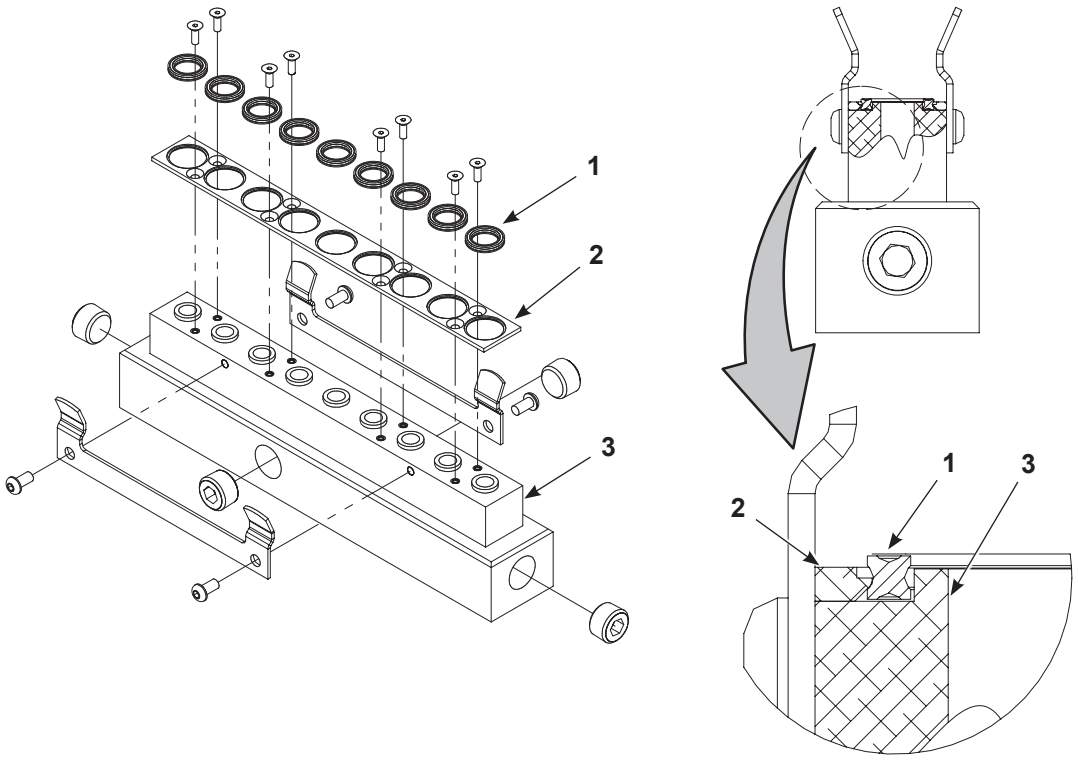


Figure 8-1 Purge Manifold Quad Ring Replacement

1. Quad ring
2. Seal retainer plate
3. Manifold block

Latch Pawl Replacement

See Figure 8-2. To remove a latch pawl from a latch:

1. Raise the lance assembly all the way up.
2. Press the E-Stop button on the feed center control panel to shut off the power and air. This relieves the air pressure and mechanically locks the lift cylinder in position.
3. Remove the hopper/box table from the enclosure:
   a. Remove the nuts (2) from the isolation mounts (1).
   b. If using a vibrator motor, loosen the motor cable cord grip and pull the cable slack through the grip.
   c. Lift the table up off the mounts and move it enough to gain access to the purge manifold assembly.

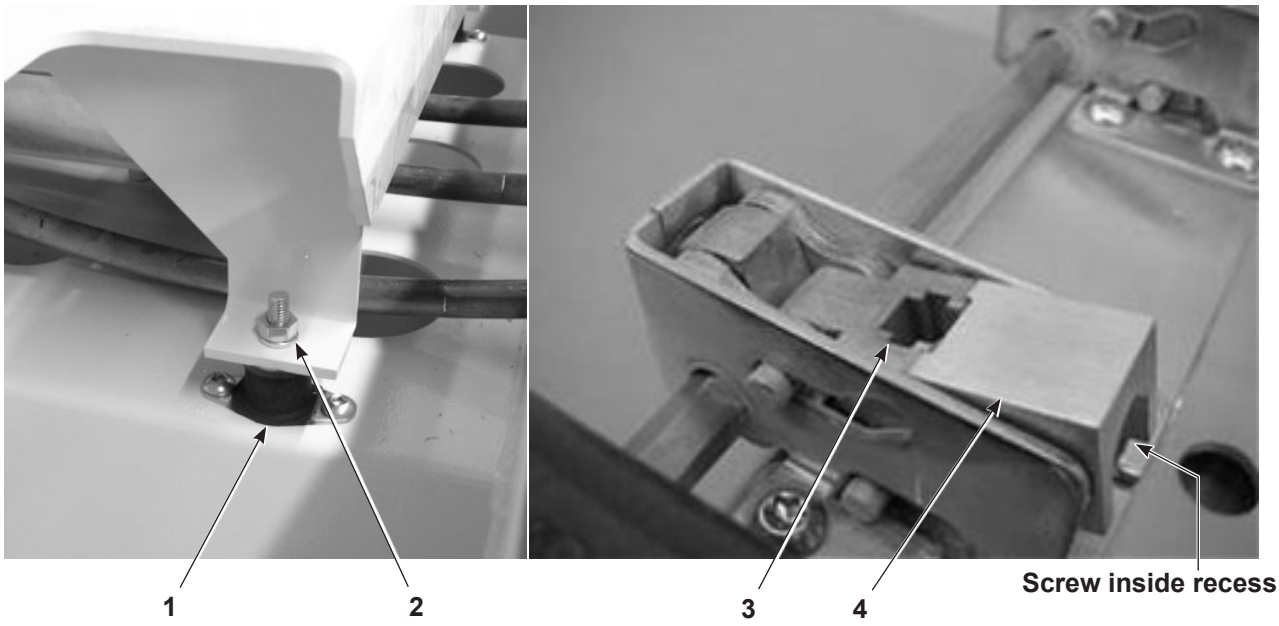


Figure 8-2 Pawl Replacement

1. Isolation mount
2. Nut
3. Pawl mount
4. Pawl

4. Remove the Philips-head screw securing the pawl (4) to the pawl mount (3).
5. Position the new pawl on the latch with the top surface of the pawl flush with the top surface of the latch lever.
6. Secure the pawl to the latch with the screw. Tighten the screw securely.
7. Re-install the hopper/box table on the isolation mounts, and then, if used, pull the vibrator motor cable back into the control cabinet. Leave enough slack in the cable to avoid any strain on it, then tighten the cord grip.

Latch Replacement

Latch Removal

To remove a latch from the purge manifold:

1. Perform steps 1−3 in *Latch Pawl Replacement*.
2. Disconnect the air lines from the purge manifold clamping cylinder.
3. See Figure 8-3. Grasp the cylinder clevis and pull the cylinder shaft out to the fully extended position to extend the latches and provide access to the latch set screws (3).

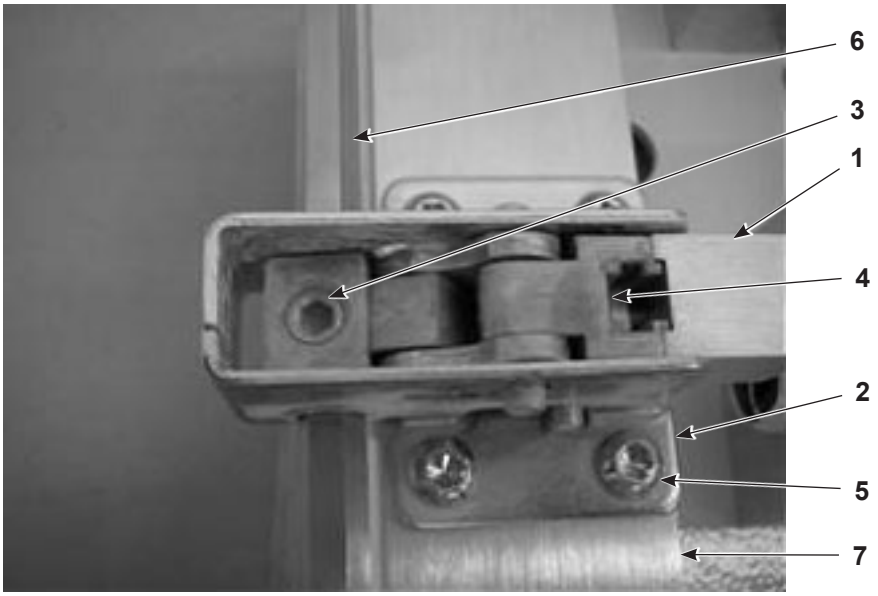


Figure 8-3 Latch Replacement

1. Pawl
2. Latch body
3. Set screw
4. Pawl mount
5. Socket screws
6. Hex shaft
7. Mounting block

4. Loosen the set screw (3) securing the latch to the hex shaft (6), then remove the four button-head socket screws (5) securing the latch body (2) to the mounting block (7).
5. Remove other latches as needed if the broken latch is not the last latch on the shaft. Slide the latch(es) off the end of the hex shaft.

Latch Installation

1. Make sure the clamping cylinder and the new latch are fully extended and that the top surface of the latch pawl (1) is flush with the top surface of the pawl mount (4). Adjust the pawl position if necessary by loosening the Philips-head screw in the pawl recess.
2. Slide the new latch on the hex shaft so that the bottom of the latch body is parallel to the surface of the mounting block.
3. Position the latch body over the tapped holes in the mounting block and install the four socket screws.

Latch Installation *(cont)*

4. See Figure 8-4. If all latches have been removed from the hex shaft, push or pull on the hex shaft (3) to center the lever (2) in the yoke (1) before you tighten the set screw to secure the latch to the hex shaft.
5. After all latches have been re-installed, check the latch movement by extending and retracting the clamping cylinder by hand. The pawl should move freely side-to-side and not bind on the sides of the latch body when the latch is extended and retracted.

   If the pawl binds against the sides of the body, loosen the four latch mounting screws, then push outwards on the sides of the latch body while re-tightening the screws.

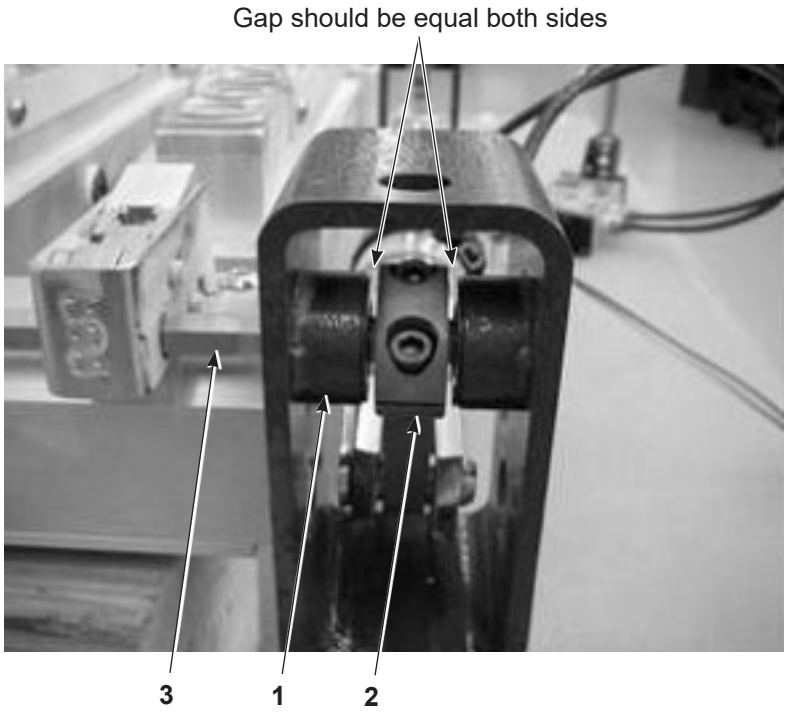


Figure 8-4 Lever Position − Step 4

1. Yoke
2. Lever
3. Hex shaft

Latch Pawl Adjustment

Figure 8-5 shows a latch extended until it is over-center. The latch pawl (2) is normally installed with the top surface flush with the top surface of the pawl mount (1). With the lance clamped down, the latch should not go over-center (fully extended). The latch pins (3) should not be up against the ends of their slots.

If the latch does go over-center, the latch pins make a clicking noise when they hit the ends of the slots.

To reduce latch travel and increase clamping force, loosen the Philips-head screw in the pawl recess and move the pawl down one notch. This adjustment may also be required with higher purge air pressures to increase the clamping force. To reduce clamping force, the pawl can be moved up one notch. However, do not do so if this allows the latch to go over-center when the lance is clamped down.

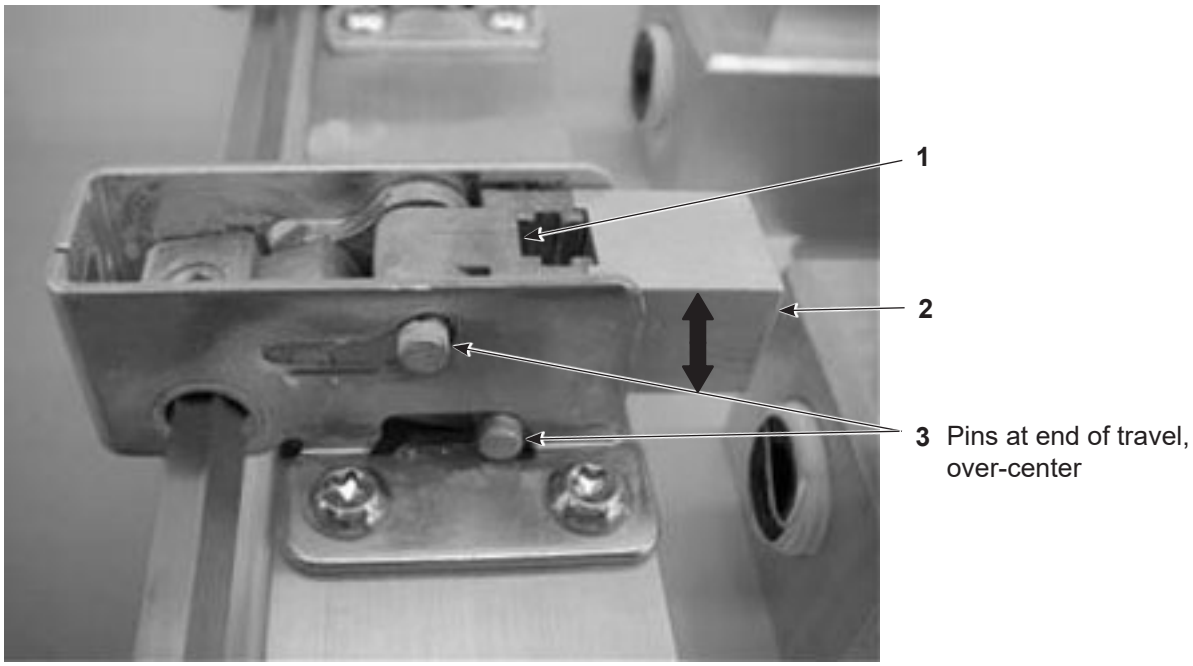


Figure 8-5 Pawl Adjustment − Latch Shown Over-Center

1. Pawl mount
2. Pawl
3. Pins

Clamping Cylinder Replacement

1. Perform steps 1-3 in *Latch Pawl Replacement.*
2. See Figure 8-6. Disconnect the air tubing from the cylinder flow control valves.
3. Retract the cylinder to gain access to the lever hardware.
4. Remove the clamp screws (5) on each lever assembly (4), then remove the cylinder assembly (10), and lever assembly (4) from the manifold shaft (11).
5. Discard the old cylinder assembly (10) and lever assemblies (4).
6. Remove the proximity switches (6, 7) from the new cylinder assembly (10).
7. Center the new cylinder assembly (10) inside cylinder adapter spacer (12) with the latches in fully open position and the cylinder fully retracted.

NOTE: Indentations in the lever assemblies (4) must be located facing inwards.

8. Using an M5 Allen wrench, attach the lever assemblies (4) to the manifold shaft (11) ensuring that lever assemblies (4) remain centered and the latches will remain open.

NOTE: It may be necessary to re-clock the rod or slightly extend the cylinder to ensure lever assemblies (4) attach properly with latches fully open.

9. Install proximity switches as follows:
   - Extend (Engaged): LS403 − Install on rod end.
   - Retract (Released): LS404 − Install on fixed end.

NOTE: Refer to the electrical schematic.

10. Push the cylinder rod into the cylinder assembly until it is fully retracted. Verify that when the cylinder is retracted, the latches are fully open. Material may be ground off of black delrin spacer if needed to adjust length.
11. Verify that when the cylinder is extended, the levers are making contact with the clevises and the latches are fully closed.
12. Connect the air tubing to the appropriate cylinder flow control valves. Refer to the pneumatic schematic foldout in this manual.
13. Turn on the feed center air supply.
14. Lower the lance onto the purge manifold and set the purge air pressure to zero. Refer to *Air Pressure Settings* in the *Setup* section for the location of the purge air pressure regulator.
15. Select Gun Purge on the control panel, and adjust the extend flow control valve for a 3 second extend. Turn Gun Purge off and adjust the retract flow control valve for a 3 second retract. Toggle Gun Purge on and off as needed while adjusting the valves.
16. Select Gun Purge and clamp the lance. Position the extend proximity switch (LS403):
    a. Slide the switch on the cylinder until it senses the magnet in the cylinder piston and the LED lights.
    b. Note the position where the LED turned on, then continue sliding it in the same direction until the LED turns off.
    c. Position the switch in the midpoint between LED off positions and tighten the clamp screw to secure it in place.

17. Turn off the Gun Purge and allow the cylinder to retract. Adjust the retract proximity switch at the fixed end of the cylinder in the same way as the extend switch.
18. Raise the lance and re-install the hopper/box table.
19. Adjust the purge air pressure to 5.5 bar (80 psi).

Clamping Cylinder Replacement *(contd)*

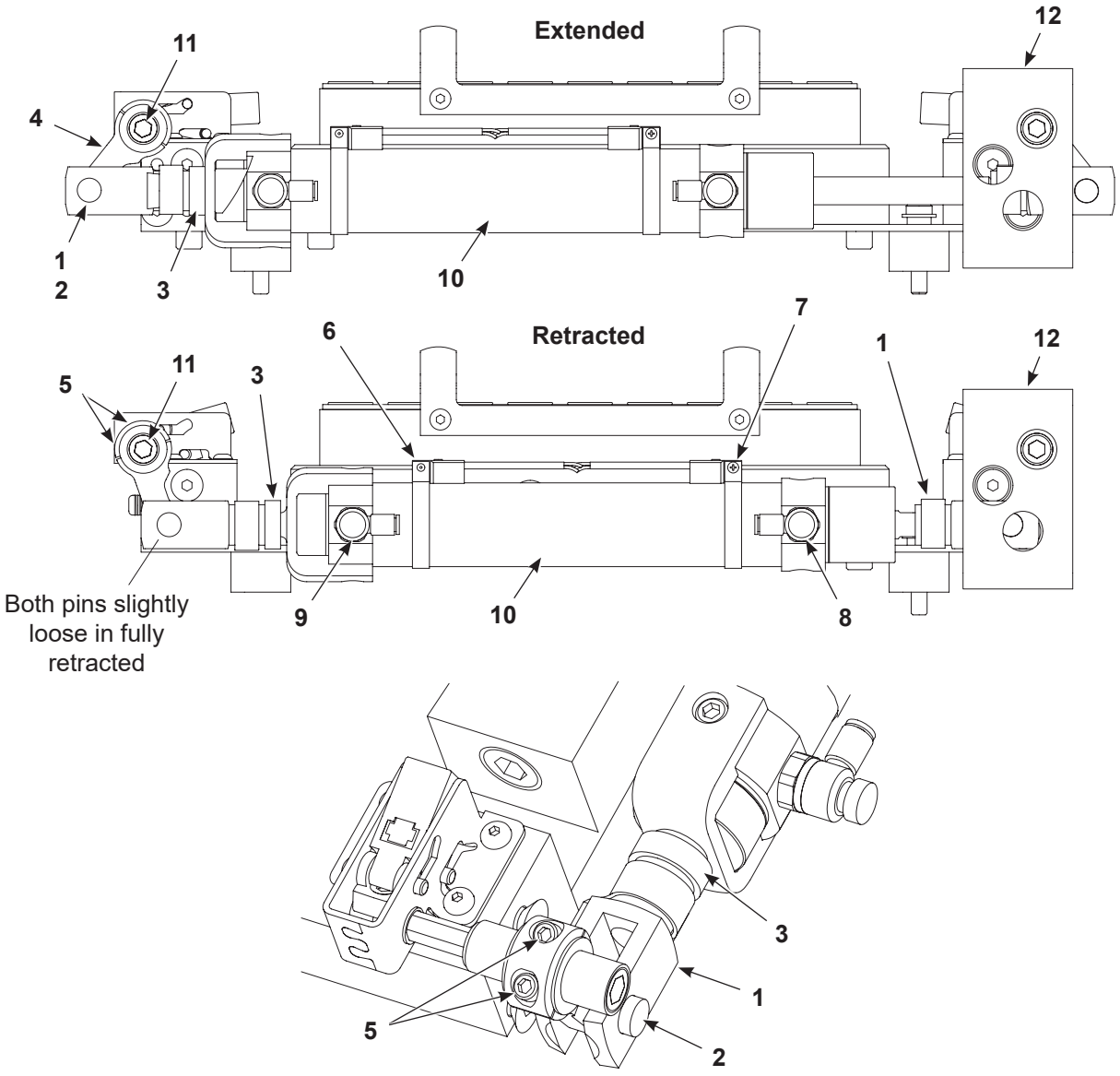


Figure 8-6 Clamping Cylinder Replacement

1. Clevises
2. Clevis pins
3. Delrin spacer
4. Lever
5. Lever clamp screws
6. Retract proximity switch (LS404)
7. Extend proximity switch (LS403)
8. Retract flow control valve
9. Extend flow control valve
10. Cylinder assembly
11. Manifold shaft
12. Cylinder adapter spacer

Lift Cylinder Replacement

The replacement lift cylinder listed in the *Parts* section of this manual does not include the flange and fasteners, clevis and clevis pin, or proximity switches. Re-use your existing components, or order new ones as needed.

Lift Cylinder Removal

1. Lower the lance assembly onto the purge manifold. The lance carriage will be positioned against the stop bolt.
2. See Figure 8-7. Unclip the clevis pin (3) from the clevis (1) and pull the pin out of the clevis and carriage plate (2). Do not lose the pin, as you will need it to install the new cylinder.
3. Raise the cylinder to the full up position.
4. Turn off the feed center air supply and power by pressing the E-Stop button on the control panel. This relieves the air pressure and mechanically locks the cylinder in place.

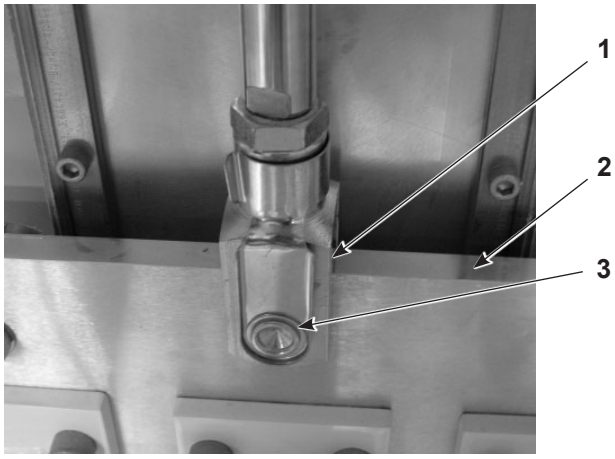


Figure 8-7 Lift Cylinder Clevis Pin

1. Clevis
2. Carriage plate
3. Clevis pin

5. See Figure 8-8. Disconnect the air tubing from the Up and Down flow control valves and the cylinder lock at the top and bottom of the cylinder.
6. Measure and note the position of the proximity switches. Label the switches and remove them and their brackets from the cylinder.
7. Remove the four M8x30 socket-head screws from the bottom of the flange.
8. Lift the cylinder up and out of the enclosure.
9. Remove the clevis and lock nut, flat washer, and sleeve from the cylinder. Save these parts for re-use.

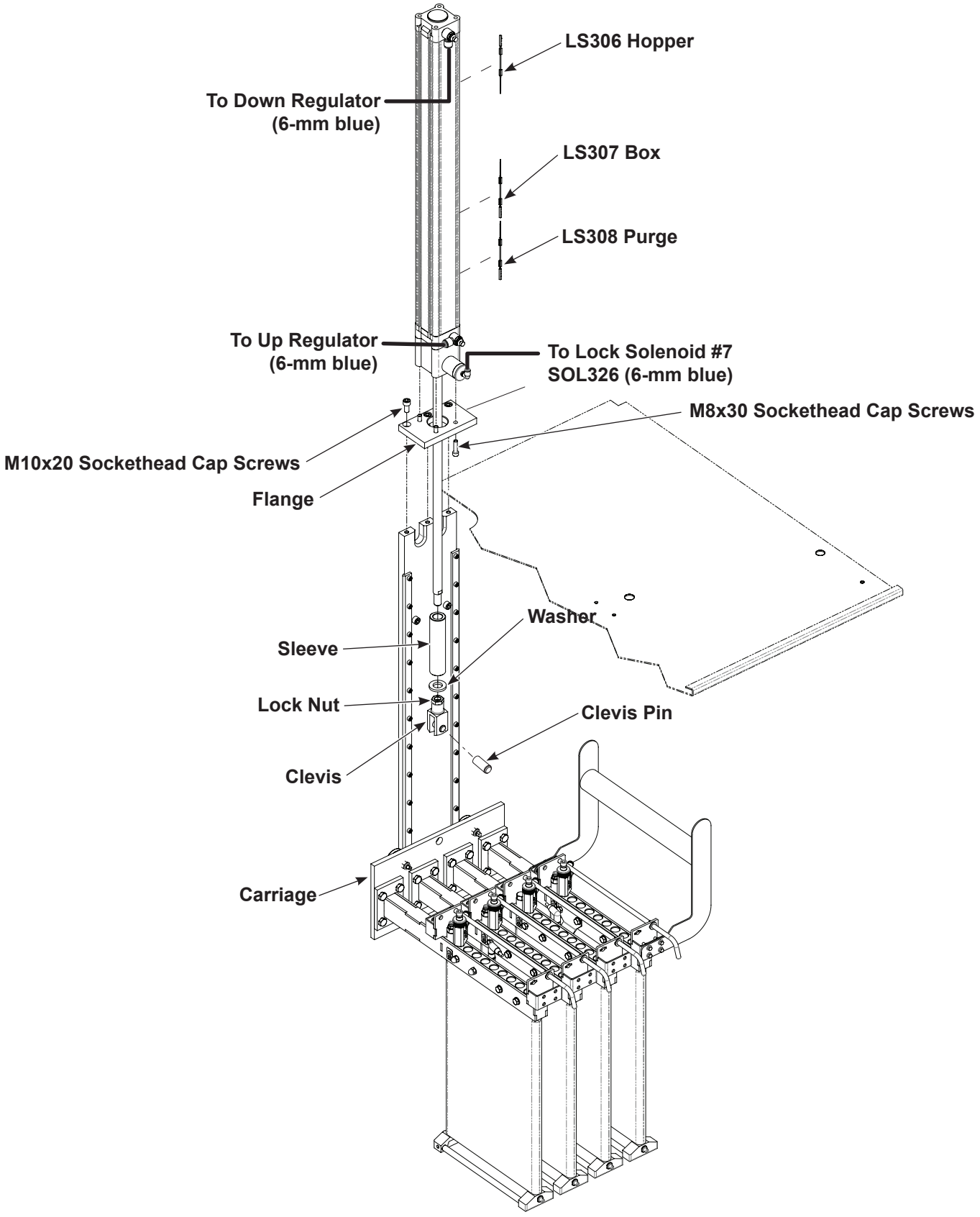


Figure 8-8 Lift Cylinder Replacement

Lift Cylinder Installation

1. Remove the lift cylinder packaging and inspect it for damage.
2. See Figure 8-8. Thread the locknut on the new cylinder rod, then thread the clevis all the way onto the new cylinder rod and lock it in place with the locknut.
3. Unsnap the clevis pin clip from the clevis and remove the pin.
4. Install the cylinder through the square opening in the roof of the feed center, then carefully guide onto the flange.
5. Reinstall with the matching letters aligned. Secure the cylinder with the four M8x30 screws.
6. Connect air tubing to the cylinder:
   - 6-mm tubing from Down regulator to upper flow control valve.
   - 6-mm tubing from Up regulator to lower flow control valve.
   - 6-mm tubing from solenoid #3 SOL326 to the cylinder lock.
7. Rotate the E-Stop button on the feed center control panel clockwise to release it and turn on feed center power and air.
8. Lower the cylinder clevis down the the lance carriage, which should be resting on the stop bolt at the bottom of the V-track rail.
9. Connect the clevis to the lance carriage with the clevis pin. Snap the pin clip around the clevis.
10. Install the proximity switches on the cylinder at the same positions as on the old cylinder:
    - LS306: Hopper position
    - LS307: Box position
    - LS308: Purge position
11. Adjust the position of the purge proximity sensor (LS308).
    a. Slide the switch up or down until it senses the magnet in the cylinder piston and the LED lights.
    b. Note the position where the LED turned on, then continue sliding it in the same direction until the LED turns off.
    c. Slide the switch back up and position it in the midpoint between the off positions and secure it in place.

NOTE: Refer to *Lift Cylinder Proximity Switch Adjustment* in the *Installation* section of this manual to set the positions of the Box switch (LS307) and the Hopper switch (LS306).

12. Raise and lower the lance assembly and adjust the cylinder flow control valves for 6 seconds full travel in each direction.

Cylinder Cushion Stop Adjustment

Make sure the top cylinder cushion stop is adjusted to bring the piston to a gentle stop when fully retracted.

The adjustment screw is recessed into the end cap next to the flow control valve. Rotating it clockwise increases the dampening effect; counterclockwise decreases the effect.

The bottom cushion stop can be adjusted in the same manner.

Lance Assembly/Purge Manifold Alignment

Anytime the purge manifold, lance, lance arm, or lift assembly is moved, the purge manifold and lances must be re-aligned with each other to ensure proper operation and lance-to-purge manifold sealing.

