

HDLV® 55-Gallon Powder Drum Unloader

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

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Contact Us

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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 components
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure equipment is rated and approved for the environment in which it is used. All 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 work area 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.

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.

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Description

See Figure 1. The HDLV® 55-gallon powder drum unloader uses a Prodigy® HDLV High Capacity pump to supply virgin powder to a powder coating system. The pump can be operated manually or automatically. An air-operated vibrator motor fluidizes the powder in the drum so it can be pumped easily.

This instruction sheet provides operating instructions and spare parts for the dolly and system. Refer to the following manuals for pump and pump station operation and parts information:

- Prodigy HDLV Transfer Pump Station - 1620734
- Prodigy High Capacity HDLV Pump with Electric Timing Valve - 1619979

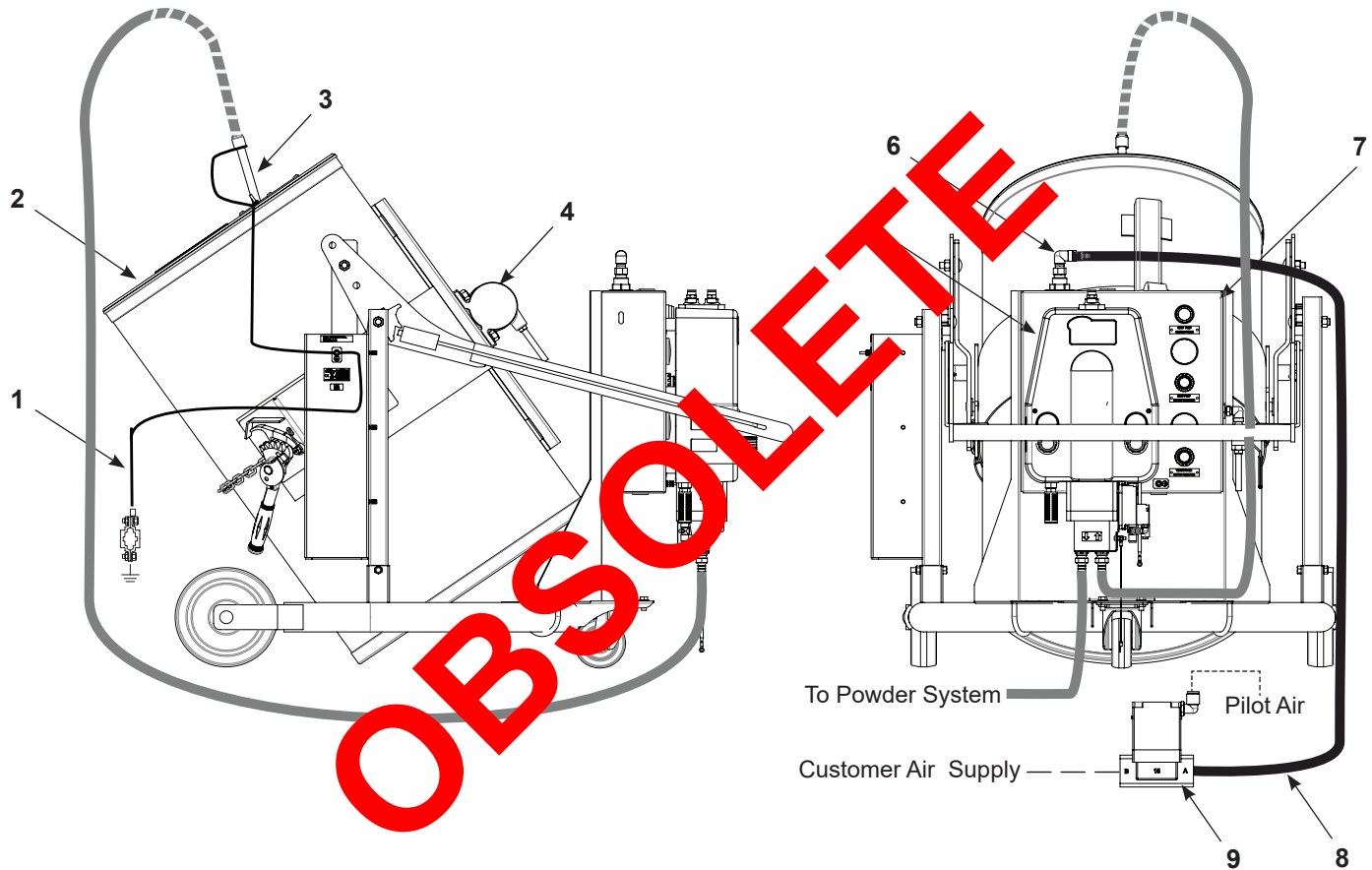


Figure 1 HDLV 55-Gallon Powder Drum Dolly Components and Connections

- | | | |
|---------------------------------|---------------------|-----------------------|
| 1. Dolly ground cable and clamp | 4. Vibrator motor | 7. Pump control panel |
| 2. Drum cover | 5. HDLV pump | 8. Air hose |
| 3. Pickup tube | 6. Air supply inlet | 9. Air-pilot valve |

Installation

Assembling Pickup Tube

Use the following steps to assemble the pickup tube and install into the drum lid. Use the following components shipped with the drum unloader to properly assemble the pickup tube.

- Pickup tube
- 19-mm OD antistatic tubing
- Spring
- Collar

1. Slide the spring guard over the antistatic tubing so the spring is about 305 mm (12 in.) from the end.

NOTE: In the next step, if the antistatic tubing is too stiff, dip the end of antistatic tubing into a hot cup of water for 5 seconds to soften tubing.

2. See Figure 2. Push the tubing onto the pickup tube barb all the way so the internal ground wire of antistatic tubing contacts the flange shoulder on the pickup tube.



Figure 2 Install Antistatic Tube onto Pickup Tube

3. See Figure 3. Bring the spring guard down and rotate clockwise over the tubing onto the pickup tube to make contact with the pickup tube head. This creates both strain relief for the tubing and grounding for the spring.



