# Econo-Coat® Mobile Powder Spray System with Hopper

## Introduction

See Figure 1. The Econo-Coat mobile powder spray system is a complete manual system mounted to a two-wheeled dolly.
Refer to *System Overview* on page 7 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 spray gun (1), powder pump (2), hopper (3), and control unit (6), can be found in the manuals that were shipped with them.

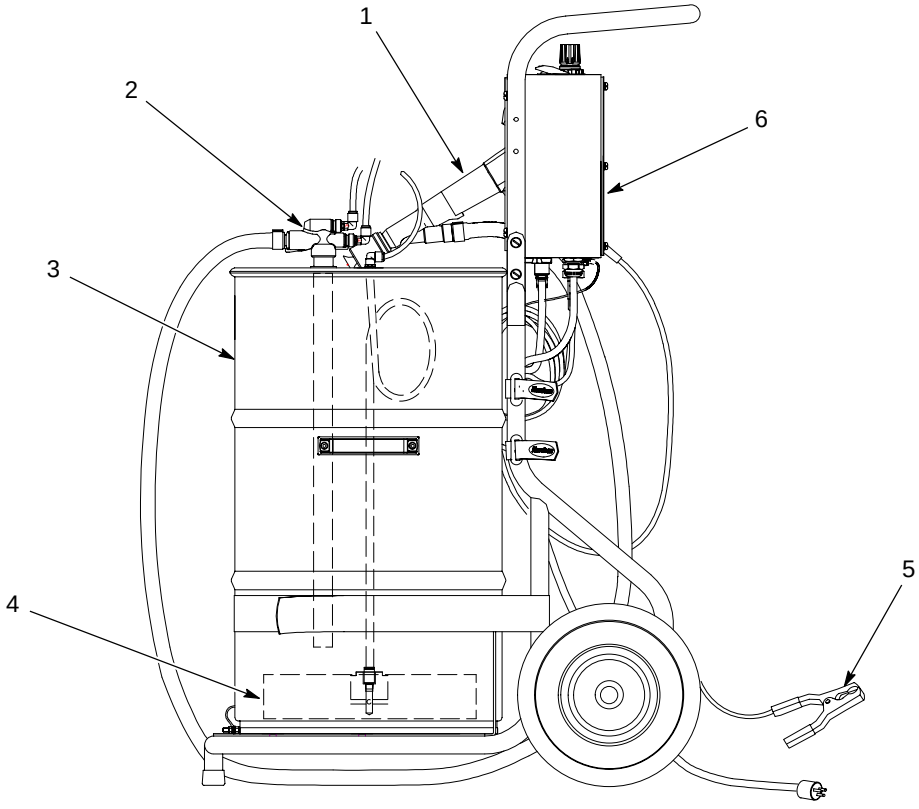


Figure 1 Econo-Coat Mobile Powder Spray System with Hopper

1. Powder spray gun
2. Powder pump and pickup tube assembly
3. Hopper
4. Fluidizer
5. System ground wire with clamp
6. Control unit

*Note:* Refer to *System Overview* on page 7 for a description of the parts identified in Figure 1.

# 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*

**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 |
|---|---|
| **Control Unit** | 1. Remove the four screws and washers (7) from the top of the control unit (8).<br>2. Place the top of the control unit against the back of the dolly.<br>3. Secure the control unit to the dolly using the four screws and washers (7). |
| **Hopper** | 1. Unclamp the clamp ring (3) and remove the lid (4) from the hopper (2).<br>2. Remove the vent hose (9), hose clamp (10), elbow fittings, and hopper parts list from inside the hopper.<br>3. Install the 10-mm elbow fitting (14) into the center of the hopper lid.<br>**NOTE:** The 8-mm elbow fitting is not used with the Econo-Coat system.<br>4. Place the lid on the hopper and clamp the clamp ring.<br>5. Set the hopper onto the dolly.<br>6. Secure the hopper to the dolly frame using the large hook and loop tape strap (1). |
| **Powder Pump** | Using a slight twisting motion, push the powder pump (5) onto the pump mount (6). |
| **Vent Hose** | Secure the vent hose (9) to the lid's vent stub (11) using the hose clamp (10). |
| **Ground Wires** | 1. Clamp the lid ground wire (12) to the ground stud at the bottom of the hopper.<br>2. Clamp the hopper ground wire (13) to the ground stud on the base of the dolly. |