1. Remove the hopper/box table.
2. See Figure 8-9. Loosen the 8-mm through bolts securing the lance plates to the lance arms.
3. Loosen the ground screw on the lance arm.
4. Loosen the four screws securing the lance arm to the lift carriage plate, just enough to move the lance arm. The lance arms must not sag.

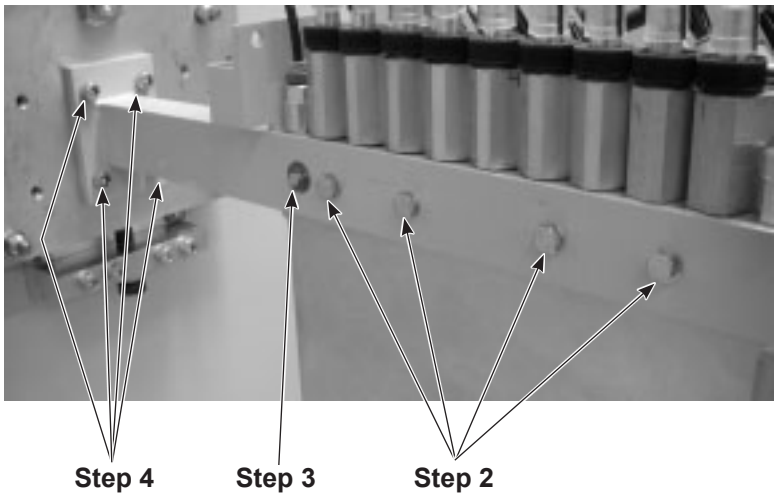


Figure 8-9 Lance Adjustment Steps 2−4

Lance Assembly/Purge Manifold Alignment (contd)

5. Set the purge air pressure to zero.
6. Move the lance down to the stop bolt (Purge Position). Verify that the stop bolt is adjusted to stop the carriage just before the lance makes contact with the purge manifold quad-ring seals. Manual alignment of the lances to the purge manifolds may be necessary as all the fasteners are loose.

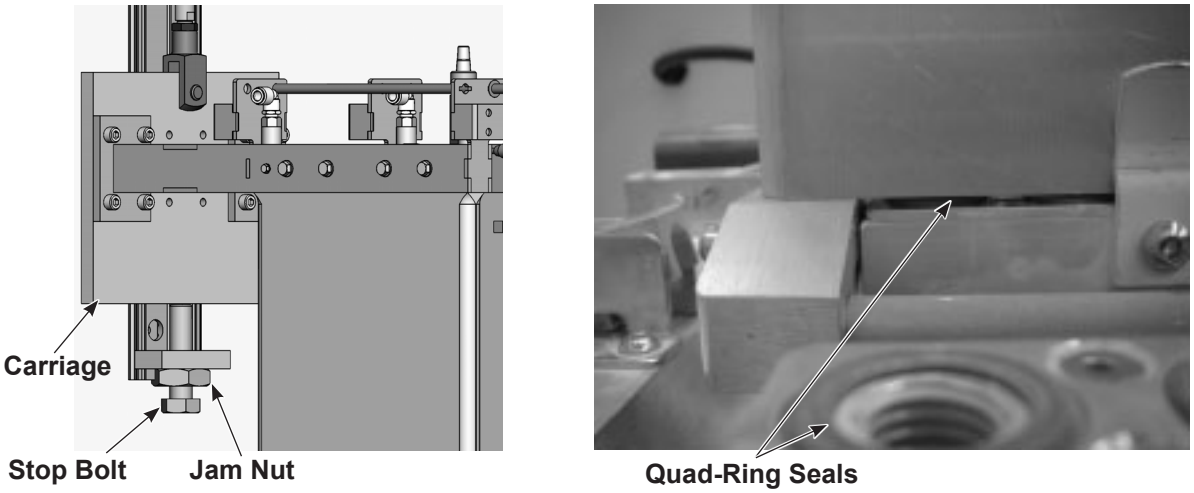


Figure 8-10 Stop Bolt Adjustment

7. Turn the Purge Control switch to the Internal Gun Purge position. The lance will be clamped into place.

8. Make sure the alignment between the lance latch blocks and the purge manifolds, front to back, is correct.

   The manifolds and lances should be parallel, and the gap between the lances and the manifold seal retainer plate should be even all the way around.

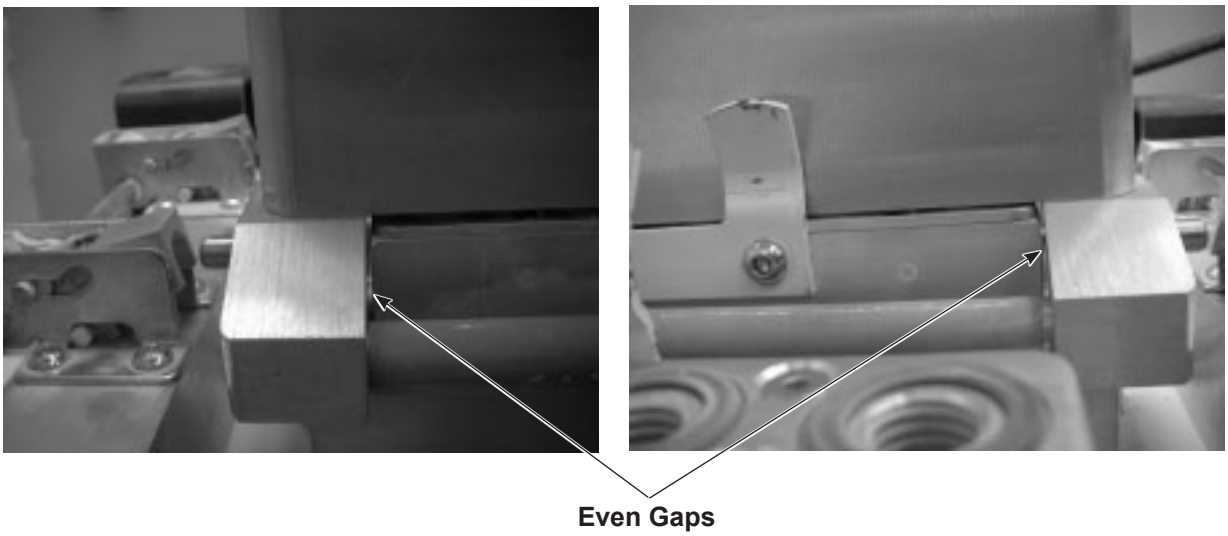


Figure 8-11 Lance Adjustment, Step 8

9. When each of the lance plates and manifold latches are adjusted correctly, the fasteners loosened in steps 2−4 can be tightened. Tighten the through bolts first, then the four screws securing the lance arms to the lift carriage, then the ground screw.
10. Turn Off the Purge Control switch.
11. Adjust the purge air to 5.5 bar (80 psi).
12. Select Internal Gun Purge with the Purge Control switch. The lances will be clamped and the purge air will turn on.
13. Verify that the lances and purge manifolds align properly, and that little or no air escapes from between them while the guns are being purged.

    If air leaks from the seals, loosen the latch pawl screws and move the pawls down one notch for a tighter clamp force. Refer to page 8-4 for the pawl adjustment procedure.

Feed Hopper Fluidizing Plate Replacement

75-lb Feed Hopper Fluidizing Plate Replacement

1. Empty the hopper and vacuum as much powder as possible out of the hopper.
2. See Figure 8-12. Remove the screws (5), flat washers (6), and nuts (7) securing the body (1) to the plenum (4). Lift the body off the plenum.
3. Remove and discard the old fluidizing plate (2) and U-gasket (3).
4. Vacuum the inside of the plenum and clean the body and plenum flanges.
5. Install the U-gasket around the outside edge of the new fluidizing plate.

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

6. Re-assemble the body, fluidizing plate, and plenum with the screws, washers, and nuts.

CAUTION: Do not overtighten the nylon screws. Overtightening the screws will result in stripped threads and possible air or powder leaks.

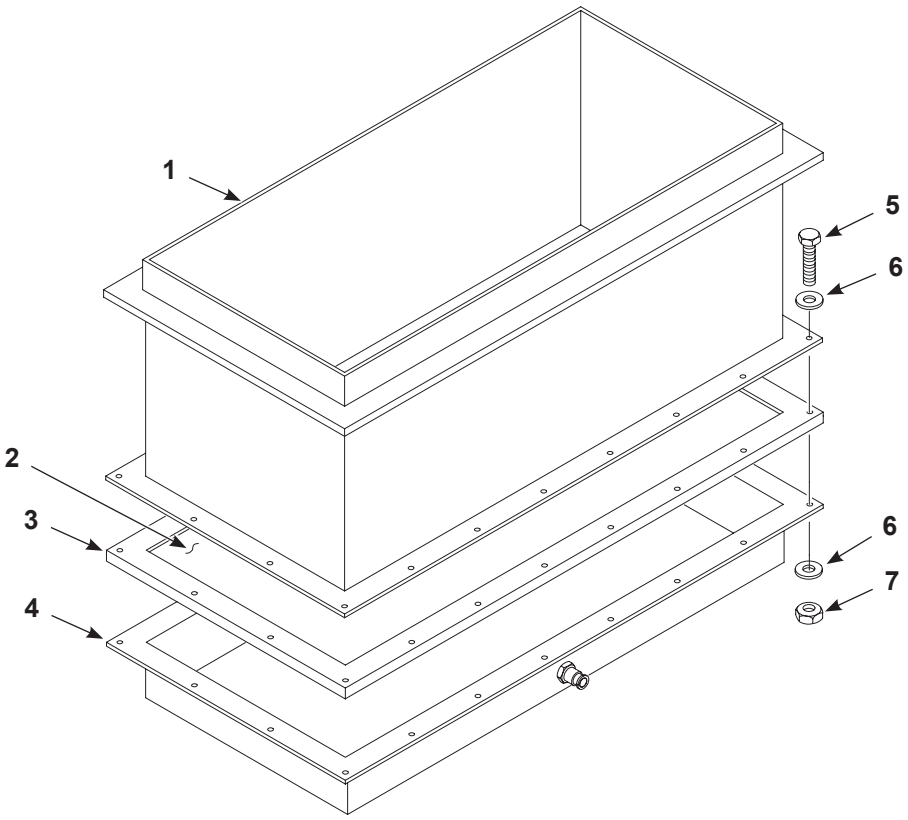


Figure 8-12 75-lb Feed Hopper Fluidizing Plate Replacement

1. Body
2. Fluidizing plate
3. U-gasket
4. Plenum
5. Nylon screws (M8 x 40 mm)
6. Nylon flat washers
7. Nylon hex nuts (M8)

50-lb Feed Hopper Fluidizing Plate Replacement

1. Empty the hopper and vacuum as much powder as possible out of the hopper.
2. See Figure 8-13. Remove the screws (5) securing the body (1) to the plenum (3). Lift the body off the plenum.
3. Remove and discard the old fluidizing plate (2).
4. Vacuum the inside of the plenum and clean the body and plenum flanges.
5. Check the O-ring gaskets (4) on the body and plenum flanges and make sure they are securely installed in the flange grooves.

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

6. Re-assemble the body, fluidizing plate, and plenum with the nylon screws.

CAUTION: Do not overtighten the nylon screws. Overtightening the screws will result in stripped threads and possible air or powder leaks.

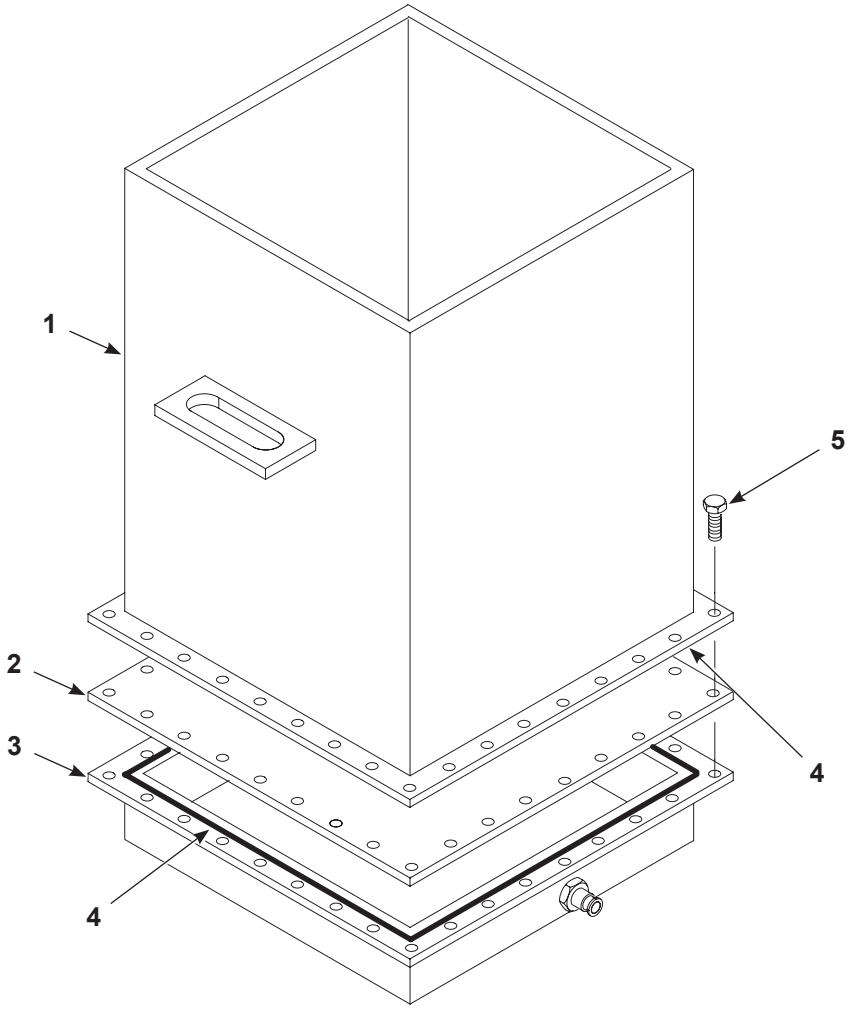


Figure 8-13 50-lb Feed Hopper Fluidizing Plate Replacement

1. Body
2. Fluidizing plate
3. Plenum
4. O-ring gaskets
5. Nylon screws

Vibratory Table Motor Weight Adjustment

Refer to Table 8-1. If you replace the vibratory table motor, or retrofit a motor to the table, you will need to adjust the new motor weights to the specified setting. Use the applicable instruction to adjust the weights.

Table 8-1 Table Vibrator Motor Weight Settings and Instructions

Nordson Part Number	Description	Manufacturer	Weight Setting
1602109	VIBRATOR, 230/460V, 3PH/60Hz (standard)	Oli−Wamgroup/MVE 60/3	66%
1602896	VIBRATOR, 330/575V, 3PH/60Hz	Oli−Wamgroup/MVE 60/3	66%
1602893	VIBRATOR, 220/380V, 3PH/60Hz	Oli−Wolong/MVE 60/3	66%
1602895	VIBRATOR, 200/400V, 3PH/50Hz, ATEX	Oli−Wamgroup/MVE 60/3	75%
1602894	VIBRATOR, 220/380V, 3PH/50Hz	Oli−Wolong/MVE 60/3	75%
1602892	VIBRATOR, 240/415V, 3PH/50Hz	Oli−Wolong/MVE 60/3	75%

60Hz Motor Weight Adjustment

See Figure 8-14 for steps 1 - 4 when replacing or retrofitting a 60Hz vibratory table motor for the feed center.

FC 66% = 2 blades turned

60Hz = 156.5 lb. FC X 66% = 103.29 lb. FC

1. Remove the caps from both ends of the motor.
2. Place wrenches on the nuts located on both ends of the motor shaft.
3. Unscrew one nut and remove the weight blades from that end of the shaft. The opposite nut will remain tight.

NOTE: 60Hz motors come with one weight blade already rotated at each end.

4. Place an adjustable wrench on the shaft flat. Make sure that the wrench does not grip the threaded area of the shaft. Use another wrench to unscrew the remaining nut. Remove the weight blades from the end of the shaft.

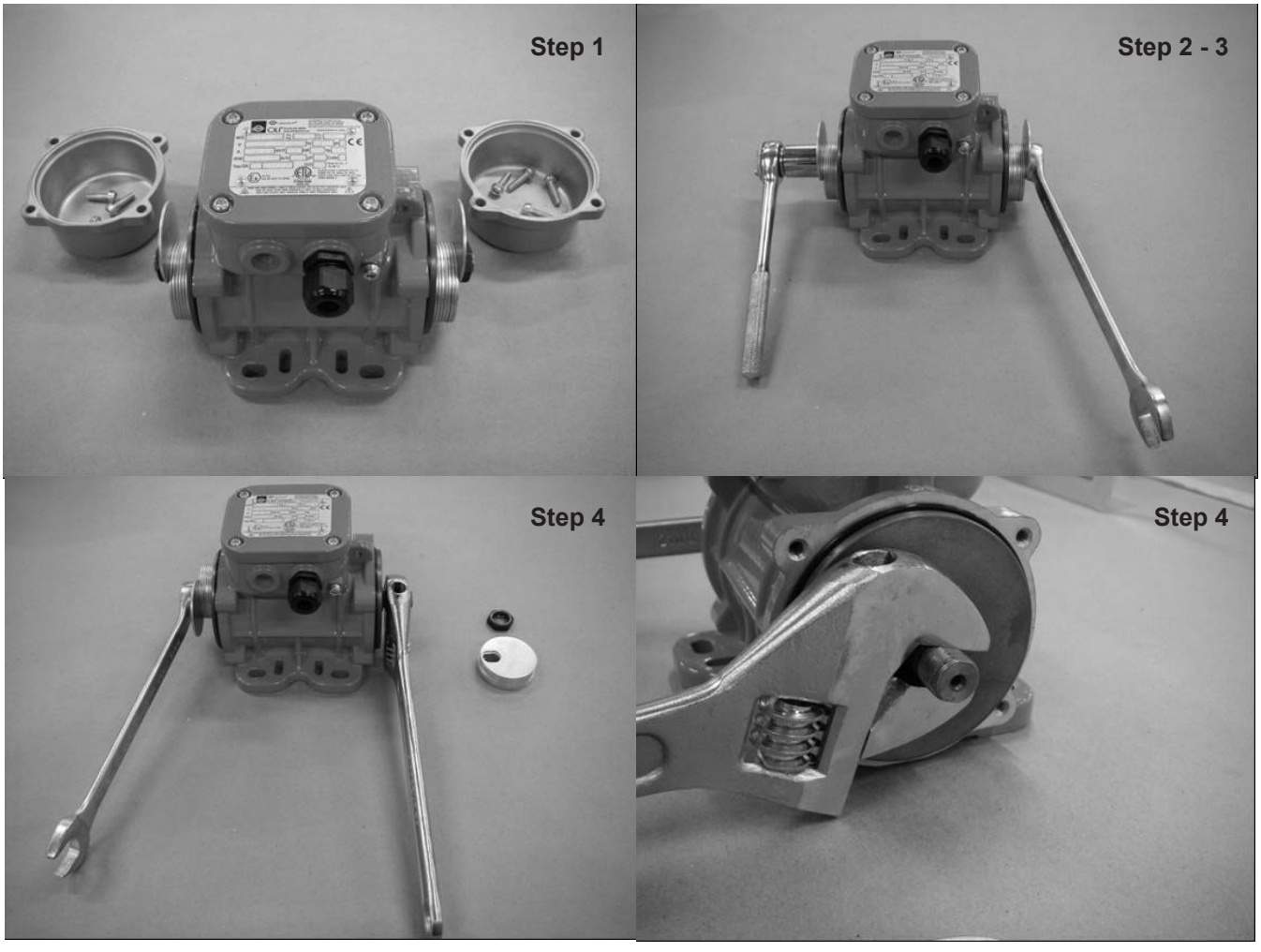


Figure 8-14 Vibrator Weight Adjustment, 60Hz, Steps 1−4

See Figure 8-15 for steps 5 - 8 when replacing or retrofitting a 60Hz vibratory table motor for the feed center.

5. Install the weight blades that were removed. Turn **(2)** weight blades on each shaft end to the opposite position as shown.
6. Make sure that the weight blades are in the same configuration at both ends of the motor. **Two** weight blades must be rotated at each end. Tighten both shaft nuts securely to 74-78 ft-lb.
7. Install the end caps with the flat area on the cap aligned with the flat area on the mounting flange.
8. Tighten the screws to 4 ft-lb.

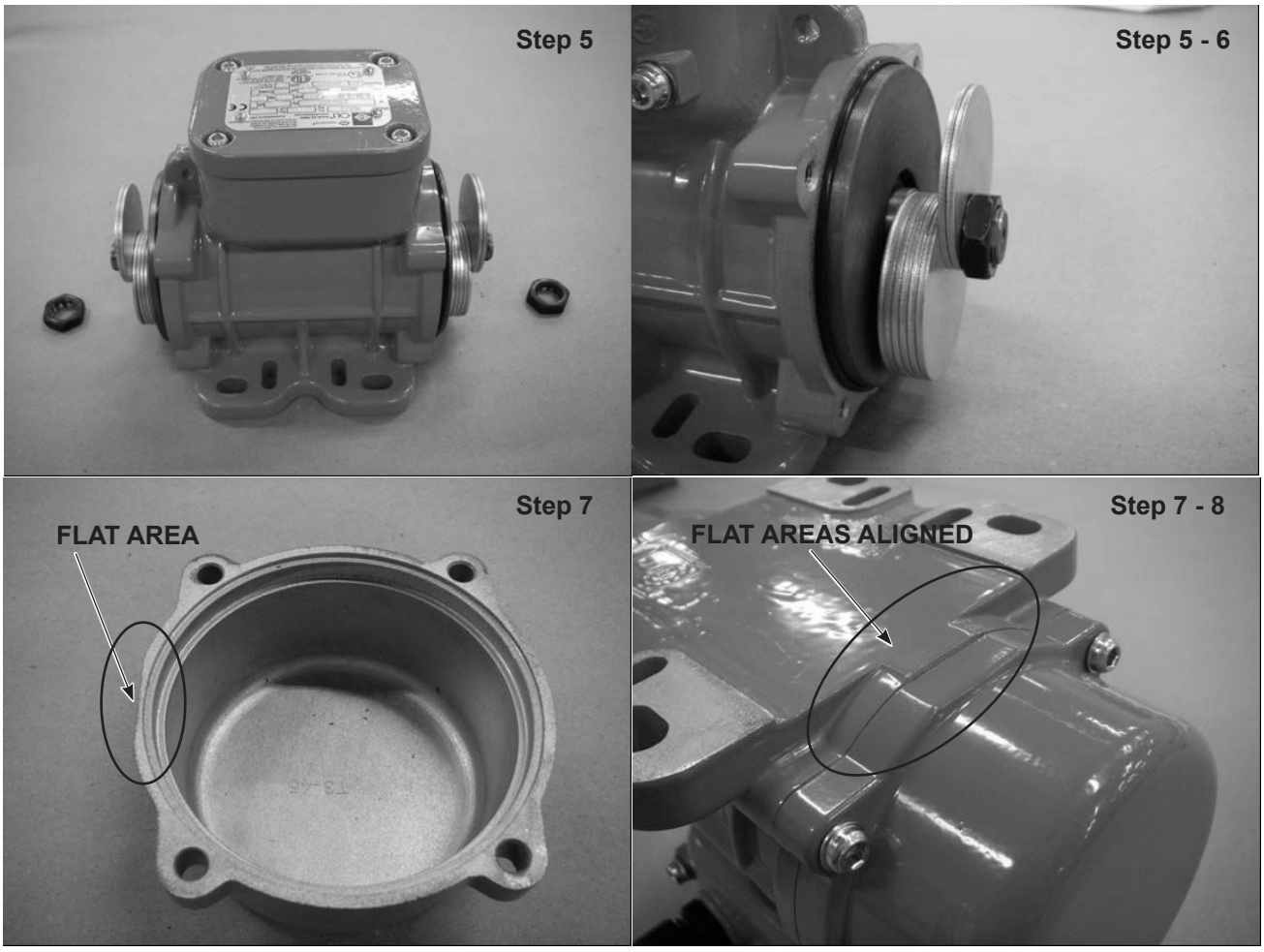


Figure 8-15 Vibrator Weight Adjustment, 60Hz, Steps 5−8

50Hz Motor Weight Adjustment

See Figure 8-16 for steps 1 - 4 when replacing or retrofitting a 50Hz vibratory table motor for the feed center.

FC 75% = 1 blade turned

50Hz = 145.5 lb. FC X 75% = 109.125 lb. FC

1. Remove the caps from both ends of the motor.
2. Place wrenches on the nuts located on both ends of the motor shaft.
3. Unscrew one nut and remove the weight blades from that end of the shaft. The opposite nut will remain tight.

NOTE: 50Hz motors come with all of the weight blades rotated in the same direction.

4. Place an adjustable wrench on the shaft flat. Make sure that the wrench does not grip the threaded area of the shaft. Use another wrench to unscrew the remaining nut. Remove the weight blades from the end of the shaft.

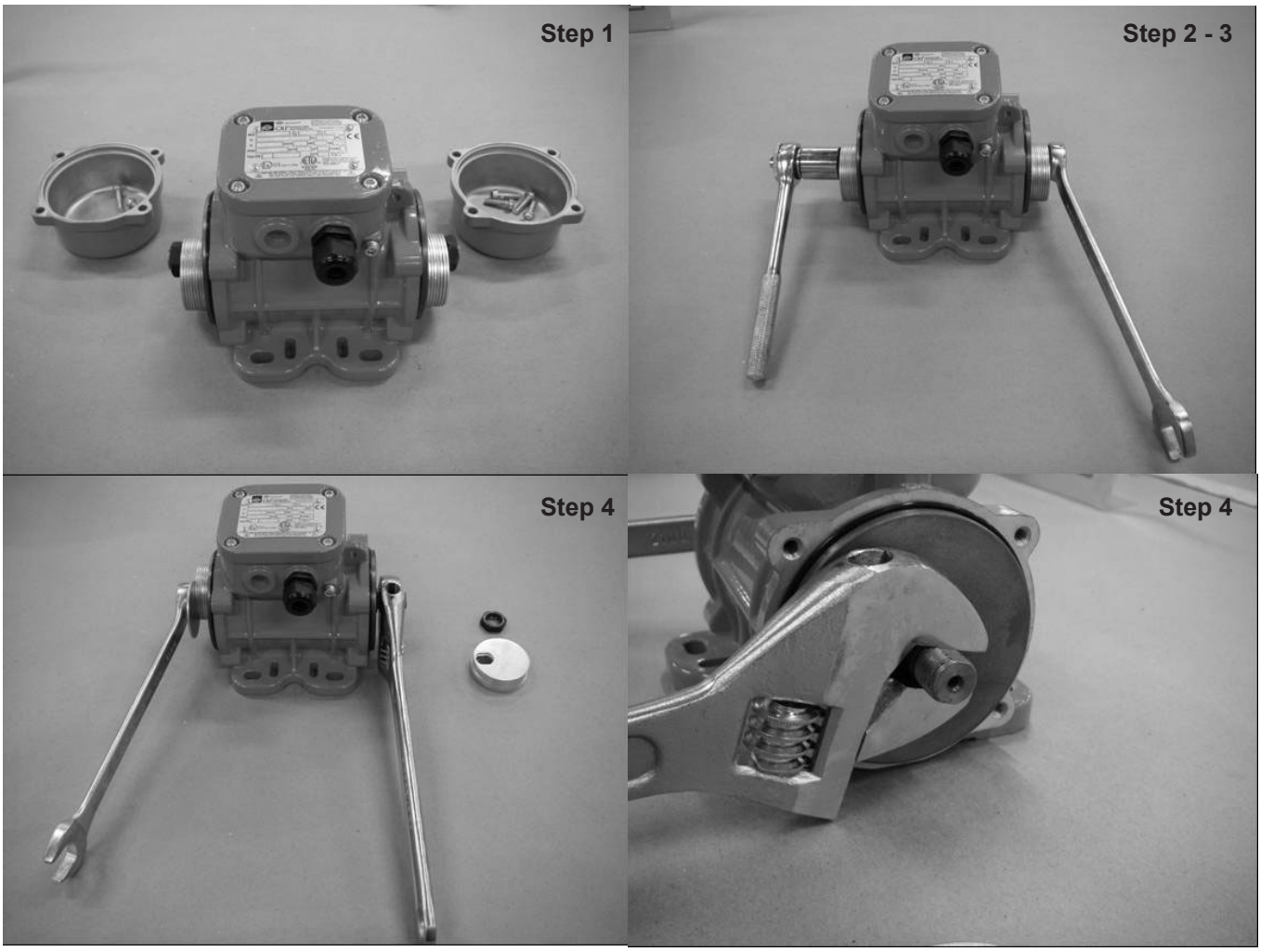


Figure 8-16 Vibrator Weight Adjustment, 50Hz, Steps 1−4

See Figure 8-17 for steps 5 - 8 when replacing or retrofitting a 50Hz vibratory table motor for the feed center.

5. Install the weight blades that were removed. Turn **(1)** weight blade on each shaft end to the opposite position as shown.
6. Make sure that the weight blades are in the same configuration at both ends of the motor. **ONE** weight blade must be rotated at each end. Tighten both shaft nuts securely to 74-78 ft-lb.
7. Install the end caps with the flat area on the cap aligned with the flat area on the mounting flange.
8. Tighten the screws to 4 ft-lb.