Figure 3 Assembly Pickup Tube with Spring Guard



CAUTION: For the next step, make sure the set screw is loose enough to allow the collar to slide easily over the pickup tube. If the set screw is not loose enough, damage could occur to both collar and pickup tube.

4. See Figure 4. Loosen the set screw on the collar and slide collar up over pickup tube toward the pickup tube head. Leave about 50 mm (2 in.) of space between pickup tube head and collar and tighten set screw.



Figure 4 Install Collar

Connections

See Figure 1. Make the following connections:

Automatic Operation: Install the supplied air-pilot valve (9) in the compressed air supply line to automatically start and stop the pump. Typically, a level sensor on a feed hopper opens a solenoid valve to supply pilot air to the valve.

Air Supply: Connect the supplied 4.5-meter (15-ft) air hose (8) to a supply of clean, dry compressed air. Minimum air pressure is 5.9 bar (85 psi).

Dolly Ground: Use the supplied ground cable and clamp (1) to connect the dolly to a true earth ground. Do not operate the bulk feed system unless it is grounded.

Drum Lid: Install a drum on the dolly and secure it with the chain and ratchet assembly. Remove the shipping lid and install the drum cover (2) in its place. Connect the drum cover ground clamp to the ground stud on the side of the dolly. Rotate the drum to the angle shown in Figure 1.

Pump Grounding: See Figure 7. Connect the two pump grounding harness to the pump station cabinet.

NOTE: These two grounding connections are typically done at the factory, but should be checked during installation to ensure proper grounding of the pump.

Pickup Tube Install and Grounding: Install the pickup tube into one of the tube guides in the drum cover.

See Figure 5. Attach the ground wire with the clamp from the drum lid to the pipe of pickup tube above the collar.

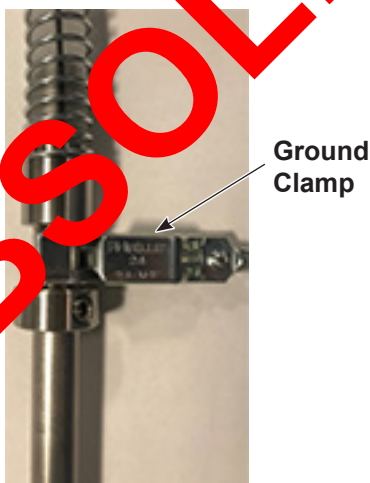


Figure 5 Grounding Pickup Tube

Powder Tubing:

See Figure 7.

NOTE: When installing the antistatic tubing, use the following guidelines:

- For best performance, keep the antistatic powder suction and delivery tubing as short as possible.
Maximum tubing lengths:
Suction tubing - 3.65 m (12 ft)
Delivery tubing - 30.5 m (100 ft)
- When installing the antistatic tubing, make sure the internal ground wire contacts the flange on the barbed fitting.
- When installing the antistatic tubing, if the antistatic tubing is too stiff, dip the end of antistatic tubing into a hot cup of water for 5 seconds to soften tubing.

