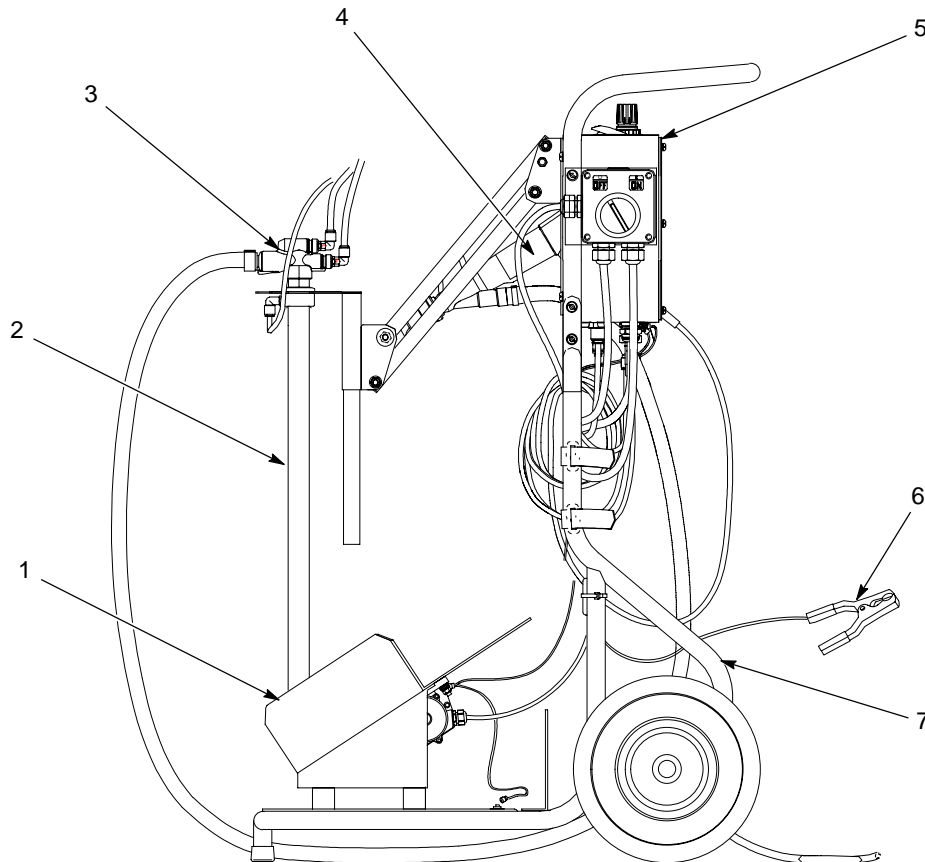


Econo-Coat[®] Mobile Powder Spray System with Box Feeder

Introduction

See Figure 1. The Econo-Coat mobile powder spray system is a complete manual powder spray system mounted to a two-wheeled dolly. Refer to *System Overview* on page 11 for a description of the equipment included with the system.

This instruction sheet explains how to assemble, operate, and order replacement parts for the Econo-Coat mobile powder spray system. More detailed information about the powder pump (3), spray gun (4), and control unit (5), can be found in the manuals that were shipped with them.



1400312C

Figure 1 Econo-Coat Mobile Powder Spray System with Box Feeder

- | | | |
|---------------------------|-----------------|----------------------------------|
| 1. Vibratory box feeder | 4. Spray gun | 6. System ground wire with clamp |
| 2. Fluidizing pickup tube | 5. Control unit | |
| 3. Powder pump | | 7. Dolly |

Note: Refer to *System Overview* on page 11 for a description of the component functions.

Assembly



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



WARNING: All conductive equipment in the spray area must be connected to a true earth ground. Ungrounded or poorly grounded equipment can become electrically charged. This charge can deliver a severe shock or create sparks hot enough to cause a fire or explosion.

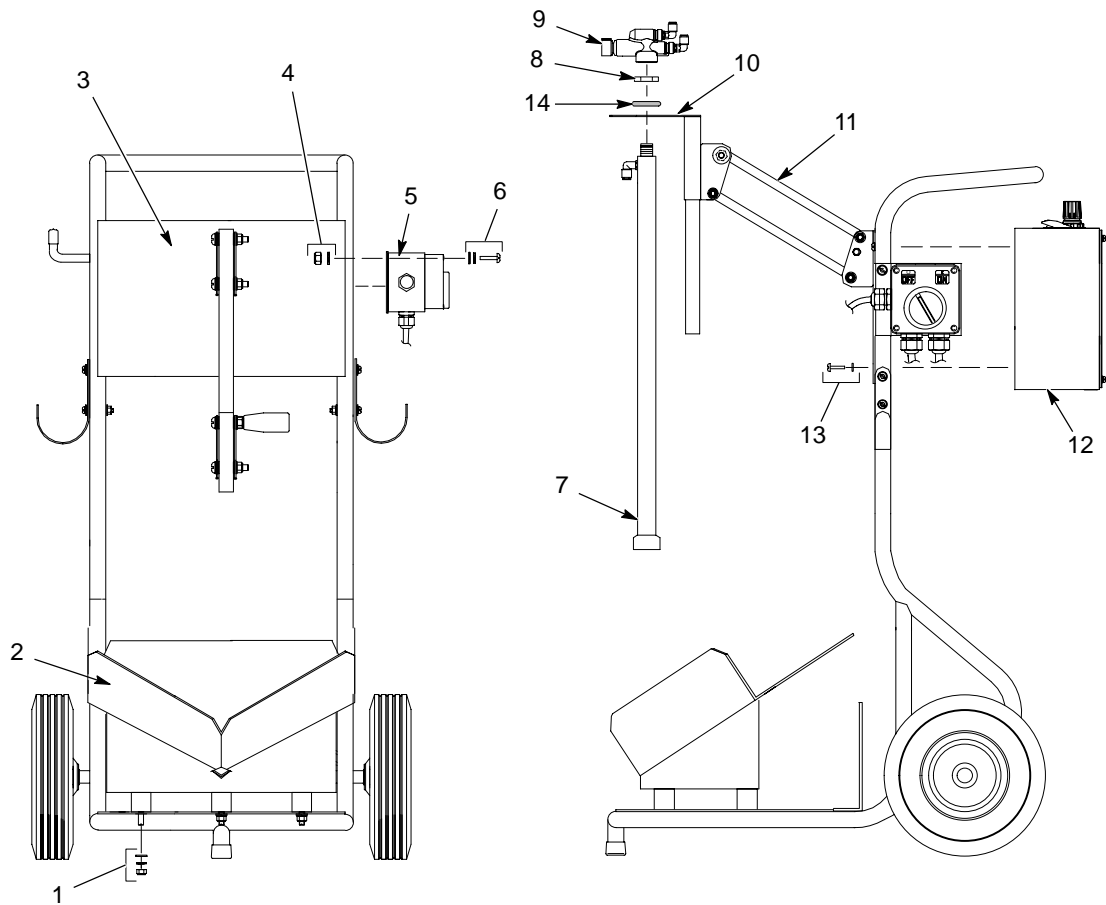
Component Assembly

Remove the dolly and boxes from the shipping box. Open each box and lay out the parts contained in the boxes. Assemble the components following these instructions:

NOTE: Your system may have been partially assembled at the factory. If a component is already assembled to the dolly, disregard its assembly procedure.

See Figure 2.

Component	Procedure
Vibratory Box Feeder	<ol style="list-style-type: none"> 1. Secure the vibratory box feeder (2) to the dolly using the M8 flat washers, lock washers, and hex nuts (1) supplied with the vibratory box feeder. 2. Secure the vibratory box feeder switch (5) to the side of the dolly frame using M5 pan-head screws, lock washers, and flat washers (6) on the outside of the dolly frame and M5 flat washers and hex nuts (4) on the inside.
Control Unit	<ol style="list-style-type: none"> 1. Place the top of the control unit (12) against the back of the control unit mounting bracket (3). 2. Secure the control unit to the mounting bracket using the four M6 pan-head screws and lock washers (13).
Pickup Tube	<ol style="list-style-type: none"> 1. Pivot the pickup tube arm (11) away from the dolly. 2. Slide the pickup tube bracket (10) into the pickup tube arm. 3. Remove the lock nut (8) and O-ring (14) from the pickup tube assembly (7). 4. Insert the pickup tube assembly up through the pickup tube bracket. Install the lock nut and O-ring to secure the pickup tube assembly to the pickup tube bracket. <p>NOTE: O-ring (14) is used on kit 1033061 only.</p>
Powder Pump	Using a slight twisting motion, push the powder pump (9) onto the pickup tube assembly (7).