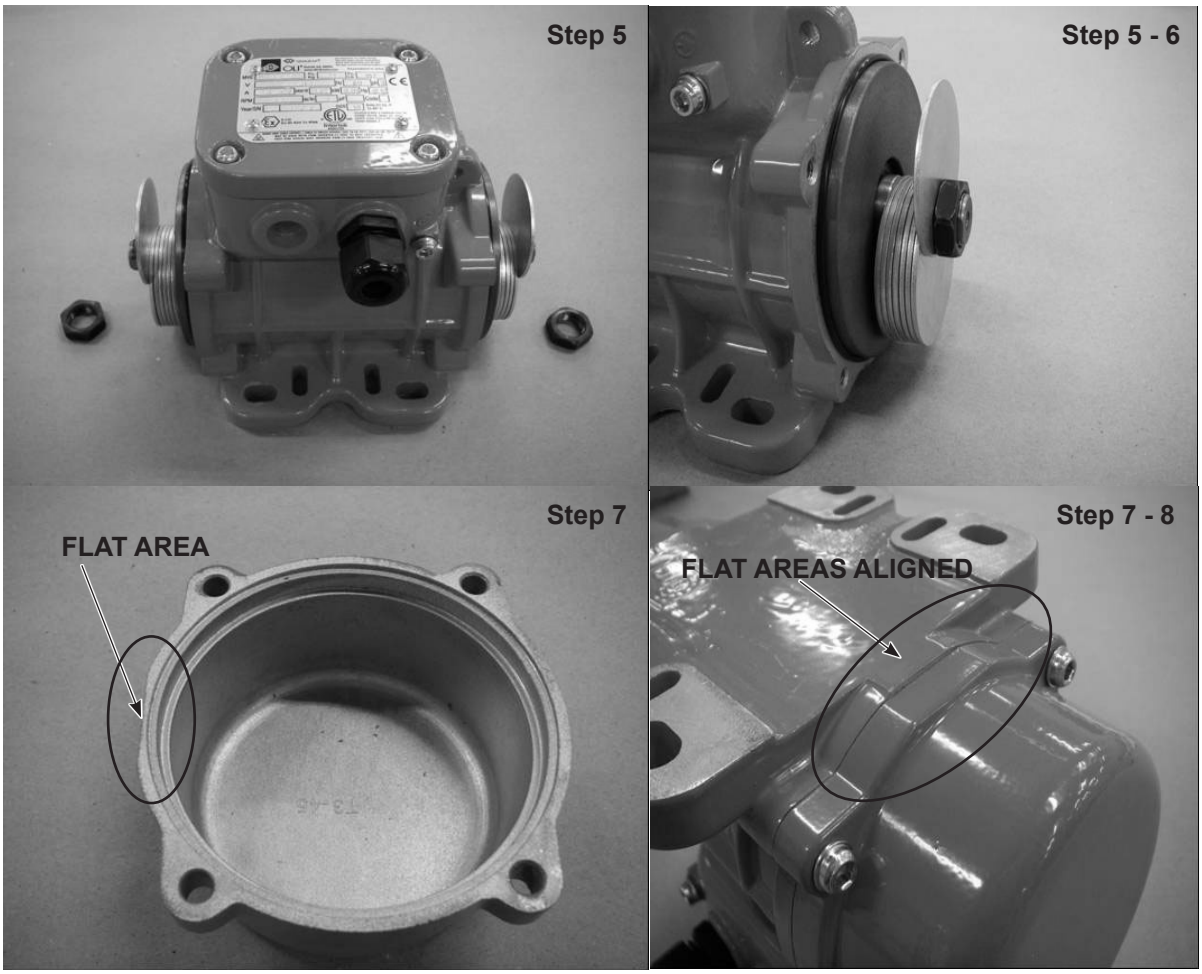


Figure 8-17 Vibrator Weight Adjustment, 50Hz, Steps 5−8

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 8-18.

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

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

Installing the Cartridge Filter

See Figure 8-18.

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

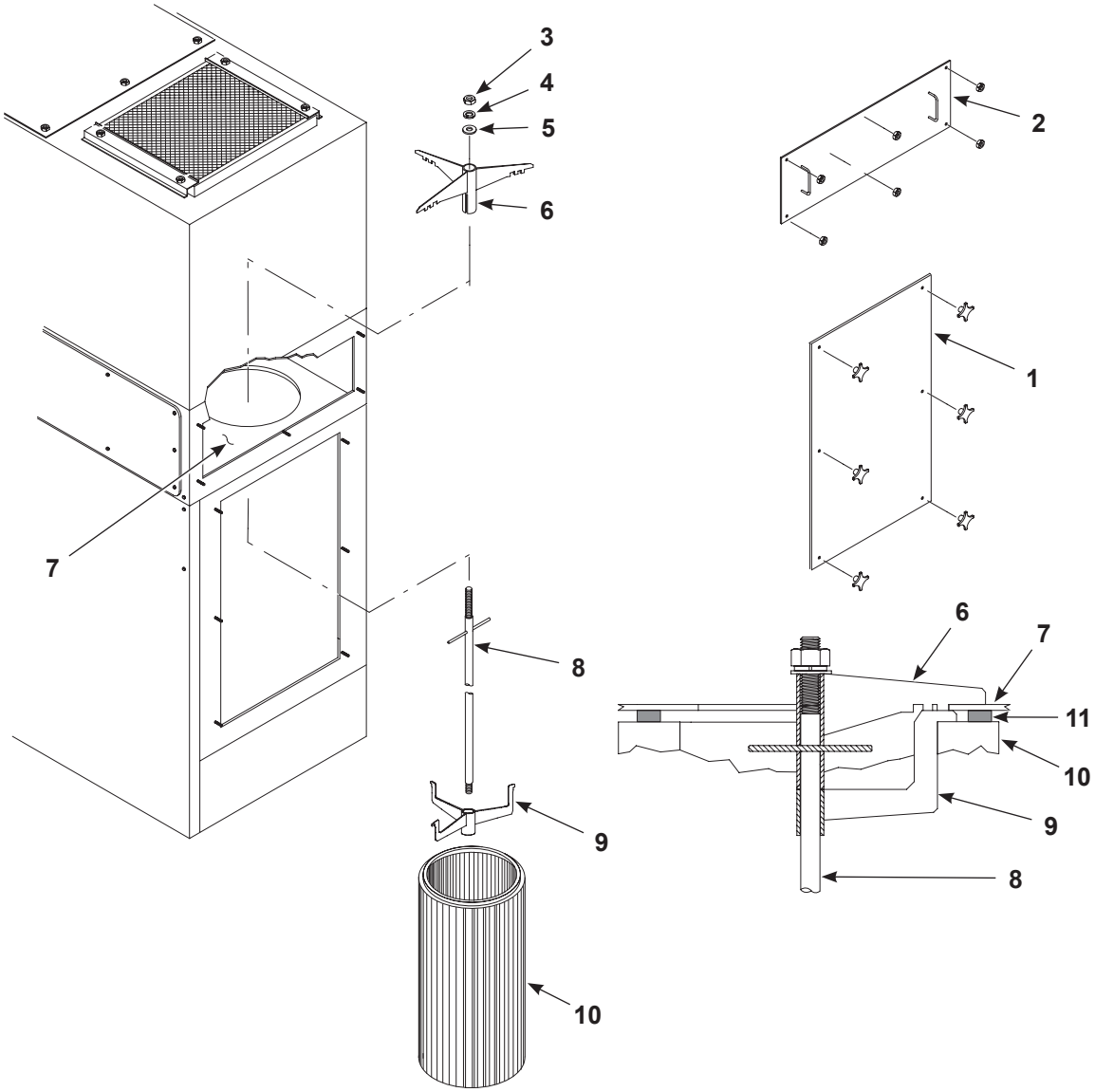


Figure 8-18 Cartridge Filter Replacement

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

Final Filter Replacement

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

1. See Figure 8-19. Remove the final filter brackets (1).
2. Pull the old final filter (2) out of the powder feed center.
3. Inspect the inside of the fan housing. Vacuum out any powder that has accumulated inside the housing.

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

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

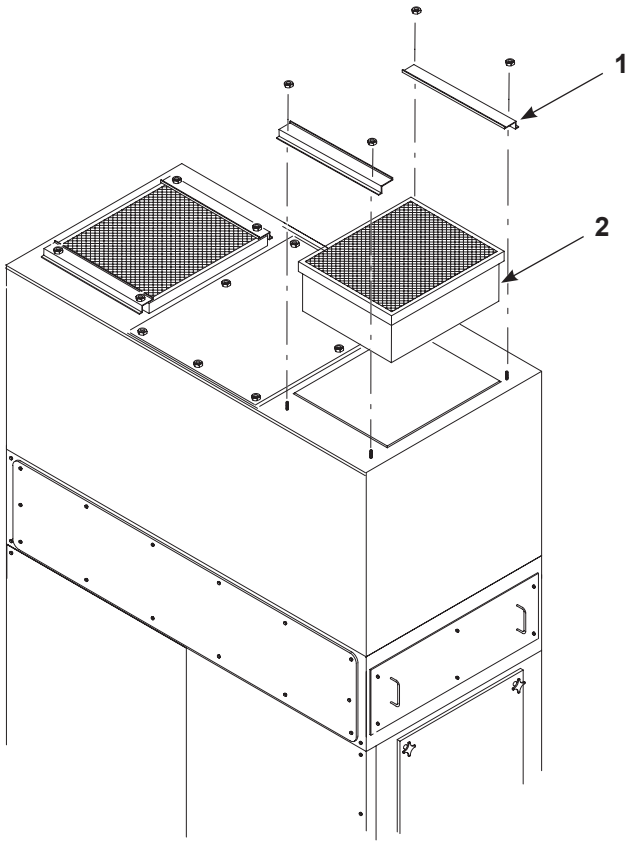


Figure 8-19 Final Filter Replacement

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 8-20. Remove the pulse valve access panel (5).
3. Disconnect the air tubing from the pulse valve's elbow fitting (2).
4. Unscrew the pulse valve (3) from the nipple (1).
5. Remove the nozzle (4) and elbow from the pulse valve.
6. Clean the threads of the nozzle, elbow, and nipple and wrap the threads with 2-3 layers of new PTFE tape.
7. Install the nozzle and elbow onto the new pulse valve.
8. Install the new pulse valve onto the nipple. Make sure that the pulse valve nozzle points straight down into the center of the cartridge filter.
9. Connect the air tubing to the elbow.
10. Install the pulse valve access panel and turn on system air pressure.

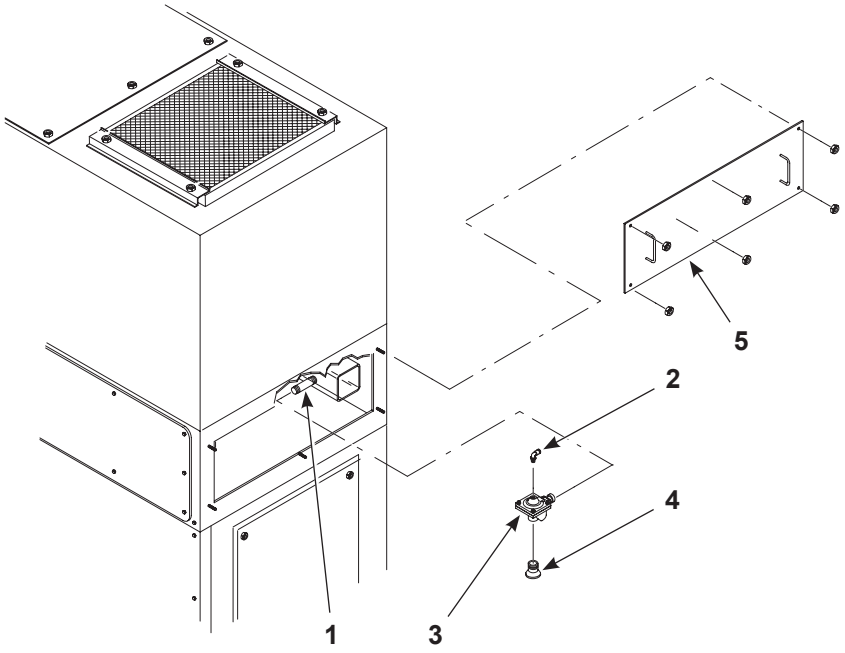


Figure 8-20 Pulse Valve Replacement

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

Collector Fluid Plate Replacement

See Figure 8-21 and Figure 8-22.

1. Empty as much powder as possible from the collector. Refer to *Emptying the Collector* in the *Maintenance* section for more information.
2. Remove the cartridge filter access panels (1) and vacuum out any remaining powder in the waste hopper.
3. Turn off and lock out power to the powder feed center.
4. Remove the jack screws (2) from the clamp brackets (3).

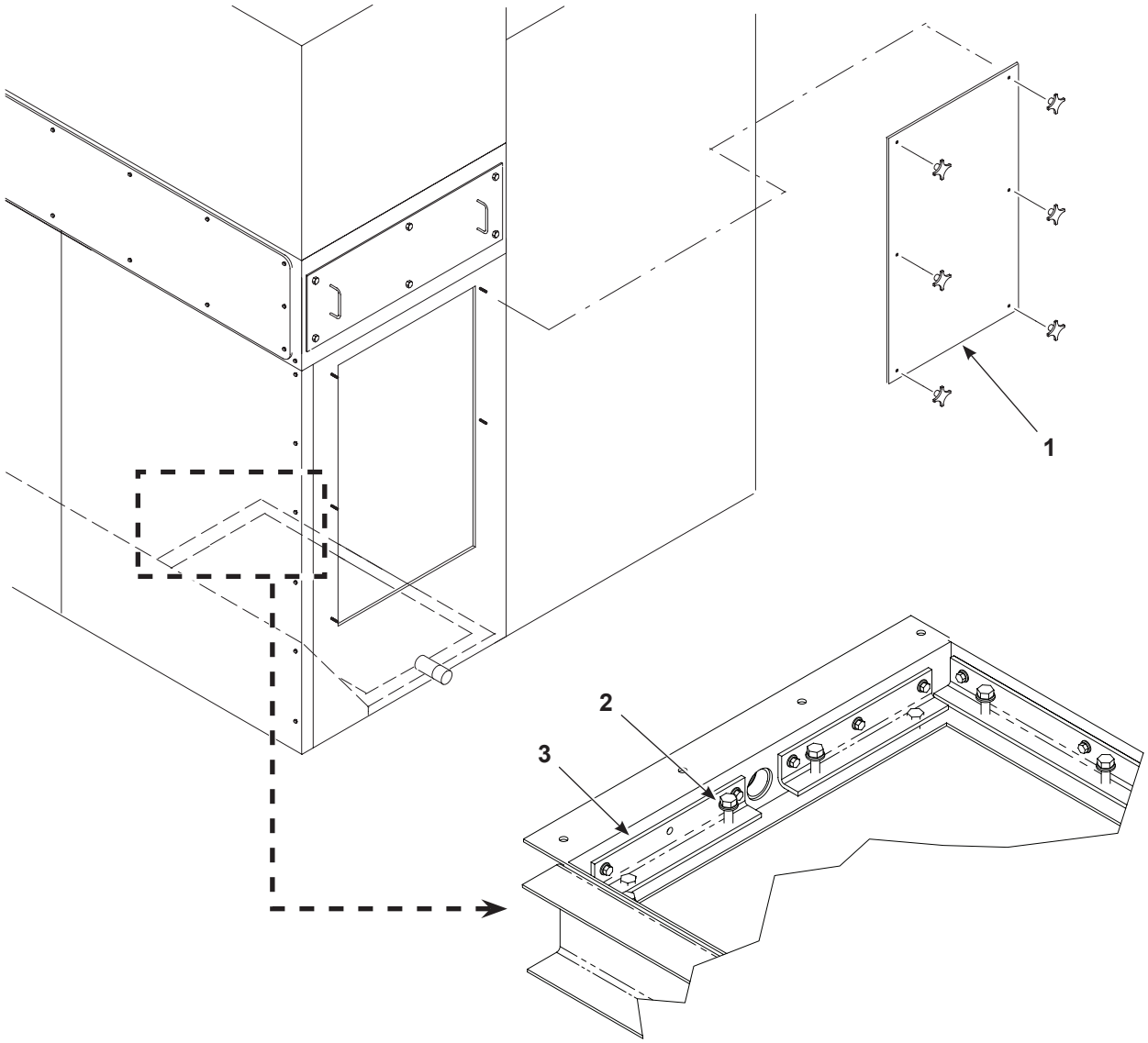


Figure 8-21 Waste Hopper Fluid Plate Replacement (1 of 2)

1. Cartridge filter access panel
2. Jack screw
3. Clamp bracket

5. Remove the bearing plate (4).
6. Remove the hex screws (5) and the old fluid plate (6).
7. On the bottom of the new fluid plate, place gaskets according to dimensions shown to properly align with holes. Apply instant bond adhesive to the seams of installed gaskets.
8. Install new fluid plate (6) under clamp brackets (3). Then, place the bearing plate (4) under the clamp brackets and on top of the fluid plate.
9. Tight the clamp brackets down with the jack screws (2).
10. Place the access panel (1) back onto the feed center.

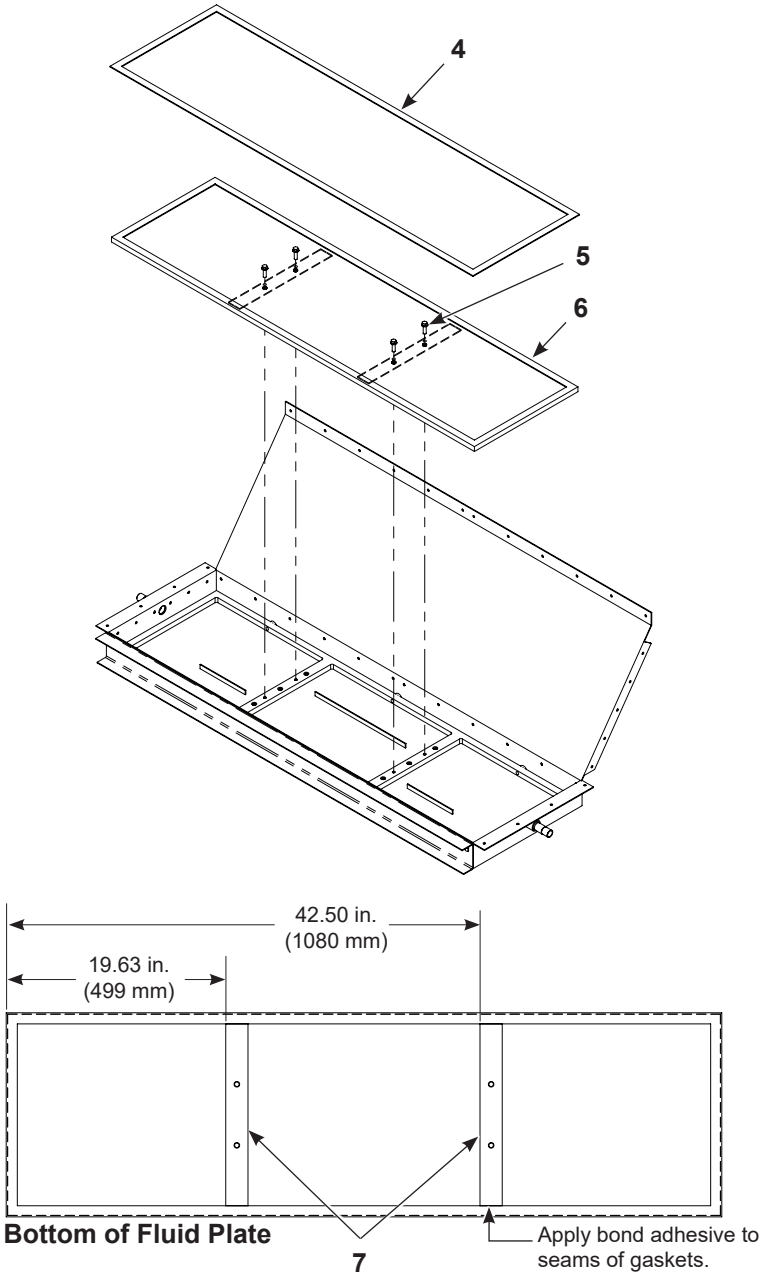


Figure 8-22 Waste Hopper Fluid Plate Replacement (2 of 2)

4. Bearing plate
5. Hex screws
6. Fluid plate
7. Gaskets

Vibratory Table Isolator Mount Replacement

1. See Figure 8-23. Remove the four socket-head cap screws (1) and lock washers (2) securing the vibrator motor (3) to the vibratory table.
2. Carefully remove the vibrator motor and set it at the back of the feed center.
3. Unscrew and remove the nuts (5) and washers (6) from top of vibratory table (4).
4. Carefully lift the vibratory table out of the feed center and stand it up on its front edge.
5. Unscrew the hex screws (7) to remove the the four isolator mounts (8) from the vibratory table.
6. Install new isolator mounts with hex screws onto the vibratory table and follow steps 1-4 in reverse to install the vibratory table into the feed center.

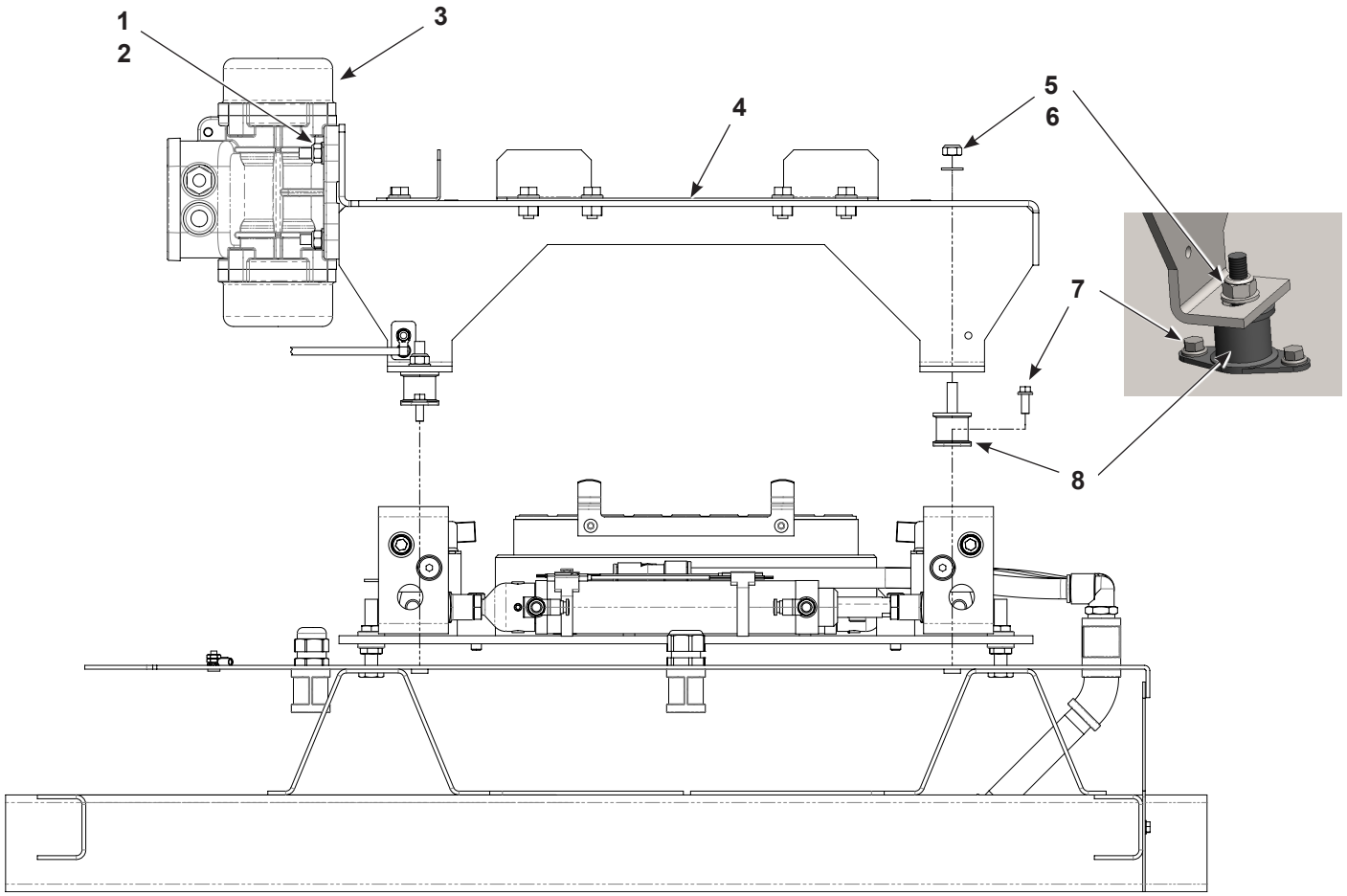


Figure 8-23 Vibratory Table Isolator Mount Replacement (Side View of Vibratory Table)

1. Screws
2. Lock washers
3. Vibrator motor
4. Vibratory table
5. Nuts
6. Washers
7. Hex screws
8. Isolator mounts

Section 9
Parts

Parts

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

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.

- 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.

Item	Part	Part	Part	Description	Quantity	Note
—	- - - - - -	—	—		—	
1	- - - - - -					
2						
						Continued...

NOTE: A.

B.

NS: Not Shown

AR: As Required

Powder Feed Centers

See Figure 9-1 and the following parts list.

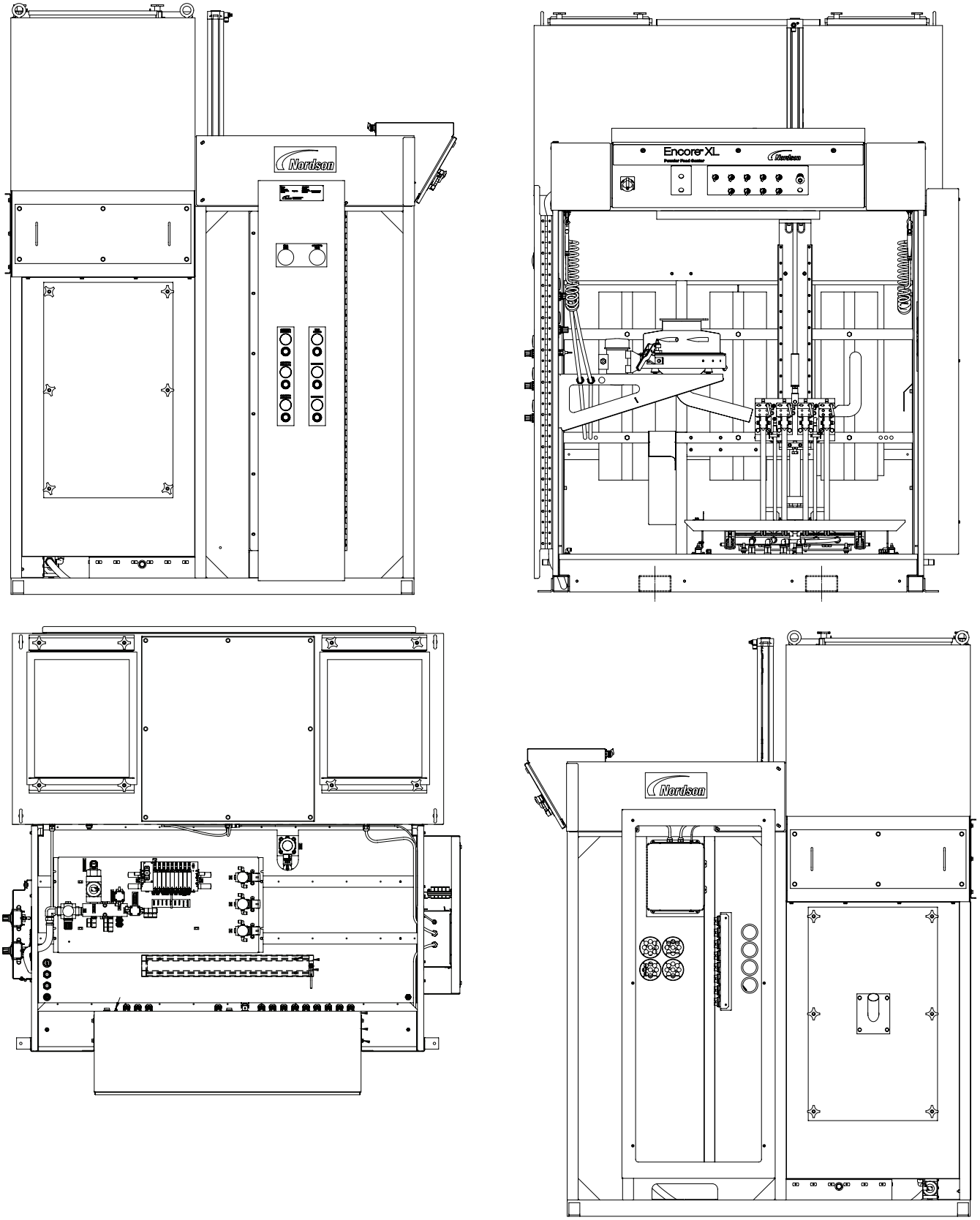


Figure 9-1 Powder Feed Center Parts

System Assemblies

Part	Description
1607649	SYSTEM ASSEMBLY, powder feed center, Encore XL, 2 lance, left-hand
1607650	SYSTEM ASSEMBLY, powder feed center, Encore XL, 3 lance, left-hand
1607651	SYSTEM ASSEMBLY, powder feed center, Encore XL, 4 lance, left-hand
1607653	SYSTEM ASSEMBLY, powder feed center, Encore XL, 2 lance, right-hand
1607654	SYSTEM ASSEMBLY, powder feed center, Encore XL, 3 lance, right-hand
1607655	SYSTEM ASSEMBLY, powder feed center, Encore XL, 4 lance, right-hand

Lift Assembly Parts

See Figure 9-2 and the following parts list.

