NPE-LF10 and NPE-HF10 Powder Spray Guns

Customer Product Manual
Part 108191C
Issued 6/03

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

Nordson Corporation welcomes requests for information, comments, and inquiries about its products. General information about Nordson can be found on the Internet using the following address: http://www.nordson.com.

Address all correspondence to:

Nordson Corporation
Attn: Customer Service
555 Jackson Street
Amherst, OH 44001

NPE-LF10 and NPE-HF10 Powder Spray Guns

Safety

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include

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

Regulations and Approvals

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

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

Personal Safety

To prevent injury follow these instructions.

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

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

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

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

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

Action in the Event of a Malfunction

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

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

Disposal

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

Safety Label

Table 1 contains the text of the safety label on this equipment. The safety label is provided to help you operate and maintain your equipment safely.

Table 1 Safety Label

Part	Description
244644	 **WARNING:** The following procedures MUST be followed when working with this electrostatic spray equipment. Failure to follow these instructions may result in a fire and/or serious personal injury. Display this warning on the spray booth.  1. NO SMOKING. Keep open flames, hot surfaces, and sparks from torches or grinding away from booth. 2. Turn the electrostatic power unit off when the spray gun is not in use. 3. Shut down immediately in event of fire. 4. Maintain ground circuit on all conductive objects below 1 megohm to prevent sparking. (ANSI/NFPA 33, Chapter 9, or local codes). 5. Shut down operation and correct grounds if sparking occurs. 6. Install fixed fire suppression system in accordance with ANSI/NFPA 33, Chapter 7 (or local codes), before operating with combustible powder. 7. Install automatic flame detectors in accordance with ANSI/NFPA 33, Chapter 7 (or local codes), before operating automatic guns 8. Examine all equipment at the beginning of each work period and repair or replace any damaged, loose, or missing parts. 9. Before cleaning or performing any maintenance on the electrostatic spray gun, turn off the power unit and ground the nozzle. Maintain electrostatic spray equipment in accordance with instruction manual. Do not deviate. Do not substitute parts from other manufacturers.  10. Operator must be grounded to prevent shocks from static electricity. Floor surface must be conductive. Footwear and gloves must be static dissipative in accordance with ANSI Z41-1991 (or local codes). 11. Air velocity through all booth openings must meet local requirements and contain powder within the booth. If powder escapes from the booth, shut down operation and correct the malfunction.  12. Powder may be toxic or be a nuisance dust hazard. Refer to supplier's MSDS. If exposed to dust during operation, maintenance, or clean up, operators must use appropriate personal protective equipment. 13. Do not use compressed air or organic solvents for removal of powder from skin or clothing. Do use soap and water. Wash hands before eating or smoking. 14. Guns, feeders, booths, etc., may be cleaned with clean dry air at 1.7 bar (25 psig). If you have any questions concerning this electrostatic spray equipment, call (440) 988-9411, and ask to speak with the Powder Systems Group Technical Service Department.

Description

The NPE-LF10 and NPE-HF10 are corona-type automatic electrostatic powder spray guns. The NPE-LF10 is used in low-to-medium volume powder coating applications. The NPE-HF10 is used in high volume applications. A typical application is pipe coating, where the powder is sprayed onto hot pipe at close range. To allow the spray gun to function in these conditions, cooling air is circulated through the spray gun.

The NPE-LF10 and NPE-HF10 spray guns are the same except for the powder tube and nozzles, which are interchangeable. Conversion kits are available, one to convert a LF10 to a HF10, and one to convert a HF10 to a LF10. Different pumps and hoses are used with each version, and must be ordered separately.

The spray guns are used with Nordson model EXP-100 or -100M electrostatic power units. These power units can put out up to 100 kilovolts. The spray guns are connected to the power unit by electrostatic cables. Cables are available in 8- or 16-meter (25- or 50-ft) lengths. Venturi-type powder pumps supply powder to the spray guns.