1400313B

Figure 2 Component Assembly

- | | | |
|---|---------------------------------------|---|
| 1. M8 flat washer, lock washer, hex nut | 6. M5 screw, lock washer, flat washer | 11. Pickup tube arm |
| 2. Vibratory box feeder | 7. Pickup tube assembly | 12. Control unit |
| 3. Control unit mounting bracket | 8. Lock nut | 13. M6 Pan-head screws and lock washers |
| 4. M5 Hex nuts and flat washers | 9. Powder pump | 14. O-ring (see Note) |
| 5. Vibratory box feeder switch | 10. Pickup tube bracket | |

Note: O-ring (14) is used on kit 1033061 only.

Electrical Connections

Complete two electrical connections:

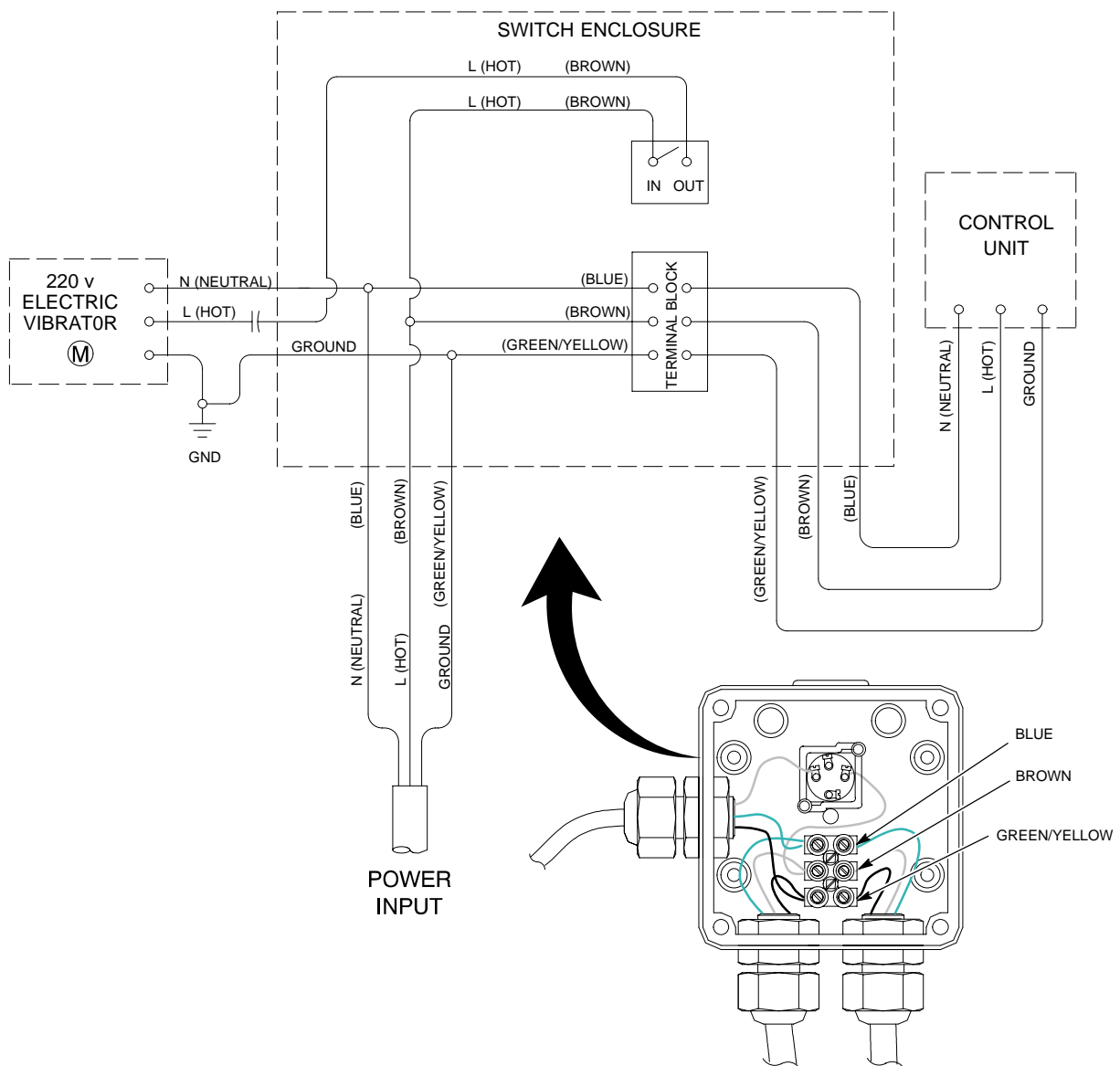
- **Control Unit Power Cord:** Wire the control unit power cord to the box feeder switch
- **Power Input Cord:** Wire the box feeder switch power cord to an electrical panel or customer-supplied plug.

Control Unit Power Cord

Remove the cover from the vibratory box feeder switch, pull the control unit's power cord through the empty cable gland, and wire the power cord to the terminal block as shown in the appropriate wiring diagram. Tighten the cable glands on all three cables.

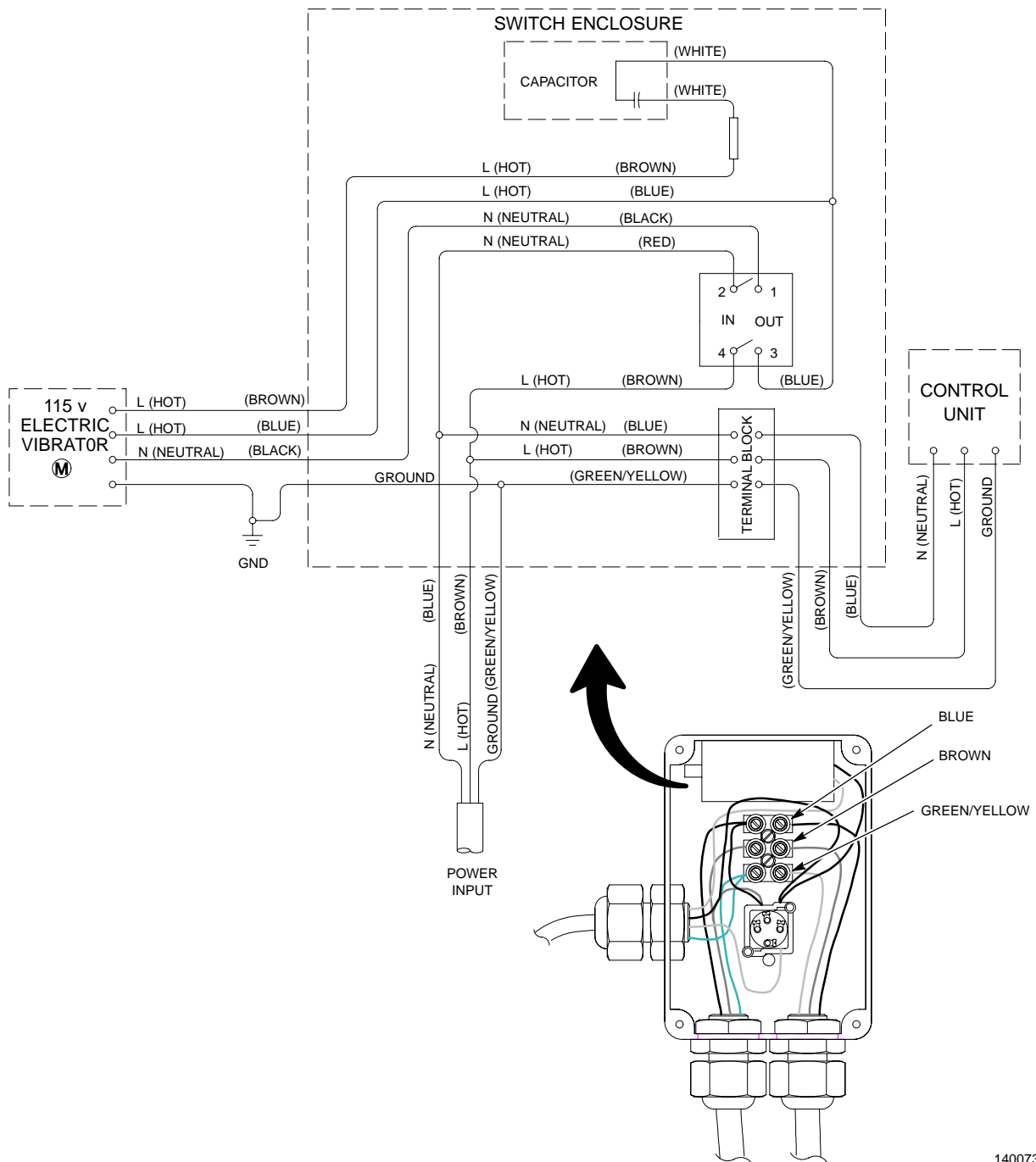
NOTE: Two vibratory box feeders are available (220 volt and 115 volt).

