Encore® HD Automatic Powder Spray Guns

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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Change Record

Revision	Date	Change
03	1/14	Page 45 & 48 - Added Electrode assembly, flat spray Page 54 - Added conical nozzle kit and conical electrode assembly
04	6/14	New socket-head screws, spacers and grounding harness; new angled spray extensions; new nozzle P/N's
05	7/14	New flat and conical electrode holders
06	5/16	Released only (no changes)
07	8/16	Added power supply kits and spray gun part numbers
08	9/16	Nozzle part number change and ion collector plug added
09	1/18	Released external diffuser
10	2/18	1612462 was 1003572
11	2/18	Added fitting 1106373 to external diffuser kit
12	7/18	XD electrode support, updated spray gun dimensions and updated power supply resistance test nomenclature, added system numbers
13	2/19	Page 2-2 - Added ISO standard for air quality in Specifications Page 7-3 - Removed callout 10 and added callout 8 on Figure 7- 10 Page 8-3 - Added part numbers for 1- and 2- packaged spray guns
14	1/22	Removed ball from bar-mount images and parts list. Updated set screw 345385 to 1621743.
15	3/22	Updated approval information and SOCs
16	12/23	Updated range for resistence test.

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Section 1
Safety

Introduction

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include:

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

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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.

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Personal Safety

To prevent injury follow these instructions.

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

Fire Safety

To avoid a fire or explosion, follow these instructions.

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

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Grounding

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

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

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

Action in the Event of a Malfunction

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

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

Disposal

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

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Section 2

Overview

Encore® HD automatic electrostatic powder spray guns are available in tube-mount or bar-mount versions. The 156.2 cm (5.1-ft) tube-mount spray gun is standard; an optional 186.7 cm (6.1-ft) tube-mount spray gun is available. The bar-mount spray gun includes a swivel mount that fits into the end of the optional spray gun bar.

The spray guns are equipped with a 100 kV integral voltage multiplier and electrode air-wash to prevent powder from collecting on the electrode. The spray guns have a straight-through powder path to minimize impact fusion and a quick-disconnect powder hose connector for quick color change.

The spray guns are used with the Nordson Encore HD iControl® system, which provides electrostatic voltage control, electrode air-wash air, atomizing air, and HDLV® pump control.

Flat spray nozzles with 2.5- and 4-mm slots are shipped with the spray guns. Optional equipment includes:

- 8-, 12-, and 16-meter (26-, 39-, 52-ft) control cables, and a 4-meter cable extension
- Standard, pivoting, and fixed extrusion spray gun mounts for tube-mount spray guns
- Spray gun bar with 4-foot (1.21-m) bar and clamp for 25-mm (1-in.) mounting bars
- Angled spray extensions
- Ion collector kit
- A variety of flat, conical, and cross-cut nozzles

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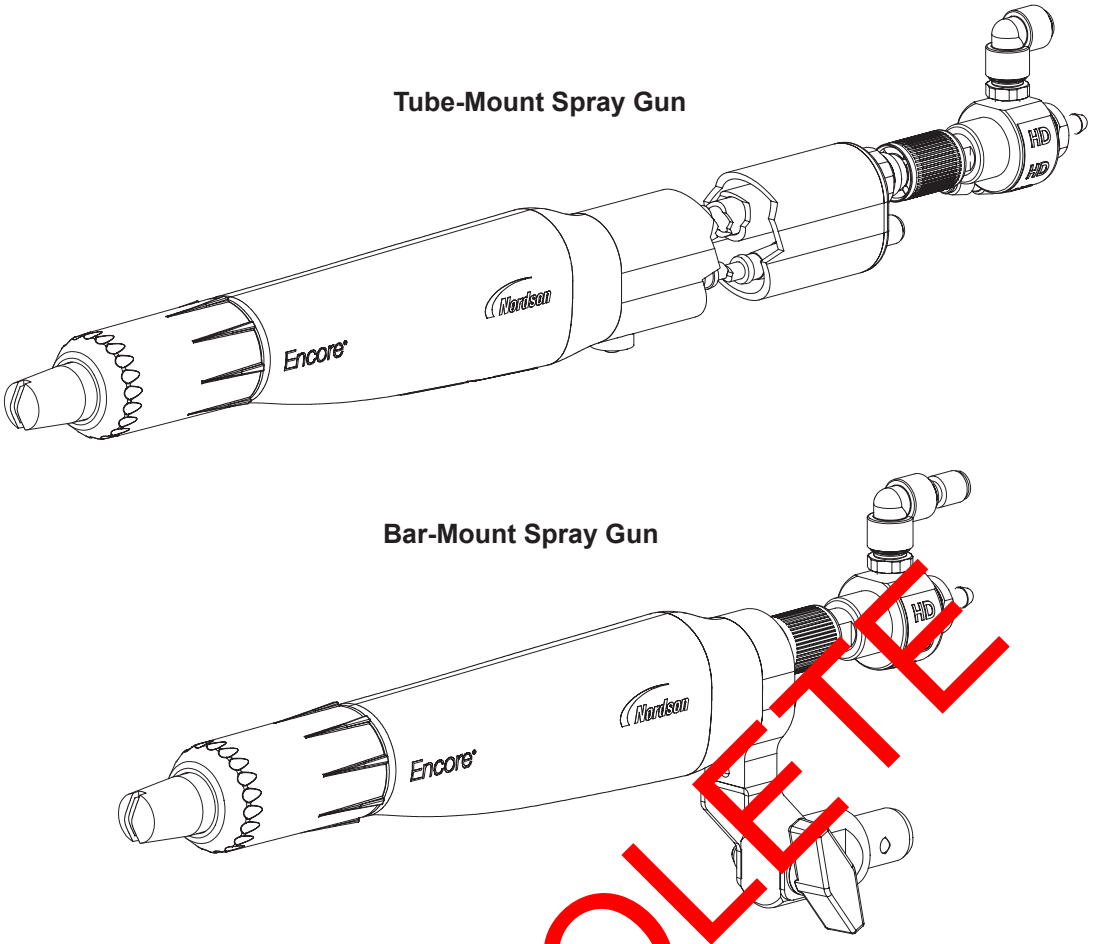

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Figure 2-1 Bar-Mount and Tube-Mount Spray Guns

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Specifications

Input Rating	Output Rating
+/- 19 VAC, +/- 1 A (Peak)	100 KV, 100 µA

Air Quality: ISO8573- 1:2010 Class 1.2.1

- Max Relative Humidity: 95% non-Condensing
- Ambient Temperature Rating: +15 to +40 _C (59- 104 _F)
- Hazardous Location Rating for Applicator: Zone 21 or Class II, Division 1

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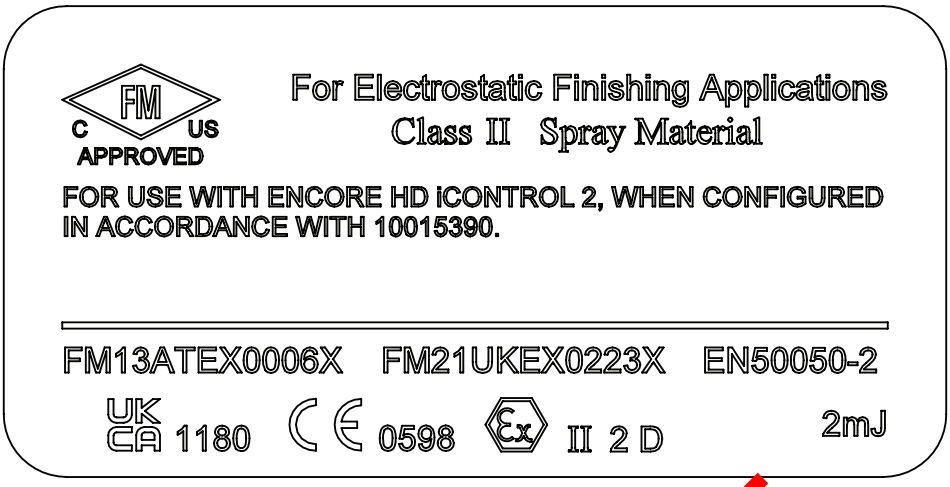
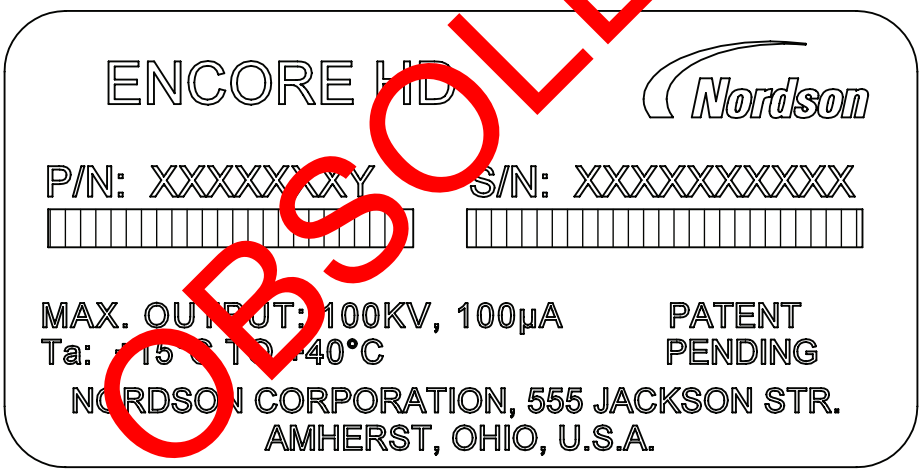
Applicator Certification Label



Serial Number Label

NOTE: The spray gun serial number contains the location, year, and month it was manufactured. The serial number starts with "AA10A". The "AA" means the product was built in Amherst, Ohio, the "10" meaning the year 2010. The "A" means the month of January, "B" would be February, and so on.



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Special Conditions for Safe Use

To meet EX requirements:

- The Encore HD powder electrostatic automatic applicators shall only be used with associated Encore HD iControl controllers over the ambient temperature range of +15 °C to +40 °C.
- The equipment must be installed and used in accordance with Standard EN50177.