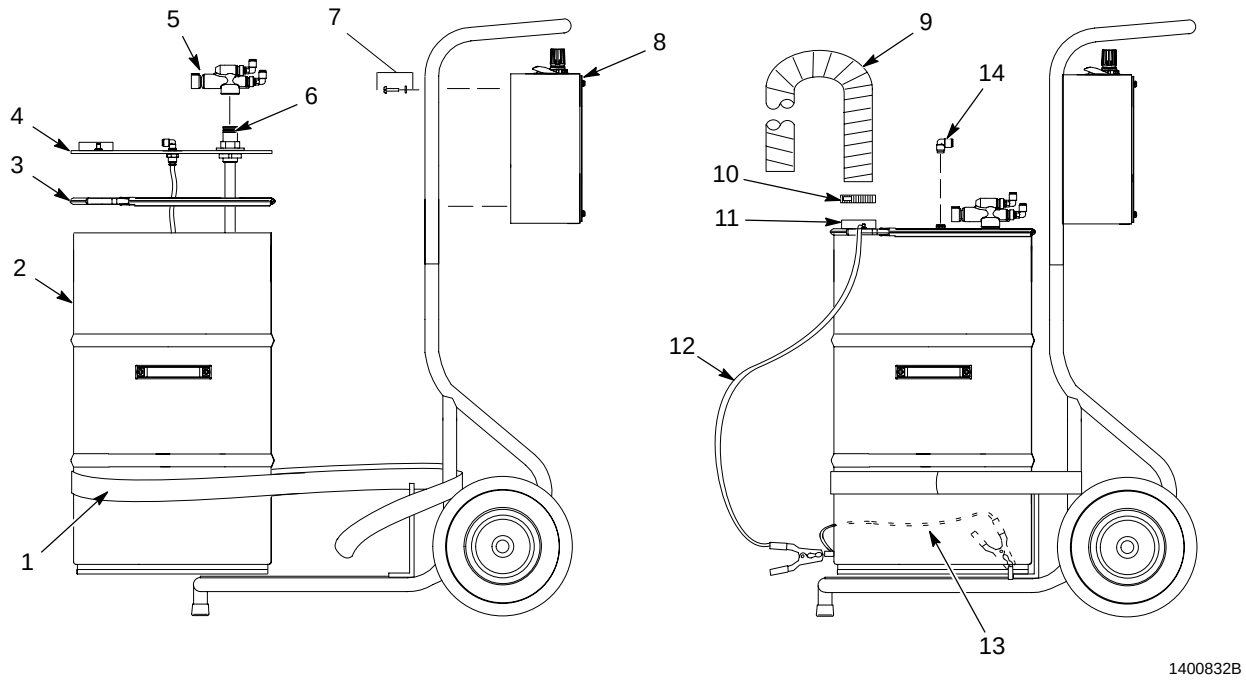


Figure 2 Component Assembly

1. Strap
2. Hopper
3. Clamp ring
4. Lid
5. Powder pump
6. Pump mount
7. Screws and washers
8. Control unit
9. Vent hose
10. Hose clamp
11. Vent stub
12. Lid ground wire
13. Hopper ground wire
14. 10-mm elbow fitting

## *Connections*

**NOTE:** Use the two provided snap-it clamps to secure the powder feed hose to the powder pump and spray gun.

Make all of the connections explained in Table 1.

See Figure 3.