- See Figure 3 for 220-volt box feeder wiring.
- See Figure 4 for 115-volt box feeder wiring.



1400559A

Figure 3 220-Volt System Wiring Diagram



1400736A

Figure 4 115-Volt System Wiring Diagram

Power Input Cord

Wire the power input cord (attached to the box feeder switch) to either an electrical panel or a customer-supplied plug.

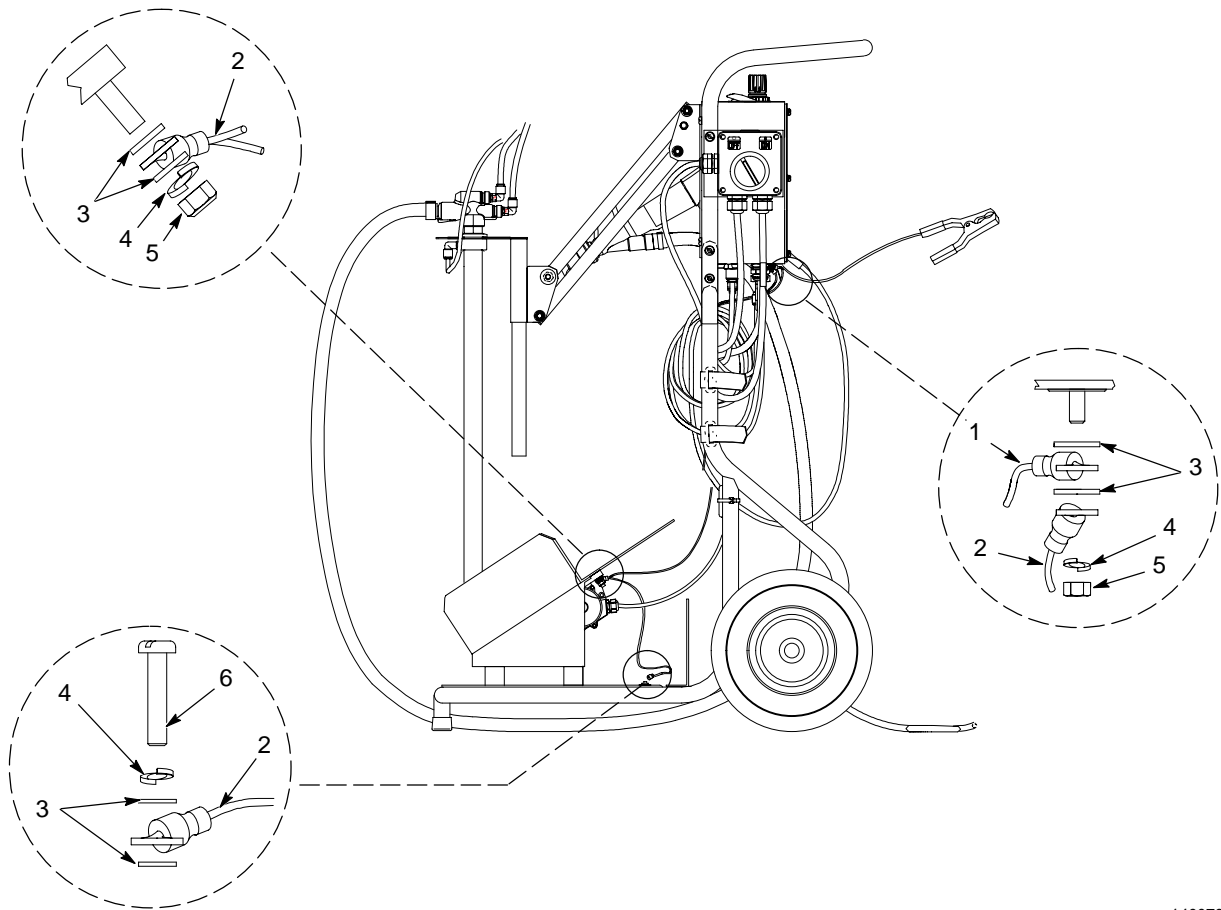
Wire Color	Function
Blue	N (neutral)
Brown	L (hot)
Green/Yellow	GND (ground)

Ground Wires

Two ground wires are included with the system. See Figure 5 for guidelines for installing them.

NOTE: Install the ground wires between the flat washers on the ground studs as shown.

Item	Description	Connections
1	Ground Wire with Clamp	Control unit ground stud
2	Three-Ring Ground Wire	<ul style="list-style-type: none"> Control unit ground stud Vibratory box feeder ground stud Dolly ground stud



1400739C

Figure 5 Ground Wires

1. Ground wire with clamp
2. Three-ring ground wire

3. Flat washers
4. Lock washer

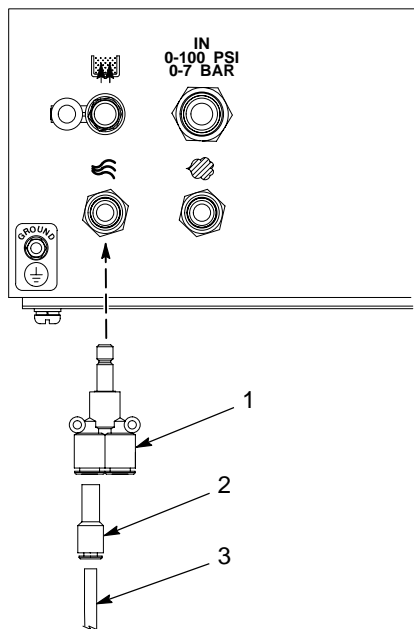
5. Hex nut
6. Pan-head screw

Fluidizing Air Assembly

See Figure 6.

NOTE: The fittings and air tubing in this procedure are included in the fluidizing pickup tube kit.

1. Push the Y-fitting (1) into the control unit's atomizing air fitting.
2. Install the 8-mm to 6-mm reducer (2) into the Y-fitting.
3. Push the blue, 6-mm air tubing (3) into the reducer. Connect the other end of the tubing to the pickup tube elbow.