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Dimensions and Weights

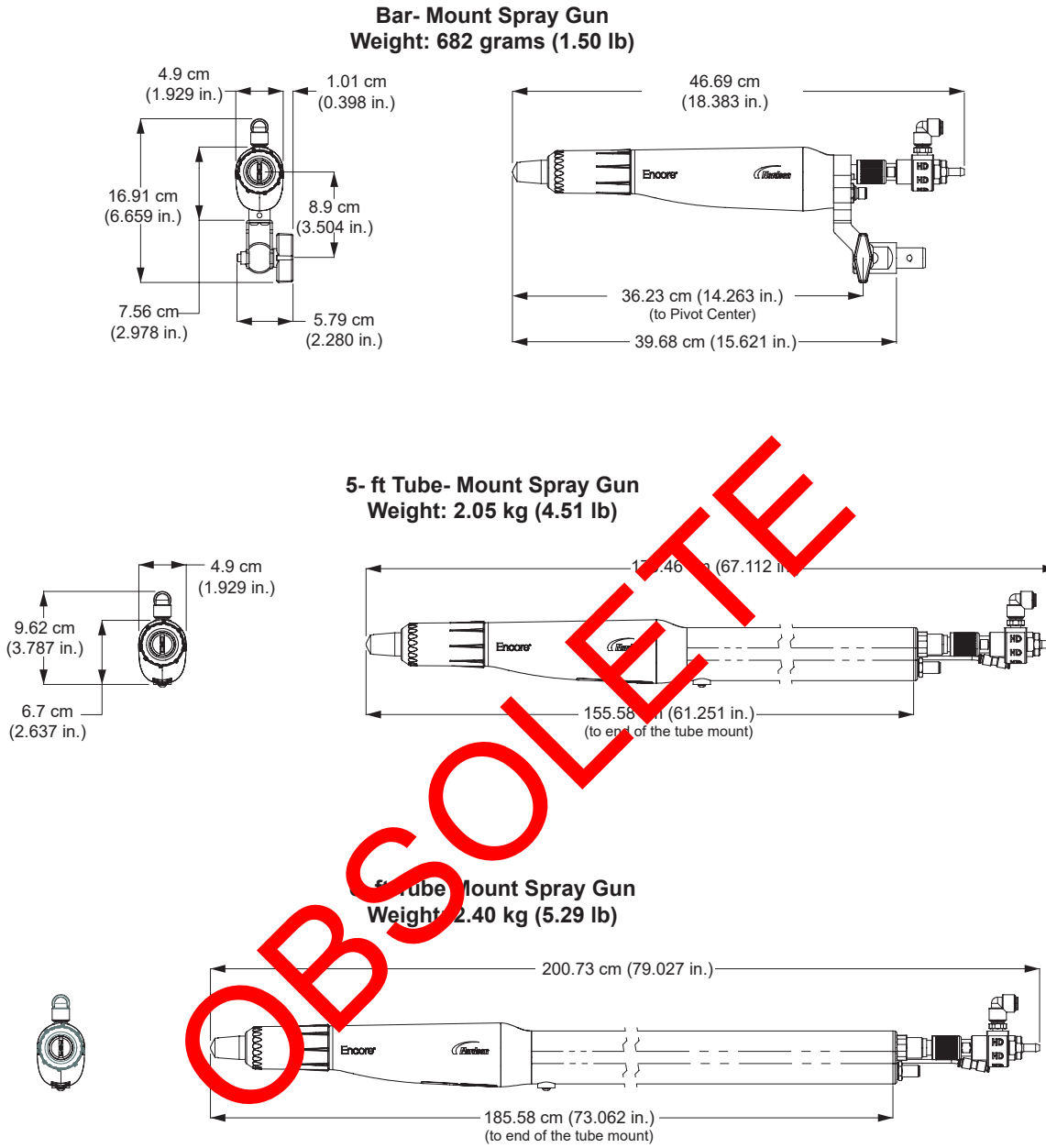

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Figure 2-2 Spray Gun Dimensions and Weights

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Section 3

Installation

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

Tube-Mount Spray Guns

Tube-mount spray gun mounting assemblies are optional. Refer to page 9-7 for assembly part numbers.

See Figure 3-1. Mount the tube-mount spray gun on a fixed spray gun stand, oscillator, or reciprocator using one of the mounting assemblies shown below.

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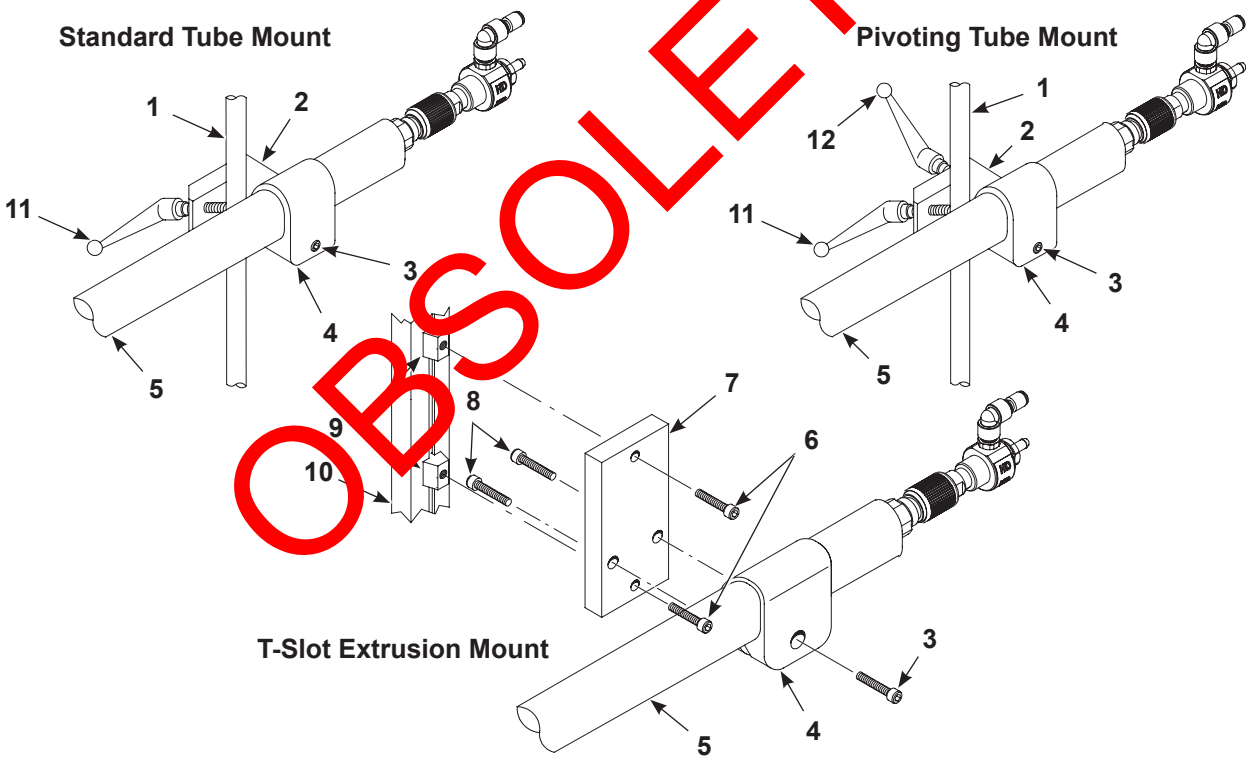

Figure 3-1 Tube-Mount Spray Gun Mounting Assemblies

1. Mounting bar 25.4-mm (1-in.)
2. Clamp
3. Clamping screw
4. Mounting sleeve
5. Mounting tube
6. M8 x 30 screws
7. Support plate
8. 3/8-16 x 1-in. screws
9. T-slot nuts
10. T-slot extrusion (not included in kit)
11. Clamping handle
12. Pivot handle

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Bar-Mount Spray Guns

The spray gun bar is optional. Refer the *Options* section for the spray gun bar part number.

See Figure 3-2. Install the spray gun bar-mount adapter (3) into the end of the adjusting rod (9) and secure it by tightening the set screw (10) with a 4-mm hex key.

- To move the spray gun tip from side to side, loosen the right button screw (1).
- To tilt the spray gun tip up or down, loosen the tilt knob (4).
- To rotate the adjusting bar on the locking body (8) axis or in the locking body, loosen the rotate handle (5).

To mount the spray gun on a fixed spray gun stand, oscillator, or reciprocator, position the clamp (7) on a 1-in. mounting bar and tighten the clamp handle (6).

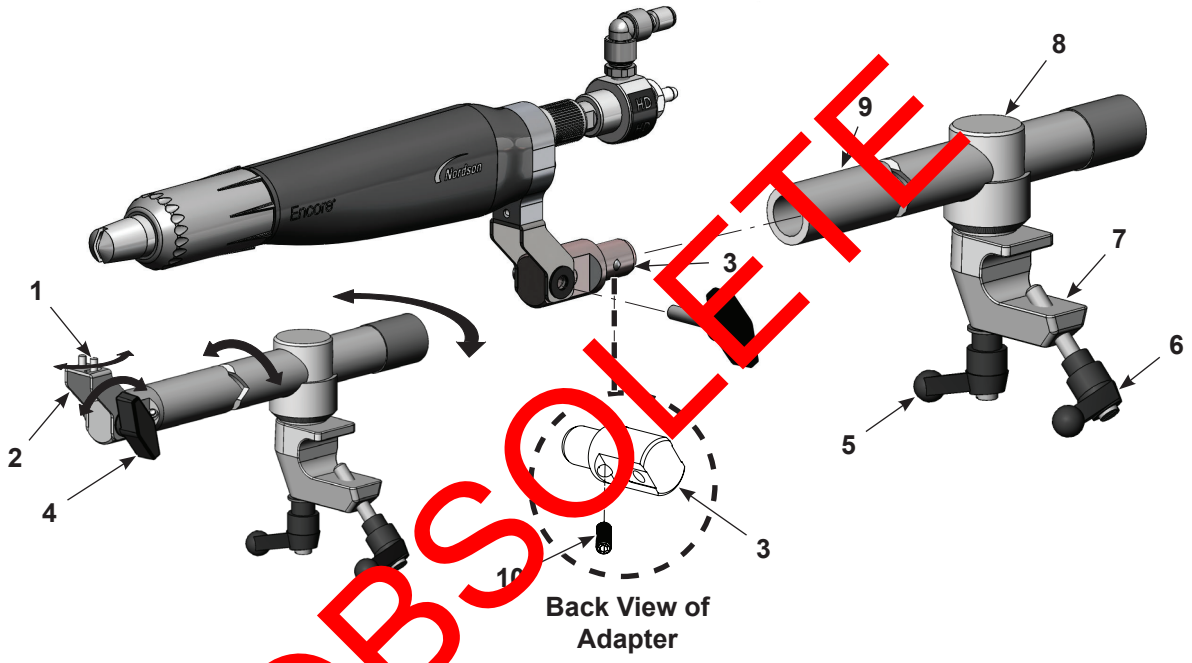

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Figure 3-2 Bar-Mount Spray Gun Mounting

1. Button screws
2. Tilt bracket
3. Bar-mount adapter
4. Tilt knob
5. Rotate handle
6. Clamp handle
7. Clamp
8. Locking body
9. Adjusting rod
10. Set screw

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Spray Gun Connections

See Figure 3-3.