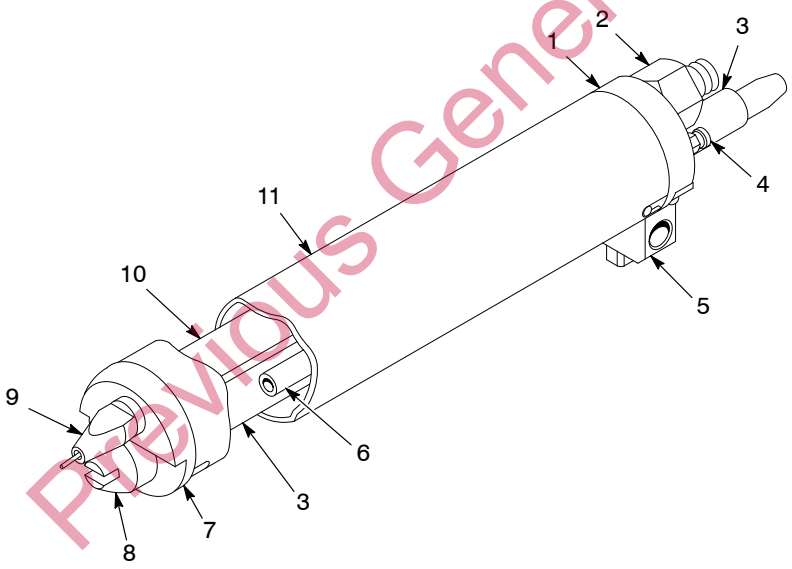

Figure 1 NPE-LF10 and HF10 Spray Guns

1. Rear support
2. Cable adapter
3. Powder tube
4. Cooling air connector
5. Tube clamp and mounting block
6. Cooling air tube
7. Front support
8. Nozzle
9. Electrode and support
10. Cable well
11. Cover

Specifications

Table 2 Dimensions

Dimensions	mm (in.)
Height	80 (3.125)
Length (overall)	389 (15.3)
Length (mounting hole forward)	306.4 (12)
Mounting hole diameter	13 (0.5)
Powder feed hose ID: NPE-LF10 NPE-HF10	 13 (0.5) 19 (0.75)

Air Supply

Powder spray systems require clean, dry, oil-free operating air. Moist or oil-contaminated air can cause the powder to clog in the pump venturi throat, feed hose, or gun passages.

Use 3-micron filter/separators with automatic drains and a refrigerated or regenerative desiccant-type air dryer that can produce a 3.4 °C (38 °F) or lower dewpoint at 6.89 bar (100 psi).

Installation

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

WARNING: Ground all electrically conductive equipment in the spray area. Ungrounded or poorly grounded equipment can store an electrostatic charge that can give personnel a severe shock or arc and cause a fire or explosion.

See Figure 2.

Gun Mounting

Unpack the spray gun and install it on a gun mounting bar (6), gun stand, or reciprocator arm. The clamp on the gun mounting bar shown in Figure 2 is used with square or round bars (1) up to 25-mm (1-in.) in diameter.

The hole in the gun mounting block (7) is 13-mm ($^1/_2$-in.) in diameter. Tighten the square head screw in the mounting block to hold the spray gun in a fixed position.

Electrostatic Cable Installation

The electrostatic cable is the high-voltage link between the power unit and the spray gun. The cable must be properly installed and maintained. If it is damaged, the high voltage can burn through the cable, arc to a grounded object, and start a fire or explosion.

WARNING: Protect electrostatic cables from mechanical damage and strong solvents. Inspect and test the cable frequently. A damaged cable used in a hazardous environment can cause a fire or explosion that could result in personal injury and property damage.

1. Remove the electrostatic cable (8) from the shipping box and carefully unroll it. Establish a protected path between the electrostatic power unit and the spray gun for the cable. The power unit end of the cable has a metal tag on the threaded fitting and is tipped with a brass ball.

NOTE: Do not bend the cable around a radius of less than 150 mm (6 in.) at stationary points or 200 mm (8 in.) at flexing points.

2. Secure the cable to the gun mounting bar and other supports so it is off the floor and out of the way of moving equipment. If you are mounting the spray gun on a reciprocator, secure the cable so it will not be damaged by repeated rubbing against nearby equipment or the floor. Allow enough slack to prevent any strain on the cable.

CAUTION: Clean the cable ends before connecting the cable to the gun and power supply. Contaminants on the cable ends can cause arcing between the voltage source and ground. This will damage the cable and can significantly reduce gun performance.