Inlet Suction Tubing:

1. Measure and trim the antistatic tubing from the pickup tube to the right side barbed fitting (suction side) of the lower Y-block on the pump.
2. Install the tubing onto the pump barbed fitting.

Outlet Delivery Tubing:

1. See Figure 6. Connect another piece of the antistatic tubing to the 14.7 mm side of the adapter shipped with the drum unloader.
2. Cut about 4-6 in. length of the polyethylene tubing and connect to the 12.7 mm side of the adapter.
3. Connect the other end of the polyethylene tubing to bulk feed entry tube of the sieve cover, sieve accumulator, or hopper.
4. Trim and connect the other end of the antistatic tubing to the left barbed fitting (delivery side) of the lower Y-block on the pump.

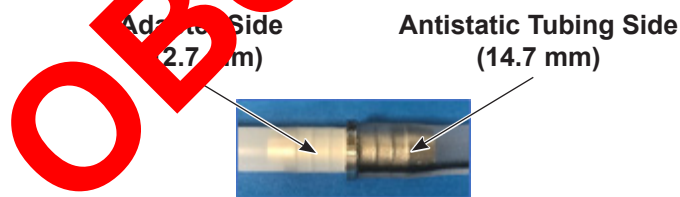


Figure 6 Fitting Adapter Installation

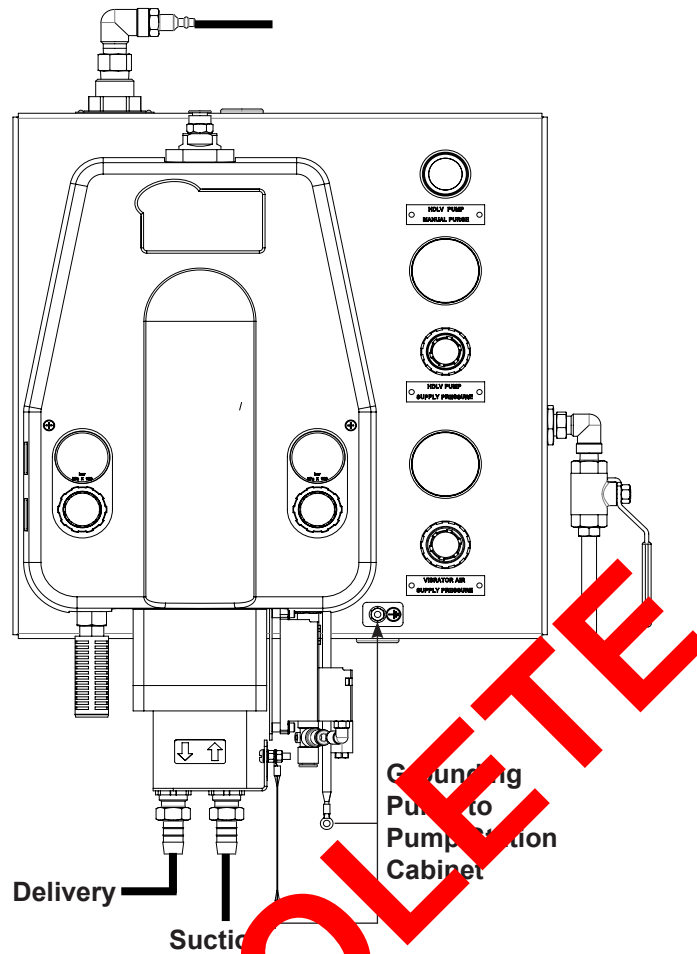


Figure 7 Suction/Delivery Connections and Pump Grounding

Remote Purge Control

See Figure 8. To purge the pump remotely, a customer-supplied shuttle valve can be installed into the pilot air line between the manual purge valve and the process valve as shown. Supply 4.8 bar (70 psi) air pressure to the shuttle valve from a remote source to trigger the process valve and purge the pump.