1. Connect the powder feed hose to the hose connector (2). The connector can be disconnected from the spray gun by unscrewing the retainer nut (1) and pulling back away from the spray gun.
2. Connect 4-mm clear electrode air-wash tubing to the barbed fitting (3) (bar-mount spray gun) or tubing union (4) (tube-mount spray gun).
3. Connect the 6-mm blue atomizing tubing to the tubing union (6).
4. Connect the spray gun cable to the receptacle (5) and tighten the cable nut securely.

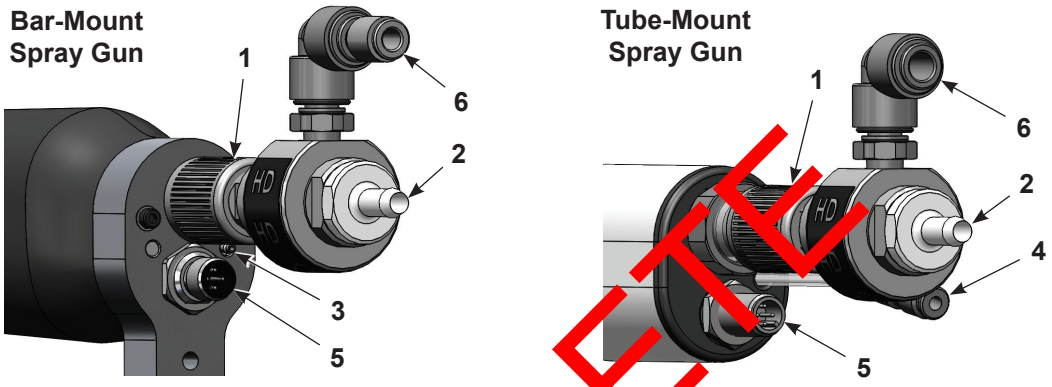

Figure 3-3 Spray Gun Connections

1. Retainer nut
2. Hose connector
3. Barbed fitting (4-mm tubing)
4. Tubing union (4-mm)
5. Spray gun cable receptacle
6. Tubing union (6-mm)

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Ion Collector Installation

The ion collector can improve the smoothness and appearance of cured powder coatings. It collects ions emitted from the spray gun's charging electrode instead of allowing them to deposit on the part. This reduces the rate of charge buildup in the powder deposited on the part, which may reduce defects in the cured coating such as pinholing and orange peel.

Refer to the *Options* section for part numbers.

The ion collector kit can be used on both the bar-mount and tube-mount spray guns. After installing the ion collector, adjust the collector rod position for best results as described on page 3-6.

Bar-Mount Spray Gun

1. See Figure 3-4. Insert the collector rod (1) into the grounding plate and secure it with the M5 x 8 set screw (2) included in the ion collector kit.
2. Attach the multi-point tip (3) to the collector rod using the M3 x 8 screw (4).

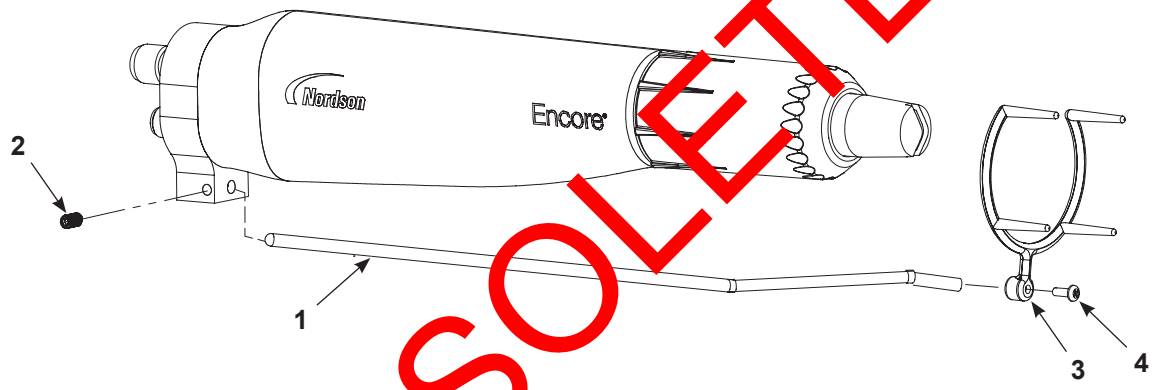

Figure 3-4 Ion Collector Installation - Bar-Mount Spray Gun (for clarity, some parts are not shown)

1. Collector rod
2. M5 x 8 set screw
3. Multi-point tip
4. M3 x 8 pan screw

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Tube-Mount Spray Gun

NOTE: The mounting hole must remain plugged for optimal performance. If the ion collector is removed, replace it with the appropriate plug. The mounting plug part number is listed in the Parts section of this manual.

NOTE: The ion collector mounting hole must be installed towards the front of the spray gun as shown in Figure 3-5. If the ion collector hole is installed towards the far rear, it must be reversed to allow access to the grounding plate in the rear body assembly. If necessary, perform Steps 1- 7 of the tube-mount disassembly procedure on page 7-2 to remove the tube, then turn it around and reassemble the spray gun.

1. See Figure 3-5. Remove the plug from the mounting hole (5) if applicable.
2. Secure the post (2) to the grounding plate with the socket-head screw (3).
3. Insert the collector rod (1) into the post and secure it with the M10 x 10 nylon-tipped set screw (4).
4. Attach the multi-point tip (6) to the collector rod with the M3 x 8 screw (7).

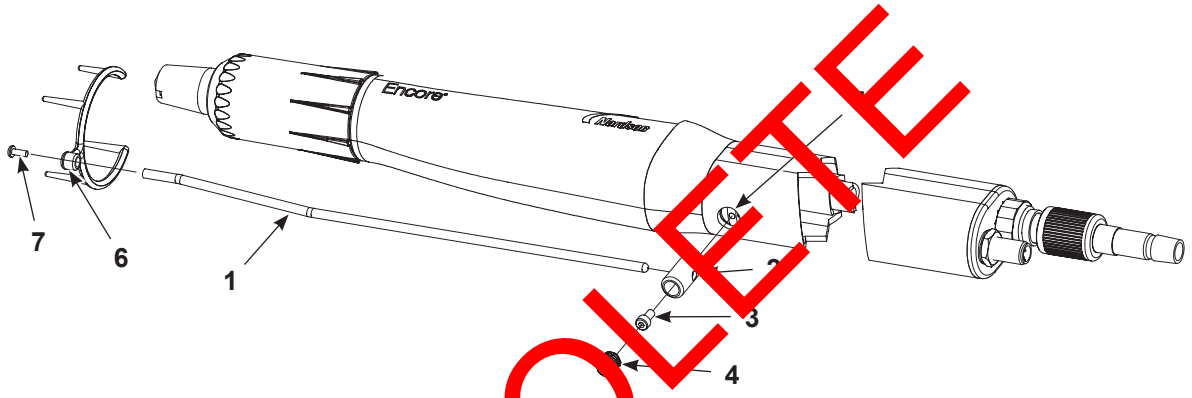

Figure 3-5 Ion Collector Installation - Tube-Mount Spray Gun (for clarity, some parts are not shown)

1. Collector rod
2. Post
3. Socket-head screw
4. M10 x 10 set screw
5. Ion collector mounting hole
6. Multi-point tip
7. M3 x 8 pan screw

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Adjusting the Ion Collector Rod

The ion collector rod should be mounted so that the tip at the end of the rod is the optimum distance from the tip of the electrode for the application.

- If the tip at the end of the rod is too far away from the tip of the electrode, the ion collector will not collect any ions or improve the appearance of the cured coating.
- If the tip of the end of the rod is too close to the tip of the electrode, powder particles may not be charged efficiently and the powder transfer efficiency may be reduced.

Use this procedure to position the end of the ion collector rod.

1. Remove the rod and multi-point tip from the post, then coat several test parts. Note the current (μA) shown on the control unit display when coating the parts. Cure the coatings.
2. Install the rod into the post and the multi-point tip on the spray gun.
3. Loosen the M10 x 10 set screw for the tube-mount or the M5 x 8 set screw for the bar-mount, and move the multi-point tip far away from the front end of the spray gun.
4. Turn on the electrostatic voltage and spray powder on a test part in front of the spray gun. Slide the rod forward until the current shown on the control unit display is 5 to 7 μA higher than that displayed without an ion collector. Tighten the set screw.
5. Cure the coating on the test parts. Compare the surface finish on these parts with the finish on the parts coated in step 1 (before the ion collector kit was installed).
6. If the desired improvement in the surface finish has not been obtained, loosen the set screw and slide the rod forward approximately 1-in. Tighten the set screw.
7. Repeat steps 5 and 6 until the desired improvement in surface finish is obtained.

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Section 4

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.

Automatic and manual control of electrostatic output, air-wash air flow, and pump air flow, are provided by the Nordson iControl system or the Encore LT automatic controllers. Spray gun triggering and positioning are provided by the iControl system, a Nordson axis controller, or a PLC supplied either by Nordson or the customer.

Refer to your controller manual for programming information and instructions.

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Changing Flat Spray Nozzles

WARNING: Turn off the spray gun and ground the electrode before performing this procedure. Failure to observe this warning could result in a severe electrical shock.

1. See Figure 4-1. Unscrew the nozzle nut (1) counterclockwise.
2. Pull the flat spray nozzle (2) off the electrode assembly (3).