3. Make sure the cable ends are clean and dry. Use isopropyl alcohol to clean the cable ends.
4. Look into the cable adapter (9) and make sure the insulating tube is filled with dielectric grease. Insert the spray gun end of the cable into the cable adapter until it is pressing against the resistor spring (item 7, Figure 3). Wipe off the dielectric grease extruded from the cable adapter.

WARNING: The cable end and resistor spring must be completely embedded in dielectric grease. Air pockets could allow the high voltage to arc and burn through the insulating tube and cable well.

5. Thread the cable retaining nut onto the cable adapter and tighten it by hand.
6. Remove the dust cap from the power unit cable well.
7. Remove the shipping spacer from the well and fill it with dielectric oil.
8. Insert the cable end into the well until it contacts the bottom. Thread the cable retaining nut onto the cable well and tighten it by hand. Wipe up any spilled oil.

Powder-Feed Hose Installation

1. Locate the spiral-cut tubing (4) and snap clamp (5) furnished with the spray gun. Install them over the end of the powder feed hose (2).
2. Connect the powder-feed hose to the spray gun's powder tube. Secure the hose to the tube with the snap clamp. Move the spiral-cut tubing up the hose to prevent it from kinking where it connects to the powder tube.

NOTE: If possible, the powder-feed hose should be no longer than 8 m (25 ft). Longer lengths will decrease the flow of powder and may cause uneven powder spray patterns or puffing.

Cooling Air Connection

Connect $^1/_4$-in. flexible air tubing (3) between a regulated supply of compressed air and the tube connector in the spray gun.

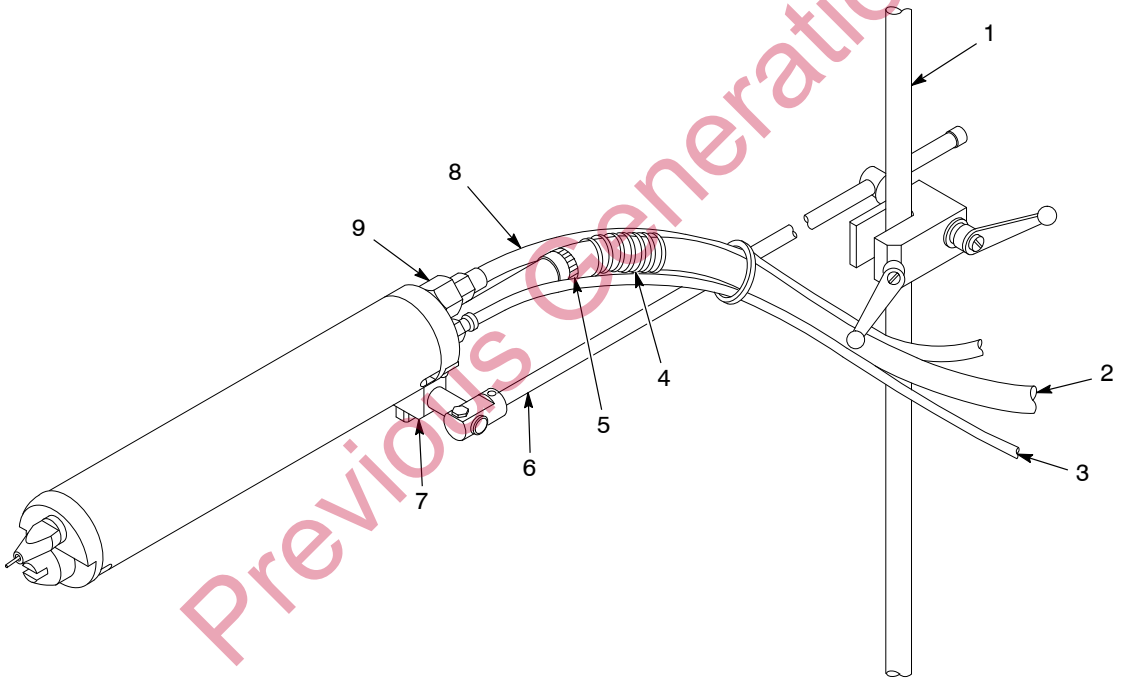

Figure 2 Gun Installation

1. Reciprocator arm or gun stand
2. Feed hose
3. $^1/_4$-in. air tubing
4. Spiral-cut tubing
5. Snap clamp
6. Gun mounting bar
7. Mounting block
8. Electrostatic cable
9. Cable adapter

Operation

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

Electrostatic and air pressure controls are located on the front panel of the electrostatic power unit. For complete operating instructions, refer to the power unit manual.