1400737B




Figure 6 Fluidizing Air Assembly

- | | |
|--------------|-------------------------|
| 1. Y-fitting | 3. Blue 6-mm air tubing |
| 2. Reducer | |

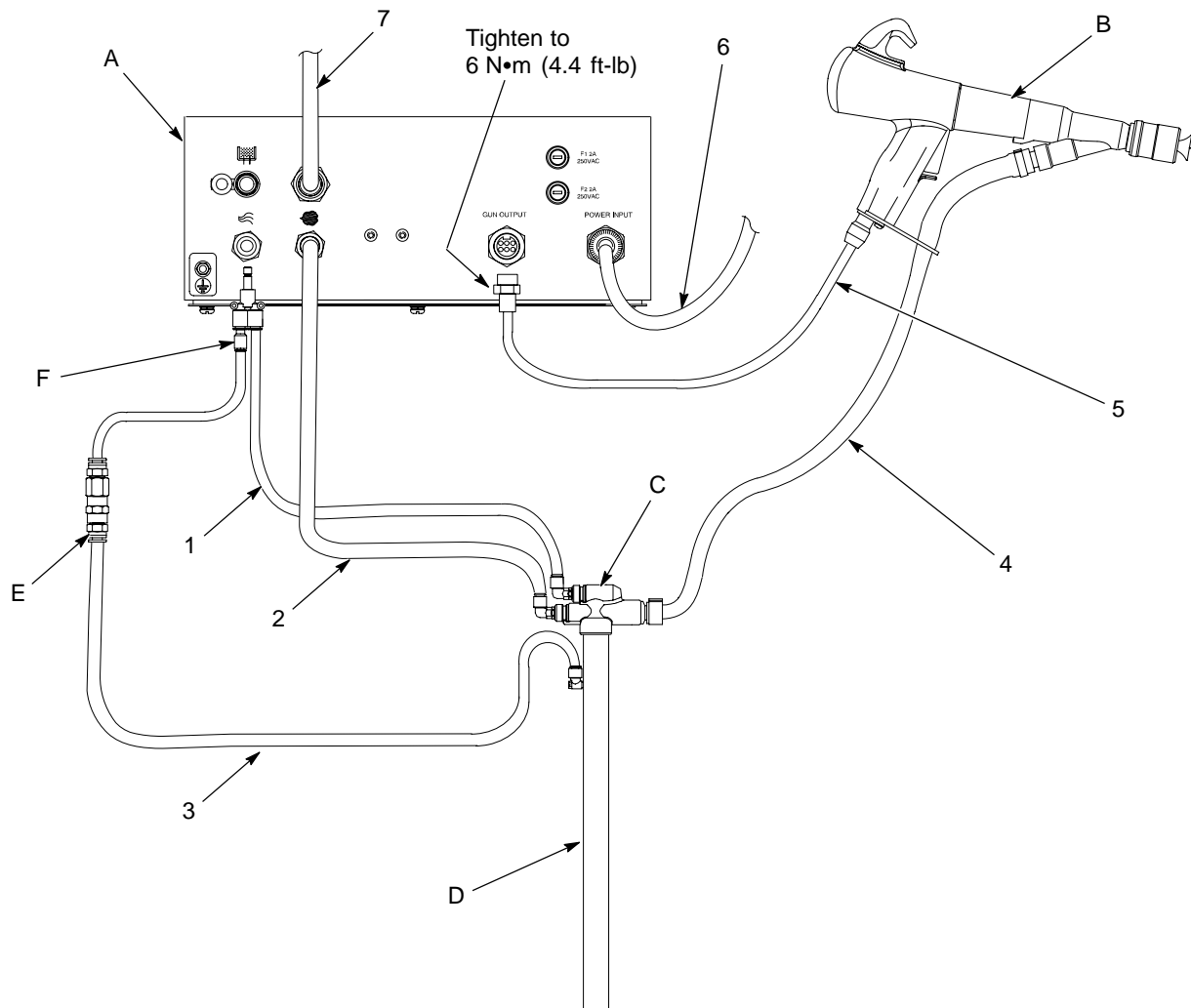
Tubing and Cable Connections

See Figure 7.

NOTE: Use the two hose clamps (provided with the feed hose) to secure the powder feed hose to the powder pump outlet and spray gun inlet.

Item	Description	Size	Control Unit Back Panel Connection	Other Equipment Connection
1	Atomizing Air Tubing (Blue)	8-mm OD	 Control Unit Y-Fitting	Powder Pump Elbow A
2	Flow Rate Air Tubing (Black)	8-mm OD		Powder Pump Elbow F
3	Fluidizing Air Tubing (Blue)	6-mm OD	 Fluidizing Air Fittings (E or F)	Pickup Tube Elbow
4	Powder Feed Hose (Blue)	12.7-mm (1/2-in.) ID	(not connected to control unit)	Powder Pump Outlet; Spray Gun Inlet
5	Spray Gun Cable	—	GUN OUTPUT (See Note)	Spray Gun Handle (prewired)
6	POWER INPUT Cable	—	POWER INPUT (prewired)	Vibratory Box Feeder Switch (Refer to <i>Electrical Connections</i> on page 4)
7	Air Supply Tubing (Blue)	10-mm OD	IN 0-100 PSI 0-7 BAR	Clean, Dry Air Source

NOTE: Tighten the gun cable retaining nut to 6 N•m (4.4 ft-lb). An optional 4-meter extension cable is available. Do not add more than two extension cables to the gun cable.



1400738B

Figure 7 Tubing and Cable Connections

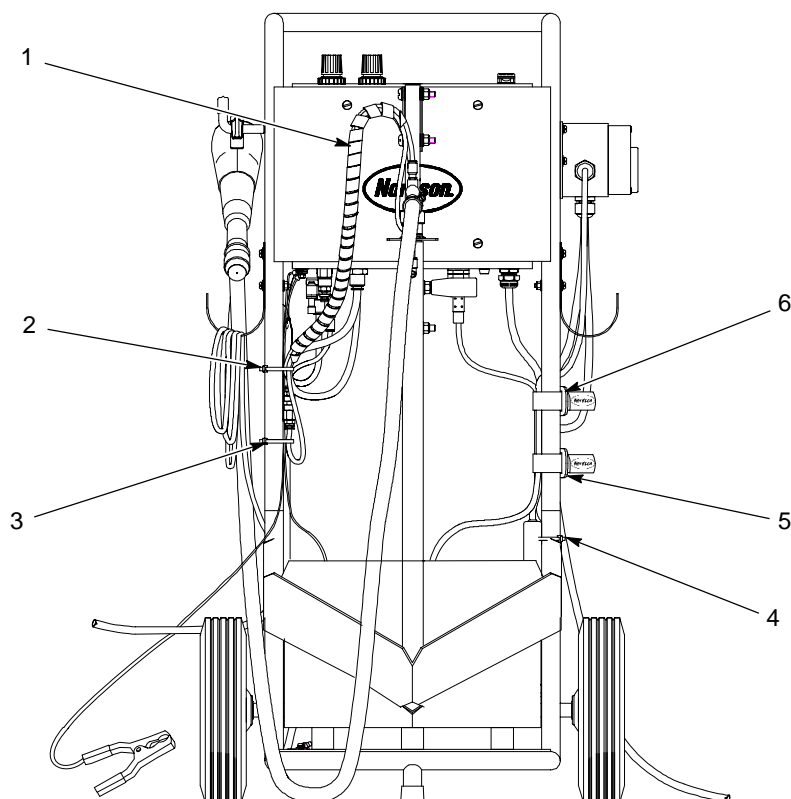
- | | | |
|----------------------------|---------------------------|--------------------------------|
| A. Control unit | 1. Blue, 8-mm air tubing | 5. Gun cable |
| B. Spray gun | 2. Black, 8-mm air tubing | 6. POWER INPUT cable |
| C. Pump | 3. Blue, 6-mm air tubing | 7. Blue, 10-mm air tubing (IN) |
| D. Pickup tube | 4. Powder feed hose | |
| E. Fluidizing air fittings | | |
| F. Fluidizing air fittings | | |

Note: Item E is used only with old-style, O-ring fit pickup tubes. If your system does not have an O-ring fit pickup tube, connect the blue, 6-mm air tubing (3) to item F.

Bundling Cables and Air Tubing

See Figure 8.