NOTE: It is not necessary to remove the electrode assembly. If the electrode assembly comes out of the spray gun when you pull the nozzle off, clean it with compressed air before re-installing it. Do not bend the electrode. The electrode holder (3A) screws into the assembly. Both the holder and the electrode are replaceable.

3. Install a new nozzle on the electrode assembly, being careful not to bend the electrode. The nozzle is keyed to the electrode assembly.
4. Install the nozzle nut over the nozzle and screw it onto the spray gun body clockwise until the face of the nozzle nut bottoms against the shoulder of the spray gun body.

NOTE: The tapered electrode holder of the electrode assembly has been designed for optimized cleaning during color changes on systems using flat spray nozzles. This tapered electrode holder will not accept conical deflectors.

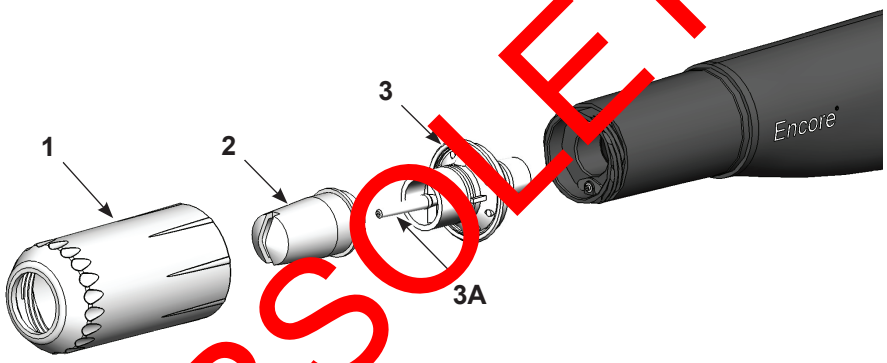

Figure 4-1 Flat Spray Nozzle Removal and Installation

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Changing Optional Deflectors or Conical Nozzles

WARNING: Turn off the spray gun and ground the electrode before performing this procedure. Failure to observe this warning could result in a severe electrical shock.

NOTE: The electrode holder shipped with the spray gun will need to be changed in order to accept the optional conical deflectors. See the Options section for the conical nozzle kit required for this conversion.

1. See Figure 4-2. To change the deflector (4), gently pull it off the electrode assembly (3). If only changing the deflector, install the new one on the electrode assembly, being careful not to bend the electrode wire.
2. To change the entire nozzle, unscrew the nozzle nut (1) counterclockwise.
3. Pull the conical nozzle (2) off the electrode assembly.

NOTE: It is not necessary to remove the electrode assembly (3) from the spray gun. If the electrode assembly comes out of the spray gun when you pull the nozzle off, clean it with compressed air before re-installing it. Do not bend the electrode. The electrode holder (3A) screws into the assembly. Both the holder and the electrode are replaceable.

4. Install a new conical nozzle on the electrode assembly. The nozzle is keyed to the electrode assembly.
5. Screw the nozzle nut onto the spray gun body until the face of the nozzle nut bottoms against the shoulder of the spray gun body.
6. Install a new deflector on the electrode assembly, being careful not to bend the electrode.

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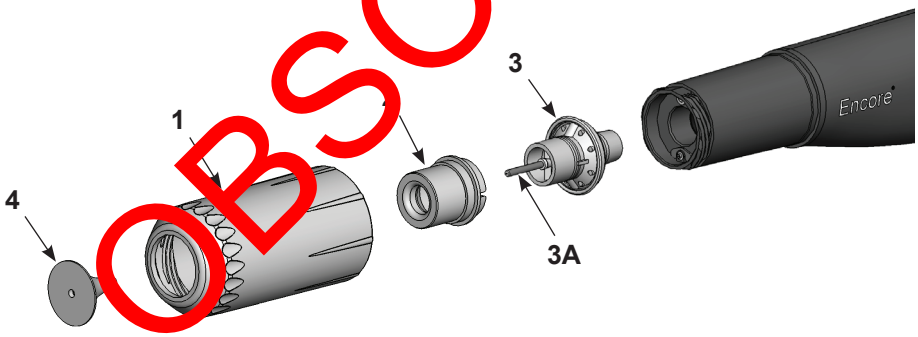

Figure 4-2 Changing Optional Deflectors and Conical Nozzles

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Section 5

Maintenance

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

Daily Maintenance

Depending on your application, you may not need to perform this procedure every day. If you regularly perform color changes with a powder feed center, the spray gun is purged internally each time a color change is performed. If this is the case, perform this procedure every 2- 3 days.

See Figure 5-1.

1. Purge the spray guns, then shut them off.
2. Unscrew the nozzle nut (1) and remove the nozzle (2).
3. Pull the electrode assembly (3) out of the spray gun.
4. To remove the front powder tube (5) from the front of the spray gun, insert needle nose pliers into the front powder tube (5). Open the pliers against the inside walls of the front powder tube and pull the tube and its seals (4, 6) out from the front of the spray gun body.
5. Disconnect the powder feed hose (8) from the Encore HD automatic diffuser (7).
6. Clean all parts removed with a low-pressure blow gun. Wipe the parts with a clean, dry cloth.
7. Carefully remove any fused powder with a wooden or plastic dowel or similar tool. Do not use tools that will scratch the plastic. Powder will build up and impact-fuse on scratches.

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NOTE: If necessary, use a cloth dampened with isopropyl or ethyl alcohol to clean the parts. Remove O-rings and seals before cleaning the parts with alcohol. Do not immerse the spray gun in alcohol. Do not use any other solvents.

8. Inspect the powder tube, seals, electrode assembly, porous tube, barbed adapter and nozzle for wear. Replace worn or damaged parts.
9. Install the seals on the ends of the powder tube if removed.
10. Install the powder tube into the spray gun until the seal bottoms out in the front of the spray gun.
11. Install the electrode assembly in the spray gun, so that the end of the electrode assembly slides into the seal on the end of the powder tube.
12. Install the nozzle on the electrode assembly and secure it with the nozzle nut. If used, install the deflector onto the electrode assembly.

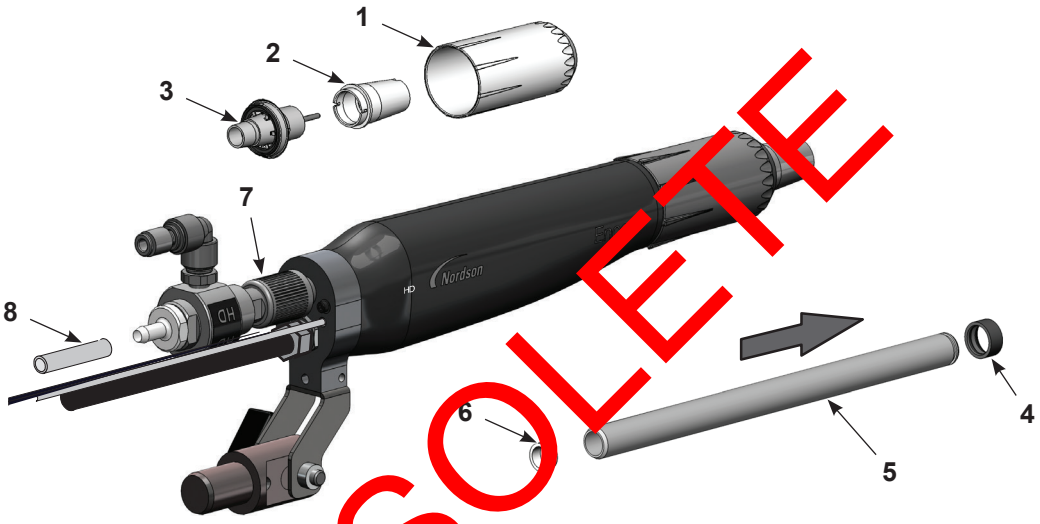

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Figure 5-1 Maintenance - Bar-Mount Spray Gun Shown without Pivot Mount

1. Nozzle nut
2. Nozzle
3. Electrode assembly
4. Seal
5. Front powder tube
6. Front powder tube seal
7. Automatic diffuser
8. Powder feed hose

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Section 6

Troubleshooting

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

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact your local Nordson representative for help.

NOTE: iFlow® modules are used in the iControl controller to control pump air flow. Refer to your iControl manuals for problems related to iFlow modules.

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General Troubleshooting Chart

Problem	Possible Cause	Corrective Action
1. Uneven pattern, unsteady or inadequate powder flow	Blockage in spray gun, powder feed hose, or pump	1. Purge the spray gun. Remove the nozzle and electrode assembly and clean them. 2. Disconnect the powder feed hose from the spray gun and blow out the powder tube with an air gun. 3. Disconnect the feed hose from the pump and spray gun and blow out the feed hose. Replace the feed hose if it is clogged with powder. 4. Disassemble and clean the pump.
	Nozzle, deflector, or electrode assembly worn, affecting pattern	Remove, clean, and inspect the nozzle, deflector, and electrode assembly. Replace worn parts as necessary. If excessive wear or impact fusion is a problem, reduce the flow rate and atomizing air flow.
	Damp powder	Check the powder supply, air filters, and dryer. Replace the powder supply if contaminated.
	Low pump air flow/ pressure	Adjust pump air flow/pressure.

Continued...

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Problem	Possible Cause	Corrective Action
1. Uneven pattern, unsteady or inadequate powder flow (*cont...*)	Improper fluidization of powder in feed hopper	Increase the fluidizing air pressure. If the problem persists, remove the powder from the hopper. Clean or replace the fluidizing plate if contaminated.
	iFlow module out of calibration	Perform the re-zero procedure described in the iControl hardware manual.
2. Voids in powder pattern	Worn nozzle or deflector	Remove and inspect the nozzle or deflector. Replace worn parts.
	Plugged electrode assembly or powder path	Remove the electrode assembly and clean. Remove powder path if necessary and clean.
	Electrode air-wash flow too high	Air-wash flow is controlled by a fixed orifice. Refer to your controller manual for more troubleshooting information.
3. Loss of wrap, poor transfer efficiency	Low electrostatic voltage	Increase the electrostatic voltage.
	Poor electrode connection	Remove the nozzle and electrode assembly. Clean the electrode and check for carbon tracking or damage. Check the electrode resistance as shown on page 6-5. If the electrode assembly is good, remove the gun power supply and check its resistance as shown on page 6-4.
	Poorly grounded parts	Check the conveyor chain, rollers, and part hangers for powder buildup. The resistance between the parts and ground must be 1 megohm or less. For best results, 500 ohms or less is recommended.
4. No kV output from the spray gun (display shows 0 kV when spray gun triggered), but powder is spraying	Damaged spray gun cable	Perform the spray gun *Cable Continuity Tests* on page 6-5. If an open or shorted connection is found, replace the cable.
	Spray gun power supply shorted	Perform the *Power Supply Resistance Test* on page 6-4.
5. No kV output from the spray gun (interface shows kV output), but powder is spraying	Spray gun power supply open	Perform the *Power Supply Resistance Test* on page 6-4.
	Damaged spray gun cable	Perform the spray gun *Cable Continuity Test* on page 6-5. If an open or shorted connection is found, replace the cable.