Start Up

1. Turn on the system electrical power and booth exhaust fans. Open the air supply valves.
2. Fill the powder-feed hopper $^2/_3$ full with clean, dry powder.
3. Turn on the fluidizing air. Adjust the pressure to the recommended listed in your hopper or power supply manual (typical pressure is 0.7–1.03 bar (10–15 psi)). Allow time for the powder to become completely fluidized before spraying.
4. Turn on the power unit. Adjust the air pressures as follows:

Air	Setting	Function
Atomizing	0.70 bar (10 psi)	Controls the density (powder-to-air ratio) of the powder and adds to the velocity. Keep this pressure as low as possible, but maintain a smooth flow of powder from the spray gun.
Flow rate	2.75 bar (40 psi)	Controls the volume and velocity of powder delivered to the spray gun
Cooling	0.70 bar (10 psi)	
NOTE: The pressures given above are typical for many applications, but will vary according to desired film build, line speed, and part configuration. Adjust them to obtain the desired results.		

5. Turn the power-unit kV switch on and adjust it to 100 kV. Coat a part or length of pipe and adjust the air pressures and kV to obtain the desired results.

Maintenance

Daily

Clean the spray gun and pump daily. Use compressed air to blow powder from the spray gun, pump, and feed hose. Do not blow powder through the feed hose from the gun to the pump. Disassemble the spray gun and pump and replace any worn parts.

Periodically

Check the resistance of the electrostatic cable and gun resistor with an ohmmeter or a 500 volt megohm meter. If the readings do not fall within the ranges in Table 3, replace the cable or resistor.

Table 3 Resistance Ranges (With New Electrode Assembly)

Part	Megohms
Cables, end to end*	179–269
Gun resistor	68.7–81.3
Power-unit end of cable to electrode*	246–351
* Applies to both 8- and 16-m cables (guns without tip resistor).	

NOTE: The tip resistor/electrode assembly used on earlier versions is no longer required. It is replaced by a new electrode assembly, without a resistor. You can replace the old tip resistor/electrode assembly with a kit that includes the electrode support and electrode, or, if your old electrode support is still useable, by a kit that includes only the new electrode. Refer to the *Parts* section, or contact your Nordson representative for more information.

If you are still using the tip resistor/electrode assembly, test your system using the resistance ranges in Table 4, and the cable and gun resistor ranges in Table 4.

Table 4 Resistance Ranges (With Tip Resistor)

Part	Megohms
Power-unit end of cable to electrode*	258–363
Tip resistor	10.8–13.2
Gun and tip resistor (spring end of gun resistor to electrode)	79.5–94.5
* Applies to both 8- and 16-m cables (guns with tip resistor).	

Troubleshooting

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

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Powder puffing or surging from spray gun	Atomizing air pressure too low	Increase the atomizing air pressure.
	Poor fluidization of powder in hopper	Increase the fluidizing air pressure.
	Wet powder	Inspect the powder in the hopper. Replace the powder if it is damp. Check the air supply filters and air dryer.
2. Powder drooling from spray gun	Poor atomization of powder	Increase the atomizing air pressure.
3. Uneven pattern or voids in pattern	Worn nozzle	Replace the nozzle.
	Impact fusion on interior surfaces of nozzle or powder tube	Remove the nozzle and clean or replace the parts as necessary. Do not use a sharp, pointed metal tool to clean the parts. Scratches on the powder-contact surfaces will accumulate powder and cause the powder to fuse on impact.
	Low atomizing air pressure	Increase the atomizing air pressure.
4. Inadequate or no powder flow	Plugged hose, pump, or spray gun	Disassemble the powder pump and spray gun and clean them. Blow out the feed hose. Inspect the powder supply for contamination by moisture or oil.
	Worn venturi nozzle or throat in pump	Disassemble the powder pump, inspect the parts, and replace them if they are worn.
	Power unit malfunction	Refer to the power unit manual.
	No or poor fluidization of powder in feed hopper	Increase the fluidizing air pressure. Inspect the fluidization plate for discoloration or other evidence of plugging.