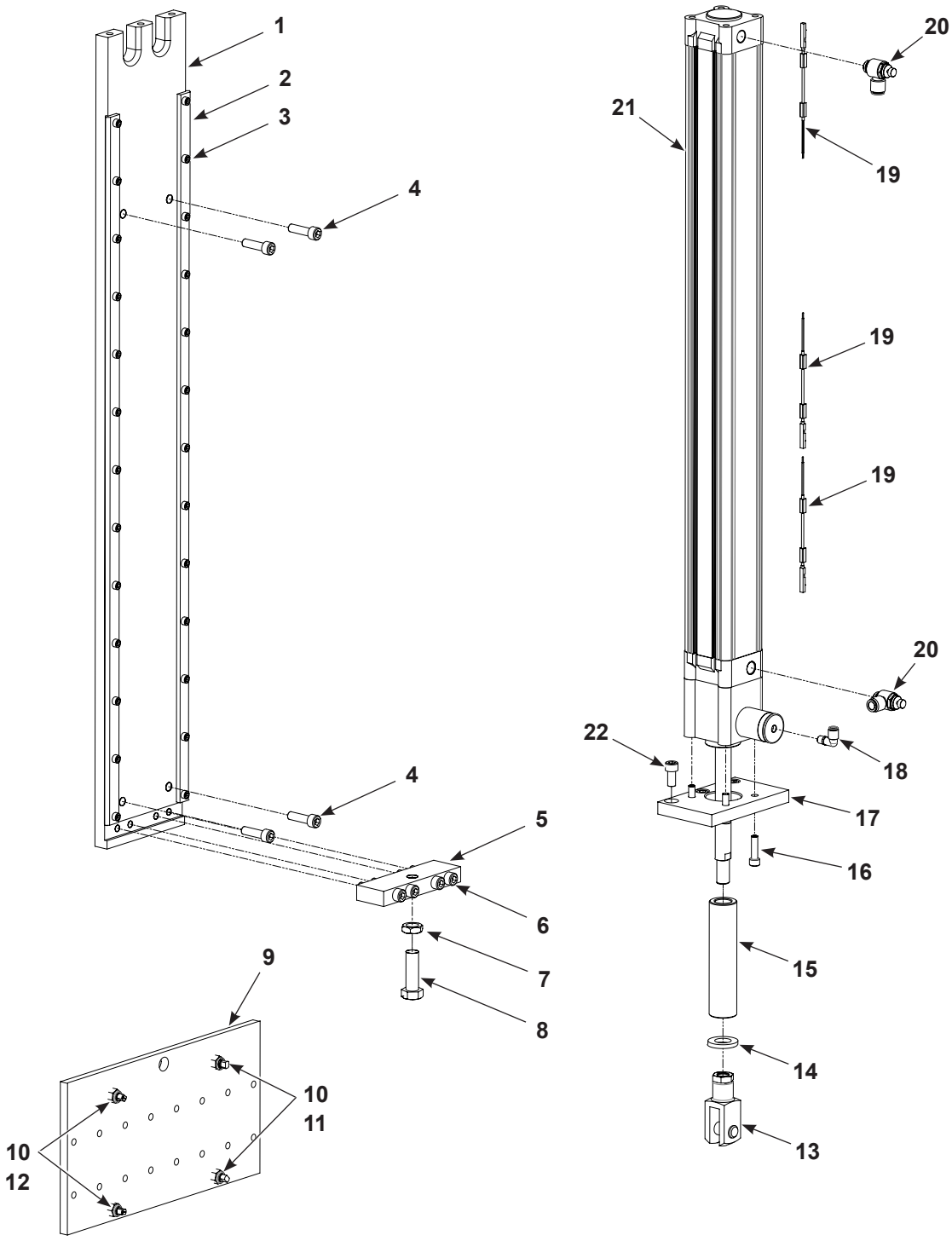


Figure 9-2 Lift Assembly Parts

Item	Part	Description	Quantity	Note
—	1607669	MODULE, lift assembly, powder feed center, Encore XL, 3 lance		
—	1607671	MODULE, lift assemble, powder feed center, Encore XL, 4 lance		
1	1099846	PLATE TRACK, mount, global feed center	1	
2	1099843	• RAIL, V-roller track, global feed center	2	
3	815927	• CAPSCREW, sockethead, M6 x 20 mm, steel-zinc	26	
4	982493	• SCREW, socket, M10 x 35, zinc	4	
5	1099847	• PLATE, lift stop, global powder feed center	1	
6	982393	• SCREW, socket, M10 x 60, black	4	
7	984697	• NUT, hex, jam, M16, steel, zinc	1	
8	345439	• SCREW, hex, M16 x 2.0 x 50, zinc	1	
9	1099840	• PLATE, lift 3 carriage, global powder feed center	1	
9	1607245	• PLATE, lift 4 carriage, global powder feed center	1	
10	1099842	• ROLLER, V-groove	4	
11	1099844	• STUD, concentric, V-roller mount	2	
12	1099845	• STUD, eccentric, V-roller mount	2	
13	1103936	• CLEVIS, Festo rod, M16	1	
14	1102931	• WASHER, flat, 21 x35 x 5 mm, stainless steel	1	
15	1102789	• SLEEVE, lift cylinder, Spectrum powder feed center	1	
16	346171	• SCREW, socket, M8 x 35, steel, zinc	4	
17	1099848	• FLANGE, cylinder mount	1	
18	972837	• ELBOW, male, 6 mm tube x 1/8 BSPT	1	
19	1103505	• SWITCH, cylinder proximity	3	
20	1103937	• FITTING, flow control, 6 mm T x 3/8 G	2	
21	1103505	• CYLINDER, locking, 63 x 750	1	
22	982043	• SCREW, socket, M 10 x 20, black	3	

Lance Assembly Parts

Basic Lance Parts

See Figure 9-3 and the following parts list. For a complete lance assembly, order either a fluidizing or non-fluidizing latch block module listed on the following pages.

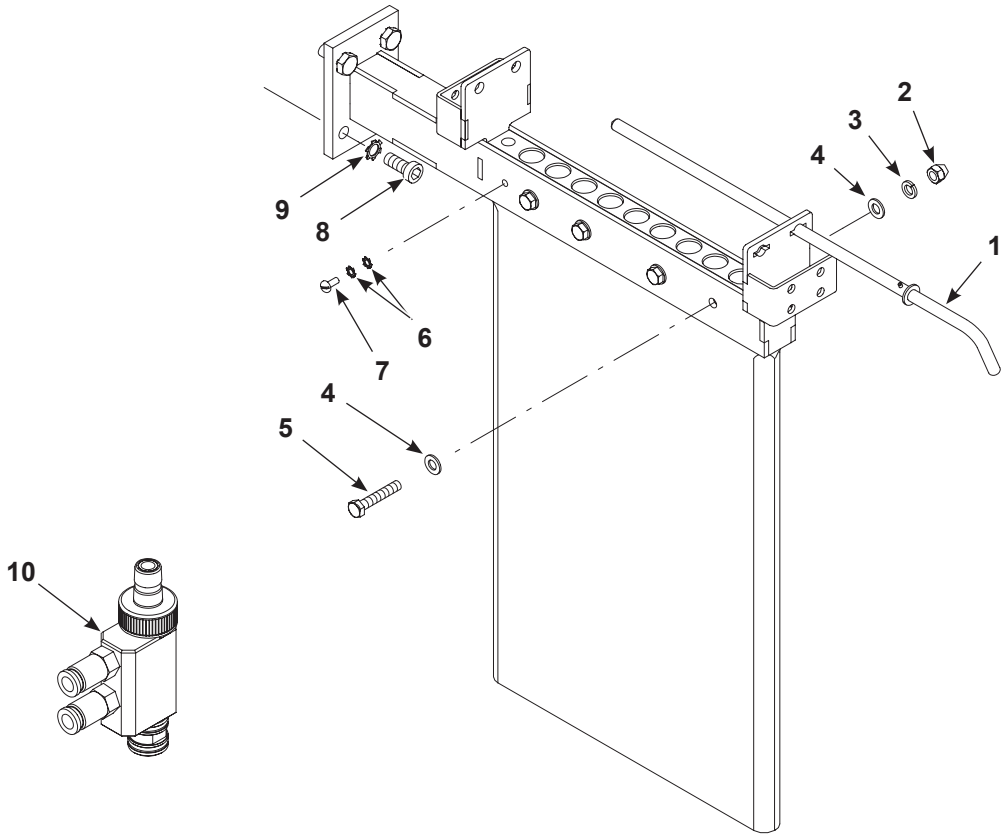


Figure 9-3 Basic Lance Assembly Parts

Item	Part	Description	Quantity	Note
−	1099893	LANCE ASSEMBLY, global PFC	1	
1	1099891	• ROD, pump retaining	1	
2	−−−−−−	• NUT, hex, acorn, M8	4	
3	−−−−−−	• WASHER, lock, split, M8, steel, zinc	4	
4	−−−−−−	• WASHER, flat, regular, M8, steel, zinc	8	
5	−−−−−−	• SCREW, hex, cap, M8 x 1.24, 50, F.T	4	
6	−−−−−−	• WASHER, lock, external, M5, steel, zinc plate	2	
7	−−−−−−	• SCREW, hex, serrated, M5 x 12, steel, zinc	1	
8	−−−−−−	• SCREW, socket, M10 x 25 mm	4	
9	−−−−−−	• WASHER, lock, split, M8, steel, zinc	4	
10	1095926	PUMP ASSEMBLY, corona, Encore Gen II, pkg	AR	A

NOTE: A. Refer to pump manual for repair parts. Pumps must be ordered separately.

AR: As Required

Fluidizing Latch Block Kits

See Figure 9-4 and the following parts list. Use these kits to fluidize the powder around the lance assembly. These kits are typically used with non-fluidized powder sources such as boxes.

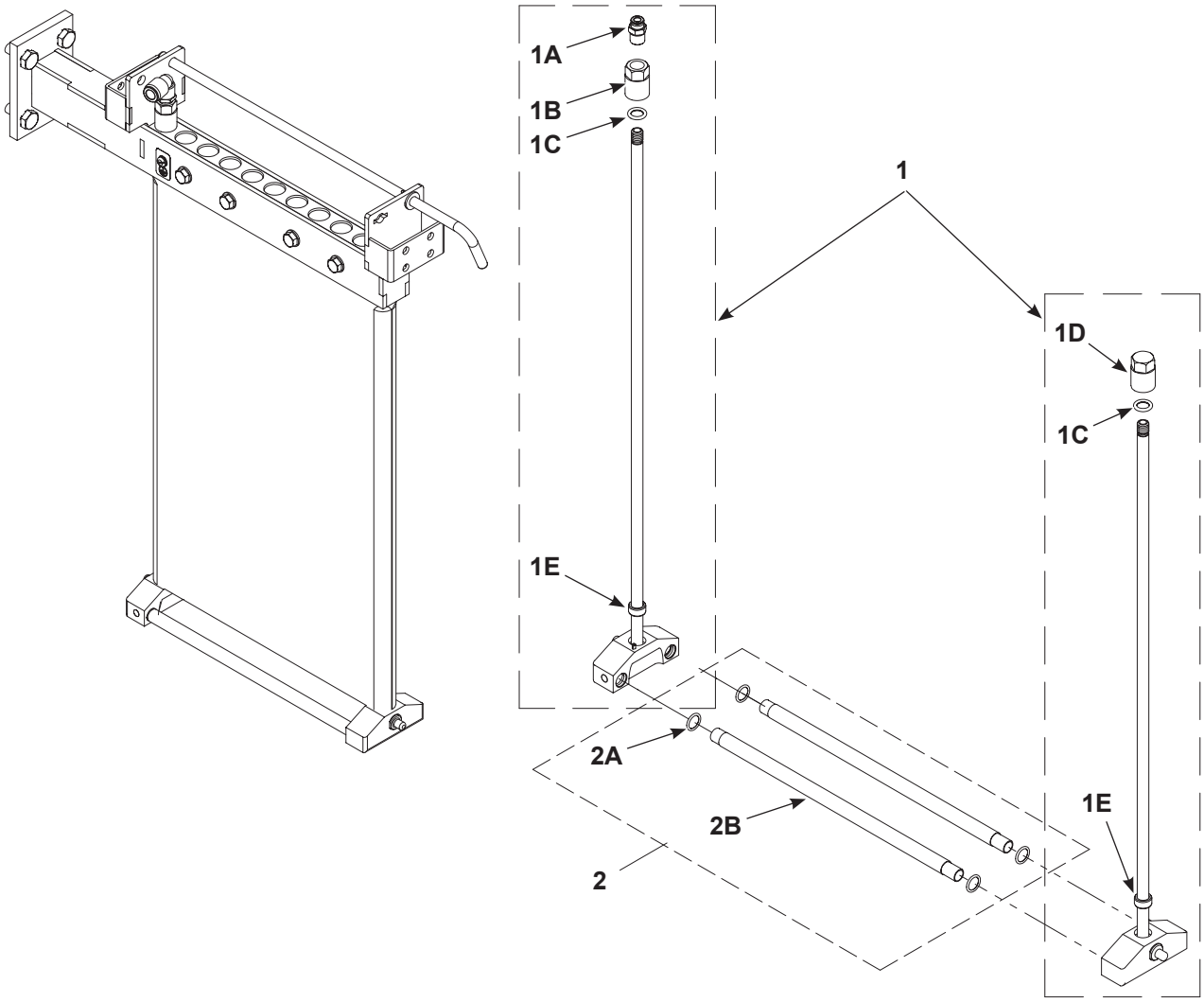


Figure 9-4 Fluidizing Latch Block Module Parts

Item	Part	Description	Quantity	Note
1	1102803	KIT, fluidizing manifold, PFC	1	
1A	------	• CONNECTOR, male, 6 mm tube x 1/4 BSPT	1	
1B	------	• NUT, adapter, lance air tube	1	
1C	941113	• O-RING, silicone, 0.424 in. ID x 0.103 in. wide	2	
1D	------	• NUT, air passage blanking	1	
1E	------	• SLEEVE, locating, global PFC lance	2	
2	1102804	KIT, fluidizing tube, PFC	1	
2A	940142	• O-RING, silicone, 0.489 in. ID x 0.07 in. wide	4	
2B	------	• TUBE, fluidizing, stainless steel	2	

Lance Port Plug Module

See Figure 9-5 and the following parts list. Use this module to plug unused lance ports. The module includes all the parts shown.

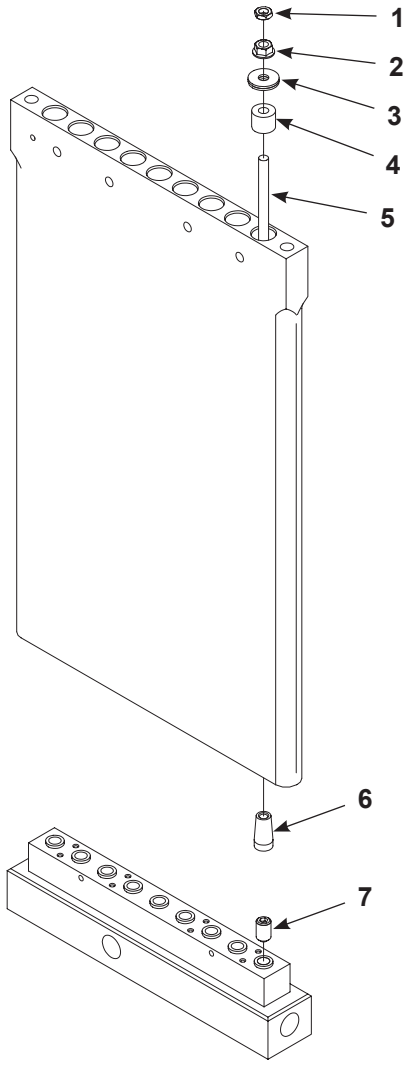


Figure 9-5 Lance Port Plug Module Parts

Item	Part	Description	Quantity	Note
–	1100097	MODULE, plug, lance assembly port	1	
1	–––––––	• NUT, hex, acorn, M8	1	
2	–––––––	• NUT, hex, M8, steel, zinc	1	
3	–––––––	• WASHER, sealing, lance plug, global PFC	1	
4	–––––––	• SLEEVE, lance plug, global PFC	1	
5	–––––––	• ROD, threaded, lance plug, GPFC	1	
6	–––––––	• PLUG, lance, global PFC	1	
7	–––––––	• SCREW, set, cup point, M12 x 1.75, 12mm long, stainless steel	1	

Level Sensor Module

See Figure 9-6 and the following parts list. Use this module for the lance-mounted level sensor used in North America and Asia.

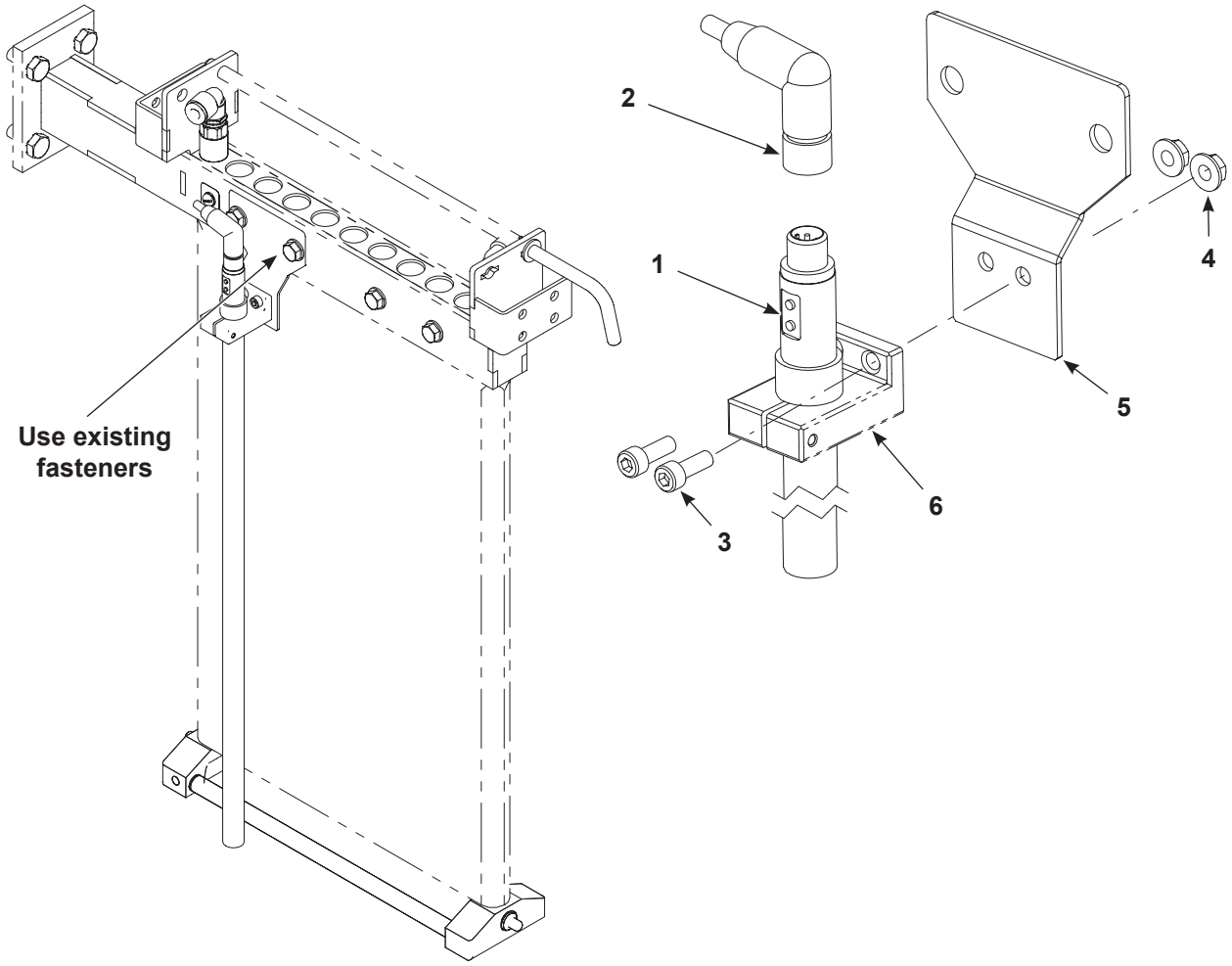


Figure 9-6 Level Sensor Module Parts

Item	Part	Description	Quantity	Note
–	1100078	MODULE, level sensor, North America and Asia	1	
1	1014553	• SENSOR, level, quick disconnect, M12	1	
2	1023925	• CABLE, 4 pin, M12 connector, 5 meters long	1	
3	–––––––	• SCREW, socket, M5 x 16, zinc	2	
4	–––––––	• NUT, lock, M5	2	
5	–––––––	• BRACKET, level sensor	1	
6	1100076	• SUPPORT, 16 mm shaft, clamping	1	

Encore Siphon Tube Module

See Figure 9-7 and the following parts list. Use this module to provide powder to Prodigy or Encore HD manual guns through 8-mm tubing.

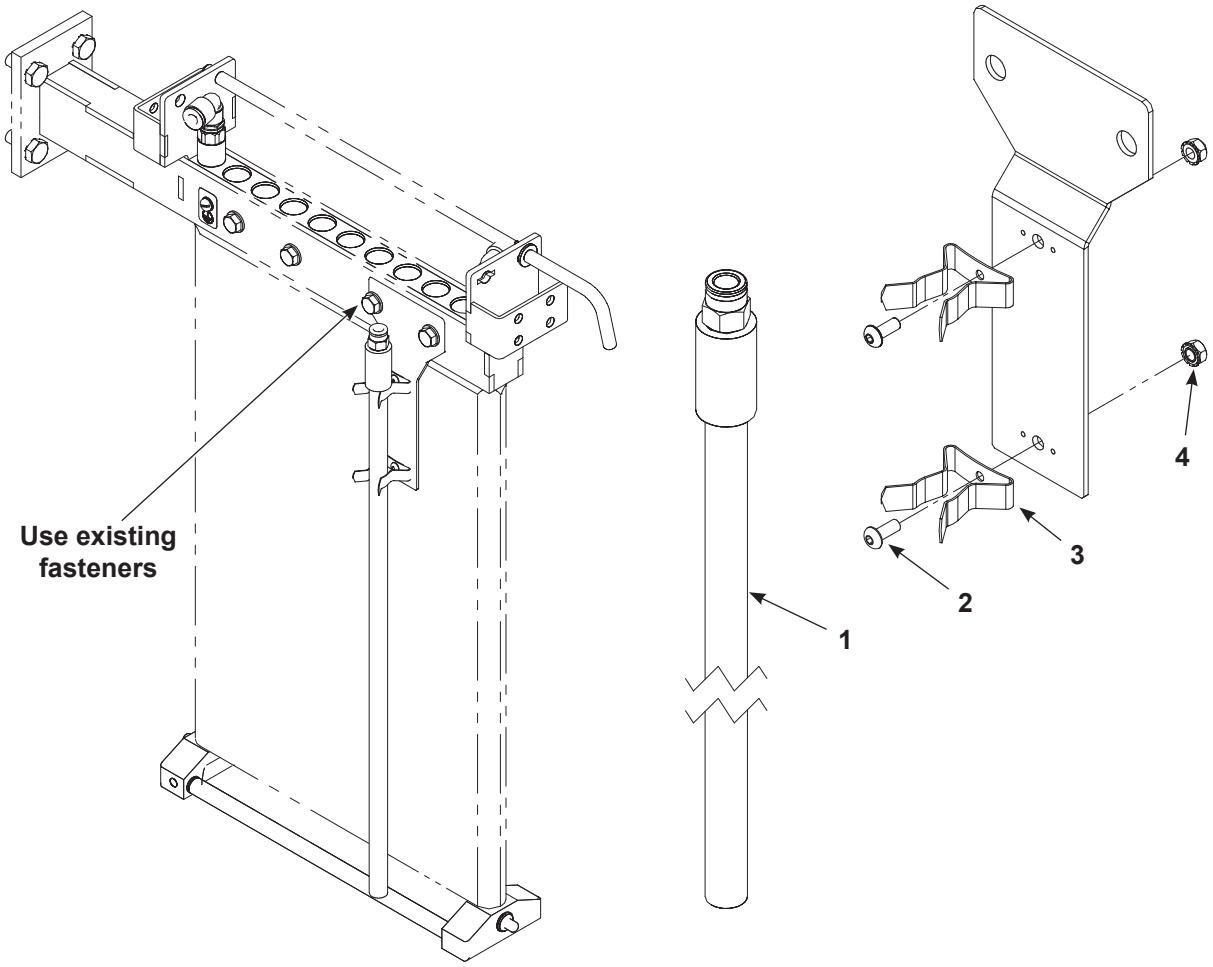


Figure 9-7 Prodigy/Encore HD Siphon Tube Module Parts

Item	Part	Description	Quantity	Note
–	1100131	MODULE, global PFC	1	
1	1100137	• SIPHON TUBE, global PFC	1	
2	–––––––	• SCREW, cap, button head socket, M4, 10 mm, steel, zinc plated	2	
3	–––––––	• HOLDER, tool, spring type	2	
4	–––––––	• NUT, lock, nylon, M4 steel, zinc	2	
5	–––––––	• BRACKET, siphon, global PFC	1	

Purge Manifold and Pneumatics

Purge Manifold Assembly

See Figure 9-8 and the following parts list. Quantities listed as As Required are dependent on the number of purge manifolds for two, three, or four lance.

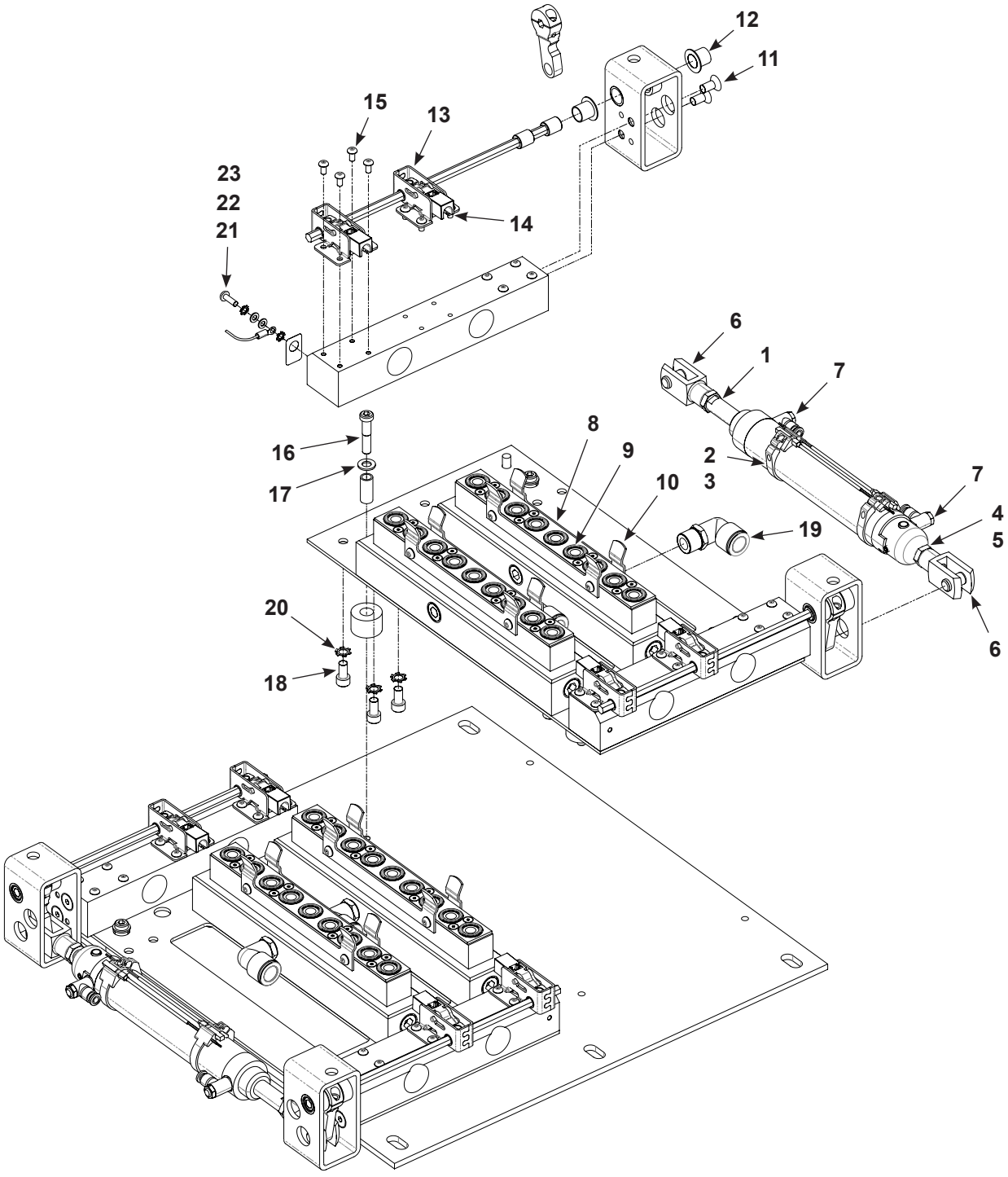


Figure 9-8 Purge Manifold Module Parts

Item	Part	Description	Quantity	Note
—	1613398	KIT, cylinder, clamping, global PFC	—	
1	------	• CYLINDER, air, 40 x 160, SMC	1	
2	------	• SWITCH, cylinder proximity sensor	2	
3	------	• CLAMP, proximity sensor, 40 mm ID	2	
4	------	• ADAPTER, PFC, clamp, cylinder to clevis	1	
5	------	• SET SCREW, socket, M10 x 1, cup	2	
6	------	• CLEVIS, cylinder, 12mm rod, M12 x 1.25	2	
7	------	• FITTING, flow control, ¼R	2	
8	------	MANIFOLD, purge, global PFC	AR	
9	1100024	• QUAD RING, 208 silicone	9	
10	1100023	• GUIDE, lance, global PFC	2	
11	------	SCREW, flat head, M8 x 16 mm, black	4	
12	1100036	BEARING, 14 mm, plain, flanged	4	
13	1100025	LATCH, complete, 890N, modified	AR	
14	1100028	• PAWL, latch, global PFC	AR	
15	------	SCREW, button head, socket, M5 x 10, zinc	AR	
16	------	SCREW, socket, M8 x 40, zinc, full thread	4	
17	------	WASHER, flat, regular, M8, steel, zinc	4	
18	------	SCREW, socket, M8 x 16mm, zinc	AR	
19	------	ELBOW, push in, 0.50 RPT x 16 mm tube	AR	
20	------	WASHER, lock, internal/external tooth, 5/16 in.	AR	
21	------	SCREW, pan, slotted, M5 x 20, brass	2	
22	------	WASHER, lock, external, M5, steel, zinc	4	
23	------	WASHER, flat, M5, brass	4	

AR: As Required

Purge Valve Assembly − Two Lance Configuration

See Figure 9-9 and the following parts list.