Continued...

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Problem	Possible Cause	Corrective Action
6. Insufficient electrode air-wash flow	Powder buildup on the electrode tip	Air-wash flow is controlled by a fixed orifice. Check the air-wash tubing, and check for flow at the output fitting when the spray gun is triggered on. Refer to your controller manual for more troubleshooting information.
7. Low powder flow or powder flow surging	Low supply air pressure	iControl console air supply pressure must be greater than 5.86 bar (85 psi).
	Supply air filter plugged or filter bowl full - water contamination of flow controller	Remove bowl and drain water/dirt. Replace filter element if necessary. Clean system, replace components if necessary.
	Air tubing kinked or plugged	Check flow and atomizing air tubing for kinks.
	Pump not assembled correctly	Refer to HDLV pump manual.
	Pick-up tube blocked	Check for debris or bag (VBF units) blocking pick-up tube.
	Fluidizing air too low	If fluidizing air is set too low, the pump will not operate at peak efficiency.
	Powder hose plugged	Blow out powder hose with compressed air.
	Powder hose kinked	Checked for a kinked powder hose.
	Spray gun powder path plugged	Check hose connector, powder tube, and electrode support for impact fusion or debris. Clean as necessary with compressed air.
8. No KV when spray gun is triggered ON, powder flow OK	KV set to zero	Change KV to a positive value.
	Check the alarm screen for messages.	Refer to your controller manual for troubleshooting procedures.
9. No powder flow when spray gun is triggered ON, kV OK	Input air turned OFF	Check the iControl console air supply.

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Power Supply Resistance Test

Use a megohm meter to check the resistance of the power supply, from the J2−3 feedback terminal at the connector to the contact pin inside the front end. The resistance should be between 225−335 megohms. If the reading is infinite, switch the meter probes. If the resistance falls outside this range, replace the power supply.

NOTE: There are multiple variables that can affect the Meg−Ohm readings of your meter (temperature and measurement voltage). If the Meg−Ohm meter output voltage differs from the 500 VDC setting, it will have a direct impact on the measurement accuracy. Measurements should also be taken at room temperature 22°C or 72°F. Allow time for the multiplier to cool to room temperature for repeatable results.

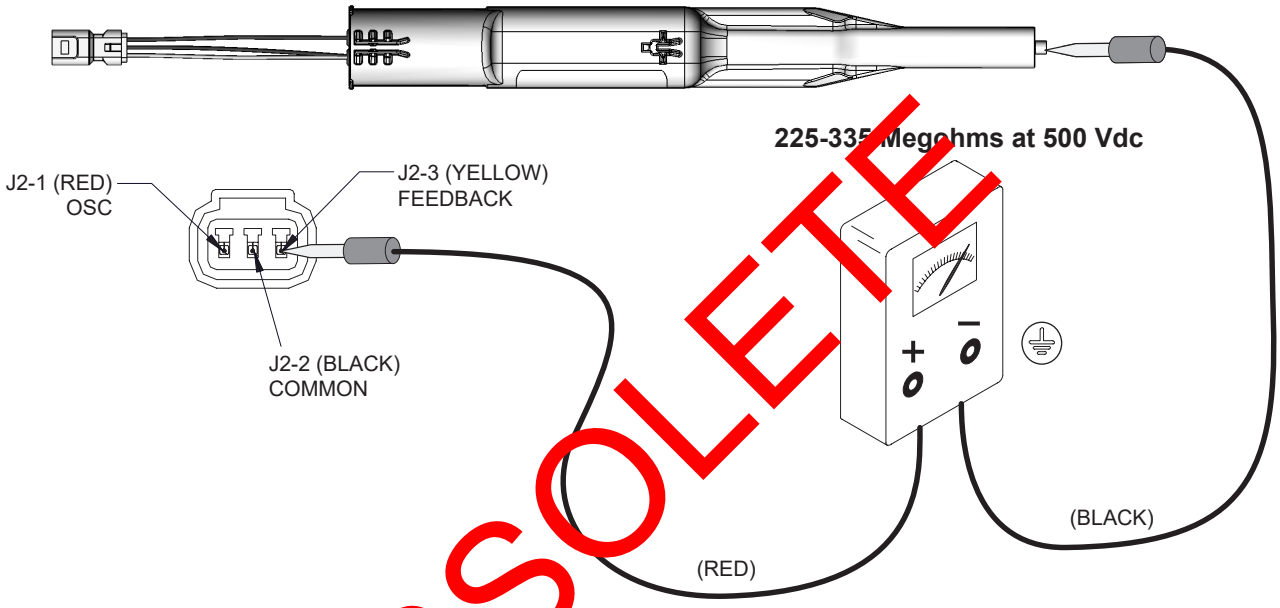

Figure 6-1 Power Supply Resistance Test

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Electrode Assembly Resistance Test

Use a megohm meter to measure the resistance of the electrode assembly from the contact ring on the back to the antenna wire in the front. The resistance should be 19- 23 megohms. If the resistance is out of this range, replace the electrode assembly.

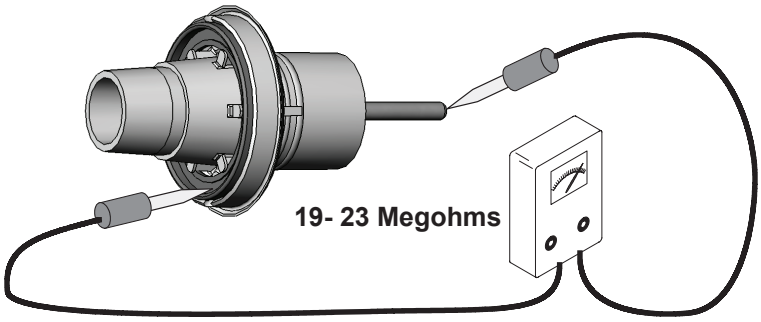

Figure 6-2 Electrode Assembly Resistance Test

Cable Continuity Tests

Use a standard ohmmeter to check the spray gun cables and harness for continuity.

Spray Gun Receptacle Harness

This harness is used on both the bar-mount and tube-mount spray guns to connect the power supply (voltage multiplier) to the extension cable (tube-mount spray gun) or spray gun cable.

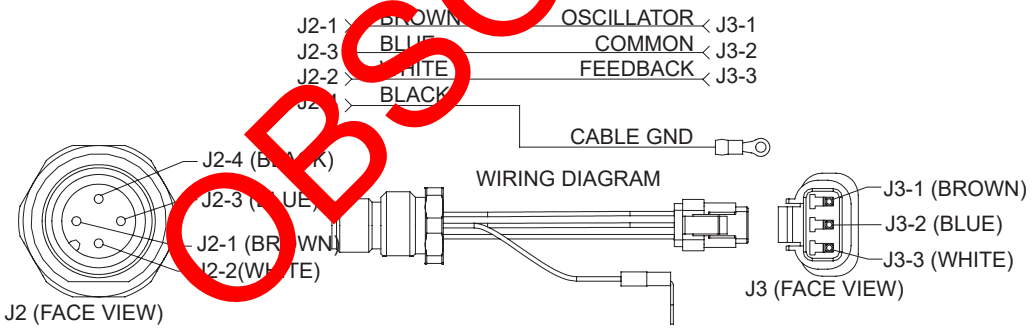

Figure 6-3 Spray Gun Receptacle Harness

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Spray Gun Extension Cable

This cable is used in the tube-mount spray gun only, between the rear body assembly and the end cap.

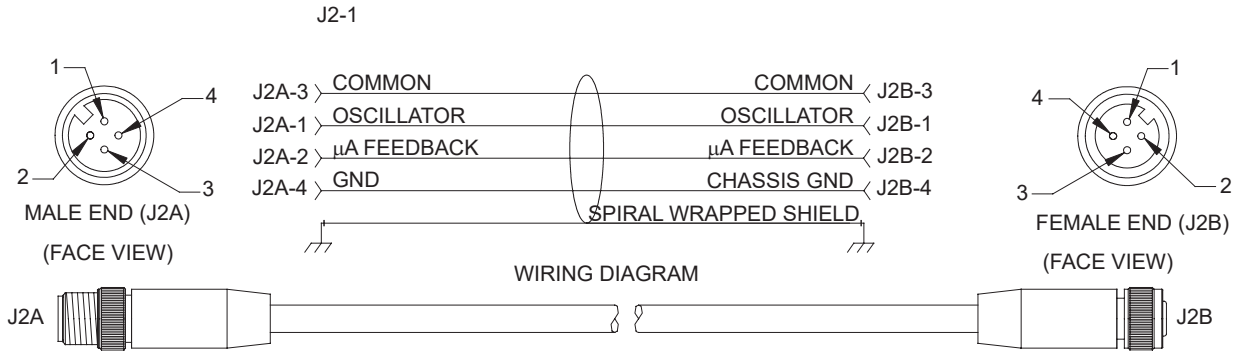
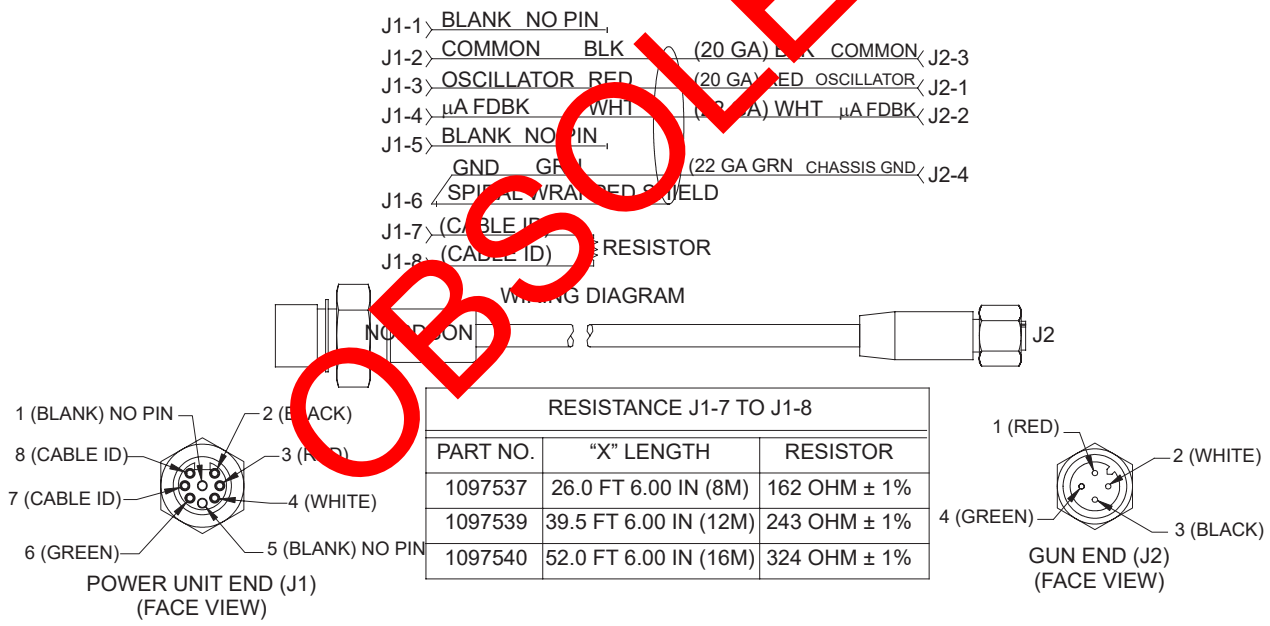