Repair

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

See Figure 3.

Gun Resistor Replacement

The kit used to replace the gun resistor consists of a new resistor installed in an insulating tube packed with 12–14 cc of dielectric grease.

1. Unscrew the cable retaining nut from the cable adapter (1) and pull the cable out of the spray gun. Clean the end of the cable with a clean, lint-free cloth and inspect it for damage.
2. Unscrew the cable adapter from the cable well (5) and pull the old insulating tube (6) and resistor (7) out of the cable well. If necessary, remove the electrode assembly (10) and push the insulating tube out of the cable well.
3. Clean the cable well and inspect it for signs of arcing or carbon tracking. Replace it if it is damaged. Apply a small amount of Loctite SuperBonder 416 adhesive (8) on the front threads of the new cable well before you install it into the front support (9). Do not use adhesive on the rear threads of the cable well or rear support (2).
4. Install a new resistor kit in the cable well as shown.
5. Screw the cable adapter onto the cable well and tighten it securely.
6. Insert the cable end through the cable adapter and into the insulating tube. The cable end will act as a plunger, forcing the grease around the resistor spring and cable. Push the cable in until the resistor is pressing against the end of the electrode assembly.

WARNING: Once the cable is embedded in the dielectric grease inside the insulating tube, do not pull it out. The suction created by pulling the cable out of the tube will cause air pockets to form. The air pockets will allow the high voltage to arc within the tube. Refer to the *Electrostatic Cable Replacement* procedure for instructions.

7. Wipe any extruded dielectric grease off the cable. Thread the cable retaining nut onto the cable adapter and tighten it securely.

Powder Tube Replacement

1. Remove the nozzle (11) and loosen the tube clamp (14) screws.
2. Slide the powder tube (13) out of the spray gun.
3. Install new O-rings (12) on a new powder tube. The HF10 powder tube uses two O-rings; the LF10 uses one O-ring.
4. Slide the new powder tube into the spray gun until the O-ring at the inlet end is against the rear support. The O-ring serves as a stop to position the tube in the spray gun.