Item	Description	Bundle These Items Together to the Dolly Frame:
1	Spiral-Cut Tubing	Flow rate, atomizing, and fluidizing air tubing NOTE: Use the spiral-cut tubing only to bundle the air tubing together as shown. Use a cable tie (2) to secure the bundled tubing to the dolly frame.
2	Cable Tie	Three-ring ground wire; ground wire with clamp; and flow rate, atomizing, and fluidizing air tubing
3	Cable Tie	Three-ring ground wire; ground wire with clamp; and fluidizing air tubing
4	Cable Tie	Vibrator motor capacitor (220-volt systems only)
5	Hook and Loop Tape Strap	Control unit power cord, gun cable, vibrator motor cord and system power cord
6	Hook and Loop Tape Strap	Control unit power cord, gun cable, vibrator motor cord and system power cord

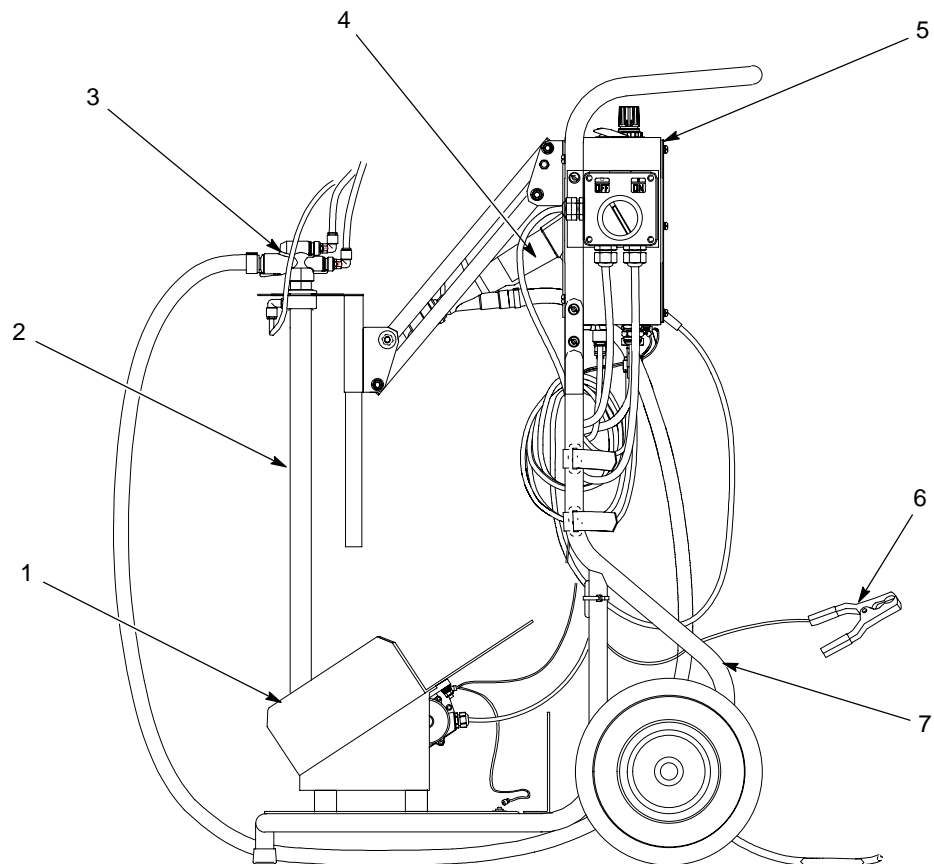


1400740C

Figure 8 Bundling Cables and Air Tubing

System Overview

Item	Description	Function
1	Vibratory Box Feeder	Vibrates a box of powder to promote even powder distribution in the box
2	Fluidizing Pickup Tube	Injects air into the powder at the end of the pickup tube, fluidizing the powder and preventing clogging
3	Powder Pump	Draws the fluidized powder coating up the fluidizing pickup tube and forces it through the powder feed hose and out to the spray gun
4	Powder Spray Gun	Electrostatically charges and sprays the powder coating
5	Control Unit	Adjusts the electrostatic and air flow characteristics of the system
6	System Ground Wire with Clamp	Connects all of the system components to a true earth ground
7	Dolly	Provides a central location for all system components and allows the system to be moved easily



1400312C

Figure 9 System Overview

Operation



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



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

Powder Box Installation

NOTE: The vibratory box feeder can hold 11-25 kg (25-55 lb) boxes of powder.

See Figure 10.

1. Pivot the pickup tube arm (6) upward as far as possible.
2. Pull the pickup tube and bracket (3, 4) out of the arm bracket (5).

NOTE: To store the pickup tube and bracket during box installation or maintenance, place the slot in the end of the pickup tube bracket onto the arm bracket as shown in the detail in See Figure 10.

3. Place a box of powder (2) in the vibratory box feeder cradle (1).
4. Fold back the box flaps and open the plastic bag containing the powder coating. Fold the bag over the box flaps to keep the flaps out of the way.

NOTE: Do not force the end of the pickup tube into the powder. During operation, vibration and gravity will cause the pickup tube to sink into the powder.

5. Pivot the pickup tube arm downward as far as it will go. Slide the pickup tube and bracket assembly into the arm bracket and allow the pickup tube to sink into the powder.
6. To prevent accidental powder spills, wrap the plastic bag around the pickup tube and loosely secure the bag with a tie wrap.

Startup



WARNING: All conductive equipment in the spray area must be connected to a true earth ground. Failure to observe this warning may result in a severe shock.

Make sure that the following conditions have been met before operating the Econo-Coat mobile powder spray system:

- All of the *Assembly* procedures on pages 2-10 have been completed.
 - The air supply system's filters and dryer are working properly.
 - The booth exhaust fans are operating.
 - The powder recovery system is operating.
 - The spray gun cable, powder feed hose, and air tubing are connected securely to controller, powder pump, and spray gun.
1. Secure the system ground wire with clamp (9) to a true earth ground.
 2. Set the control unit air pressures to zero by turning the flow rate and atomizing air regulators completely counterclockwise.
 3. Set the supply air pressure to 5-7 bar (80-100 psi).
 4. Install a box of powder onto the vibratory box feeder. Refer to *Powder Box Installation* for instructions.
 5. Turn the control unit power switch (7) to the on position.
 6. Turn the vibratory box feeder power switch (8) to the on position.

NOTE: The following air pressure settings are average starting points. Experimentation will be necessary to achieve the desired results. The flow rate and atomizing air pressures can only be adjusted while the spray gun is spraying.

7. Point the spray gun into the booth and hold down the trigger. Set the flow rate and atomizing air pressures to the following specifications:

Flow Rate Air: 2 bar (30 psi)

Atomizing Air: 0.7 bar (10 psi)

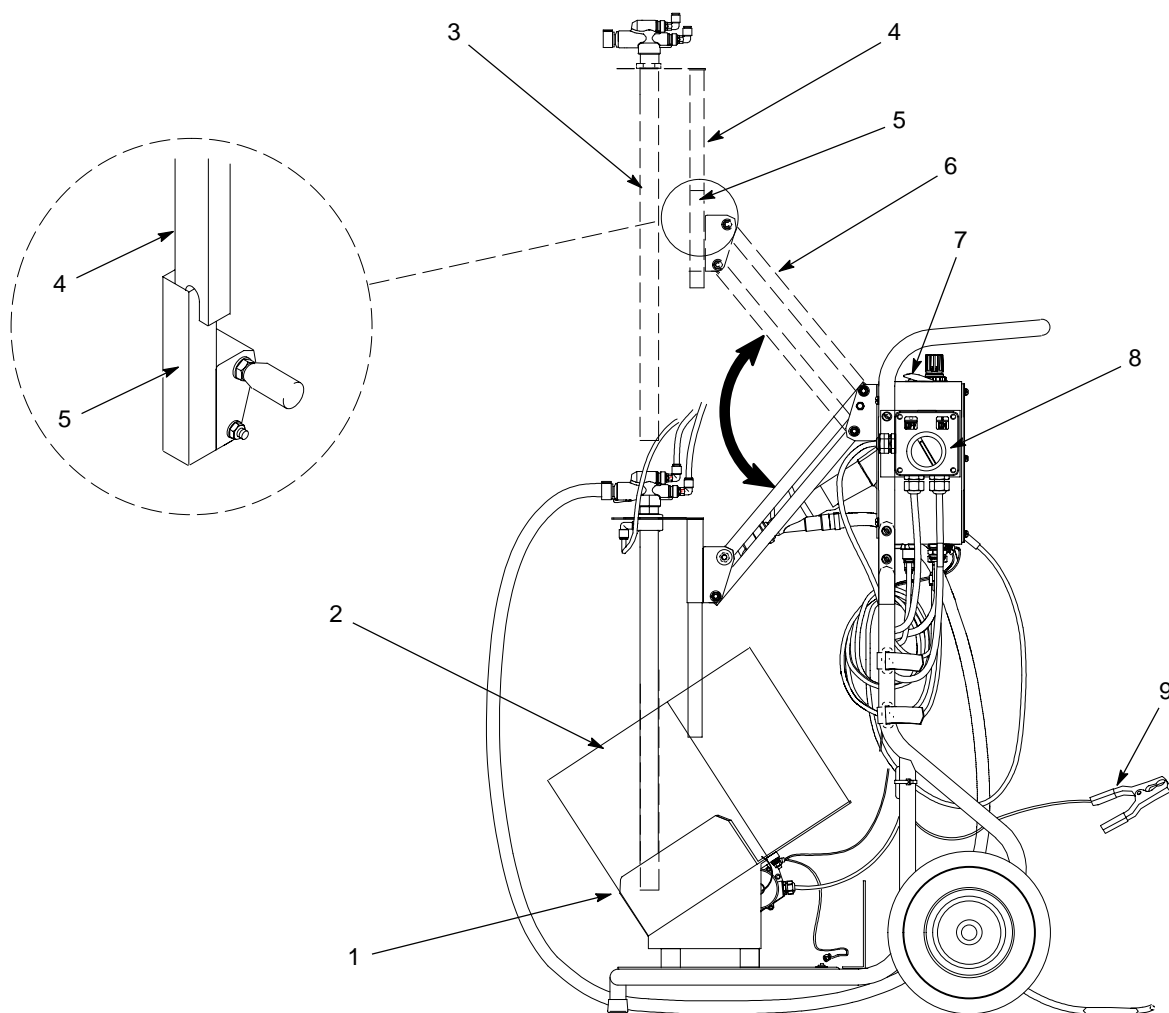
8. Adjust the kV or μ A setpoint as desired using the +/- keys.