Figure 6-4 Spray Gun Extension Cable

Spray Gun Cable

This cable is available in 8-, 12-, and 16-meter (26-, 39-, 52-ft) lengths. It is used for both bar-mount and tube-mount spray guns.



RESISTANCE J1-7 TO J1-8		
PART NO.	"X" LENGTH	RESISTOR
1097537	26.0 FT 6.00 IN (8M)	162 OHM ± 1%
1097539	39.5 FT 6.00 IN (12M)	243 OHM ± 1%
1097540	52.0 FT 6.00 IN (16M)	324 OHM ± 1%

Figure 6-5 Spray Gun Cable

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Section 7

Repair

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

Powder Wear Parts Replacement

Use this procedure to replace the powder wear parts on both the tube-mount and bar-mount spray guns. Replace worn or damaged parts as required.

1. See Figure 7-1. Pull the automatic diffuser (26) off the powder tube.
2. Unscrew the nozzle nut (1) and remove the nozzle (2) and electrode assembly (3). Inspect the nozzle and electrode assembly and replace worn or damaged parts.
3. Push on the rear end of the powder tube (5) and pull it out of the front of the spray gun. Inspect the seal (4) and replace it if it is damaged or deformed.
4. Install the seal on the powder tube, then install the powder tube into the spray gun body and push it through until the seal seats in the front of the body.
5. Install the electrode assembly and nozzle and secure them with the nozzle nut.
6. Install the hose connector onto the end of the powder tube and tighten the retainer nut to secure the hose connector.

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Figure 7-1 Powder Wear Parts Replacement

1. Nozzle nut
2. Nozzle
3. Electrode assembly
4. Seal
5. Powder tube
26. Automatic diffuser

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Tube-Mount Spray Gun Repair

Tube-Mount Spray Gun Disassembly

1. Remove the nozzle, electrode assembly, hose connector, and powder tube as described in *Powder Wear Parts Replacement* on page 7-1.
2. See Figure 7-2. Disconnect the union (25) from the clear 4-mm air tubing (18).
3. Disconnect the spray gun cable (not shown) from the cable receptacle (20).
4. Unscrew the clamping tube nut (24) from the clamping tube (21).
5. Remove the nut and lock washer from the cable receptacle (20). Save the nut and lock washer for reuse.
6. Pull the end cap (23) off the end of the spray gun.

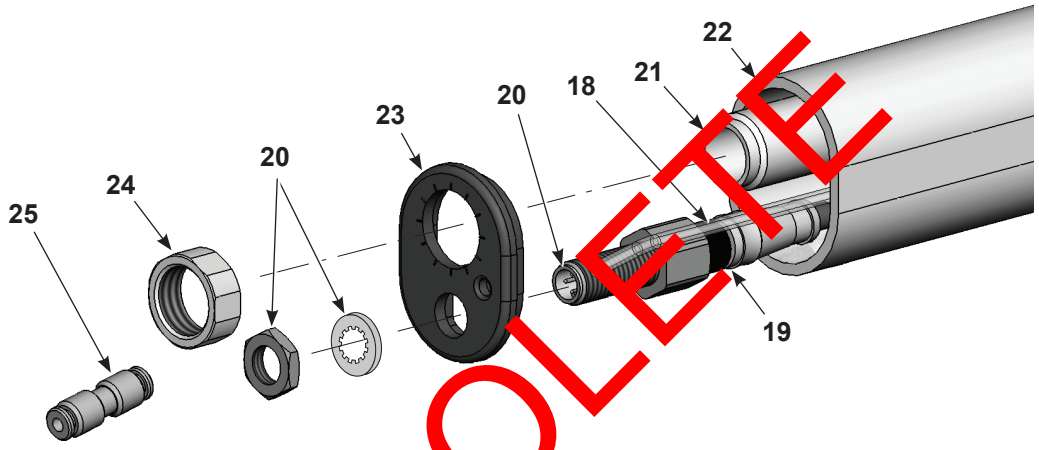

Figure 7-2 Tube-Mount Spray Gun Disassembly 1 of 5

18. Clear 4-mm tubing
19. Extension cable
20. Cable receptacle
21. Clamping tube
22. Mounting tube
23. End cap
24. Clamping tube nut
25. Tubing union

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NOTE: If your spray gun is equipped with an optional ion collector, you must remove it from the spray gun before you can remove the mounting tube.

7. See Figure 7-3. Pull the mounting tube (22) off the rear body assembly (14) and over the clamping tube (21).
8. Unscrew the clamping tube from the rear body assembly.
9. Disconnect the extension cable (19) from the receptacle harness (15).
10. Disconnect the clear 4-mm air tubing (18) from the barbed fitting (13).
11. If you are replacing the extension cable, remove the cable receptacle (20). If not, you can leave them connected.

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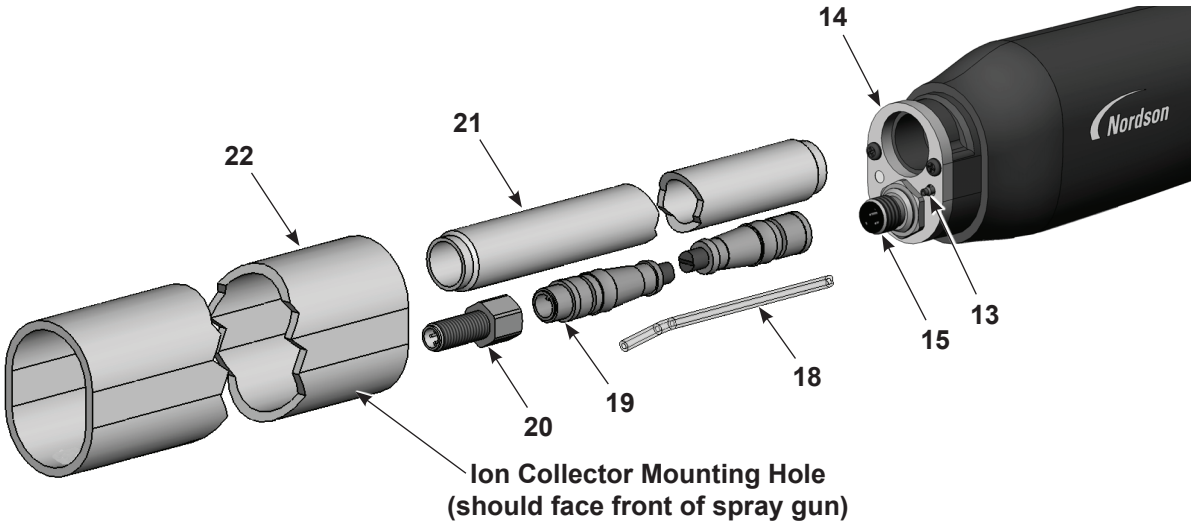

Figure 7-3 Tube-Mount Gun Disassembly 2 of 5

13. Barbed fitting
14. Rear spray gun body
15. Receptacle harness
18. Clear 4-mm tubing
19. Extension cable
20. Cable receptacle
21. Clamping tube
22. Mounting tube

12. See Figure 7-4. Remove the two socket-head screws (17) and lock washers (17A) from the rear spray gun body (14).
13. Carefully pull the rear spray gun body far enough off the bulkhead (8) to disconnect the power supply harness (11) from the receptacle harness (15), and the filter assembly tubing (6A) from the barbed fitting inside the rear body.