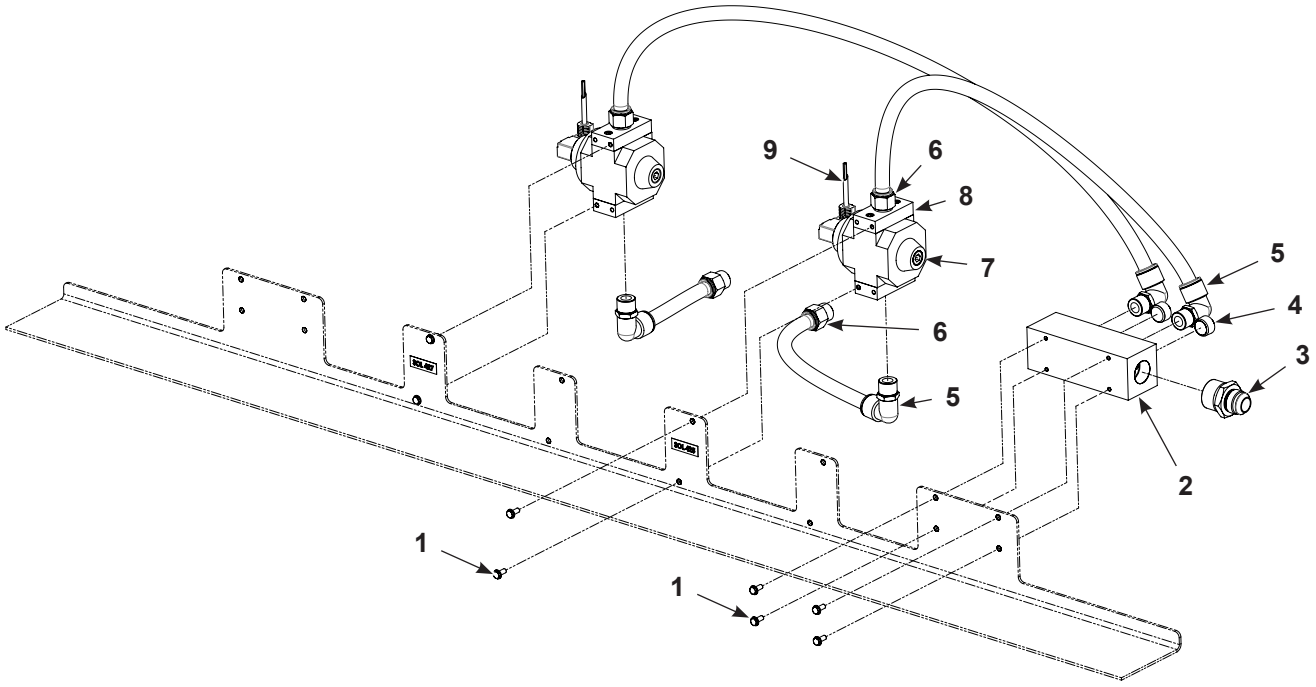


Figure 9-9 Purge Valve Assembly − Two Lance Configuration

Item	Part	Description	Quantity	Note
—	------	PURGE VALVE, 2 lance	1	
1	1100258	• SCREW, hex, serrated, M5 x 12, steel	8	
2	1621517	• MANIFOLD, dist, air, 4 port, 3/4 NPT x 1/2 RPT	1	
3	972514	• CONNECTOR, male, 37, 1 1/16-12 x 1 11 1/2	1	
4	1100056	• PLUG, pipe, R 1/2 flush socket	2	
5	1100040	• CONNECTOR, male, elbow, 16 mm T x 1/2 RPT, with seal	4	
6	1604411	• CONNECTOR, male, 16 m T x 1/2 RPT, with seal	4	
7	1082873	• PLUG, pipe, socket, flush, R3/8, nickel	2	
8	1100283	• VALVE, solenoid, air, 2 x 3, G.5	2	
9	1607046	• CABLE, valve, purge, 10 m	2	

Purge Valve Assembly − Three Lance Configuration

See Figure 9-10 and the following parts list.

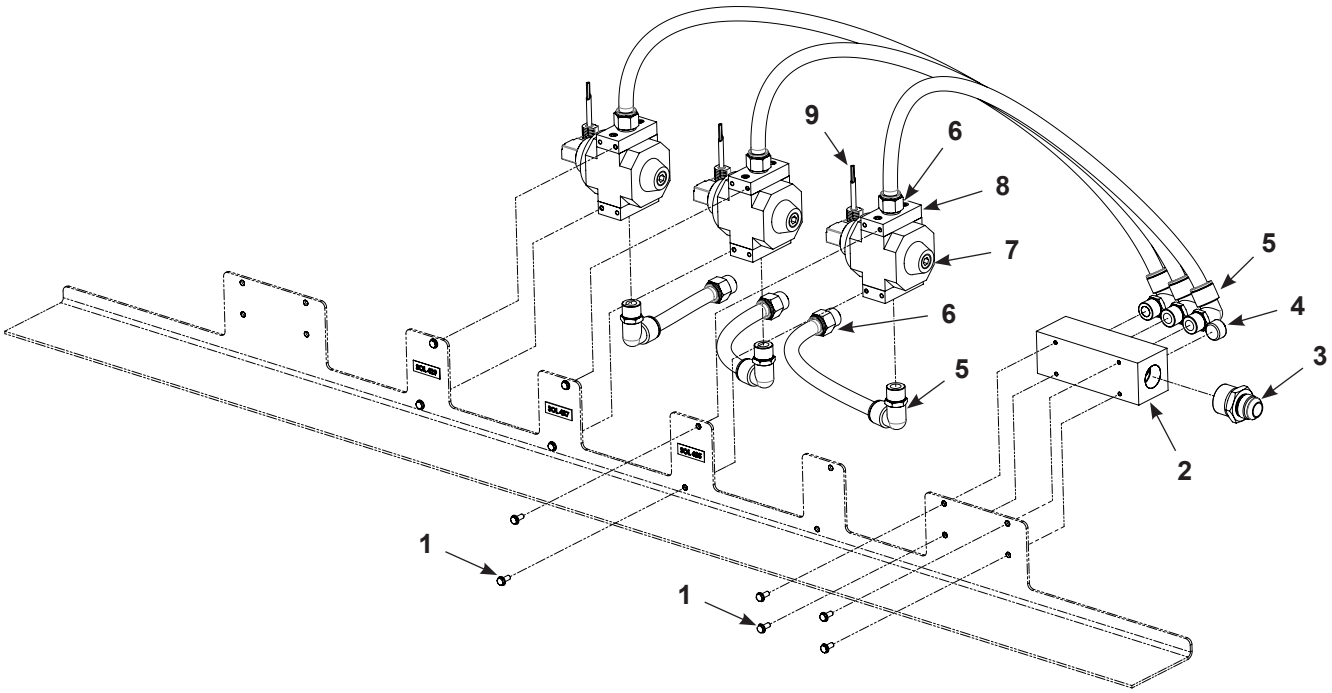


Figure 9-10 Purge Valve Assembly − Three Lance Configuration

Item	Part	Description	Quantity	Note
—	−−−−−−	PURGE VALVE, 3 lance	1	
1	1100258	• SCREW, hex, serrated, M5 x 12, steel	10	
2	1621517	• MANIFOLD, dist, air, 4 port, 3/4 NPT x 1/2 RPT	1	
3	972514	• CONNECTOR, male, 37, 1 1/16-12 x 1 11 1/2	1	
4	1100056	• PLUG, pipe, R 1/2 flush socket	1	
5	1100040	• CONNECTOR, male, elbow, 16 mm T x 1/2 RPT, with seal	6	
6	1604411	• CONNECTOR, male, 16 m T x 1/2 RPT, with seal	6	
7	1082873	• PLUG, pipe, socket, flush, R3/8, nickel	3	
8	1100283	• VALVE, solenoid, air, 2 x 3, G.5	3	
9	1607046	• CABLE, valve, purge, 10 m	3	

Purge Valve Assembly − Four Lance Configuration

See Figure 9-11 and the following parts list.

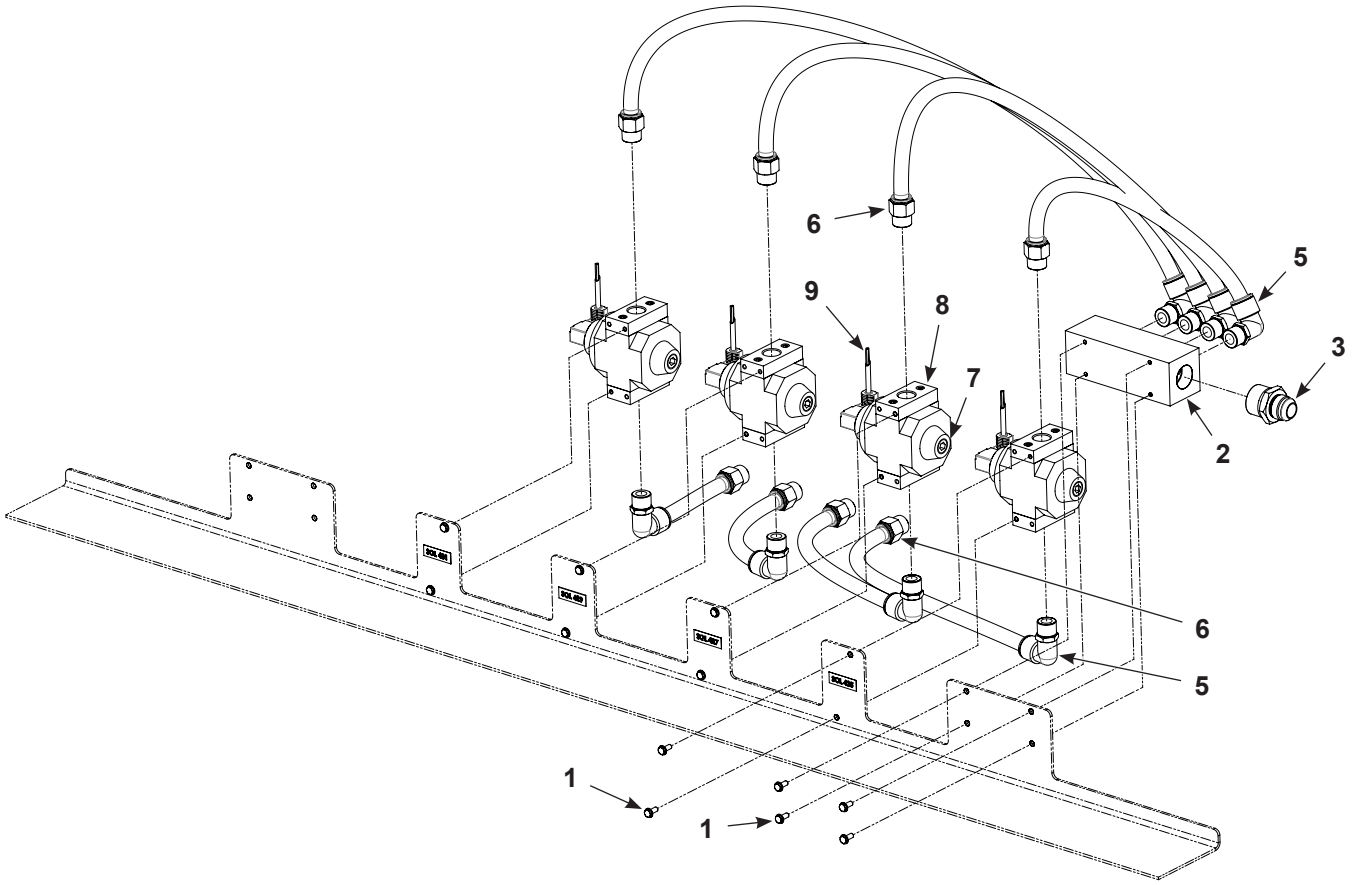


Figure 9-11 Purge Valve Assembly − Four Lance Configuration

Item	Part	Description	Quantity	Note
—	−−−−−−	PURGE VALVE, 4 lance	1	
1	1100258	• SCREW, hex, serrated, M5 x 12, steel	12	
2	1621517	• MANIFOLD, dist, air, 4 port, 3/4 NPT x 1/2 RPT	1	
3	972514	• CONNECTOR, male, 37, 1 1/16-12 x 1 11 1/2	1	
5	1100040	• CONNECTOR, male, elbow, 16 mm T x 1/2 RPT, with seal	8	
6	1604411	• CONNECTOR, male, 16 m T x 1/2 RPT, with seal	8	
7	1082873	• PLUG, pipe, socket, flush, R3/8, nickel	4	
8	1100283	• VALVE, solenoid, air, 2 x 3, G.5	4	
9	1607046	• CABLE, valve, purge, 10 m	4	

Purge Valve Module Parts

See Figure 9-12 and the following parts list.

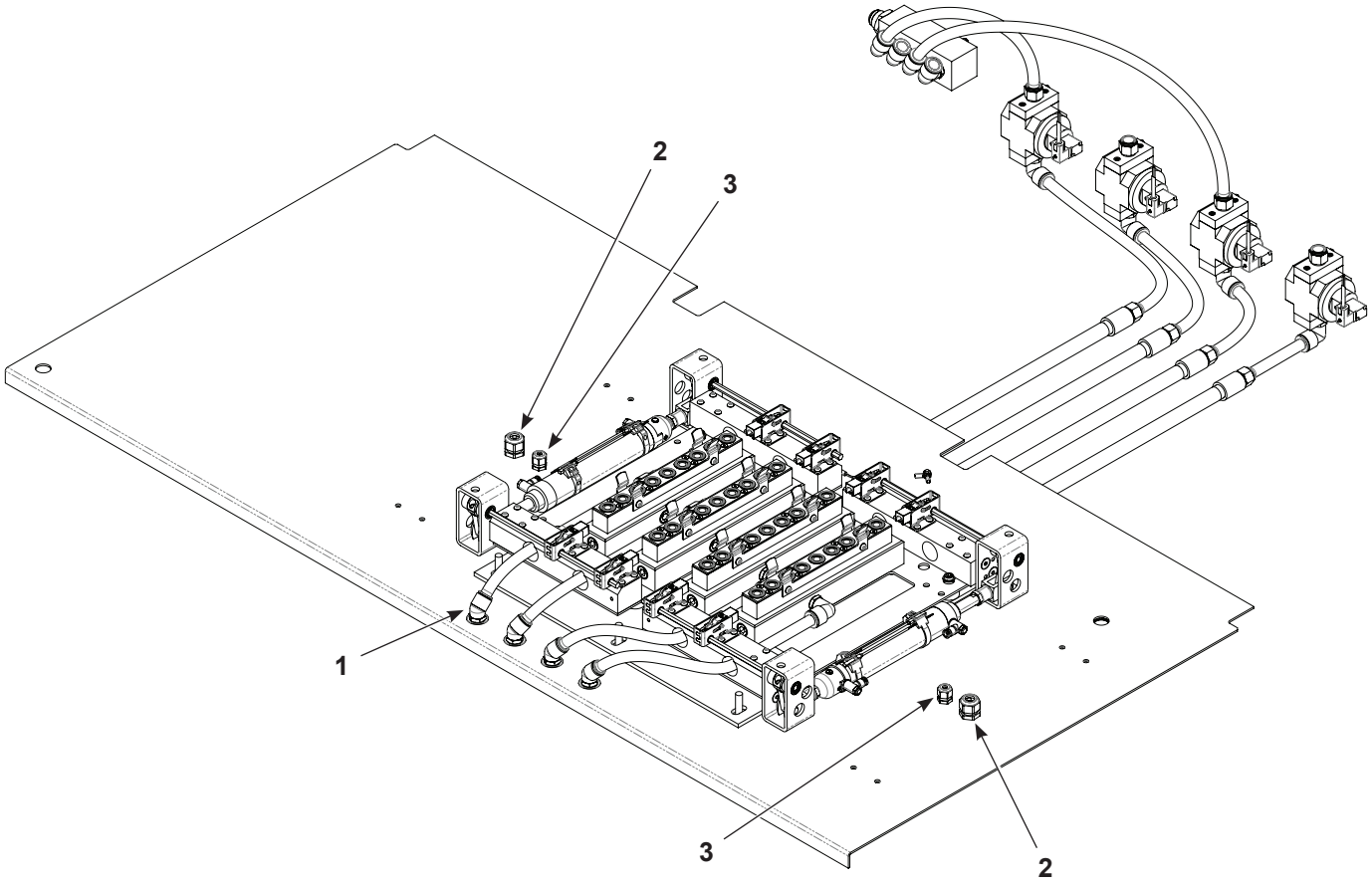


Figure 9-12 Purge Valve Module Parts

Item	Part	Description	Quantity	Note
1	1102784	GRIP, cord, 2 X, 5-6 mm, 1/2 NPT nylon	AR	
2	1102785	GRIP, cord, 2 X, 2.5-3.1 mm, 3/8 NPT nylon	AR	
3	1615588	ELBOW, male, 45 degrees,16 mm T x R1/2	AR	
AR: As Required				

Hopper Platform and Vibrator Parts

See Figure 9-13.

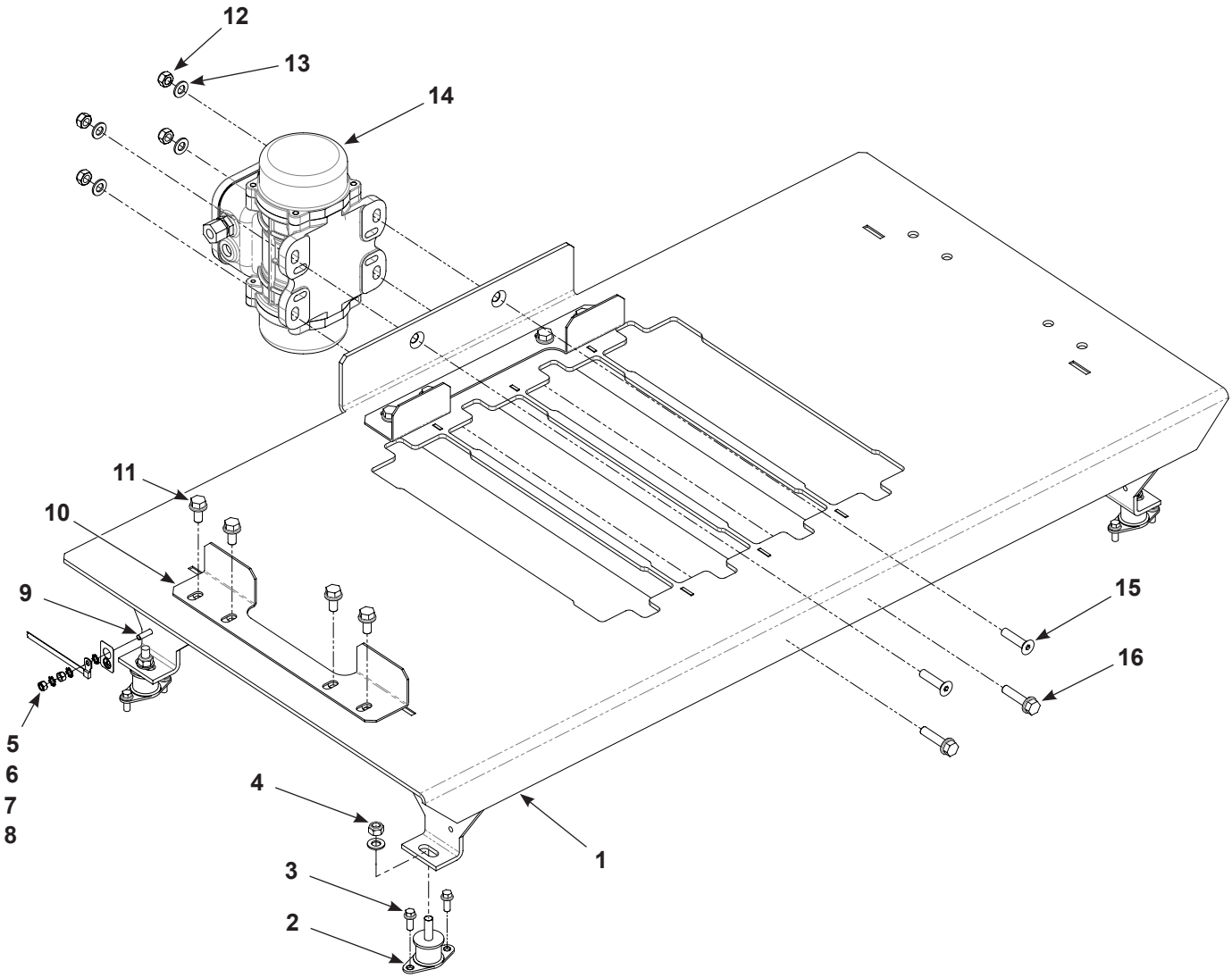


Figure 9-13 Vibratory Table and Purge Assembly

Item	Part	Description	Quantity	Note
—	1607680	MODULE, table, powder feed center, Encore XL, 3 lance, left-hand		
—	1607681	MODULE,table, powder feed center, Encore XL, 3 lance, right-hand		
—	1607682	MODULE,table, powder feed center, Encore XL, 4 lance		
1	1607032	• TABLE, powder feed center, Encore XL, 3 lance, right-hand, weldment	1	
1	1607033	• TABLE,powder feed center, Encore XL, 3 lance, left-hand, weldment	1	
1	1607644	• TABLE,powder feed center, Encore XL, 4 lance, weldment	1	
2	1099588	• MOUNT, vibration isolator	4	
3	1102782	• SCREW, hex serrated, M6 x 16, steel, zinc	8	
4	1091006	• NUT, hex, flanged, serrated, M8	4	
5	984702	• NUT, hex, mach, M5, brass	2	
6	983422	• WASHER, lock, M, ext, M5, steel, zinc	4	
7	1034207	• JUMPER, ground, 12 in.	1	
8	240674	• TAG, ground	2	
9	982428	• SCREW, pan, slot, M5 x 20, brass	1	
10	1603383	• POSITIONER, feed center hopper	2	
11	1099640	• SCREW, hex serrated, M8 x 16, steel, zinc	8	
12	345645	• NUT, lock, hex, M8, steel, nylon insert, zinc	4	
13	983013	• WASHER, flat, M, reg, M8, steel, zinc	4	
14	1602109	• VIBRATOR,electric size 10, 230-460 V 3PH	1	
15	1099589	• SCREW, flat HD, socket, M8 x 35, black	2	
16	1099641	• SCREW, hex serrated, M8 X 35, steel, zinc	2	
NOTE: A. AR: As Required				

Vibrator Motors

Part	Description	Note
1058669	VIBRATOR, 230/460V, 3 phase/60 Hz	A
1058710	VIBRATOR, 330/575V, 3 phase/60 Hz	
1058711	VIBRATOR, 220/380V, 3 phase/50 Hz	
1058712	VIBRATOR, 200/400V, 3 phase/60 Hz	
NOTE: A. The 230/460V vibrator motor, part 1058669, is standard.		

Pneumatic Panel Parts

See Figure 9-14 and the following parts list. Refer to the 11 x 17 foldouts at the end of this manual for the pneumatic diagram.

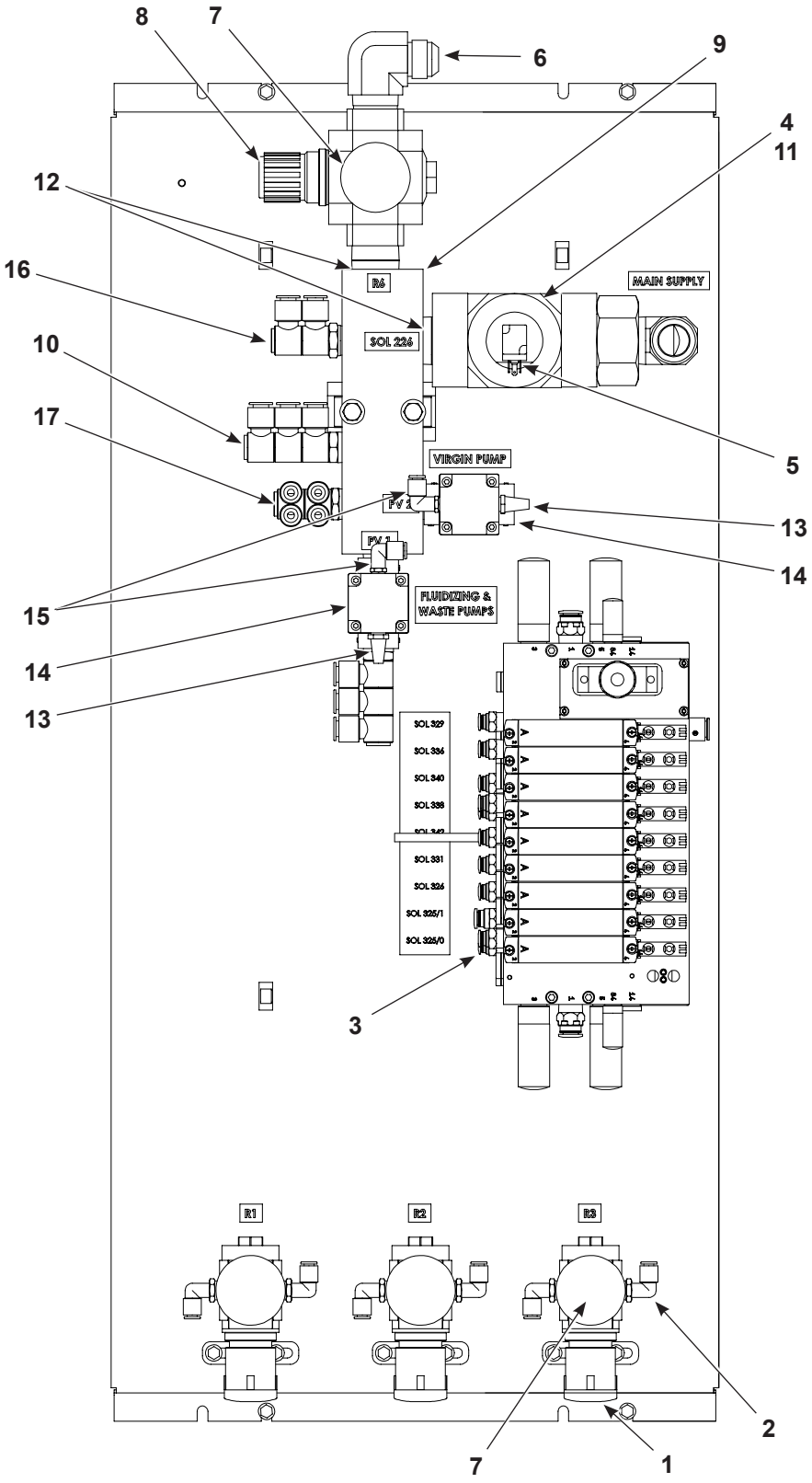


Figure 9-14 Pneumatic Module Parts

Item	Part	Description	Quantity	Note
1	1099413	REGULATOR, 0.3−7 bar, .25	3	
2	1605532	CONNECTOR, male, elbow, 6MM T X R1/4	6	
3	1615160	VALVE, 9-station, Encore PFC	1	
4	1099424	VALVE, air, global PFC main interlock	1	
5	1606921	CABLE, valve, purge, 5 m	1	
6	−−−−−−	ELBOW, 1 in. BSPT x 3/4 JIC	1	
7	1102676	GAUGE, air, 0−150 psi, rear 1/4 G thread	4	
8	1100285	REGULATOR, air, 1 in., 0.5−12 bar	1	
9	−−−−−−	MANIFOLD, Encore PFC, pneumatic	1	
10	−−−−−−	ELBOW, 3 port, 10 mm tube x 3/8 R	2	
11	−−−−−−	VENT, breather, 3/8 BSPT, sintered	3	
12	1101992	NIPPLE, close, 1 in., (4788K416)	2	
13	241040	MUFFLER, air 1/8 NPT	1	
14	901074	VALVE, airpilot, 2-way	1	
15	−−−−−−	ELBOW, 6mm tube x 1/8 RPT	1	
16	1608398	ELBOW, swivel, pushin, 2 x 10T x 0.5R	1	
17	1034000	FITTING, 1/2 RPT x (4) 10 mm tube	1	

Fan Housing Assembly

See Figure 9-15 and the following parts list.

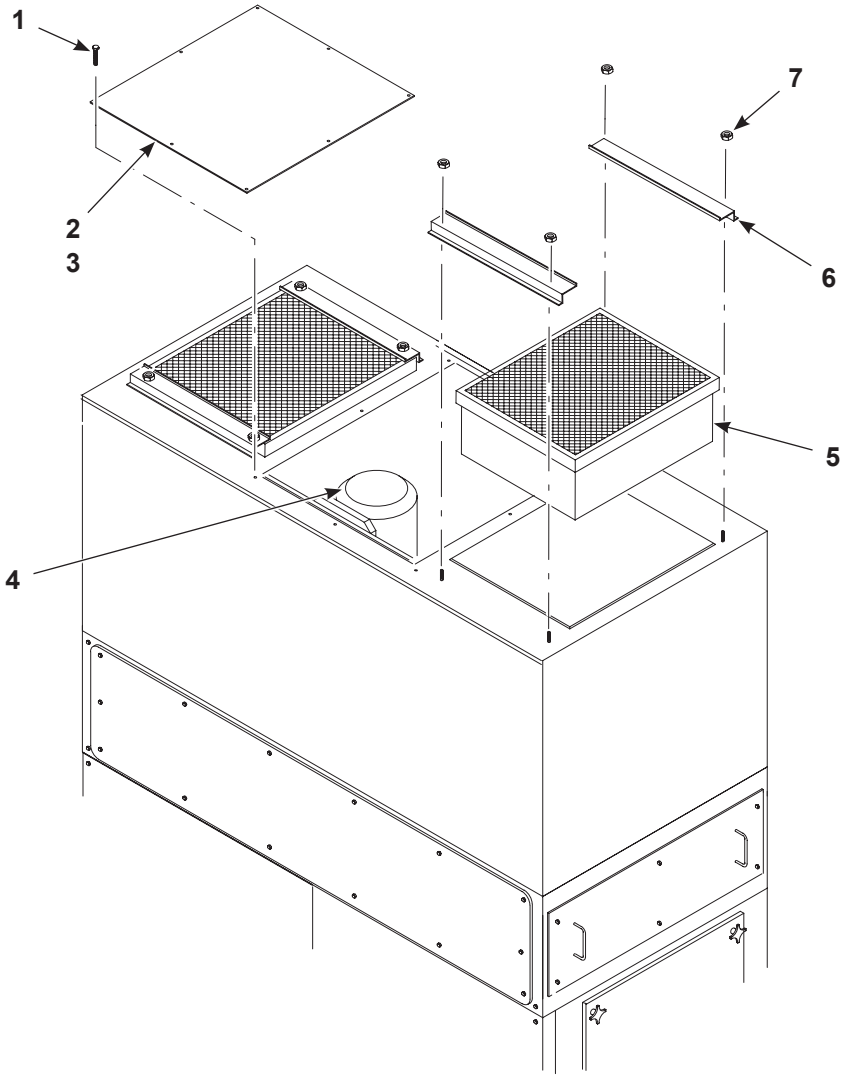


Figure 9-15 Fan Housing Assembly

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

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

AR: As Required

Blowdown Housing Assembly

See Figure 9-16 and the following parts list.