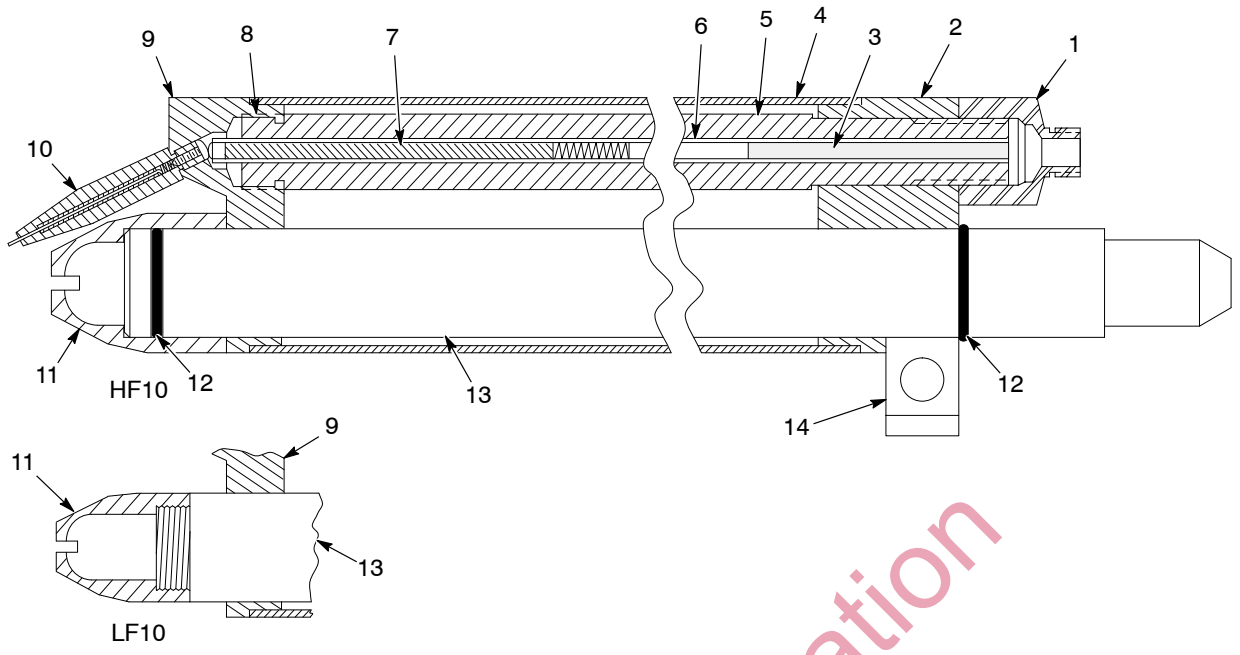

Figure 3 Resistor and Powder Tube Replacement

1. Cable adapter
2. Rear support
3. Dielectric grease
4. Cover
5. Cable well
6. Insulating tube
7. Resistor and spring
8. Thread adhesive
9. Front support
10. Electrode assembly
11. Nozzle
12. O-ring(s)
13. Powder tube
14. Tube clamp

Electrostatic Cable Replacement

Clean the old dielectric grease from the insulating tube with a round brush whenever you remove and replace the electrostatic cable without installing a new resistor kit. Warm two dielectric grease applicators by keeping them in your pocket for a few minutes or immersing them in warm water. Apply 12–14 cc of dielectric grease to the inside of the insulating tube before installing the cable.

Dielectric grease is available from Nordson Corporation in 10-cc syringes equipped with a flexible applicator end, 12 to a carton. Refer to *Options* on page 18 for the carton part number.

Refer to the *Electrostatic Cable Installation* procedure on page 7 for cable installation instructions.

Parts

To order parts, call the Nordson Industrial Coating Systems Customer Support Center at (800) 433-9319 or your local Nordson representative. Use the parts lists and the accompanying illustrations, to locate and describe parts correctly.

Using the Illustrated Parts List

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The number in the Part column is the Nordson Corporation part number. A series of dashes in this column (- - - - - -) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

- 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	Description	Quantity	Note
—	0000000	Assembly	1	
1	000000	• Subassembly	2	A
2	000000	• • Part	1	

This section consists of replacement parts lists for the NPE-LF10 and NPE-HF10 spray guns, and optional cables, powder feed hose, LF10 nozzles, gun mounting bar, and dielectric grease applicators.

WARNING: Use only genuine Nordson replacement parts to repair your Nordson equipment. Using unapproved parts in a high-voltage electrostatic system can be dangerous.

NPE-LF10 Gun

See Figure 4.

Item	Part	Description	Quantity	Note
—	171051	SPRAY GUN, automatic, NPE-LF10	1	
1	134532	• ADAPTER, cable, high-flow	1	
2	972716	• CONNECTOR, male, $^1/_4$-in. tube x $^1/_8$-in NPT	1	
3	134528	• HOUSING, rear, high-flow	1	
4	134732	• CLAMP, tube, powder	1	
5	983120	• LOCK WASHER, external, split, #10	2	
6	981117	• SCREW, round head, #10-32 x 0.50 in.	2	
7	982002	• SCREW, set, square head, M10 x 1.50	1	
8	941181	• O-RING, silicone, 0.875 x 1.063 x 0.094 in.	1	
9	133726	• TUBE, electrode, 300 mm (cooling air tube)	1	
10	134936	• WELL, cable, resistor, high-flow	1	
11	171054	• TUBE, powder, low-flow	1	
12	138186	• KIT, service, resistor, high-flow	1	A
13	138010	• TUBE, air, high-flow (cover)	1	
14	134527	• HOUSING, support	1	
15	229855	• KIT, electrode assembly	1	
16	229856	• • KIT, electrode, screw and spacer	1	
17	117158	• NOZZLE, powder, flat, 3.2-mm slot	1	
NS	900517	• TUBING, spiral-cut	AR	B
NS	939247	• CLAMP, hose, snap	1	
NS	244664	• TAG, warning	1	

NOTE A: Kit consists of insulating tube with resistor and grease installed.
B: Bulk quantity part number. Order in 1-ft or 1-m increments.
AR: As Required
NS: Not Shown

NPE-HF10 Gun

See Figure 4.