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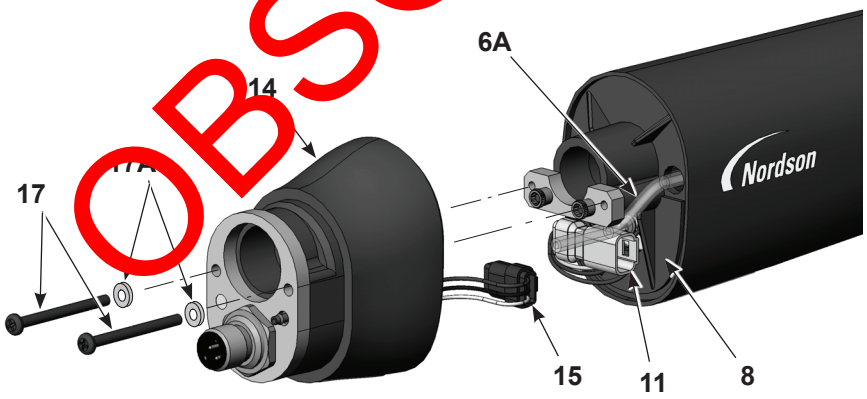

Figure 7-4 Tube-Mount Spray Gun Disassembly 3 of 5

6A. Filter assembly tubing
8. Bulkhead
11. Power supply harness
14. Rear spray gun body
15. Receptacle harness
17. Socket-head screws
17A. Lock washer

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Tube-Mount Spray Gun Disassembly (contd)

14. See Figure 7-5. With a 1/8-in. hex key, remove the two Allen nuts (10) and screw plate (9) from the bulkhead (8). Then remove the bulkhead from the spray gun body (6), feeding the power supply harness through the bulkhead.
15. Slide the power supply (11) out of the spray gun body.
16. The clear 4-mm air tubing (6A) in the spray gun body is part of the air filter assembly that provides the electrode air-wash. To replace the air filter assembly, pull it out of the front of the spray gun body.
17. The gasket (7) is attached to the bulkhead with a pressure-sensitive adhesive. If the gasket is damaged, replace it with a new one.

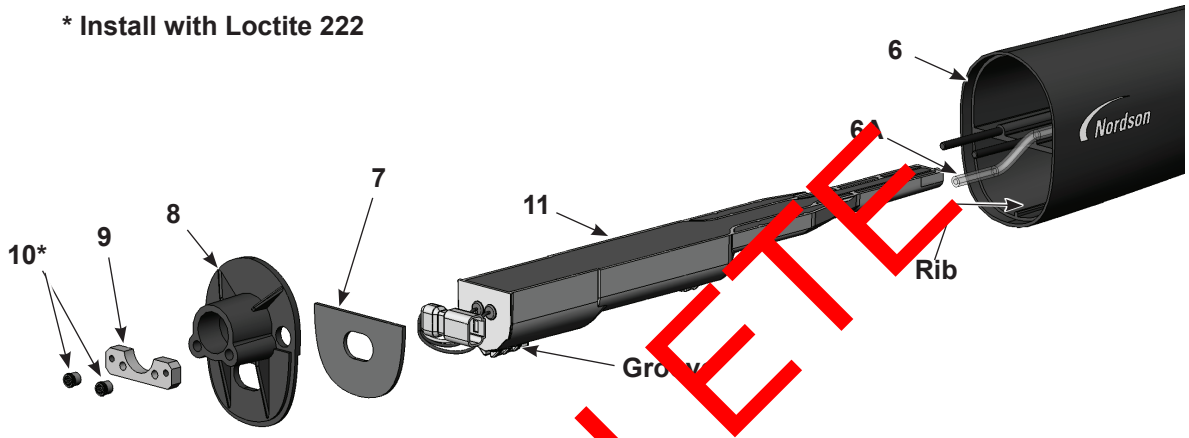

Figure 7-5 Tube-Mount Spray Gun Disassembly 4 of 5

6. Spray gun body
6A. Filter assembly tubing
7. Gasket
8. Bulkhead
9. Screw plate
10. Allen nuts
11. Power supply

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18. See Figure 7-6. To disassemble the rear body assembly, remove the screw (12) and barbed fitting (13) from inside the rear spray gun body (14). A 3-mm hex key and 1/4-in. deep-well socket are required.
19. Remove the nut (15A) from the receptacle, pull the grounding plate (16) off the rear spray gun body, and feed the receptacle harness through the body.

NOTE: When reassembling, secure the ring-tongue ground terminal to the rear spray gun body with the screw (12) and lock washer (12A) and torque the screw to 2.5 N●m (22 inch-lb).

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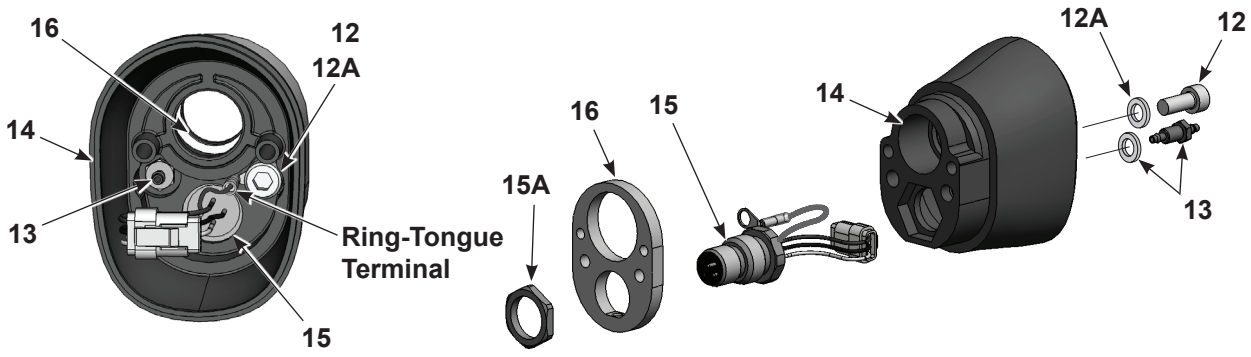

Figure 7-6 Tube-Mount Spray Gun Disassembly 5 of 5

12. Screw
12A. Lockwasher
13. Barbed fitting and lockwasher
14. Rear gun body
15. Receptacle harness
15A. Receptacle nut
16. Grounding plate

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Tube-Mount Spray Gun Assembly

NOTE: If you have a kit that combines the power supply and body assembly, skip step 1 and go to step 2.

1. See Figure 7-5. Install the power supply (11) into the spray gun body (6), making sure the spray gun body rib fits into the groove on the power supply. Seat the power supply firmly into the spray gun body.
2. Feed the power supply harness through the bulkhead (8), then install the bulkhead and screw plate (9) over the spray gun body studs. Apply Loctite 222 thread-locking adhesive to the Allen nuts (10) and thread them onto the studs. Torque the nuts to 0.45 N●m (64 in. ounces) with a 1/8-in. hex key.
3. See Figure 7-4. Connect the receptacle harness (15) to the power supply harness (11). Tuck the harness connectors (11, 15) into the rear body assembly in the positions shown.
4. Connect the filter assembly tubing (6A) to the barbed fitting on the inside of the rear body. Feed any extra clear air tubing into the spray gun body, then install the rear body onto the bulkhead with the screws (17) and lock washers (17A).
5. See Figure 7-3. Screw the clamping tube (21) into the rear body (14).
6. Connect the extension cable (19) to the receptacle harness in the rear body assembly.
7. Connect the clear 4-mm tubing (18) to the barbed fitting on the rear body assembly.
8. Orient the mounting tube (22) with the ion collector hole facing towards the front of the spray gun.

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Tube-Mount Spray Gun Assembly (contd)

NOTE: If the ion collector was previously installed towards the far rear of the assembly, position the mounting hole towards the front of the spray gun. Proper orientation must be implemented to allow access to the grounding plate.

9. See Figure 7-3. Connect the extension cable (19) to the receptacle (20) in the end cap (23).
10. Feed the ends of the extension cable and tubing into the end of the mounting tube, then slide the mounting tube over the clamping tube and rear body assembly.
11. Install the end cap on the mounting tube, feeding the clamping tube (21) and clear 4-mm tubing (18) through the end cap.
12. Secure the cable receptacle (20) to the end cap with the lock washer and nut.
13. Thread the clamping tube nut (24) onto the clamping tube and tighten securely.
14. Install the union (25) on the clear 4-mm tubing.
15. Install the powder tube, electrode assembly, nozzle, nozzle nut, and hose connector as described in *Powder Wear Parts Replacement* on page 7-1.

Bar-Mount Spray Gun Repair

Bar-Mount Spray Gun Disassembly

1. Remove the nozzle, electrode assembly, hose connector, and powder tube as described in Powder Wear Parts Replacement on page 7-1.
2. See Figure 7-7. Remove the two socket-head screws (17) and lock washers (17A) from the rear body assembly (14).
3. Carefully pull the rear body assembly far enough off the bulkhead (8) to disconnect the power supply harness (11) from the receptacle harness (15); and the filter assembly tubing (18) from the barbed fitting inside the rear body assembly.

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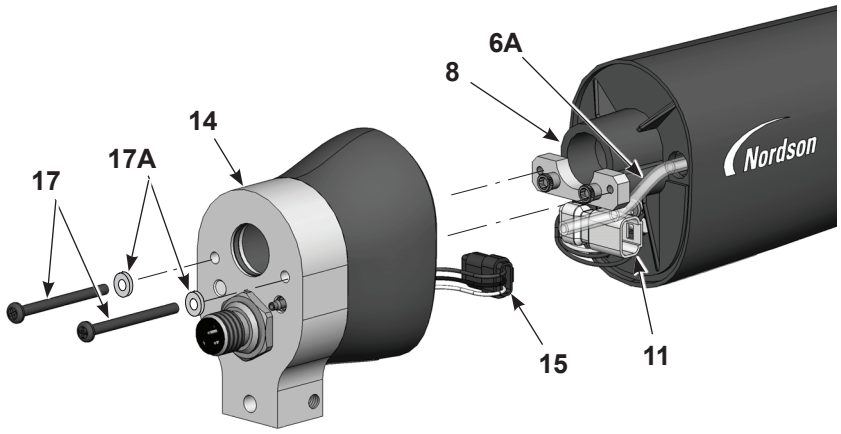

Figure 7-7 Bar-Mount Spray Gun Disassembly 1 of 3

6A. Filter assembly tubing
8. Bulkhead
11. Power supply harness
14. Rear body assembly
15. Receptacle harness
17. Socket-head screws
17A. Lockwashers

4. See Figure 7-8. With a 1/8-in. hex key, remove the two Allen nuts (10) and screw plate (9) from the bulkhead (8). Then remove the bulkhead from the spray gun body (6), feeding the power supply harness through the bulkhead.
5. Slide the power supply (11) out of the spray gun body.
6. The tubing (6A) in the spray gun body is part of the air filter assembly that provides the electrode air-wash. To replace the air filter assembly, pull it out of the front of the spray gun body.
7. The gasket (7) is attached to the bulkhead with pressure sensitive adhesive. If the gasket is damaged, replace it with a new one.