NOTE: The kV increases or decreases in multiples of 1. The μ A increases or decreases in multiples of 5.

NOTE: To reset the kV setpoint to 0, press and hold the +/- keys at the same time.

9. Pull the spray gun trigger to test the spray pattern. Adjust the kV or μ A setpoint; the flow rate and atomizing air pressures; and spray gun nozzle to obtain the desired spray pattern.

- For a narrower spray pattern, slide the nozzle's pattern adjuster toward the front of the spray gun.
- For a wider spray pattern, slide the nozzle's pattern adjuster toward the back of the spray gun.



1400315C

Figure 10 Operation

- | | | |
|--------------------------------|------------------------|--------------------------------------|
| 1. Vibratory box feeder cradle | 4. Pickup tube bracket | 7. Control unit power switch |
| 2. Box of powder | 5. Arm bracket | 8. Vibratory box feeder power switch |
| 3. Pickup tube | 6. Pickup tube arm | 9. System ground wire with clamp |

Shutdown

1. Turn off the main air supply and relieve system air pressure.
2. Turn the flow rate and atomizing air regulators completely counterclockwise.
3. See Figure 10. Turn the vibratory box feeder power switch (7) to the off position.
4. Turn the control unit power switch (6) to the off position.
5. Disconnect the main air supply tubing from the air source.
6. If the control unit power cable is connected by a plug, disconnect the power cable from the power source.
7. Perform the *Daily Maintenance* procedures.

Daily Maintenance



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 the control unit and vibratory box feeder and disconnect the system from its input power source before performing any of the following tasks. Failure to observe this warning may result in a severe shock.



WARNING: Relieve system air pressure and disconnect the system from its input air supply before performing any of the following tasks. Failure to observe this warning may result in personal injury.

NOTE: If necessary, remove any O-rings and clean parts using a cloth dampened with isopropyl or ethyl alcohol. Do not immerse the parts in alcohol. Do not use any other solvents.

Perform the *Shutdown* procedure before completing any of the following daily maintenance procedures.

Component	Procedure
Spray Gun	Disassemble and clean the spray gun's powder path. Refer to the <i>Econo-Coat Manual Powder Spray Gun</i> manual for instructions.
Pump	Disassemble the pump and clean all parts using low-pressure, compressed air. Replace any worn or damaged parts. Refer to the pump manual for instructions.
Pickup Tube	Blow powder off all outer and inner surfaces using low-pressure, compressed air.
Control Unit	Wipe powder off the control unit using a clean, lint-free cloth.

Parts

NOTE: Replacement parts for the powder pump, spray gun, and control unit are listed in their own manuals.

System Part Numbers

These part numbers include all of the components included with the mobile powder spray system, including the dolly, spray gun, control unit, pump, pickup tube, and box feeder. If you do not know the input voltage of your system, compare the part number on the system identification plate to these part numbers. The system identification plate is located on the front of the dolly near the box feeder switch.

Part	Description
1018639	SYSTEM, dolly, vibratory box feeder, 220 volt, 50 Hz, Econo-Coat
1019713	SYSTEM, dolly, vibratory box feeder, 115 volt, 60 Hz, Econo-Coat

Dolly Parts

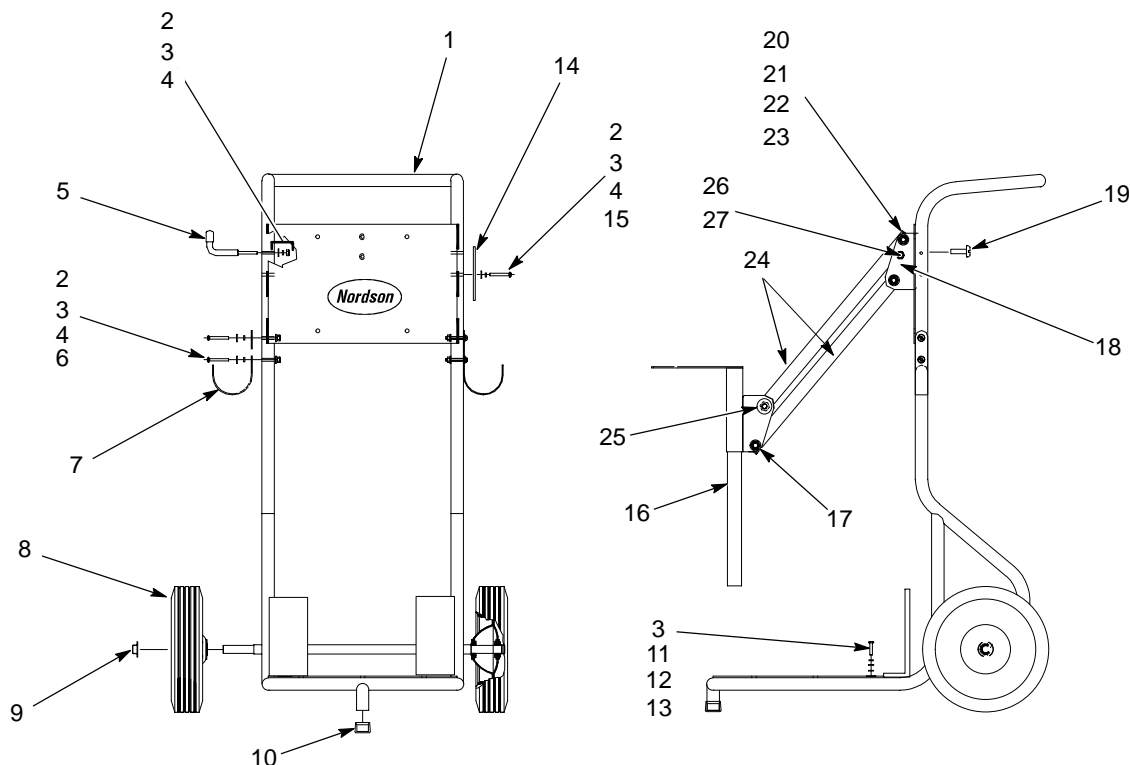
See Figure 11.