Table 1 Connections

| Item | Description | Size | Control Unit Back Panel Connection | Other Equipment Connection |
|---|---|---|---|---|
| 1 | Ground Wire with Clamp | — |  | True Earth Ground |
| 2 | Fluidizing Air Tubing (Blue) | 10-mm OD |  | Hopper Lid Elbow Fitting |
| 3 | Atomizing Air Tubing (Blue) | 8-mm OD |  | Powder Pump Elbow **A** |
| 4 | Flow Rate Air Tubing (Black) | 8-mm OD |  | Powder Pump Elbow **F** |
| 5 | Powder Feed Hose (Blue) | 12.7-mm ($^1/_2$-in.) ID | (not connected to control unit) | Powder Pump Outlet; Spray Gun Inlet |
| 6 | Spray Gun Cable | — | **GUN OUTPUT** (See Note) | Spray Gun Handle (prewired) |
| 7 | POWER INPUT Cable | — | **POWER INPUT** (prewired) | Customer-Supplied Plug (Refer to *Control Unit Power Cable Plug*) |
| 8 | Air Supply Tubing | 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.

## *Control Unit Power Cable Plug*

See Figure 3. Wire the control unit's POWER INPUT cable (7) to either an electrical panel or a customer-supplied plug.

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

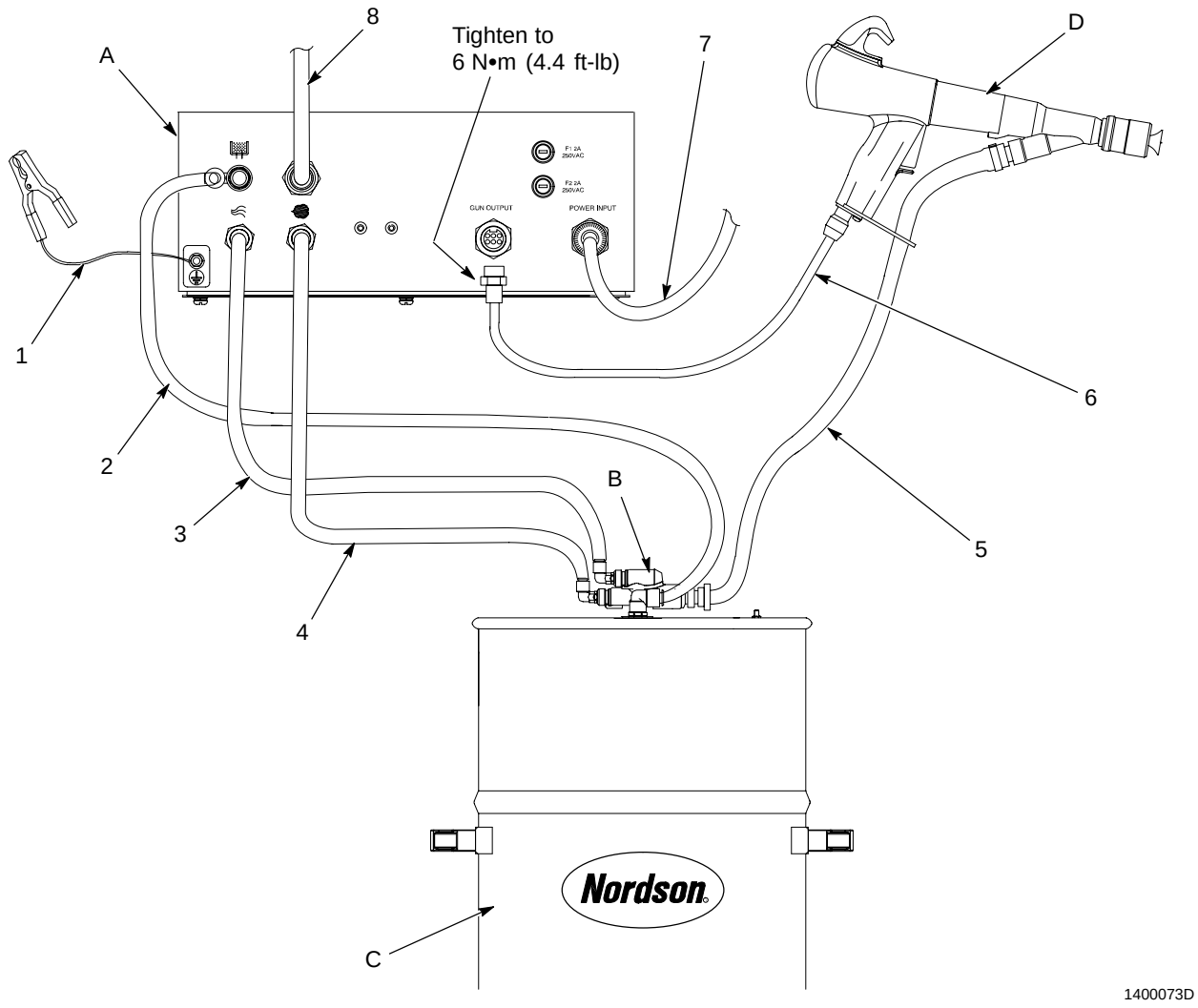


Figure 3 Connections

A. Control unit
B. Powder pump
C. Hopper
D. Spray gun

1. Ground wire with clamp
2. Blue, 10-mm air tubing (fluidizing)
3. Blue, 8-mm air tubing (atomizing)
4. Black, 8-mm air tubing (flow rate)
5. Feed hose
6. Gun cable
7. POWER INPUT cable
8. Blue, 10-mm air tubing (IN)

## *Bundling Cables and Air Tubing*

See Figure 4.

| Item | Description | Bundle These Items Together to the Dolly Frame: |
|---|---|---|
| 1 | Spiral-Cut Tubing | Flow rate, atomizing, and fluidizing air tubing<br><br>**NOTE:** Use the spiral-cut tubing only to bundle the air tubing together as shown. Use a strap (2) to secure the bundled tubing to the dolly frame. |
| 2 | Hook and Loop Tape Straps | Air tubing bundle, control unit ground wire with clamp, air supply tubing |
| 3 | Hook and Loop Tape Straps | Gun cable and power supply cable |

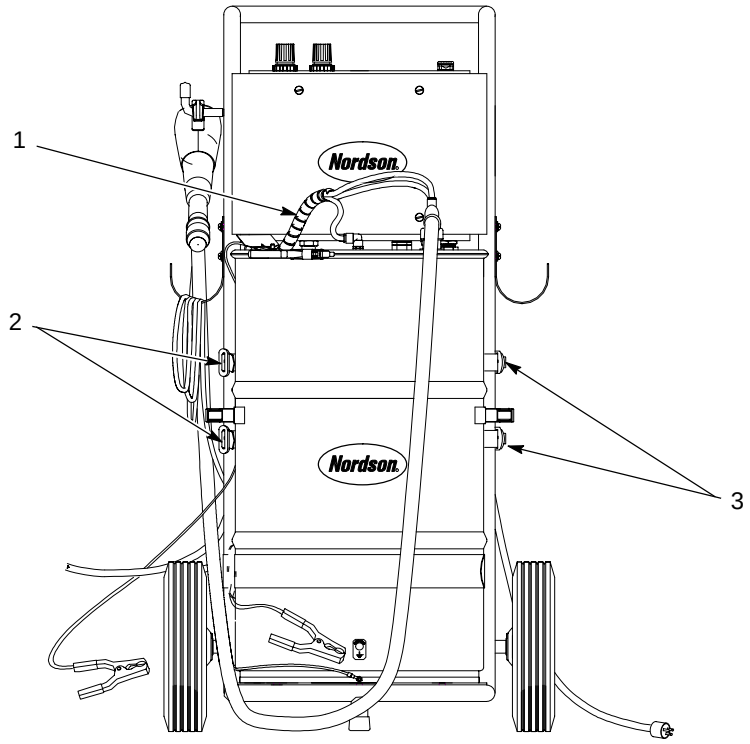


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Figure 4 Bundling Cables and Air Tubing