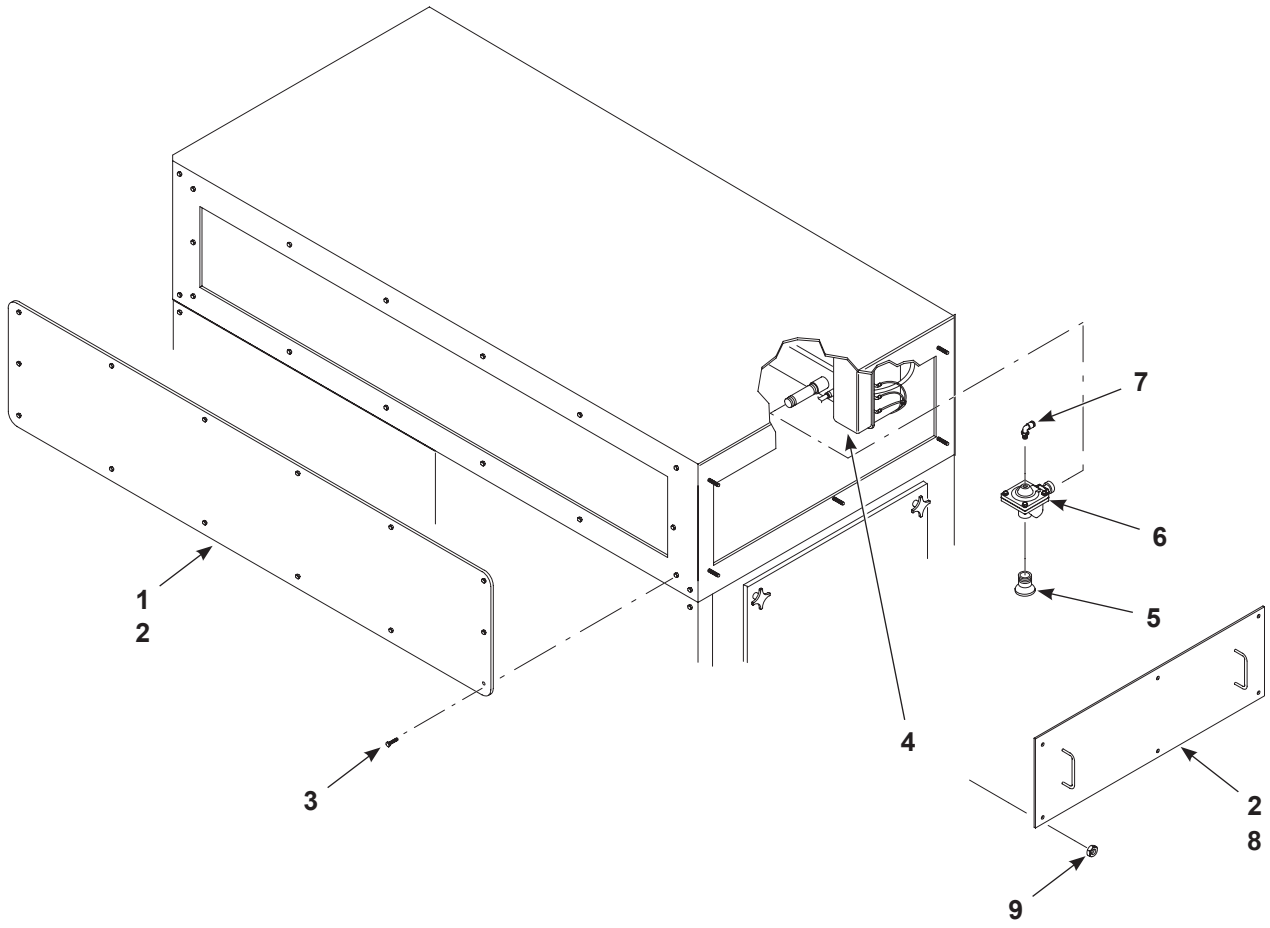


Figure 9-16 Blowdown Housing Assembly

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

AR: As Required

NS: Not Shown

Cartridge Filter Housing Assembly

See Figure 9-17 and the following parts list.

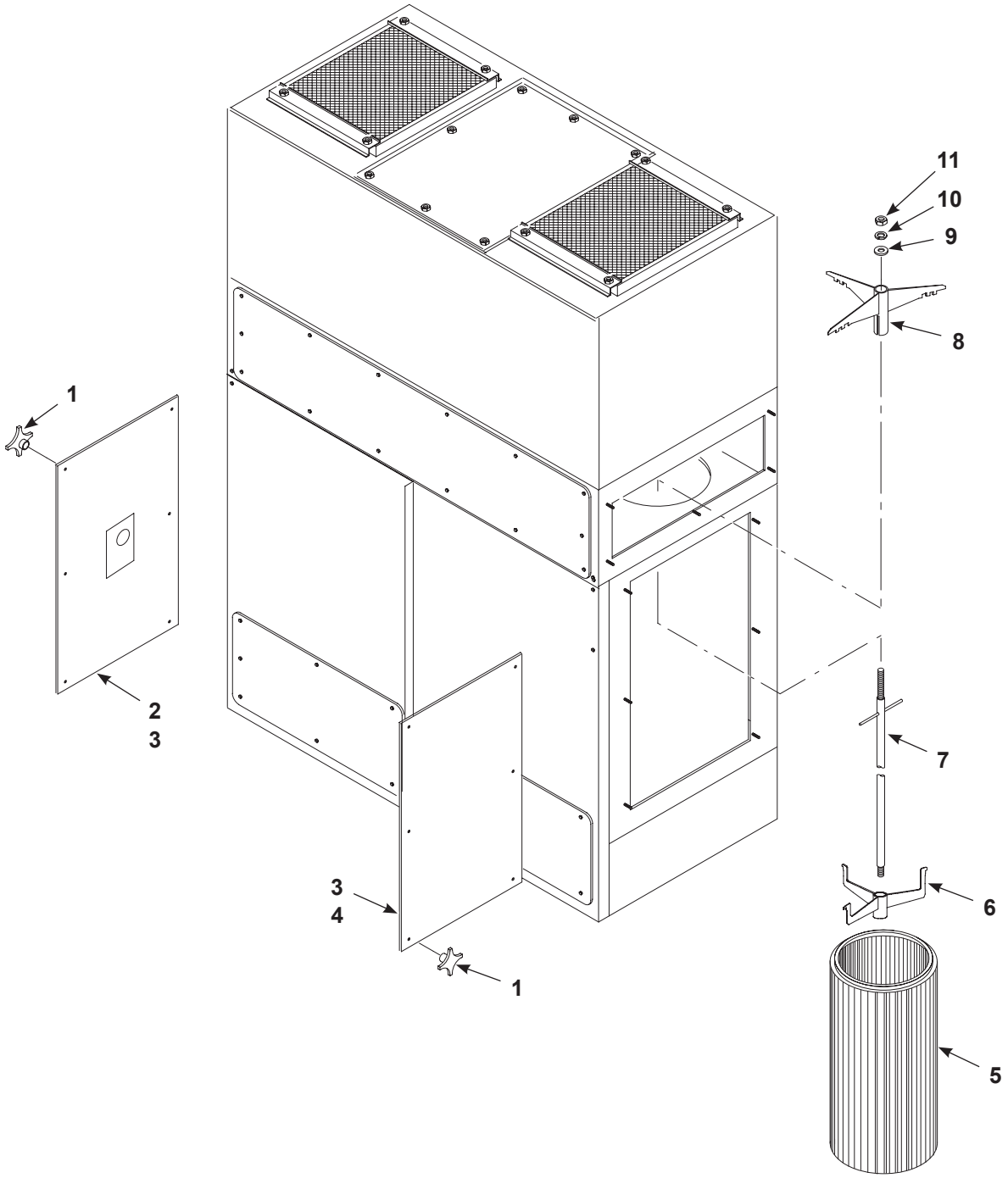


Figure 9-17 Cartridge Filter Housing Assembly

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

Fluid Bed Plate

See and the following parts list. Order all parts in part table to replace fluidizing plate.

Item	Part	Description	Quantity	Note
1	1607522	PLATE, fluid, powder feed center, Encore XL	1	
2	1607524	GASKET, neoprene, 1/8 x 2.00, adhesive back	3 FT	
NS	900461	ADHESIVE, bonding, instant	A/R	
NS: Not Shown				

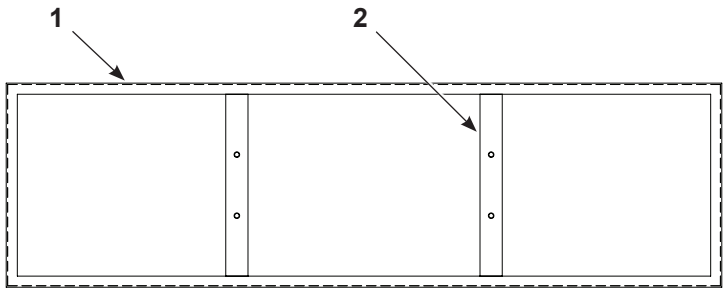


Figure 9-18 Fluid Plate Assembly

Sieve and Mounting Parts

Replacement Parts for Non-CE/ATEX Sieve 1

See Figure 9-19 for Sieve 1 latch style. See Figure 9-21 for parts.

Screens

Item	Part	Description	Quantity	Note
1	1603634	Screen, sieve, vibratory, 15 in., 20 mesh (841 microns) - Standard		
1	1604110	Screen, sieve, vibratory, 15 in., 30 mesh (595 microns)		
1	1603635	Screen, sieve, vibratory, 15 in., 40 mesh (400 microns)		
1	1603636	Screen, sieve, vibratory, 15 in., 60 mesh (250 microns)		

Vibrator Motors

Item	Part	Description	Quantity	Note
2	1603628	Vibrator, sieve, 230/460V, 60 Hz, 3 phase - Standard		
2	1603629	Vibrator, sieve, 330/575V, 60 Hz, 3 phase		
2	1603630	Vibrator, sieve, 220/380/415V, 50 Hz, 3 phase		
2	1603631	Vibrator, sieve, 220/380V, 60 Hz, 3 phase		
2	1603632	Vibrator, sieve, 200/346V, 50 Hz, 3 phase		

Miscellaneous Parts

Item	Part	Description	Quantity	Note
3	1603633	Gasket, screen, sieve, 15 in.	1	A
4	1603637	Latch, sieve, toggle	2	
5	1017602	Mount, isolation, sieve	4	
6	1104897	Cap, vinyl, 3/4−13/16, black	AR	
7	1070199	Plug, hopper fill, NHR	1	
8	−−−−−−	Clip, ground, sieve screen	0	B

NOTE: A. The screen gasket is made from a conductive material. DO NOT replace it with a non-conductive gasket.

B. Ground clip is required only for systems using Sieve 2.

AR: As Required

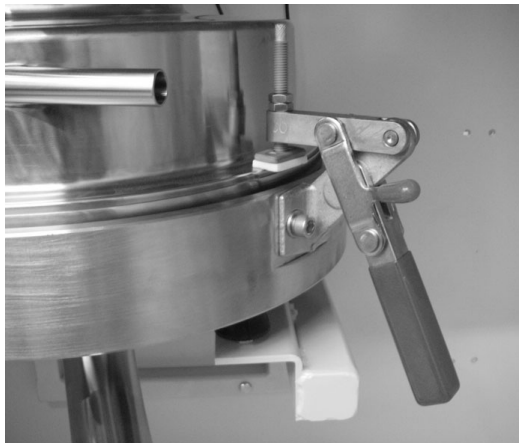


Figure 9-19 Latch, Sieve 1

Replacement Parts for Non-CE/ATEX Sieve 2

See Figure 9-20 for Sieve 1 latch style. See Figure 9-21 for parts.

Screens

Item	Part	Description	Quantity	Note
1	1056563	Screen, 20 mesh (864 micron)	1	
1	−−−−−−	Screen, 30 mesh (595 microns)	1	
1	1014561	Screen, 40 mesh (381 micron)	1	
1	1014562	Screen, 60 mesh (234 micron)	1	

Vibrator Motors

Item	Part	Description	Quantity	Note
2	1060113	Motor, vibrator, 230/460, 3 phase, 60 Hz	1	
2	1060114	Motor, vibrator, 220/380, 3 phase, 50 Hz	1	

Miscellaneous Parts

Item	Part	Description	Quantity	Note
3	1014563	Gasket, screen, sieve, 15 in.	1	
4	−−−−−−	Latch, sieve, toggle	2	
5	1017602	Mount, isolation, sieve	1	
6	1104897	Cap, vinyl, 3/4−13/16, black	AR	
7	1070199	Plug, hopper fill, NHR	1	
8	1104478	Clip, ground, sieve screen	1	A

NOTE: A. Ground clip is required only for systems using Sieve 2.

AR: As Required

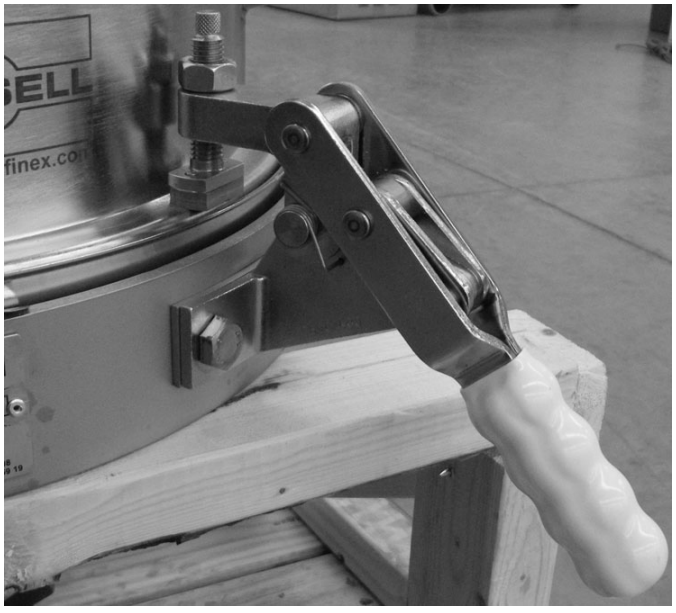


Figure 9-20 Latch, Sieve 2

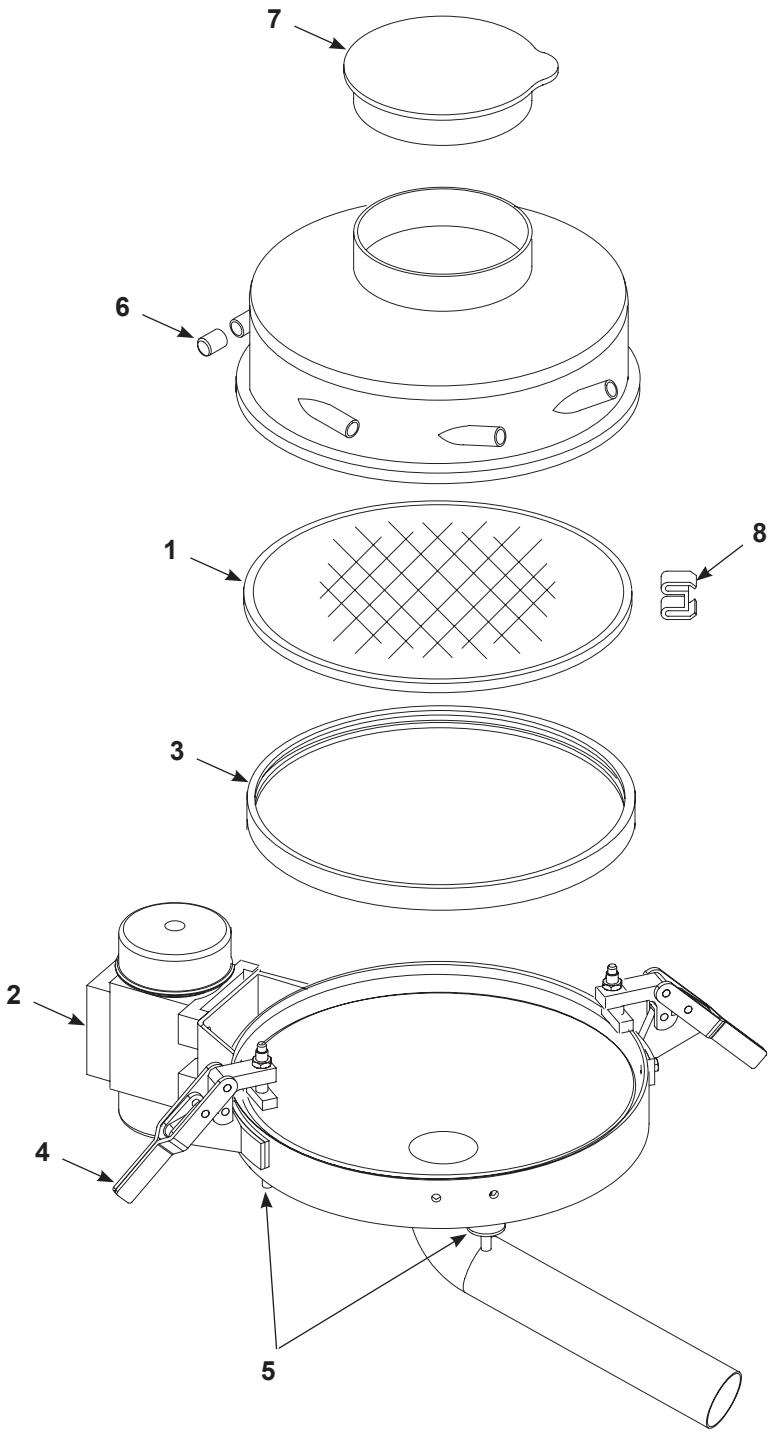


Figure 9-21 Sieve Parts (Sieve with Angled Chute Shown)

Powder Hose and Air Tubing Bulkhead Fittings

See Figure 9-22.

Item	Part	Description	Quantity	Note
1	249461	Socket, female, 8 mm, 10 tube, pneumatic	1	
2	249455	Plug, male, 8mm, 10 tube, pneumatic	1	
3	1100200	Plate, powder hose bulkhead, PFC	AR	
4	1100047	Screw, button head, socket, M6 x 12, zinc	AR	
AR: As Required				

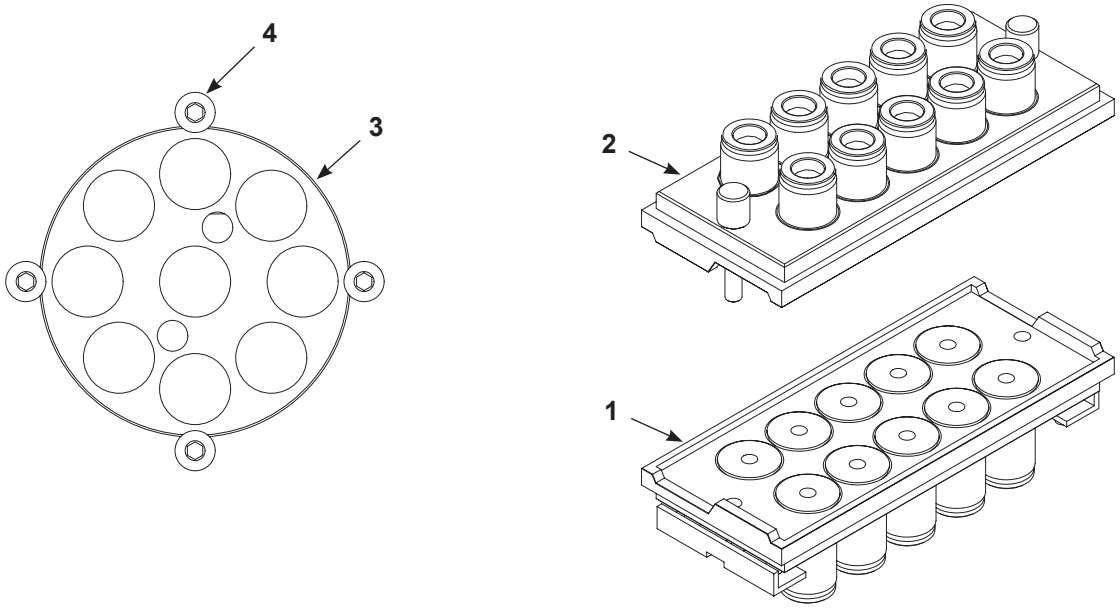


Figure 9-22 Powder Hose and Pump Air Bulkhead Fittings

Other Service Parts

Powder Transfer Tubing and Grommets

Part	Description	Note
1063654	Tubing, polyethylene, 16 mm OD, natural	
1066079	Grommet, lip style, 3/8 in.	
1100320	Plug, dome, 35 mm, (1.38 in.), Nylon	
1086213	Union, bulkhead, 16 mm	

Air Tubing and Fittings

Part	Description	Min. Quantity
900742	Tubing, polyurethane, 6 mm OD, blue	50
900618	Tubing, polyurethane, 8 mm OD, blue	50
900619	Tubing, polyurethane, 8 mm OD, black	50
900740	Tubing, polyurethane, 10 mm OD, blue	50
900613	Tubing, polyurethane, 12 mm OD, blue	50
183804	Plug, blanking, 6 mm tube	–
972930	Plug, push in, 8 mm tube, plastic	–
148256	Plug, 10 mm, tubing	–

Feed Hoppers

Part	Description	Note
1071873	Hopper, square, 50 lb	A
7404027	Hopper, rectangular, 75 lb	A
NOTE: A. Refer to the *Options* section for service parts.		

Fittings for Transfer Pump Air

Use these fittings to supply air from the control manifold to the HDLV transfer pump when runs are greater than 25 ft. or when dual reclaim transfer pumps are used. Refer to the *Installation* section for diagrams.

Part	Description	Note
1106371	Valve, straight fitting, 10 mm, Festo	
7404027	Fitting, Y-branch, 10mm plug-in x 10 mm tube	
1070536	Fitting, straight, 10 mm tube − 8 mm tube	

Section 10

Options

Introduction

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

75-lb Feed Hopper

See Figure 10-1.

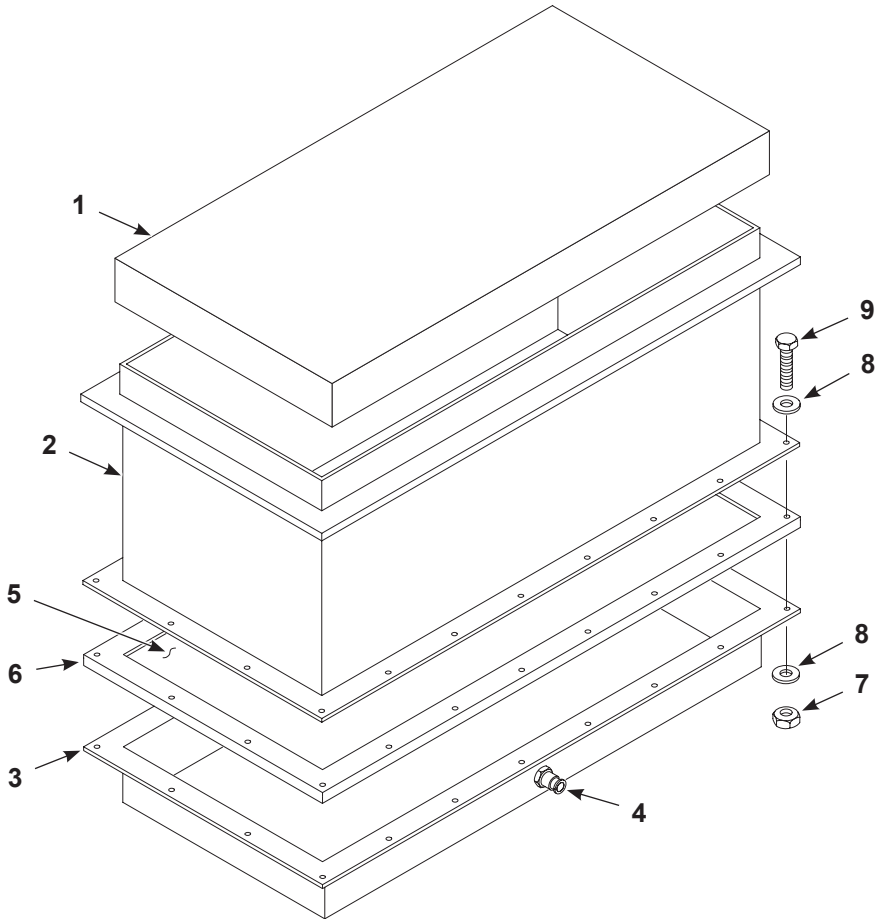


Figure 10-1 75-lb Feed Hopper Parts

Item	Part	Description	Quantity	Note
–	7404027	Hopper, fluidizing, powder feed center, 75 lbs.	1	
1	- - - - - -	• Lid, hopper, PFC	1	
2	- - - - - -	• Body, hopper, PFC	1	
3	—	• Plenum, hopper	1	
4	—	• Connector, 10 mm tubing x 1/2 in. NPT	1	
–	1086406	• Kit, service, fluidizing hopper, PFC		
5	- - - - - -	• • Fluid plate, hopper, PFC	1	
6	7404175	• • Gasket, hopper, PFC	1	
7	- - - - - -	• • Nut, hex, M6, nylon	40	
8	- - - - - -	• • Washer, flat, M6, nylon	80	
9	- - - - - -	• • Screw, hex, M6 x 40, Nylon	40	
NS	1043414	Cart, fluidizing hopper	1	A
NS	1051364	Kit, handle, cart, fluidizing hopper	1	B

NOTE: A. The optional cart allows the fluidizing hopper to be transported easily.

B. Order this kit to install a handle on the hopper cart.

NS: Not Shown

50-lb Feed Hopper

See Figure 10-2.

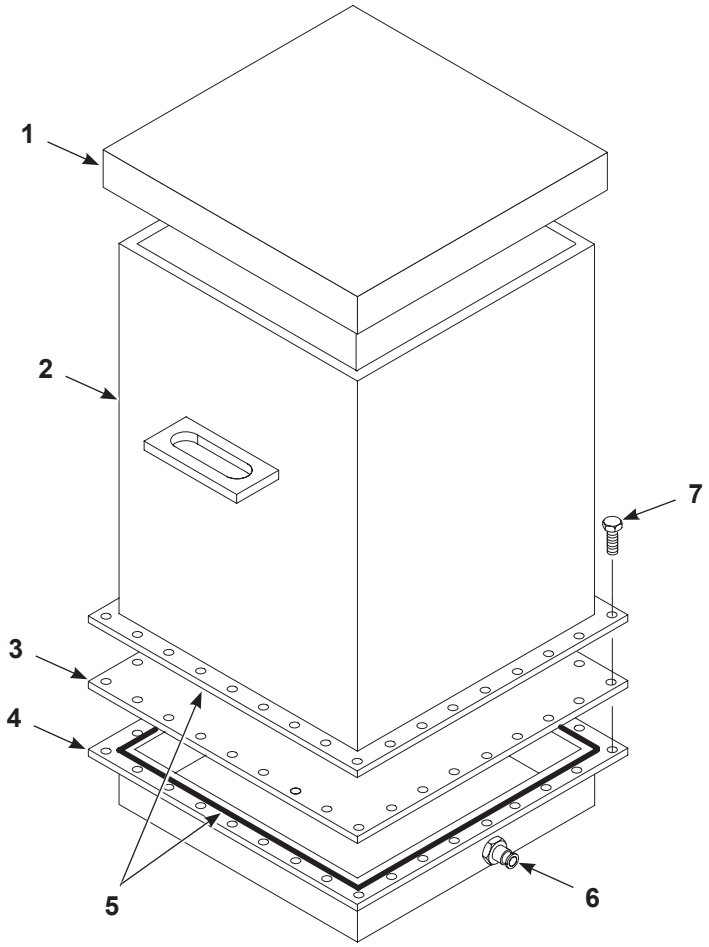


Figure 10-2 50-lb Feed Hopper Parts

Item	Part	Description	Quantity	Note
–	1071873	Hopper, 18 x 18 x 17.5 in., 50 lbs	1	
1	- - - - - -	• Lid, hopper	1	
2	- - - - - -	• Body, hopper	1	
3	1071872	• Plate, fluidizing, 0.50 x 18 x 18 in.	1	
4	- - - - - -	• Plenum, hopper	1	
5	- - - - - -	• Gasket, Buna-N, 3/16 in. diameter	2	
6	971103	• Connector, 10 mm tubing x 1/2 in. unithread	1	
7	- - - - - -	• Screw, hex head, 3−16 UNC x 1.5 in.	32	

Vibrasonic Sieve Screen

The Vibrasonic system increases sieve screen life and powder throughput, by applying an ultrasonic frequency to the screen. The ultrasonic frequency breaks down the surface tension in the screen, preventing blinding.

System Components

See Figure 10-3.

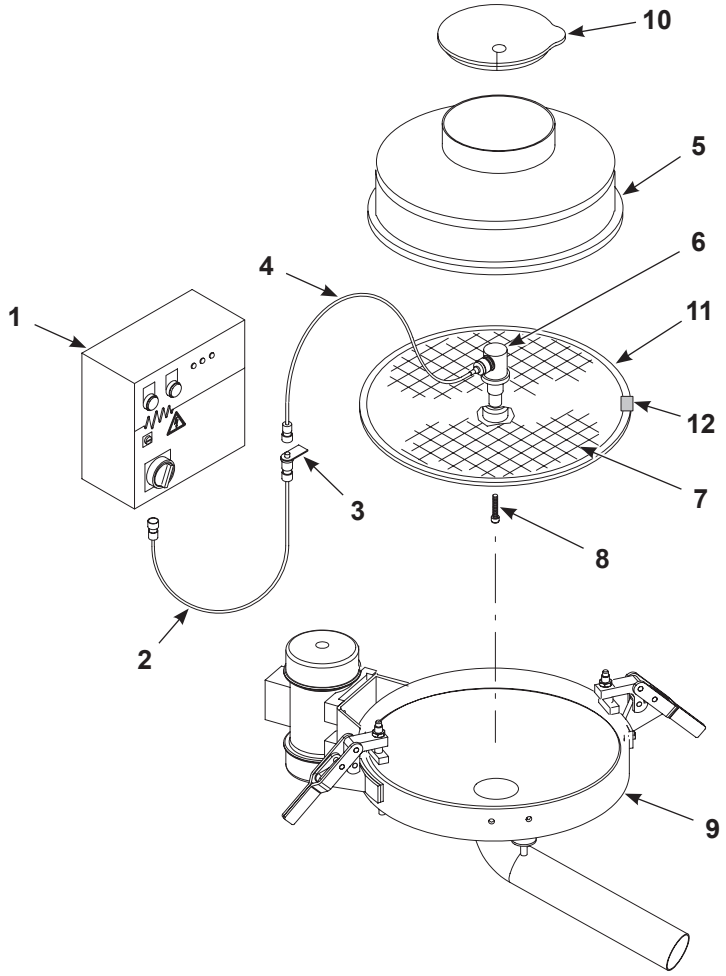


Figure 10-3 Vibrasonic System Components

1. Vibrasonic controller
2. Control cable
3. Bulkhead connector
4. Transducer cable
5. Sieve deck
6. Vibrasonic transducer
7. Sieve screen
8. Cap screw
9. Sieve pan
10. Plug
11. U-gasket
12. Ground clip

Installation

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

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

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

Vibrasonic Transducer and Sieve Screen Installation

1. See Figure 10-3. Clean the sieve screen's (7) center hub and the bottom of the transducer (6) with acetone.

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

2. Place the transducer on 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 U-gasket (11) and ground clip (12) on the screen.
5. Set the sieve screen into the vibratory sieve (9). Plug the transducer cable (4) into the transducer, route the cable through the sieve deck (5), then clamp the sieve deck onto the sieve pan.
6. Slide the transducer cable through the slit in the plug (10), then install the plug into the sieve deck.