Item	Part	Description	Quantity	Note
1	-----	DOLLY, one piece, assembly	1	
2	-----	• NUT, hex, M5, steel, zinc	7	
3	-----	• WASHER, lock, helical spring, M5, steel, zinc	7	
4	-----	• WASHER, flat, M5, steel, zinc	13	
5	1018641	• BRACKET, handgun, two-wheeled dolly	1	
6	-----	• SCREW, pan, slotted, M5 x 40, steel, zinc	4	
7	164578	• BRACKET, hose/cable	2	
8	-----	• WHEEL, 10 x 2.75 in.	2	
9	-----	• CAP, push, 5/8-in. shaft (16 mm)	2	
10	-----	• CAP, tube, load bearing, 1.00 in.	1	
11	-----	• SCREW, pan, slotted, M5 x 25, brass	1	
12	-----	• WASHER, flat, M5, brass	2	
13	240674	• TAG, ground	1	
14	1018640	BRACKET, electrical box, two-wheeled dolly	1	
15	-----	SCREW, pan, slotted, M5 x 40, zinc	2	
16	1018642	BRACKET, slide, pickup tube	1	
17	-----	BRACKET, pivot, pickup tube, slide	1	
18	-----	BRACKET, pivot, box feeder arm	1	
19	860538	SCREW, pan head, slotted, M5 x 8, zinc	2	A
20	345169	SCREW, pan, slotted, M8 x 40, stainless steel	4	A
21	983263	WASHER, flat, M8, stainless steel	22	
22	983404	WASHER, lock, M8, steel, zinc	10	
23	-----	NUT, hex, M8, stainless steel with nylon insert	4	
24	-----	ARM, vibratory box feeder pickup tube	2	
25	-----	HANDLE, tapered, plastic, M8 x 1.25-in. thread	1	
26	-----	SCREW, shoulder, M6 x 1.0 x 30-mm shoulder	1	
27	-----	NUT, hex, M6, with nylon insert, stainless steel	1	
NS	1019752	HARNESS, grounding, 3 ring-tongue terminals	1	

NOTE A: These screws are installed with threadlocking adhesive.

NS: Not Shown

Dolly Parts (contd)



1400316B

Figure 11 Dolly Parts

Fluidizing Pickup Tubes

Two fluidizing pickup tubes are available for the mobile powder spray system:

- **One-Piece:** The fluidizing adapter is an integral part of the pickup tube and cannot be replaced separately. The one-piece pickup tube is easier to clean and maintain.
- **Threaded:** The replaceable fluidizing disk adapter is threaded onto the pickup tube. The threaded adapter stays securely on the pickup tube when you remove it from a box of powder.

Discontinued Pickup Tube

- **O-Ring Fit:** The replaceable fluidizing adapter fits onto the inner pickup tube with an O-ring.

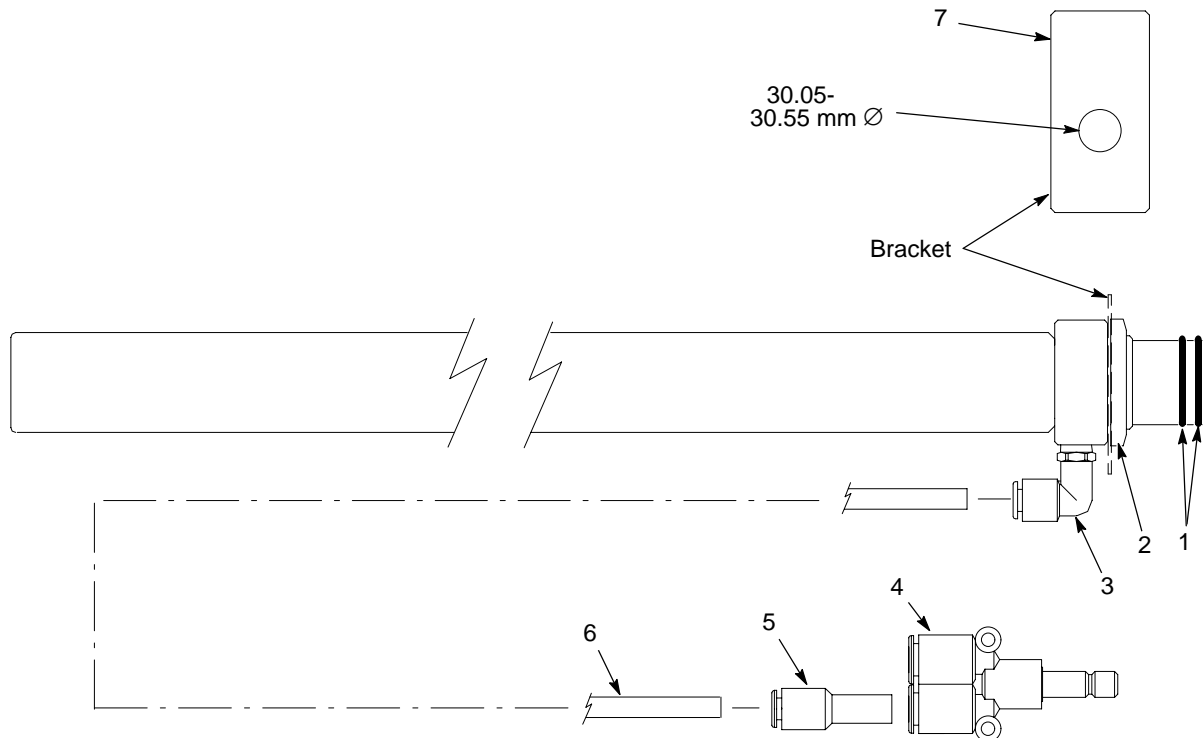
NOTE: The O-ring fit fluidizing pickup tube has been discontinued, but replacement parts are still available. Refer to *One-Piece Fluidizing Pickup Tube Kit* for information about upgrading from an existing O-ring fit pickup tube.

One-Piece Fluidizing Pickup Tube Kit

See Figure 12.

NOTE: If you replace an existing O-ring fit pickup tube with this kit, you must either drill out the hole to the size shown in Figure 12 or order a new bracket (7). The outside diameter of the new tube is greater than the diameter of the hole in the bracket.

Item	Part	Description	Quantity	Note
—	1043075	KIT, one-piece fluidized pickup tube, VBF	1	
1	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
2	1043595	• NUT, M30 x 1.5, NZ steel	1	
3	1043603	• ELBOW, male, 6 mm x 1/8 in.	1	
4	1020208	• CONNECTOR, plug-in Y, 8-mm tube	1	
5	972286	• REDUCER, 8-mm stem x 6-mm tube	1	
6	900742	• AIR TUBING, 6-mm OD x 4 mm, blue	6 ft	
7	1018642	BRACKET, slide, pickup tube	1	



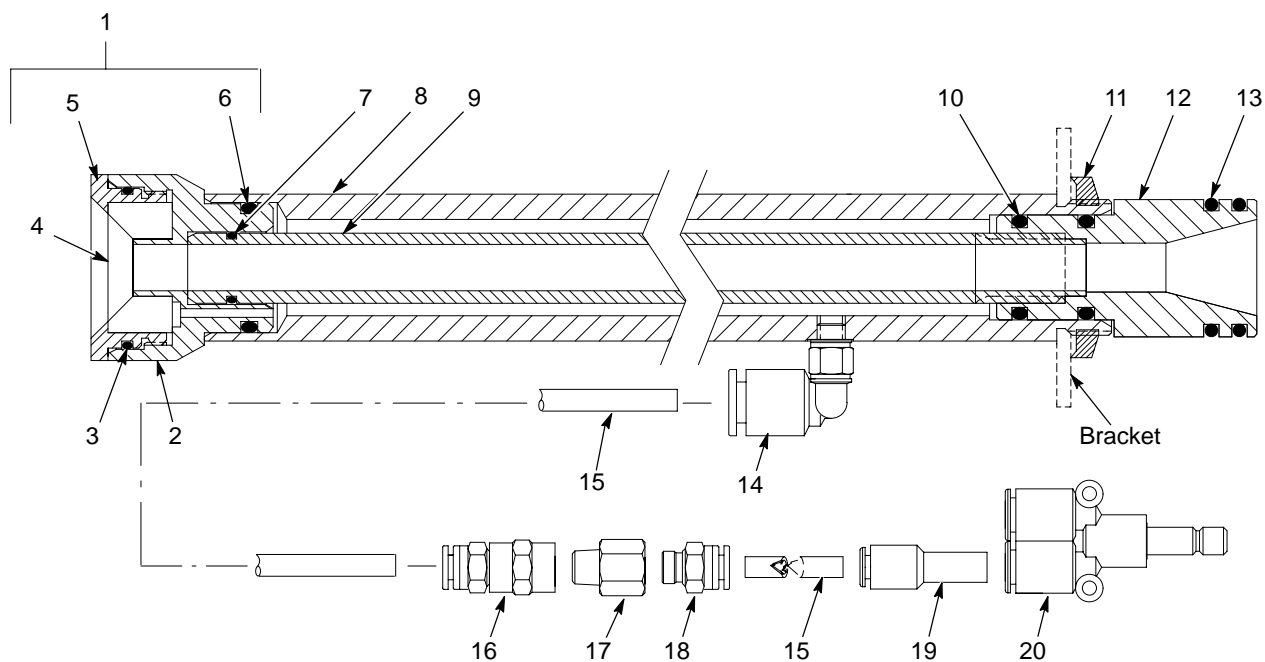
1401310A

Figure 12 One-Piece Fluidizing Pickup Tube Kit

O-Ring Fit Fluidizing Pickup Tube Kit (Discontinued)

See Figure 14.