# System Overview

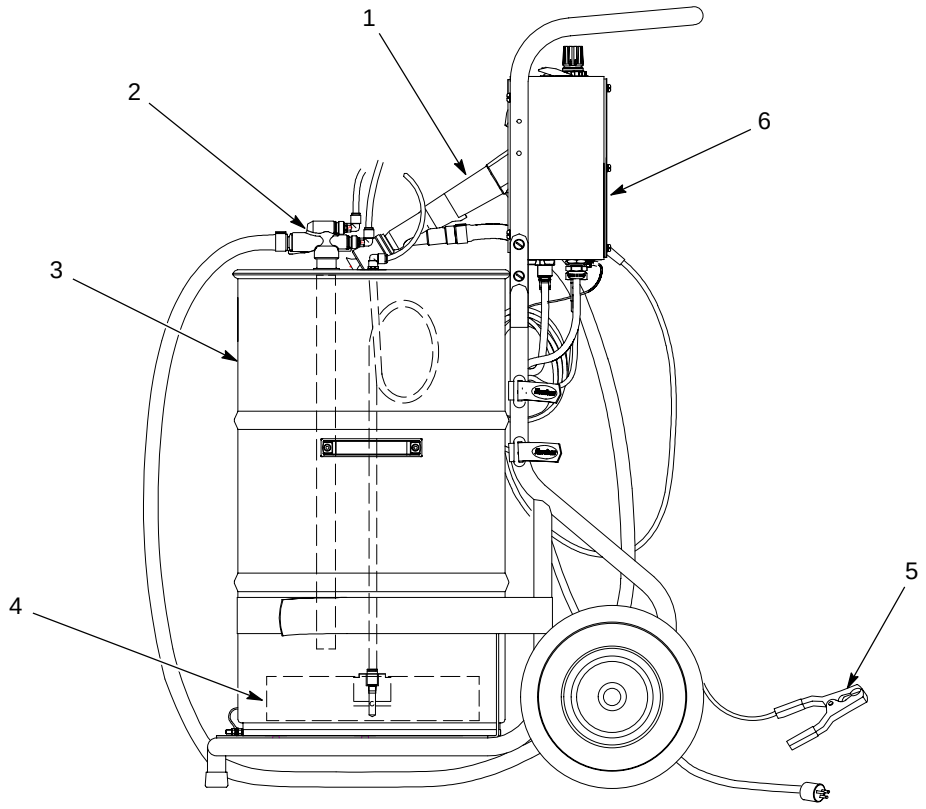


Figure 5 System Overview

Table 2 System Overview

| Item | Description | Function |
|---|---|---|
| 1 | Powder Spray Gun | Electrostatically charges and sprays the powder coating |
| 2 | Powder Pump and Pickup Tube Assembly | Conveys the fluidized powder coating out of the hopper, through the feed hose, and to the powder spray gun |
| 3 | Hopper | Contains the powder coating<br><br>**NOTE:** Standard, 23-kg (50-lb) hopper shown. An optional 11.3-kg (25-lb) hopper is available. |
| 4 | Fluidizer | Diffuses air into the powder coating, causing it to boil like a liquid |
| 5 | System Ground Wire with Clamp | Connects all of the system components to a true earth ground |
| 6 | Control Unit | Controls the electrostatic and air flow characteristics of the system |

# 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.

This section explains the basic procedures necessary to operate the Econo-Coat mobile powder spray system.

## *Filling the Hopper*

**NOTE:** Standard hopper is shown. The standard hopper's capacity is 23 kg (50 lb) of powder. An optional, 11.3-kg (25-lb) hopper is also available.

See Figure 6.

1. Unclamp the clamp ring and remove the hopper lid (1) and pickup tube assembly.

**CAUTION:** Do not overfill the hopper. Filling the hopper more than $^2/_3$ full may cause the powder to fluidize improperly, the pump to clog, and uneven spray patterns or surging from the spray gun.

2. Add new powder coating to the hopper until it is $^2/_3$ full.
3. Place the lid on the hopper and clamp the clamp ring.