Item	Part	Description	Quantity	Note
—	134525	SPRAY GUN, automatic, NPE-HF10	1	
1	134523	• ADAPTER, cable, high-flow	1	
2	972716	• CONNECTOR, male, $^1/_4$-in. tube x $^1/_8$-in NPT	1	
3	134528	• HOUSING, rear, high-flow		
4	134732	• CLAMP, tube, powder	1	
5	983120	• LOCK WASHER, external, split, #10	2	
6	981117	• SCREW, round head, #10-32 x 0.50 in.	2	
7	982002	• SCREW, set, square head, M10 x 1.50 in.	1	
8	941181	• O-RING, silicone, 0.875 x 1.063 x 0.094 in.	1	
9	133726	• TUBE, electrode, 300 mm (cooling air tube)	1	
10	134936	• WELL, cable, resistor, high-flow	1	
11	137947	• TUBE, powder, high-flow	1	
12	138186	• KIT, service, resistor, high-flow	1	A
13	138010	• TUBE, air, high-flow (cover)	1	
14	134527	• HOUSING, support	1	
15	229855	• KIT, electrode assembly	1	
16	229856	• • KIT, electrode, screw and spacer	1	
17	134531	• NOZZLE, HF10, flat, 0.25 in./6.4-mm slot	1	
18	940203	• O-RING, silicone, 0.875 x 1.00 x 0.063 in.	1	
NS	900517	• TUBING, spiral-cut	AR	
NS	939247	• CLAMP, hose, snap	1	
NS	244664	• TAG, warning	1	

NOTE A: Kit consists of insulating tube with resistor and grease installed.
B: Bulk quantity part number. Order in 1-ft or 1-m increments.
AR: As Required
NS: Not Shown