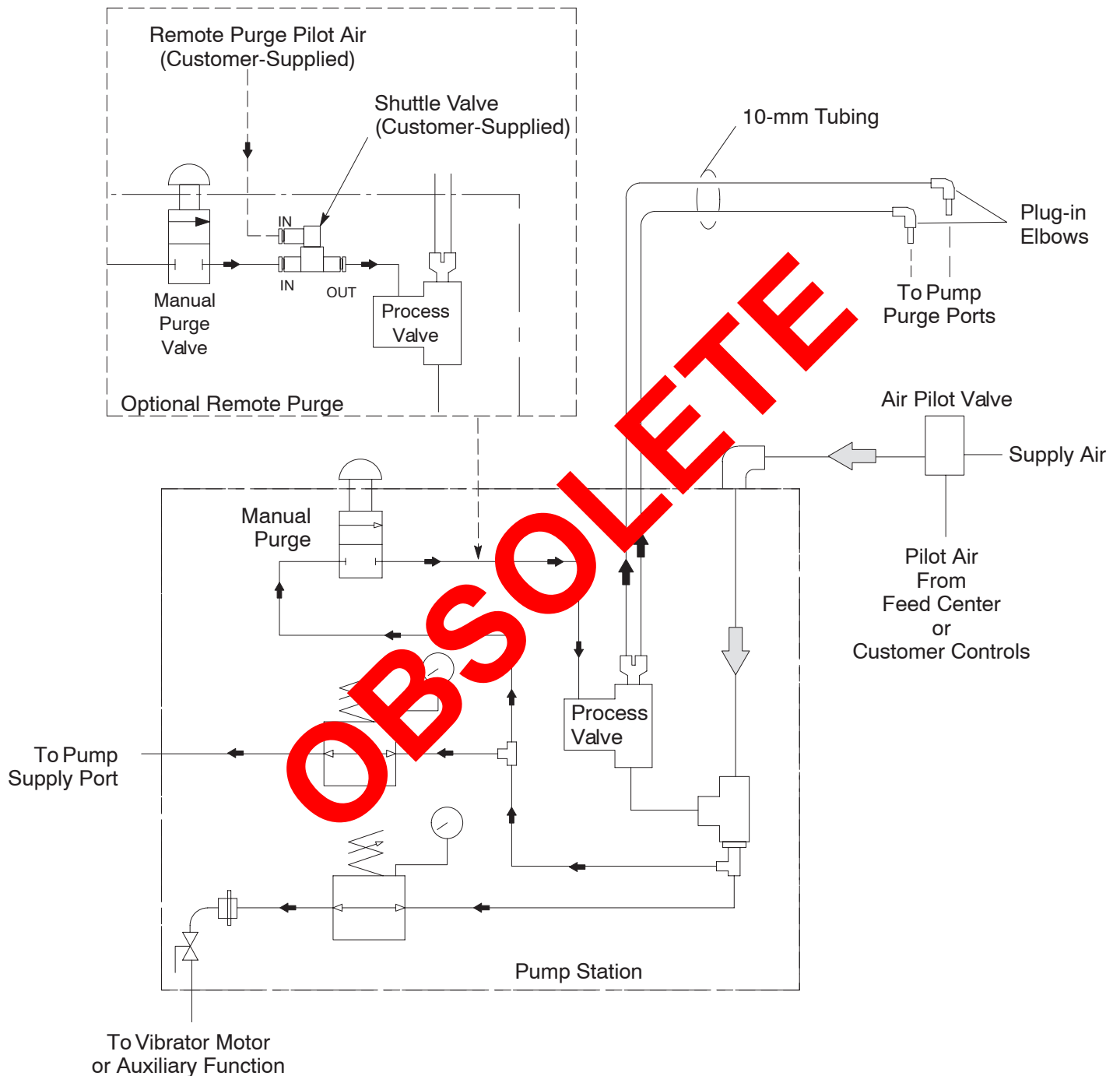


Figure 8 Pump Panel Pneumatic Diagram

Operation

See Figure 8 and Figure 9.

Item	Control	Function
1	Supply Air	Supply of clean, dry compressed air: 5.9–7 bar (85–100 psi).
2	Manual Purge	Press to manually purge the pump. Air at the supply pressure is delivered to the two fittings on top of the pump. Press the purge button repeatedly to pulse the purge air and clean the pump thoroughly.
3	Pump Supply Air Regulator	Regulates pump air. Normal operating pressure is 4.8 bar (70 psi).
4	Vibrator Air Control Valve	Controls air flow to the vibrator motor or to an auxiliary function.
5	Vibrator Air Regulator	Regulates air pressure to the vibrator motor or to an auxiliary function. Normal vibrator motor operation pressure is 2.75–3.45 bar (40–50 psi).
6	Pinch Valve Air Regulator	Regulates air pressure used to operate the pump pinch valves. Operating air pressure 2.4–2.75 bar (35–40 psi). Normally set to 2.4 bar (35 psi).
7	Conveying Air Regulator	Regulates positive and negative air pressure applied to the fluidizing tubes to draw powder into and push powder out of the pump. Operating air pressure 0.7–1.0 bar (10–15 psi). Normally set to 1.0 bar (15 psi).