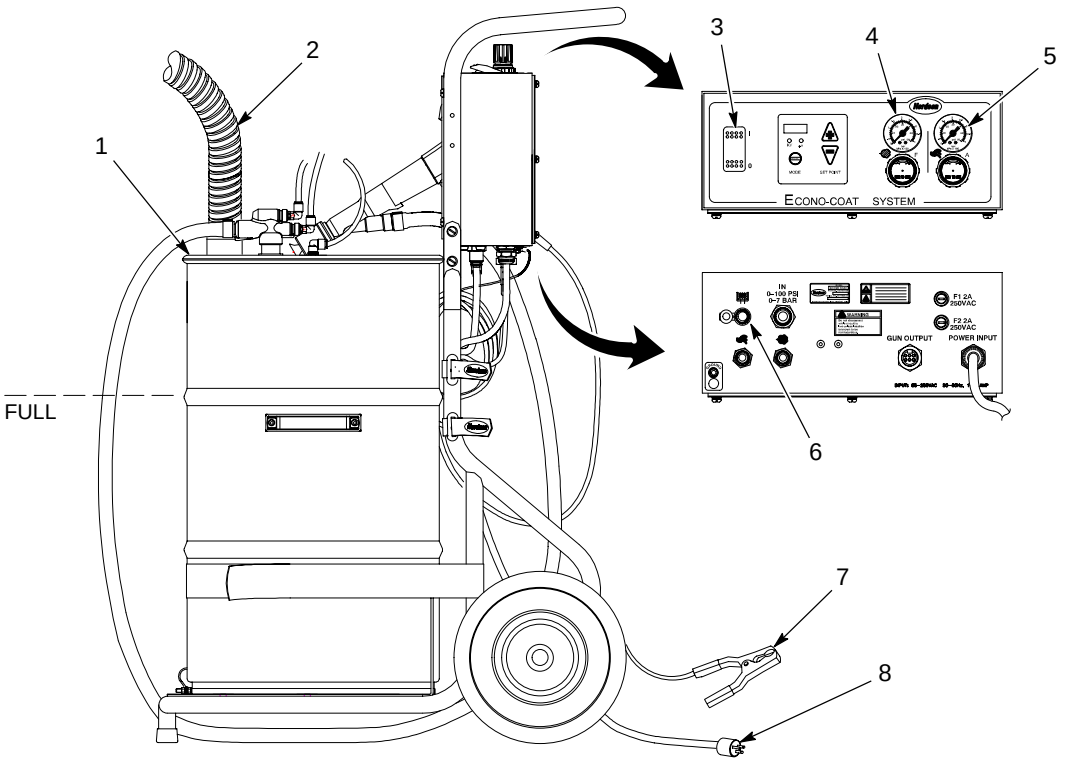


Figure 6 System Operation

1. Hopper lid
2. Vent hose
3. Control unit power switch
4. Flow rate air regulator/gauge
5. Atomizing air regulator/gauge
6. Fluidizing air valve
7. Ground wire
8. Control unit power cable

## 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 2-6 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 control unit, powder pump, and spray gun.

See Figure 6.

1. Clamp the system ground wire (7) to a true earth ground.
2. Plug the control unit power cable (8) into an appropriate power source.
3. Make sure the dolly's 10-mm air supply tubing is connected to a source of clean, dry air. Set the supply air pressure to 5-7 bar (80-100 psi).
4. Fill the hopper $^2/_3$ full with new powder coating. Refer to *Filling the Hopper* on page 8 for instructions.
5. Connect the hopper vent hose (2) to a vent stub on the booth collector module. If a vent stub is not available, set the end of the vent hose in the booth near the collector module.
6. Turn the control unit power switch (3) 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. Turn the fluidizing air valve (6) counterclockwise $^1/_2$ turn. Allow the powder in the hopper to fluidize for at least 5 minutes.
8. Point the spray gun into the booth and hold down the trigger. Set the flow rate (4) and atomizing (5) air pressures to the following specifications:

   **Flow Rate Air:** 2 bar (30 psi)

   **Atomizing Air:** 0.7 bar (10 psi)
9. Adjust the kV or µA to the desired setting using the +/- SET POINT keys.

**NOTE:** The kV increments in multiples of 1. The µA increments in multiples of 5.

**NOTE:** To reset the kV to 0, press and hold the +/- SET POINT keys at the same time until the display displays 0.

10. Pull the spray gun trigger to test the spray pattern. Adjust the kV or µA; 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.