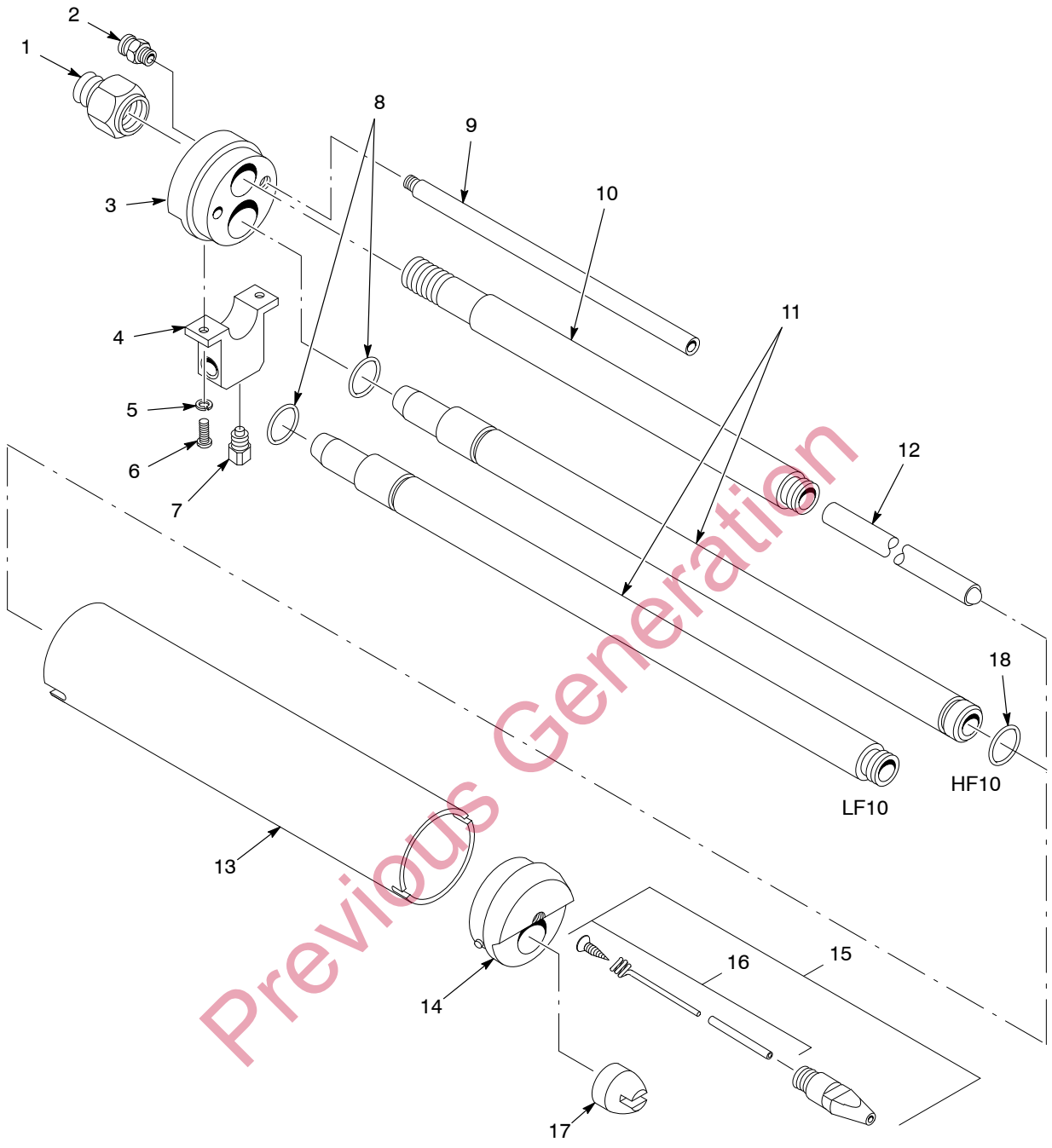

Figure 4 NPE-LF10 and NPE-HF10 Replacement Parts

Options

Option	Part	Description
Cables	138196	8 m, NPE, 4AH, LF10, HF10
	144681	16 m, NPE, 4AH, LF10, HF10
Powder Feed Hose (Notes A, B, C)	900724	TUBING, polyurethane, 12.3-mm (0.485-in.) ID
	900725	TUBING, polyurethane, 18.7-mm (0.735-in.) ID
NPE-LF10 Nozzles	247682	NOZZLE, powder, flat, 1.5-mm (0.06-in.) slot
	117157	NOZZLE, powder, flat, 2.4-mm (0.09-in.) slot
	117158	NOZZLE, powder, flat, 3.2-mm (0.13-in.) slot
	150864	NOZZLE, powder, flat, 4.0-mm (0.16-in.) slot
NPE-HF10 Nozzles	150865	NOZZLE, powder, flat, 4 mm (0.16 in.) slot
	150866	NOZZLE, powder, flat, 5 mm (0.197 in.) slot
	134531	NOZZLE, powder, flat, 6.4 mm (0.25 in.) slot
Gun Mounting Bar	249160	MOUNTING BAR, gun
Dielectric grease	247658	DIELECTRIC GREASE, 10-cc applicator (carton of 12)
Note A: Order the powder feed hose/tubing in one-foot increments.		
Note B: Tubing part, 900724, is used with NPE-LF10 and 4AH spray guns.		
Note C: Tubing part, 900725, is used with NPE-HF10 spray guns.		

Conversion Kits

LF10 to HF10

Part	Description	Quantity
171053	LF10 to HF10 CONVERSION KIT	1
137947	• TUBE, powder, high-flow	1
941181	• O-RING, silicone, 0.875 x 1.063 x 0.09 in.	1
940203	• O-RING, silicone, 0.875 x 1.00 x 0.063 in.	1
134531	• NOZZLE, HF10, 0.25/6.4-mm slot	1
939459	• CLAMP, hose	1

HF10 to LF10

Part	Description	Quantity
171052	HF10 to LF10 CONVERSION KIT	1
171054	• TUBE, powder, low-flow	1
941181	• O-RING, silicone, 0.875 x 1.063 x 0.094 in.	1
117158	• NOZZLE, LF10, 0.12/3.2-mm slot	1
939247	• CLAMP, hose	1