Controller and Cable Installation

1. See Figure 10-3. Make sure that the voltage selector on the controller (1) is set to your system's electrical supply specification.
2. Mount the controller above the powder feed center electrical panel as shown in Figure 2-9.
3. Connect the control cable (2) to the controller. Route the other end to the feed center roof.
4. Mount the bulkhead connector (3) in the feed center roof, then route the transducer cable (4) to the bulkhead connector and plug it in.

Operation

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

Troubleshooting

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

Refer to Table 10-1 for a description of operating conditions indicated by the LEDs and indicators.

Refer to the Troubleshooting Procedures on the following pages 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

Electrical Troubleshooting Procedures

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 controller)	Disconnected transducer cable	Check the transducer cable connections.
	Damaged control cable or connector	Replace the control cable.
	Loose or damaged wiring in the controller	Check the controller wiring. Tighten any loose connections.
	Damaged transducer	Replace the transducer.
4. Short circuit (short circuit in output from controller)	Short circuit in control cable	Replace the control cable.
	Short circuit in either control 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**	Controller power is off	Turn on power to the controller.
	Circuit breaker tripped	Open the controller 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 control or transducer cable	Turn off controller power and check the transducer cap screw for the proper torque. Turn on controller power and check indicators. If the condition persists, replace the cables.

Vibrasonic System Parts

See Figure 10-4.

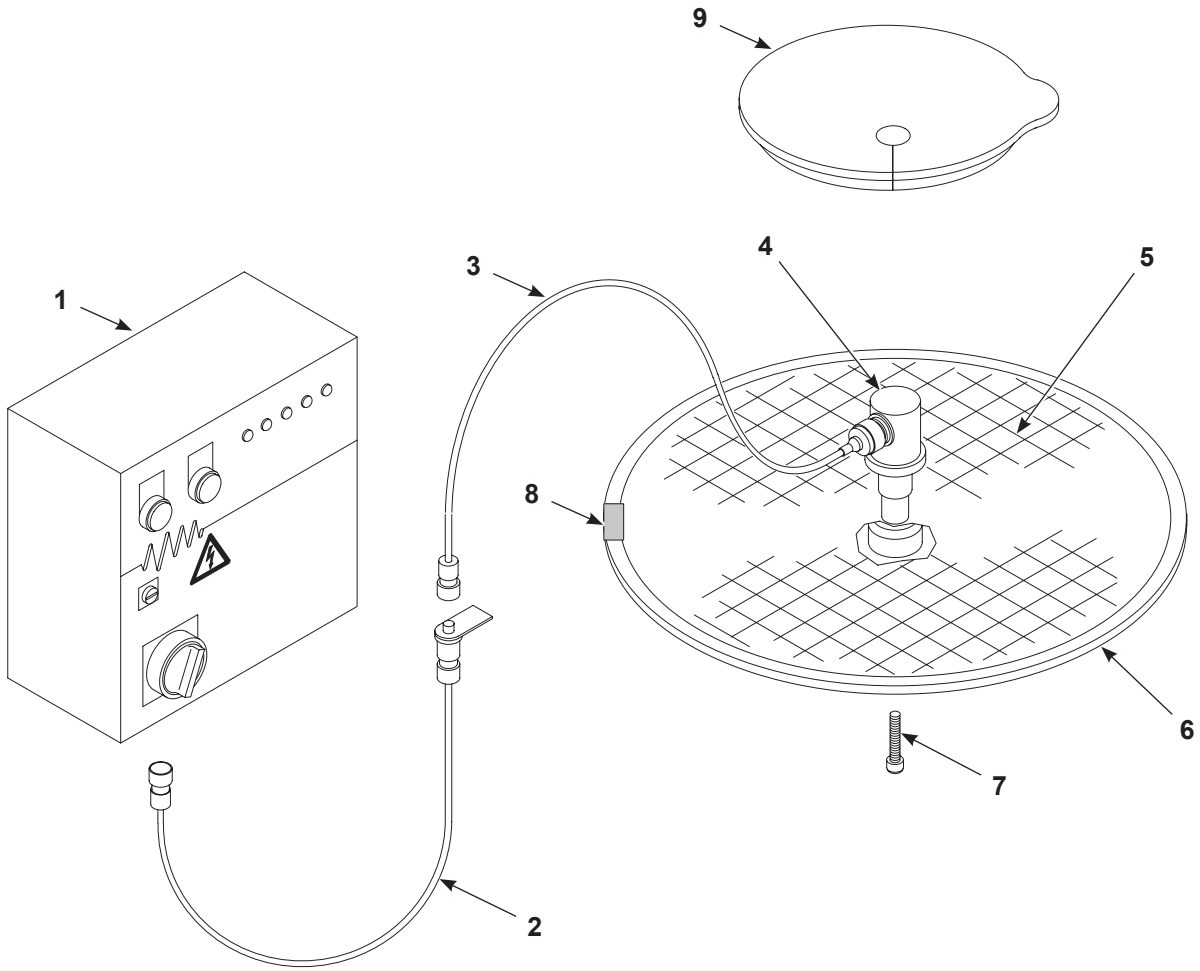


Figure 10-4 Vibrasonic System Parts

Item	Part	Description	Quantity	Note
—	1103009	System, Vibrasonic, with interface card	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, 80 mesh (178 micron)	1	A
5	1090890	• Screen, Vibrasonic, 100 mesh (140 micron)		A
6	1014563	• • Gasket	1	
7	- - - - - -	• Screw, cap, socket head, M8	1	
8	1104478	Clip, ground, sieve screen	1	
9	1103290	Plug, sieve	1	
NOTE: A. Other mesh sizes are available. Contact your Nordson representative for more information.				

Section 11

Pneumatic and Electrical Diagrams

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

Drawing Number	Description
10021227	Panel, feed center, Encore, XL, NAD
10014552	Schematic, pneumatic, powder feed center, Encore XL

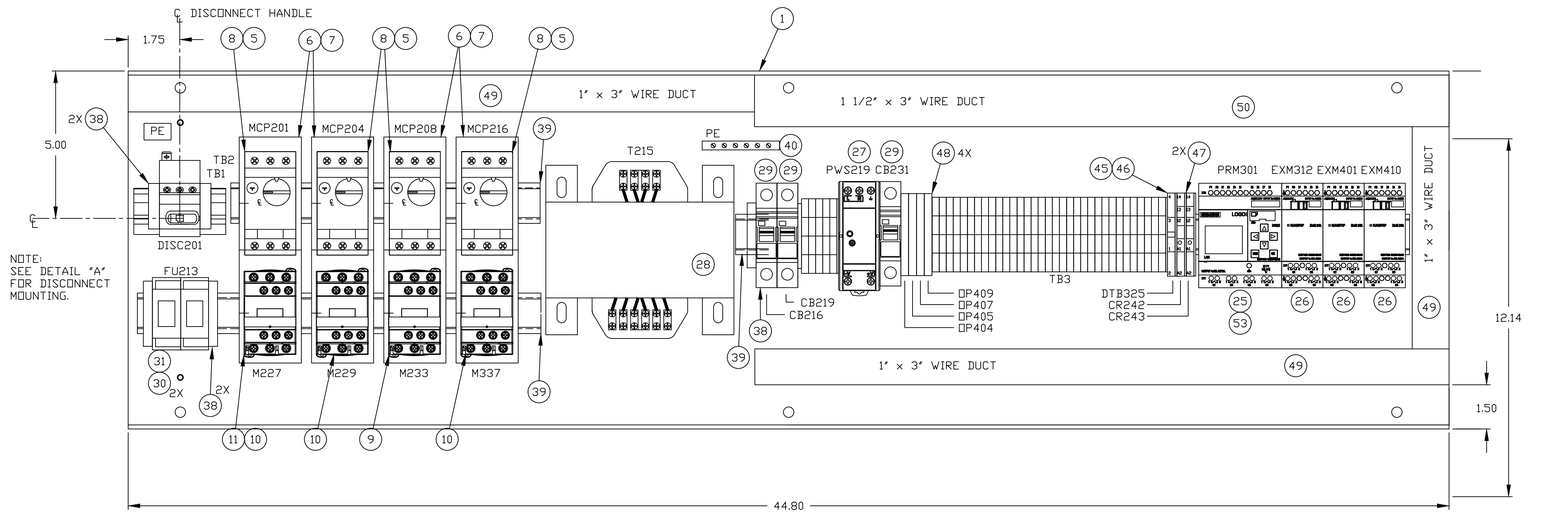
10021227

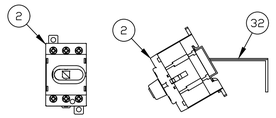
CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
01	RELEASED	DG	TR	PE-104230	14JUN21
02	UPDATED ITEM NO. 27 FROM NORDSON P/N 1106632 TO 1106633 UPDATED QTY FROM 12 TO 14 ON ITEM NO 041, 042	AO	TR	PE-104787	11JAN22
03	ADDED TB'S (ITEM 33) @ 2330 (1X) & 2210 (2X)	TAL	TR	PE-105643	13JAN23

CONTROLLER, ENCORE XL, NAD

ITEM NO.	ITEM DESIGNATOR	DESCRIPTION	QTY	MANUFACTURER	MFG PART NO.	NORDSON	
001		Enclosure, Electrical, FC (includes sub-panel)	1	Nordson		1607404	
002	DISC201	Disconnect, Non-Fused	1	ABB	OT40F3	1106628	
003	DISC201	Disconnect Handle	1	ABB	OHBS2AJ	1106629	
004	DISC201	Disconnect, Extended Shaft	1	ABB	OXS6X250		
005	MCP201,204,208,216	Manual Motor Starter Aux, Contact,1NO,1NC(Fault)	4	Telemecanique	GVAD0110	1106675	
006	MCP201,204,208,216	Manual Motor Starter Adapter Plate	4	Telemecanique	GK2AF01	1106676	
007	MCP201,204,208,216	Manual Motor Starter Insulating Barrier	4	Telemecanique	GV2GH7		
008	MCP201,204,208,216	Manual Motor Starter OL Protector	4	Telemecanique	SEE CHART		
009	M233	Contactor Motor	1	Telemecanique	SEE CHART		
010	M227,M229,M337	Contactor Motor	3	Telemecanique	LC1D09BD	1106677	
011	M227	Auxiliary Contact, 2N.O.	1	Telemecanique	LADN20	1106678	
012	PB222	E-Stop Button, Twist-Release	1	Telemecanique	XB4BS542	1106587	
013	PB222	Contact Block, 2 NC	1	Telemecanique	ZBE204	1106588	
014	SSL227,SSL229,SSL233	22mm Selector Switch,3-Position,Illuminated,White,Sr	3	Telemecanique	ZB4BK1513	1106589	
015	SSL227,SSL229,SSL233	White 24V Protected Led W/1NC & 1NO Contact Block	3	Telemecanique	ZB4BW0B15	1106620	
016	SS313,SS314,SS412	Selector, Chrome Bezel, 2-Position	3	Telemecanique	XB4BD21	1106621	
017	SS413	Selector, Chrome Bezel, 2-Position	1	Telemecanique	ZB4BD2	1106622	
018	SS413	Contact Block, 2 NO	1	Telemecanique	ZB4BZ103	1106623	
019	LT438	Green Light, 24VDC	1	Telemecanique	XB4BVB3	1106624	
020	SS304	Selector, Chrome Bezel, 3-Position Sr	1	Telemecanique	XB4BD53	1106625	
021	SS401	Selector, Chrome Bezel, 3-Position	1	Telemecanique	XB4BD33	1106626	
022	LT232	Amber Light, 24VDC	1	Telemecanique	XB4BVB5		
023	PBL418	Pushbutton, Illuminated White	1	Telemecanique	XB4BW31B5		
024	AH442	30mm Alarm, Piezo, Cont. Tone, Extra Loud	1	ICC/Intervox	BRP4535S-24-C	1106652	
025	PRM301	Relay Controller,Programmed,Encore XL Feedcenter	1	Siemens		1607656	
026	EXM312,401,410	Expansion Module, Progammable Relay	3	Siemens	6ED1055-1HB00-0BA2	1106627	
027	PWS219	Power Supply, 24VDC, 3.75A	1	IDEC	PS5R-VE24	1621204	
028	T215	Transformer, 1KVA, 50/60 Hz	1	Hammond	SEE CHART		
029	CB216,CB219,CB231	Circuit Breaker, 1 Pole, 2A	3	Merlin Gerin	MG24426		
030	FU213	Fuse, Class FNQ-R	2	Bussmann	SEE CHART		
031	FU213	Fuseblock, Dinrail	1	Bussmann	CHM2D		
032	TB1	Din Rail, 30 Deg High Rise	A/R	ABB	XUS001737	1106634	
033	TB3	Two Circuit Double Deck Terminal Block Blue	33	Woertz	3430BL		03
034	TB3	Double Deck End Barrier	2	Woertz	3431		
035	TB3	Center Jumpers, 10 Pole	1	Woertz	81526/10		
036	TB3	Two Circuit Double Deck Terminal Block Gray	5	Woertz	3430GR		
037	TB3	Double Deck End Anchor	4	Woertz	30199		
038	TB1,TB2,TB3	End Anchor	8	Woertz	3418	1106631	
039	TB2,TB3	DinRail,35mm	A/R	Cutler-Hammer	D5PD2-20		
040	GTB1	Ground Terminal	1	General Electric	TGL1		
041		Non Metallic Strain Relief Cable Gland, M20	14	LAPP	53111420	7750062	
042		Metric Nylon Locknut	14	LAPP	53119020		
043		Multiple Cable Sealing Bushings, 2 Holes	5	LAPP	53320260		
044		Multiple Cable Sealing Bushings, 3 Holes	1	LAPP	53320353		
045	DTB325	Terminal Block, Diode-OR	1	ASI	PE119		
046	DTB325	Endplate, Terminal Block	1	ASI	PE101		
047	CR242,CR243	Relay, 24 VDC, 6 Amp Contact	2	Idec	RV8H-L-D24		
048	OP404,OP405,OP407,OP409	Opto Isolator, 24VDC	4	Phoenix	2966634		
049		Wire Duct, 1" x 3" / Cover 1"	A/R	Thomas & Betts	TY1X3WPW6/TY1CPW6		
050		Wire Duct, 1.5" x 3" / Cover 1.5"	A/R	Thomas & Betts	TY15X3WPW6/TY15CPW6		
051		Tag CE Mark, Riveted	1	Nordson		175068	
052		Device Label Set, Encore XL Feed Center	1	Nordson		1606419	
053		Instructions, Encore XL Controller	1	Nordson			
054		Nordson Banner Label, Encore XL Feed Center	1	Nordson		1606417	
055	MTR4	3-pin, 14awg, female receptacle, w/36" leads	1	Mencom	MINH-3FR-1M		
056	FCE	5-pin, 16awg, male receptacle, w/12" leads	1	Mencom	MIN-5MR-1		
057	FCP	4-pin,14awg, male receptacle, w/12" leads	1	Mencom	MINH-4MR-1		6
058	FCS	8-pin female insert	1	ILME	CDF-08		
059	FCS	size 21.21 insert housing	1	ILME	CKA-03I		
060	FCS	Insert pins, 18awg	8	ILME	CDFA-0.7		
061	FCS	dust tight seal	1	ILME	CKR-65		
062							
063							
064							
065							
066							
067							
068	A	Manual Motor Starter OL Protector (.25-.4A)	1	Telemecanique	GV2P03	1106690	
069	B	Manual Motor Starter OL Protector (.4-.63A)	1	Telemecanique	GV2P04	1106679	
070	C	Manual Motor Starter OL Protector (.6-1.0A)	1	Telemecanique	GV2P05	1106693	
071	D	Manual Motor Starter OL Protector (1.0-1.6A)	1	Telemecanique	GV2P06	1106692	
072	E	Manual Motor Starter OL Protector (6-10A)	1	Telemecanique	GV2P14		
073	F	Manual Motor Starter OL Protector (13-18A)	1	Telemecanique	GV2P20		

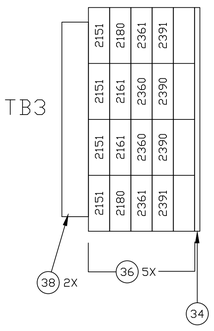
ENCLOSURE SUB-PANEL LAYOUT

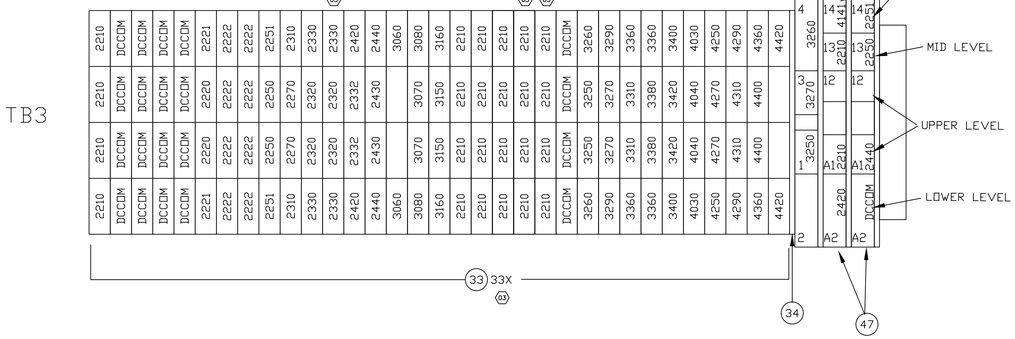




DETAIL "A"

MOUNT DISCONNECT (ITEM 2) ON 30" HIGH RISE DIN RAIL (ITEM 32). MOUNT TO PANEL AT SHAFT CENTER LINE AS SHOWN.





1/6 HP MOTOR 3PH (TABLE VIBRATOR) ①

ITEM	208V	230V	380V	415V	460V	575V
MCP204	C	B	A	A	A	A
RANGE	.6-1 A	.4-.63 A	.25-.4 A	.25-.4 A	.25-.4 A	.25-.4 A

1/4 HP MOTOR 3PH (SIEVE)

ITEM	208V	230V	380V	415V	460V	575V
MCP201	D	D	B	B	B	B
RANGE	1-1.6 A	1-1.6 A	.4-.63 A	.4-.63 A	.4-.63 A	.4-.63 A

5 HP MOTOR 3PH (EXHAUSTER)

ITEM	208V	230V	380V	415V	460V	575V
MCP208	F	F	E	E	E	E
RANGE	13-18 A	13-18 A	6-10 A	6-10 A	6-10 A	6-10 A
M233	LC1D18BD	LC1D18BD	LC1D09BD	LC1D09BD	LC1D09BD	LC1D09BD

1/10 HP MOTOR 1PH (BOX FEEDER VIBRATOR)

ITEM	115V	230V				
MCP216	C	B				
RANGE	.6-1 A	.4-.63 A				

TRANSFORMER REF. CHART

ITEM	208V	230V	380V	415V	460V	575V
FU213	FNQ-R-10	FNQ-R-10	FNQ-R-5	FNQ-R-5	FNQ-R-4	FNQ-R-4
T215	SP1000SP	SP1000MQMJ	SP1000SP	SP1000SP	SP1000MQMJ	SP1000ACP

TOTAL CURRENT CALC. CHART ①

	208V	230V	380V	415V	460V	575V
1/6 HP	.6	.6	.4	.4	.3	.3
X QTY						
1/4 HP	1.2	1.1	0.6	0.6	0.5	0.4
X QTY						
5 HP	16.7	15.2	9.2	8.4	7.6	6.1
X QTY						
1.0 KVA TRANX	4.8	4.34	2.6	2.4	2.7	1.74
= TOTAL CURRENT						

① INDICATES OPTIONAL EQUIPMENT

② ALL PHASES OF INSTALLATION MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES. ALL WORK LOCATED IN CLASS 2, DIVISIONS 1 AND 2 HAZARDOUS LOCATIONS MUST COMPLY WITH NFPA CODE 33 AND NFPA CODE 70, ESPECIALLY ARTICLES 500, 502 AND 516, LATEST EDITIONS.

③ UL 508

④ ELECTRICAL INSTALLATION MUST COMPLY WITH NEC, ESPECIALLY ART. 430, LATEST EDITION

⑤ ALL GROUND WIRES MUST BE GREEN/YELLOW STRIPED. YELLOW STRIPE MUST BE APPROX 30% – 70% OF TOTAL WIRE COLOR

⑥ RECEPTACLE ONLY USED WITH 575V, 460V, 415V OR 380V SYSTEMS. 230V OR 208V SYSTEMS WILL REQUIRE #10 AWG WIRE.

01	X	X	X		X

ALL DIMENSIONS IN INCHES EXCEPT AS NOTED

SIZE D

NORDSON CORPORATION
POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001

XXXXXX | NEXT ASSEMBLY | FIRST PRODUCT USED ON XXXXXXXXXX

X.XX +/- .030 X.XXX +/- .010
MACHINED SURFACES 125 AA
BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.
THREAD LENGTH DIMS. ARE FULL THREAD
THIRD ANGLE PROJECTION

INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES

DRAWN BY DG | DATE 14 JUN21
CHECKED BY TR | APPROVED BY TR
REL NO PE-104230

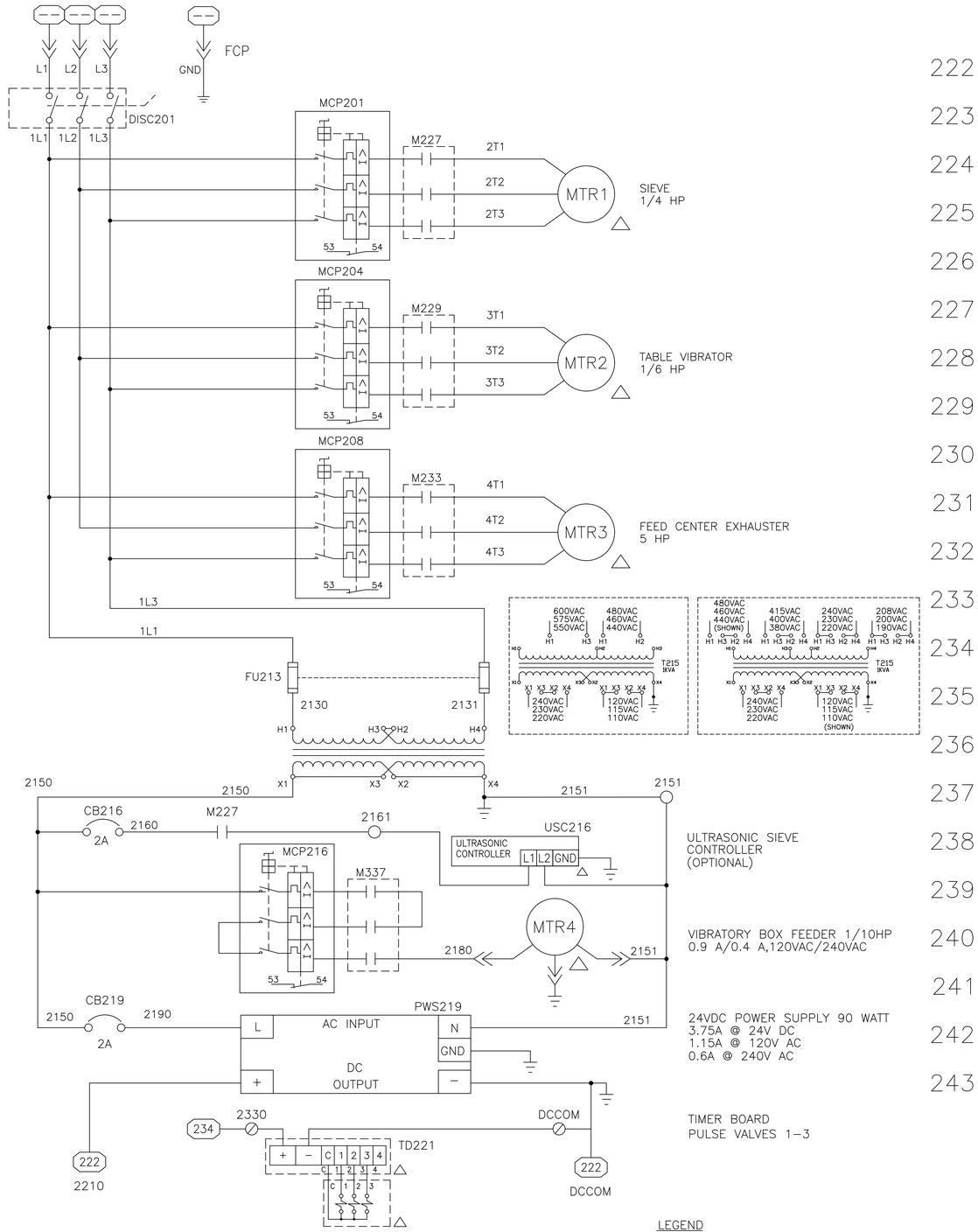
REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD

CONTROL NUMBER 10021227 | REV. 03

SCALE: 1:4 | PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING | PAGE 1 / 6

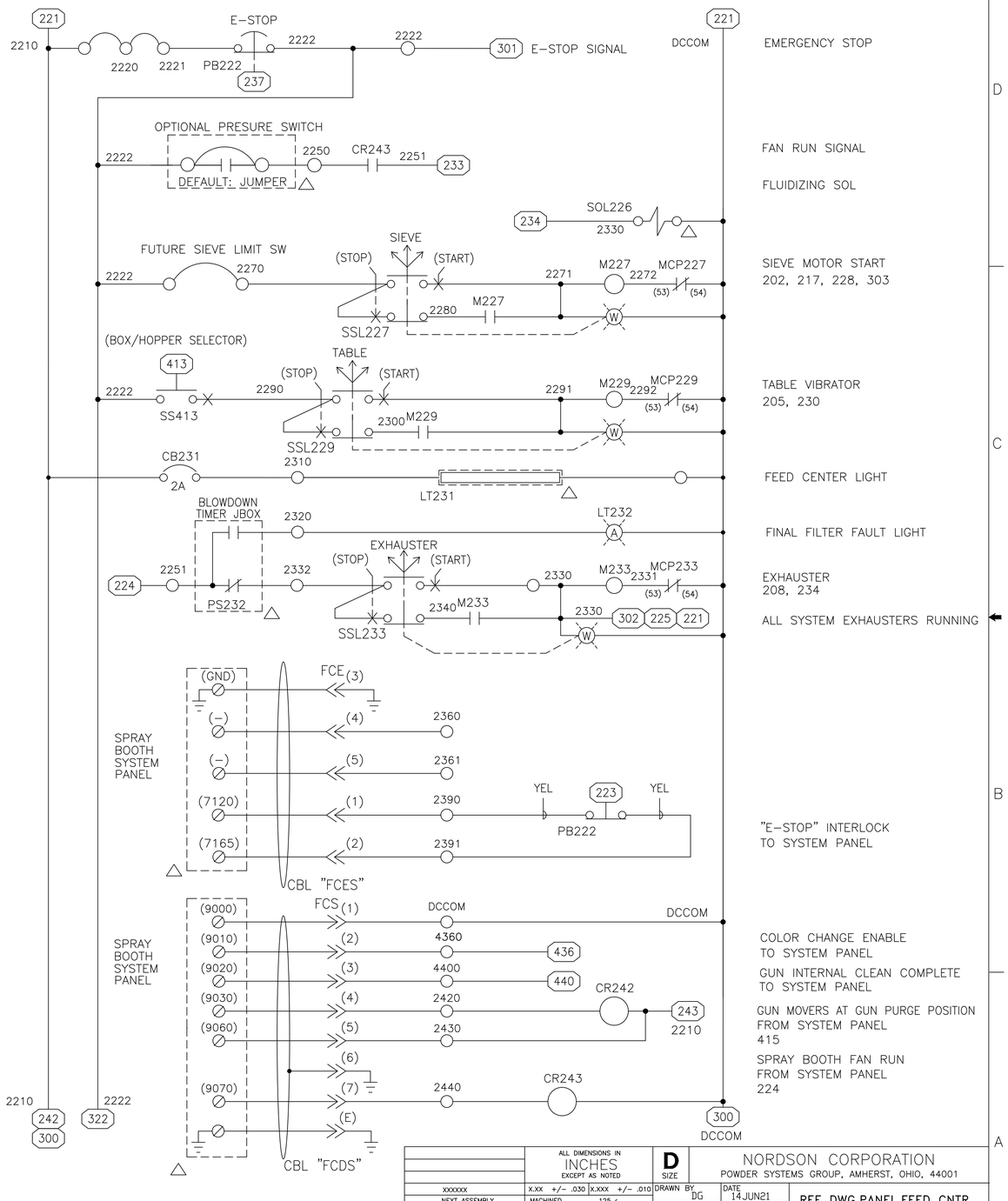
10021227

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR CURRRENT REVISION INFORMATION	–	–	–	–