## Shutdown

See Figure 6.

1. Turn off the main air supply and relieve system air pressure.
2. Turn the fluidizing air valve (6) completely clockwise.
3. Turn the control unit power switch (3) to the off position.

**NOTE:** If the system is remaining at its current location, you do not have to disconnect the supply air tubing, power cable, or ground wire unless you perform the *Daily Maintenance* procedures on page 10.

4. Disconnect the main air supply tubing from the air source.
5. Unplug the control unit power cable from the power source and unclamp the system ground wire.
6. Perform the *Daily Maintenance* procedures on page 10.

# 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 unplug its INPUT POWER cable 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.

Refer to Table 3.

**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 entire *Shutdown* procedure on page 9 before completing any of the following daily maintenance procedures.

Table 3 Daily Maintenance Procedures

| Component | Procedure |
|---|---|
| Spray Gun | Disassemble and clean the spray gun's powder path. Refer to the *Econo-Coat Manual Powder Spray Gun* 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. |
| Control Unit | Wipe powder off the control unit cabinet using a clean, lint-free cloth. |
| Hopper | Empty the hopper and clean the interior. Clean the fluidizer and inspect the fluidizing membrane for discoloration or damage. If the membrane is discolored or damaged, replace the fluidizer. Check the air supply and correct any contamination problems. |

# Parts

**NOTE:** Replacement parts for the powder pump, hopper, spray gun, and control unit can be found in their own manuals.

## *Dolly*

See Figure 7.

| 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 | |

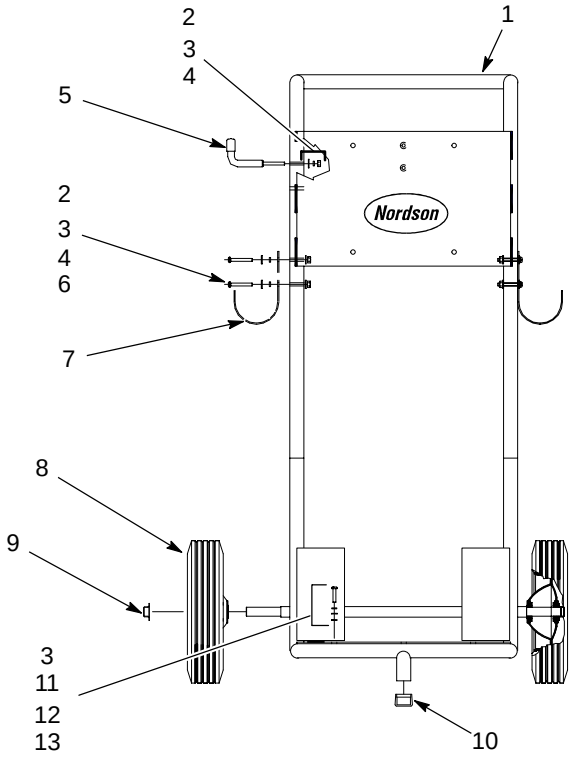


Figure 7 Dolly Parts

## *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 | Note |
|---|---|---|
| 900740 | AIR TUBING, polyurethane, 10 mm, blue | |
| 900618 | AIR TUBING, polyurethane, 8-mm OD, blue | |
| 900619 | AIR TUBING, polyurethane, 8-mm OD, black | |
| 900650 | POWDER TUBING , 12.7 mm (0.5 in.), blue | |
| 939247 | CLAMP, hose, snap-it | |
| 301841 | STRAP, hook and loop tape, with buckle, 25 x 3 cm | |
| 1036033 | STRAP, cinch, hook and loop, hopper retaining | |
| 900517 | SPIRAL CUT TUBING, polyurethane, 0.62-in. ID | |

## *Hoppers*

| Part | Description | Note |
|---|---|---|
| 1027649 | 50-lb HOPPER, one piece, assembled | A |
| 1036144 | 25-lb HOPPER, one piece, assembled | B |

NOTE A: The 50-lb hopper is shipped with the Econo-Coat mobile powder spray system.
B: The 25-lb hopper must be ordered separately.

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