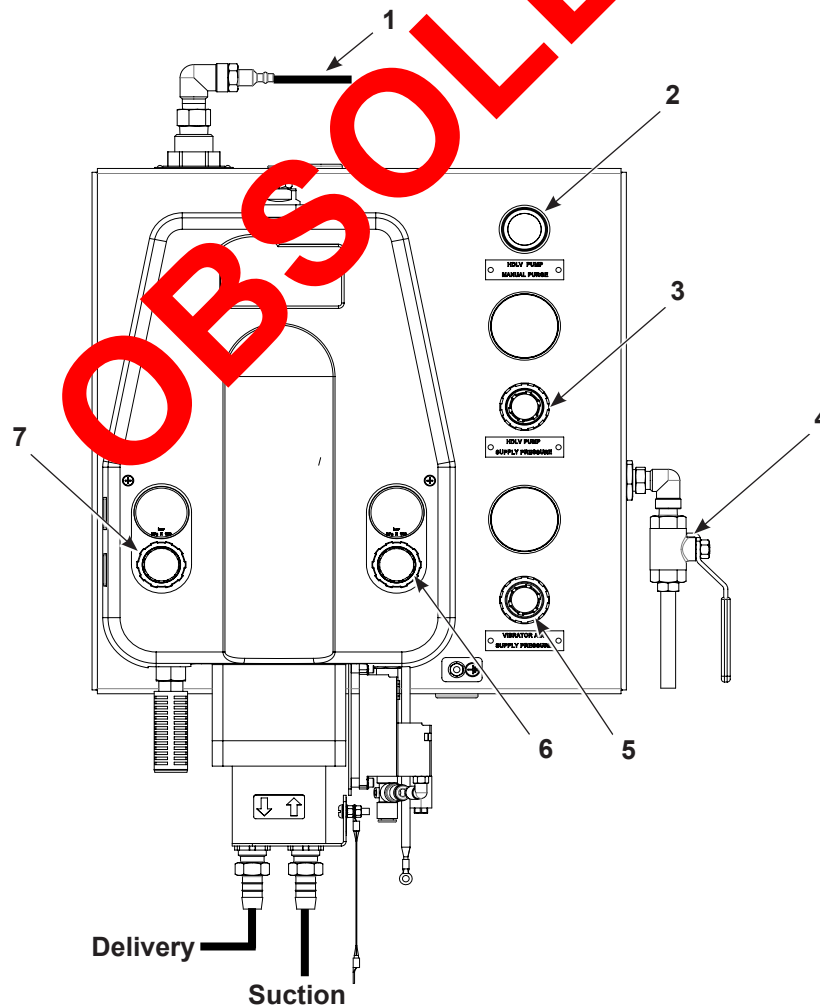


Figure 9 HDLV Pump Station and Pump Controls

- Prodigy HDLV Transfer Pump Station - 1620734
- Prodigy High Capacity HDLV Pump with Electric Timing Valve - 1619979

Dolly and Miscellaneous Parts

Diagram illustrating the components of a portable X-ray unit, labeled with numbers 1 through 23. The components include:

- 1: Ground Detail (Inset showing a ground connection point)
- 2: Ground Detail (Inset showing a ground connection point)
- 3: Main Unit (The large, wheeled X-ray unit)
- 4: Power Cord (The long, flexible power cord)
- 5: Power Cord Connector (The connector at the end of the power cord)
- 6: Grounding Point (The grounding point on the main unit)
- 7: Grounding Point (Inset showing a grounding point)
- 8: Control Console (The control console)
- 9: Control Console Connector (The connector on the control console)
- 10: Control Console (The control console)
- 11: Control Console Connector (The connector on the control console)
- 12: Control Console Connector (The connector on the control console)
- 13: Control Console Connector (The connector on the control console)
- 14: Control Console Connector (The connector on the control console)
- 15: Control Console Connector (The connector on the control console)
- 16: Control Console Connector (The connector on the control console)
- 17: Control Console Connector (The connector on the control console)
- 18: Control Console Connector (The connector on the control console)
- 19: Ground Detail (Inset showing a ground connection point)
- 20: Ground Detail (Inset showing a ground connection point)
- 21: Ground Detail (Inset showing a ground connection point)
- 22: Ground Detail (Inset showing a ground connection point)
- 23: Ground Detail (Inset showing a ground connection point)