Item	Part	Description	Quantity	Note
—	1019751	KIT, fluidizing pickup tube, O-ring fit, box feeder	1	
1	306175	• KIT, adapter, fluidizing	1	
2	305787	• • ADAPTER, insert, fluidizing box feeder	1	
3	940243	• • O-RING, silicone, 1.125 x 1.25 x 0.063 in.	1	
4	305789	• • INSERT, fluidizing disc, box feeder	1	
5	305786	• • CAP, pickup tube, fluidizing box feeder	1	
6	941178	• • O-RING, silicone, conductive, 0.812 x 1.00 in.	1	
7	940137	• O-RING, silicone, 0.437 x 0.562 x 0.063 in.	1	
8	305785	• TUBE, pickup, outer, fluidizing box feeder	1	
9	305784	• TUBE, pickup, fluidizing box feeder	1	
10	941145	• O-RING, silicone, conductive, 0.625 x 0.812 in.	2	
11	939613	• LOCKNUT, conduit, $\frac{3}{4}$ -in. NPS	1	
12	152227	• ADAPTER, pump, vibrator box feeder	1	
13	941185	• O-RING, silicone, conductive, 0.875 x 1.062 in.	2	
14	972310	• ELBOW, male, M5 x 6 mm	1	
15	900742	• AIR TUBING, 6-mm OD x 4 mm, blue	6 ft	
16	972157	• CONNECTOR, female, M6 tube x $\frac{1}{8}$ -in. RPT	1	
17	972243	• ORIFICE, 0.026, $\frac{1}{8}$ -in. NPT x $\frac{1}{8}$ -in. NPT	1	
18	972141	• CONNECTOR, male, 6-mm tube x $\frac{1}{8}$ -in. universal	1	
19	972286	• REDUCER, 8-mm stem x 6-mm tube	1	
20	1020208	• CONNECTOR, plug-in Y, 8-mm tube	1	



1400320A

Figure 14 O-Ring Fit Fluidizing Pickup Tube Kit

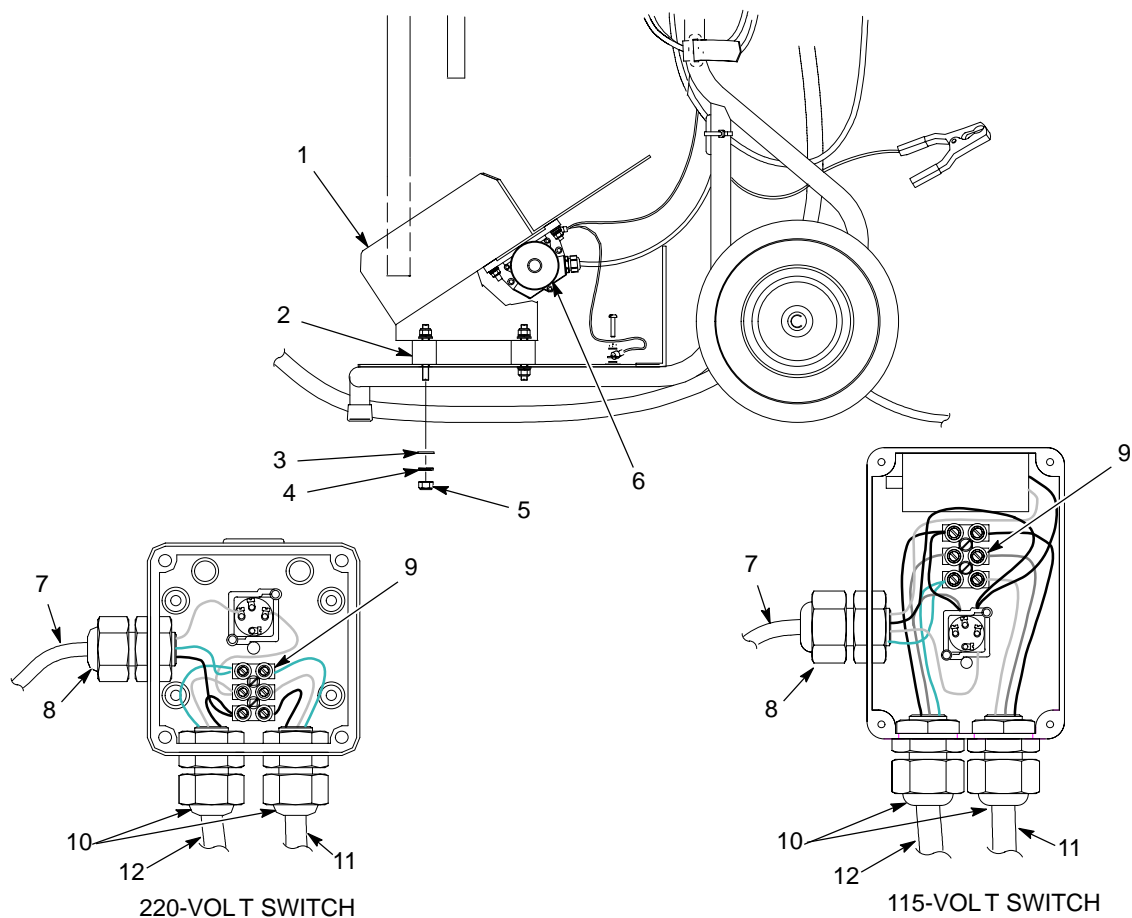
Vibratory Box Feeder

See Figure 15.

Item	Part	Description	Quantity	Note
1	-----	HOLDER, vibratory box assembly	1	
2	1018596	ISOLATOR, vibration, 3-mm dia x 8-mm studs	3	
3	-----	WASHER, flat, M8, stainless steel	6	
4	-----	WASHER, lock, M8, steel, zinc	6	
5	-----	NUT, hex, M8, stainless steel with nylon insert	6	
6	1005703	VIBRATOR, electrical, 220 V, 50 Hz	1	A
6	1005702	VIBRATOR, electrical, 115 V, 60 Hz	1	A
7	-----	CABLE, vibratory box feeder	1	
8	-----	CABLE GLAND, M16 x 1.5	1	
9	-----	TERMINAL BLOCK, 3 pole	1	
10	-----	CABLE GLAND, M20 x 1.5	2	
11	1010223	CORD, power, controller to J-box	1	B
12	140794	CABLE, SO, power, 16/3, 90 D, black, blue-brown-green/yellow	15 ft	

NOTE A: Check the voltage on your existing vibrator before ordering.

B: Power cord 1010223 is included with the control unit.



1400317C

Figure 15 Vibratory Box Feeder Parts

Air Tubing, Powder Feed Hose, and Accessories

The following parts are shipped with the system.

NOTE: Order all air tubing and powder feed hose in increments of one foot.

Part	Description	Quantity
900740	AIR TUBING, 10/6.5-7 mm, polyurethane (IN)	AR
900618	AIR TUBING, 8-mm OD, blue, polyurethane (atomizing)	AR
900619	AIR TUBING, 8-mm OD, black, polyurethane (flow)	AR
900742	AIR TUBING, 6/4 mm, blue, polyurethane (fluidizing)	AR
900650	POWDER TUBING, 12.7 mm (0.5 in.), blue	AR
900517	SPIRAL-CUT TUBING, polyurethane, 0.62-in. ID	AR
939247	CLAMP, hose, snap-it	2
939004	STRAP, cable, 0.06-1.75 in., natural	3
301841	STRAP, Velcro, with buckle, 25 x 3 cm	2
AR: As Required		

Issued 5/06

Original copyright date 2002. Econo-Coat, Nordson, and the Nordson logo are registered trademarks of Nordson Corporation.

Viton is a registered trademark of DuPont Dow Elastomers. L.L.C.