LEGEND

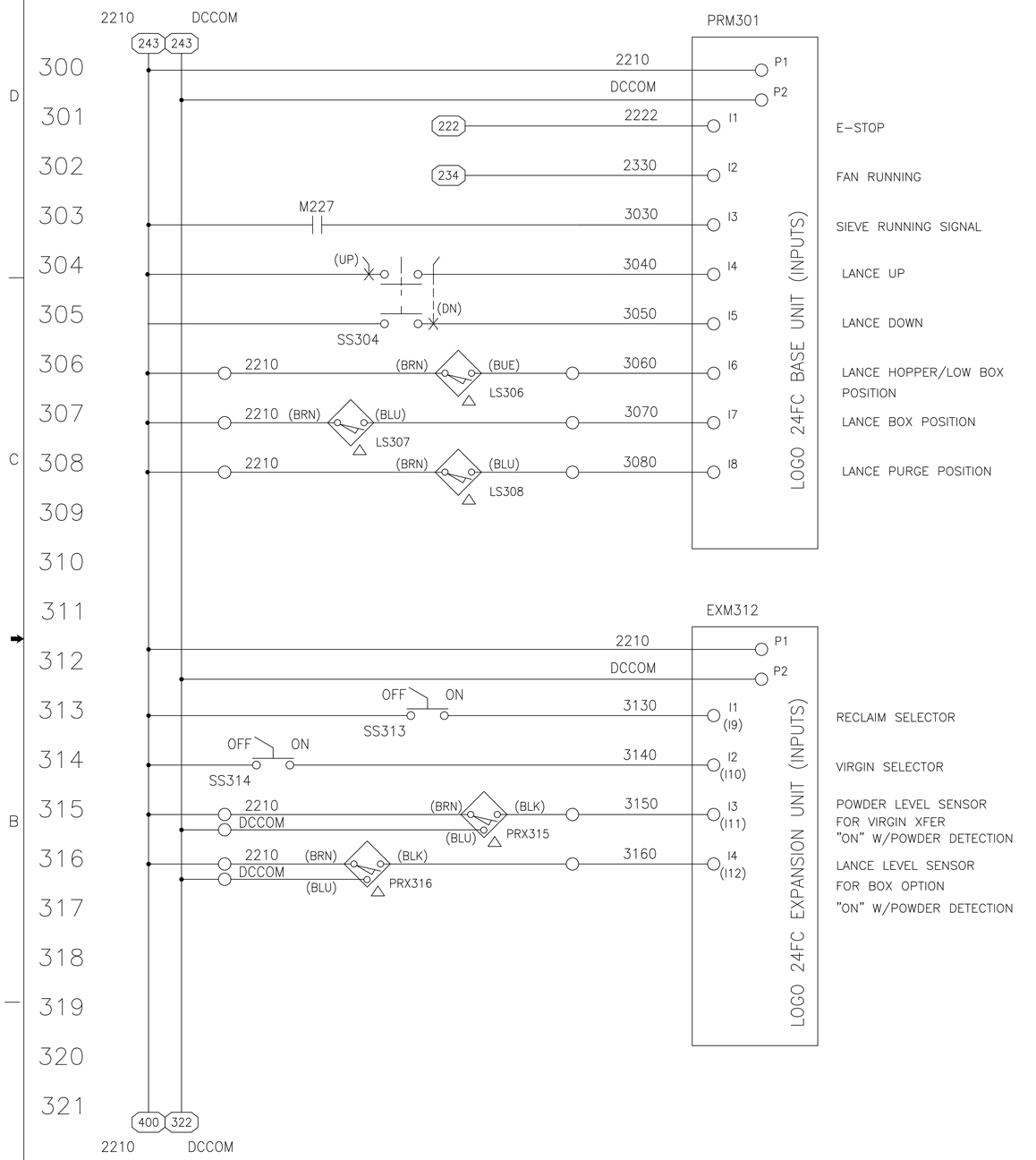
△ – REMOTELY LOCATED DEVICE
⊘ – SYSTEM PANEL TERMINAL (SP)
○ – FEED CENTER CONTROL PANEL (FCP)

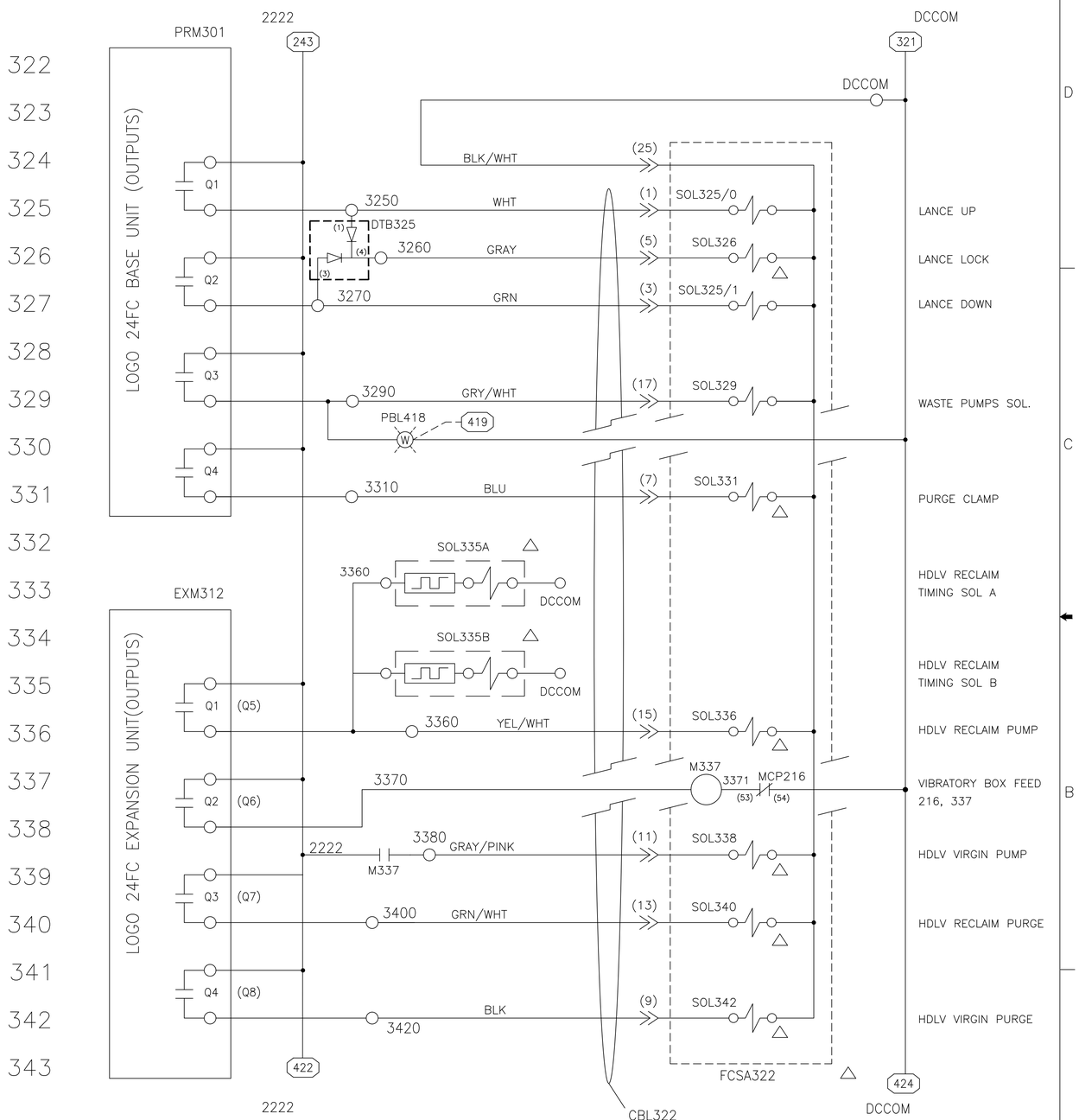


	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
XXXXXX	X.XX +/– .030 X.XXX +/– .010	DRAWN BY DG	DATE 14 JUN 21
NEXT ASSEMBLY	MACHINED SURFACES 125/ AA	CHECKED BY TR	APPROVED BY TR
FIRST PRODUCT USED ON XXXXXXXXX	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE–104230	REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	10021227 REV. 03
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING — PAGE 2 / 6

10021227

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR CURRRENT REVISION INFORMATION	–	–	–	–





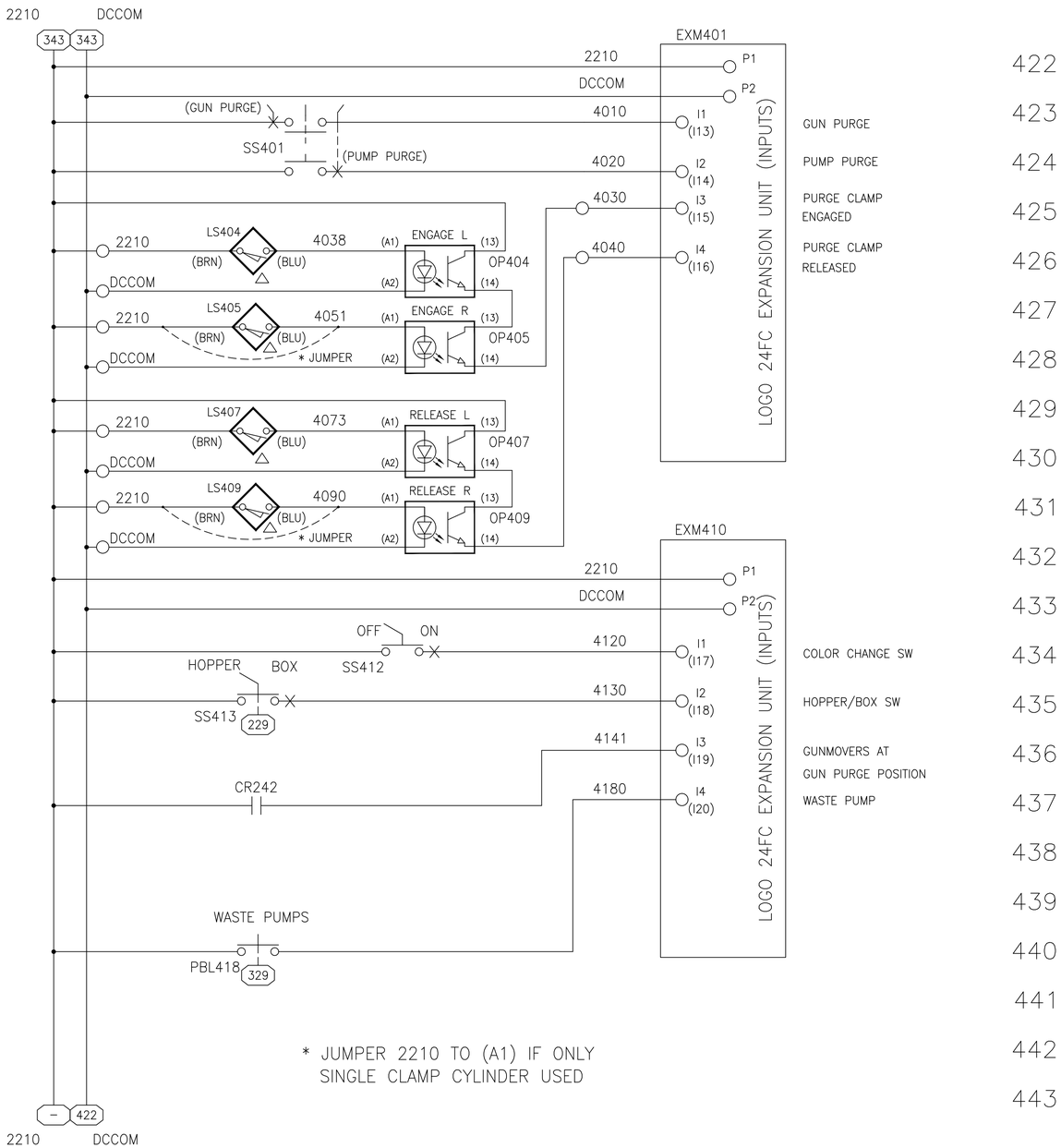
LEGEND

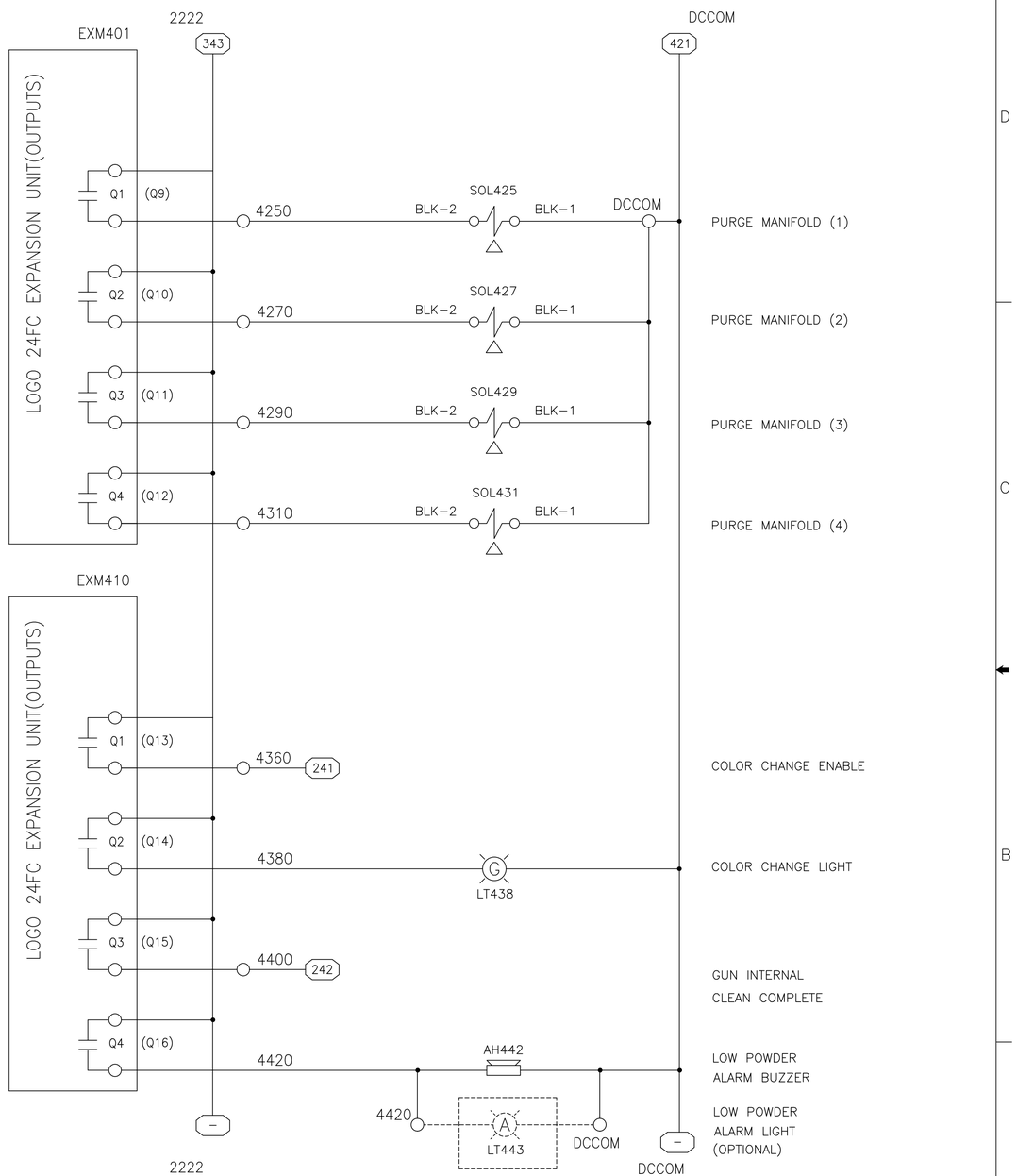
△ – REMOTELY LOCATED DEVICE
⊘ – SYSTEM PANEL TERMINAL (SP)
○ – FEED CENTER CONTROL PANEL (FCP)

XXXXXX	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
NEXT ASSEMBLY	X.XX +/– .030 X.XXX +/– .010	DRAWN BY DG	DATE 14JUN21
FIRST PRODUCT USED ON XXXXXXXXX	MACHINED SURFACES 125 AA	CHECKED BY TR	APPROVED BY TR
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE–104230	REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER 10021227	REV. 03
	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING
			PAGE 3 / 6

10021227

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR CURRRENT REVISION INFORMATION	–	–	–	–





LEGEND

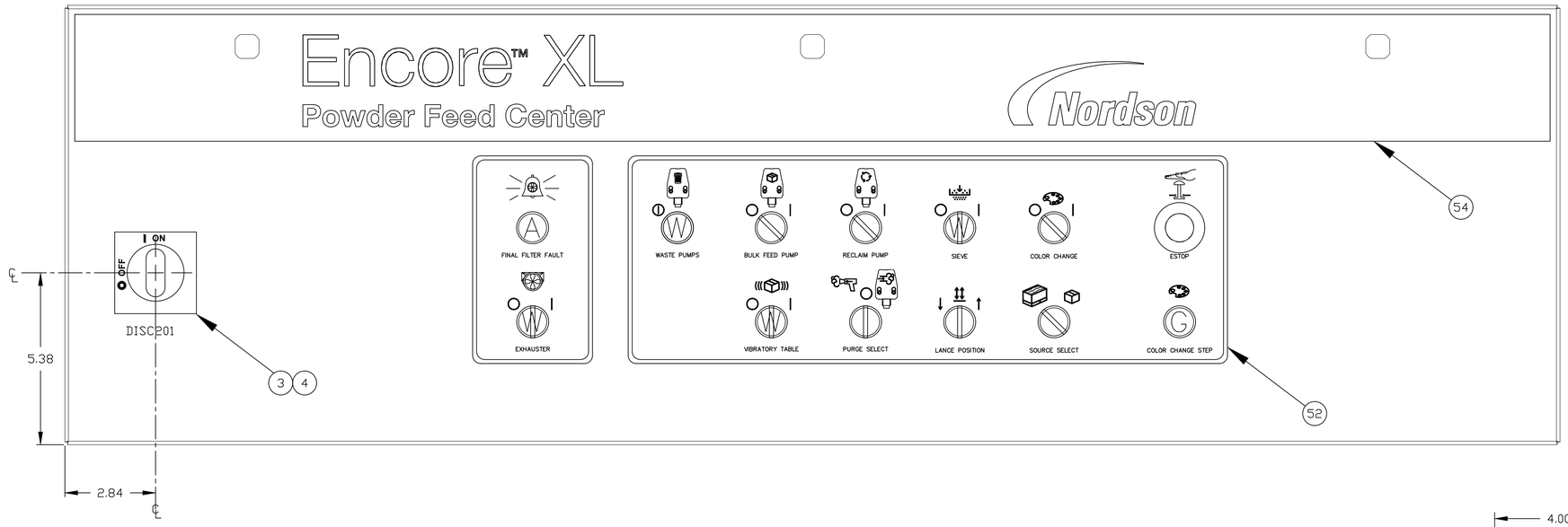
△ – REMOTELY LOCATED DEVICE
⊘ – SYSTEM PANEL TERMINAL (SP)
○ – FEED CENTER CONTROL PANEL (FCP)

XXXXX NEXT ASSEMBLY FIRST PRODUCT USED ON XXXXXXXXX INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD. PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED X.XX +/– .030 X.XXX +/– .010 MACHINED SURFACES 125/ AA BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX. THREAD LENGTH DIMS. ARE FULL THREAD THIRD ANGLE PROJECTION	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001 DRAWN BY DG DATE 14JUN21 CHECKED BY TR APPROVED BY TR REL NO PE–104230 REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD CONTROL NUMBER 10021227 REV. 03 SCALE: NTS PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 4 / 6

10021227

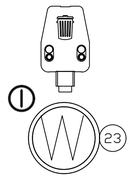
CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR CURRRENT REVISION INFORMATION	–	–	–	–

ENCLOSURE DOOR LAYOUT

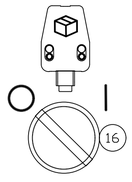


(LT232) FINAL FILTER FAULT

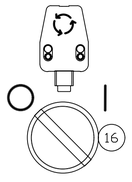
(PBL418) WASTE PUMPS



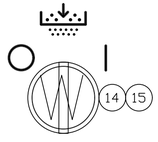
(SS314) BULK FEED PUMP



(SS313) RECLAIM PUMP

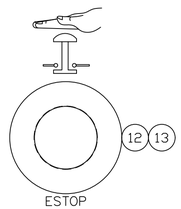


(SSL227) SIEVE

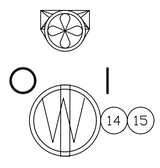


(SS412) COLOR CHANGE

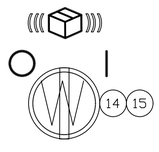
(PB222) ESTOP



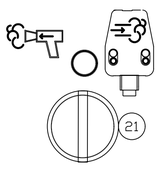
(SSL233) EXHAUSTER



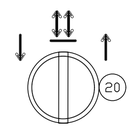
(SSL229) VIBRATORY TABLE



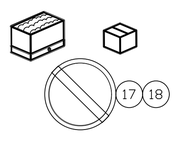
(SS401) PURGE SELECT



(SS304) LANCE POSITION

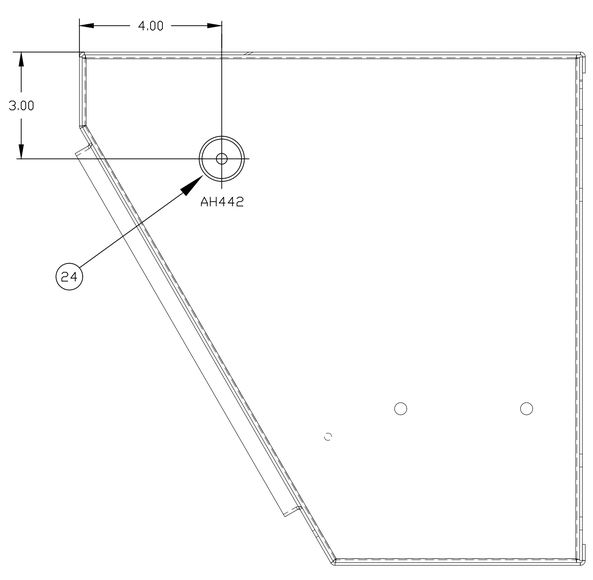


(SS413) SOURCE SELECT



(LT438) COLOR CHANGE STEP

ENCLOSURE RIGHT SIDE



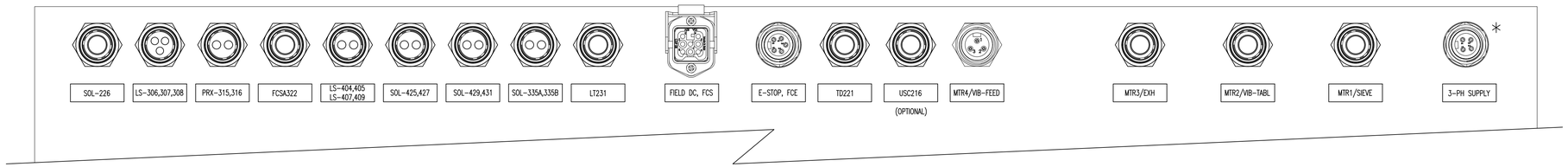
VIEW OF DOOR DEVICES (SCALE 2:1)

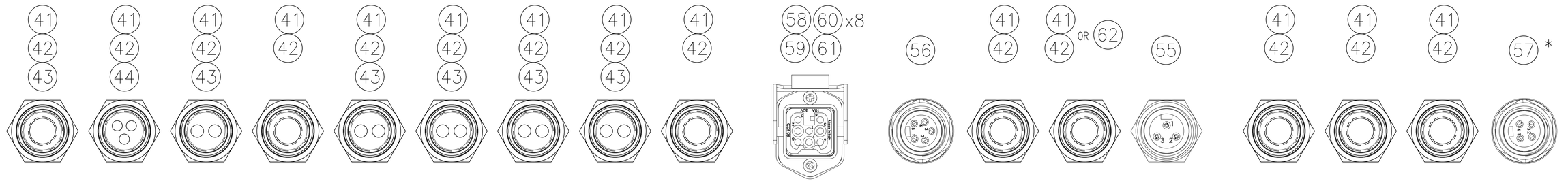
	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001	
XXXXXX	X.XX +/– .030 X.XXX +/– .010	DRAWN BY DG	DATE 14JUN21	REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY TR	APPROVED BY TR	
FIRST PRODUCT USED ON XXXXXXXXX	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE–104230		
INTERPRET DRAWINGS PER ANSI Y14.5M – 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	10021227	REV. 03
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING	PAGE 5 / 6

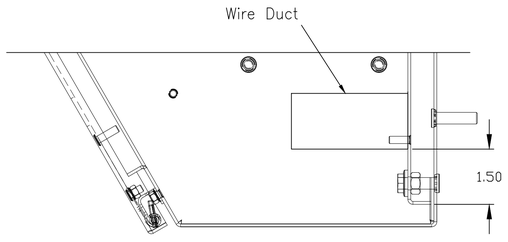
10021227

CHG LTR	REVISION	BY	CHK	ECR NO.	DATE
–	SEE SHEET 1 FOR CURRRENT REVISION INFORMATION	–	–	–	–

ENCLOSURE REAR VIEW





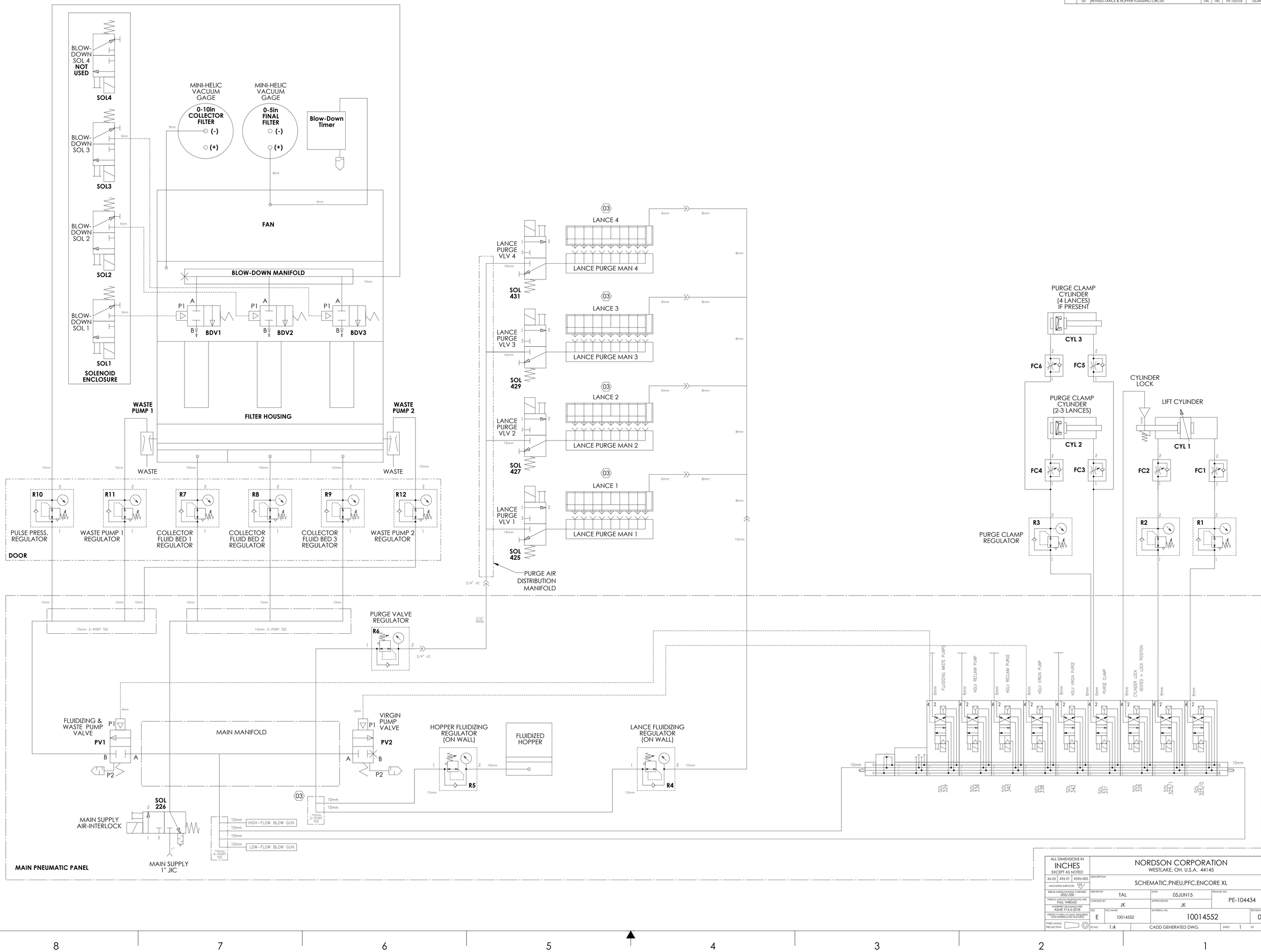


ENCLOSURE SIDE VIEW

* RECEPTACLE ONLY USED WITH 575V, 460V, 415V OR 380V SYSTEMS.
230V OR 208V SYSTEMS WILL REQUIRE #10 AWG WIRE.

	ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	D SIZE	NORDSON CORPORATION POWDER SYSTEMS GROUP, AMHERST, OHIO, 44001
XXXXXX	X.XX +/- .030 X.XXX +/- .010	DRAWN BY DG	DATE 14JUN21
NEXT ASSEMBLY	MACHINED SURFACES 125 AA	CHECKED BY TR	APPROVED BY TR
FIRST PRODUCT USED ON XXXXXXXXX	BREAK OUTSIDE AND INSIDE CORNERS .004 TO .032 MAX.	REL NO PE-104230	REF DWG,PANEL,FEED CNTR, ENCORE,XL,NAD
INTERPRET DRAWINGS PER ANSI Y14.5M - 1994 STD.	THREAD LENGTH DIMS. ARE FULL THREAD	CONTROL NUMBER	10021227 REV. 03
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	THIRD ANGLE PROJECTION	SCALE: NTS	PRODUCT DEVELOPMENT DEPARTMENT CAD GENERATED DRAWING PAGE 6 / 6

REVISIONS						
ZONE	REV.	DESCRIPTION	BY	CHK	ECO NO.	DATE
	01	REDRAWN ON NEW TITLE BLOCK	TAL	JK		18OCT21
	02	RELEASED	TAL	JK	PE-104434	18OCT21
	03	REVISED LANCE & HOPPER FLUIDIZING CIRCUIT	TAL	TAL	PE-105703	05JAN23



ALL DIMENSIONS IN INCHES EXCEPT AS NOTED	NORDSON CORPORATION WESTLAKE, OH, U.S.A. 44145	
.X±.03 .XX±.01 .XXX±.005	DESCRIPTION: SCHEMATIC,PNEU,PFC,ENCORE XL	
MACHINED SURFACES 125		
BREAK INSIDE/OUTSIDE CORNERS .005/.030	DRAWN BY: TAL	DATE: 05JUN15
THREAD LENGTH DIMENSIONS ARE FULL THREAD	CHECKED BY: JK	APPROVED BY: JK
INTERPRET DRAWINGS PER ASME Y14.5-2018	SIZE: E	FILE NAME: 10014552
PERFECT FORM AT MMC REQUIRED FOR INDIRECTED FEATURES	MATERIAL NO.: 10014552	REVISION: 03
THIRD ANGLE PROJECTION	SCALE: 1:4	CADD GENERATED DWG.
	RELEASE NO.: PE-104434	SHEET 1 OF 1

10014552
03