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Item	Part	Description	Quantity	Note
–	1620730	DOLLY, drum, powder, electric, HDLV, 55 gallon	1	
1	247809	• STRAP, ground	1	
2	247811	• STRAP, ground	1	
3	1067575	• COVER, drum, 55 gallon, transfer pump	1	A
4	-----	• TUBE, pickup, drum, ground HDLV	1	D
5	-----	• SPRING GUARD, galvanized steel, 0.75 IN ID X 12 IN L	1	D
6	-----	• COLLAR, shaft, set screw, 5/8 X 1-1/8, stainless steel	1	D
7	247810	• STRAP, ground	1	
8	901074	• VALVE, air pilot, 2 way	1	
9	972119	• ELBOW, male, 1/4-in. tube x 1/8-in. NPT	1	
10	247814	• HOSE, air, 3/8-in. ID x 15-feet long	1	
11	247812	• VIBRATOR, turbine	1	
12	981601	• SCREW, hex, 1/2-13 x 1.50, cap, zinc	2	
13	983180	• WASHER, lock, e, split, 1/2 in., steel, nickel	2	
14	984170	• NUT, hex, regular, 1/2-13, steel, 14441-MA	2	
15	247815	• HOSE, air, 1/4-in. ID x 6-ft long	1	
16	1620729	• PUMP STATION, assembly, electric, HDLV	1	C
17	-----	• TRUCK, drum	1	
18	768178	• TUBING, powder, antistatic 12.7 mm (0.5 in.) ID	50 ft	
19	240674	• TAG, ground	1	
20	983021	• WASHER, flat, e, 0.20 x 0.4 x 0.040 in., brass	1	
21	981156	• SCREW, pan, 10-32 x 0.00, brass	1	
22	984129	• NUT, hex, machine #10-32, brass	2	
23	983120	• WASHER, lock, e, split #10, steel, nickel	1	
NS	1620095	• FITTING, brass, double, 11 MM X 1/2 in., stainless steel	1	
NS	1052893	• FITTING, plastic, 10 mm tube x 10 mm stem, plastic	2	
NS	1063654	• TUBING, polyethylene, 16 mm OD	AR	B

NOTE: A. Refer to *Drum Cover*, page 14.

B. Order in increments of one foot.

C. Includes HDLV pump. Refer to manuals listed above for parts information.

D. Items included in pickup tube kit 1620904.

NS: Not Shown

AR: As Required

Drum Cover

See Figure 11 and the following parts list.

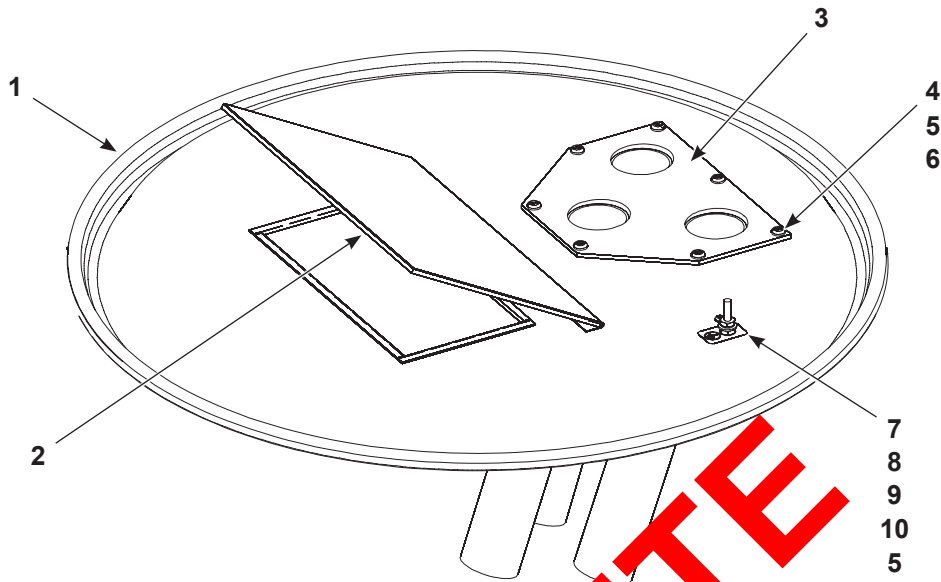


Figure 11 Drum Cover Parts

Item	Part	Description	Quantity	Note
—	1067575	KIT, cover, drum, 55 gallon, transfer pump	1	
1	-----	• COVER, drum, bulk feed	1	
2	242654	• GASKET, cabinet	1	
3	-----	• GUIDE, transfer pump, bulk feed	1	
4	981995	• SCREW, flat, #10-32 x 0.50 in., steel, zinc	7	
5	983120	• WASHER, lock, e, split #10, steel, zinc	9	
6	984120	• NUT, hex, machine, #10-32, steel, zinc	7	
7	240674	• TAG, ground	1	
8	981156	• SCREW, pan, #10-32 x 1.00 in., slotted, brass	1	
9	984129	• NUT, hex, machine, #10-32, brass	2	
10	983021	• WASHER, flat, e, 0.203 x 0.406 x 0.04 in., brass	2	

Options

See Figure 12. The box adapter is a conversion bracket to accommodate smaller powder boxes for the HDLV 55-gallon powder drum unloader.

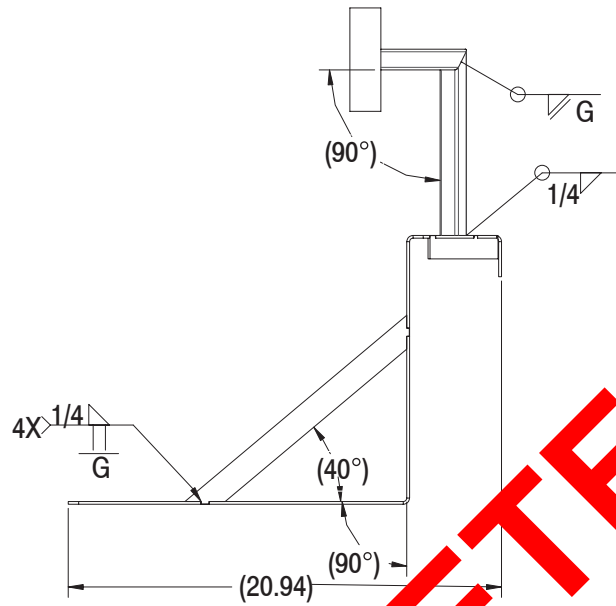


Figure 12 Box Adapter

Part	Description	Note
1606577	BOX ADAPTER BRACKET, 55-gal drum unload	

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EU DECLARATION of CONFORMITY

Product: Prodigy HDLV High Capacity Transfer Pump, Stand, Drum Truck or VBF Dolly Mount.

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

Models: Prodigy HDLV

Description: This is a high-density powder pump used for high capacity transfer of powder coating materials. It can be mounted to a stand. Also available on a 55 gal drum mobile unit or a VBF box feed mobile unit.

Applicable Directives:

2006/42/EC – Machinery Directive

2014/34/EU – ATEX Directive

Standards Used for Compliance:

EN/ISO12100

EN IEC 60079-0

EN60204

EN 60079-31

Markings & File Info:

Ex II 3D

Ex tc IIIC T85°C Dc

Tech File – Sira CSA Group, Netherlands NB 2813

Quality System:

- ISO9001

- SGS Fimko Oy, NB 0598 (Helsinki Finland)



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UK DECLARATION of CONFORMITY

Product: Prodigy HDLV High Capacity Transfer Pump, Stand, Drum Truck or VBF Dolly Mount.

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

Models: Prodigy HDLV

Description: This is a high-density powder pump used for high capacity transfer of powder coating materials. It can be mounted to a stand. Also available on a 55 gal drum mobile unit or a VBF box feed mobile unit.

Applicable UK Regulations:

Supply Machinery (Safety) Regulations 2008

Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Regulation 2016

Standards Used for Compliance:

BS/ISO12100 BS IEC 60079-0
BS EN 60204 BS EN 60079-31

Markings & File Info:

Ex II 3D
Ex tc IIIC T85°C Dc
Tech File – NB 0518 Sira CSA Group, UK

Quality System:

- ISO9001
- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)



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