*** Install with Loctite 222**

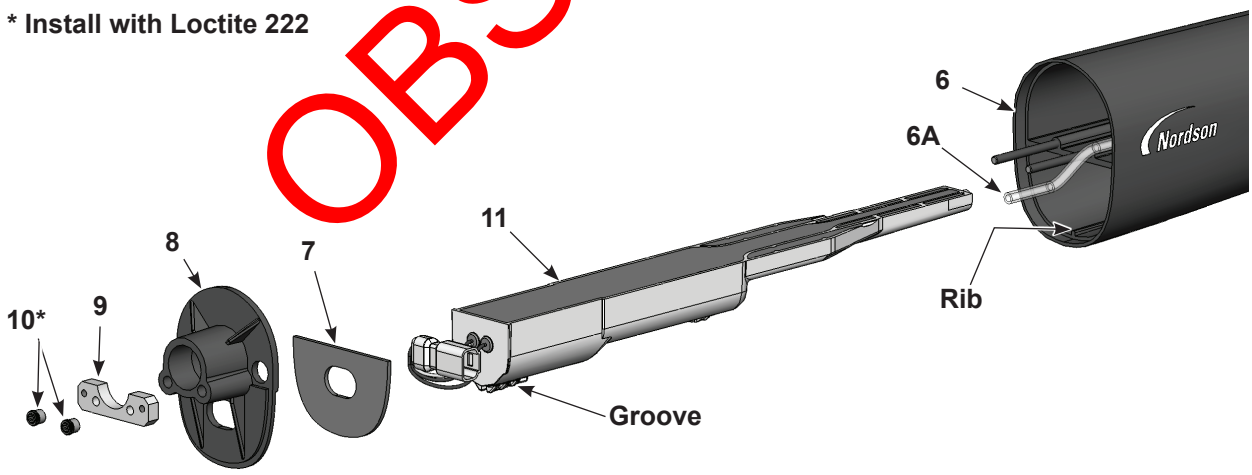

Figure 7-8 Bar-Mount Spray Gun Disassembly 2 of 3

6. Clear 4-mm tubing
6A. Filter assembly tubing
7. Gasket
8. Bulkhead
9. Screw plate
10. Allen nuts
11. Powder supply

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Bar-Mount Spray Gun Disassembly (contd)

8. See Figure 7-9. To disassemble in the rear body assembly, remove the screw (12), lock washer (12A), and barbed fitting and lock washer (13) from inside the rear body (14). A 3-mm hex key and 1/4-in. deep-well socket are required.
9. Remove the nut (15A) from the receptacle (15), pull the adapter off the rear spray gun body, and feed the receptacle harness through the body.
10. Inspect the quad ring (18) in the adapter (16) and replace it if damaged.

NOTE: When reassembling, secure the ring-tongue ground terminal to the rear spray gun body with the screw (12) and torque it to 2.5 N●m (22 inch-lb).

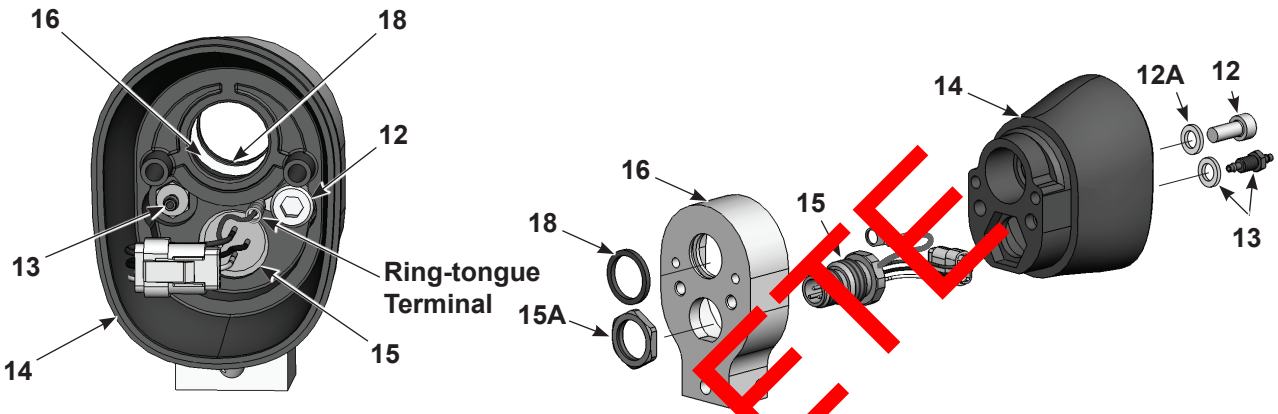

Figure 7-9 Bar-Mount Gun Disassembly 3 of 3

12. Screw
12A. Lockwasher
13. Barbed fitting and lockwasher
14. Rear body
15. Receptacle and harness
15A. Receptacle nut
16. Bar mount adapter
18. Quad ring

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Bar-Mount Gun Assembly

NOTE: If you have a kit that combines the power supply and body assembly, skip step 1 and go to step 2.

1. See Figure 7-8. Install the power supply (11) into the gun body (6), making sure the gun body rib fits into the groove on the power supply. Seat the power supply firmly into the gun body.
2. Feed the power supply harness through the bulkhead, then install the bulkhead (8) and screw plate (9) over the gun body studs. Apply Loctite 222 to the Allen nuts (10), then install the nuts on the studs and torque them to 0.45 N●m (64 inch-ounces) with a 1/8-in. hex key.
3. See Figure 7-7. Connect the receptacle harness (15) to the power supply harness (11). Tuck the harness connectors (11, 15) into the rear body assembly in the positions shown.
4. Connect the clear filter tubing (6A) to the barbed fitting on the inside of the rear body assembly (14). Feed any extra clear air tubing into the gun body, then install the rear body assembly onto the bulkhead with the screws (17) and lock washers (17A).
5. Install the powder tube, electrode assembly, nozzle, nozzle nut, and hose connector as described in *Powder Wear Parts Replacement* on page 7-1.

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Section 8
Parts

Parts

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

Using the Illustrated Parts List

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

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

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentations 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.

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

Continued...

NOTE: A.

B.

NS: Not Shown

AR: As Required

Tube-Mount Spray Gun Parts

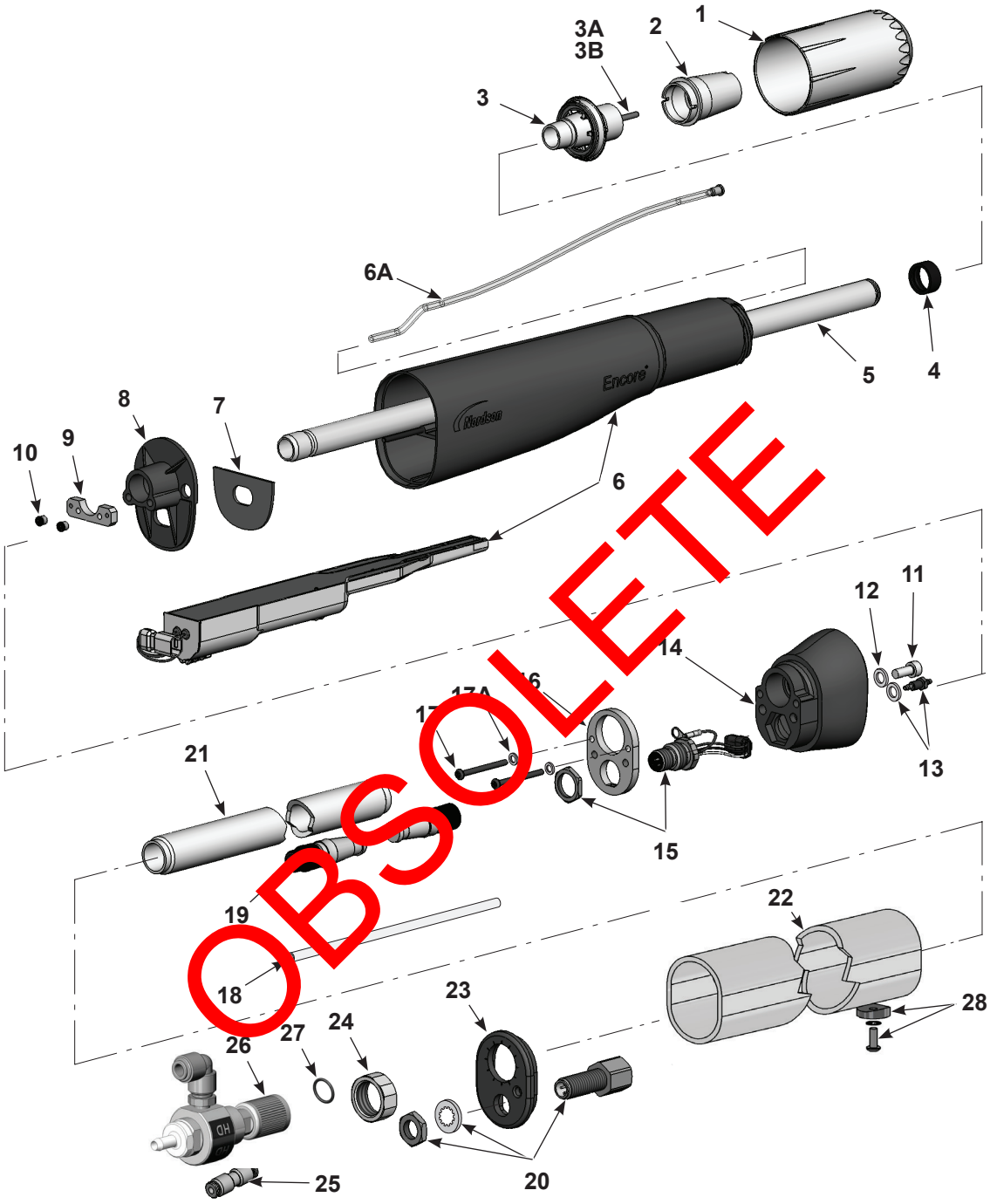

Figure 8-1 Tube-Mount Spray Gun Parts

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Standard 5-ft Tube-Mount Spray Gun Parts List

See Figure 8-1.

Item	Part	Description	Quantity	Note
-	1606970	GUN, auto, tube mount, Encore HD, 5 ft	1	E
-	1614275	GUN, auto, tube mount, Encore HD, 5 ft PVC, 2-pack	1	E
-	1614276	GUN, auto, tube mount, Encore HD, 5 ft PVC, 1-pack	1	E
1	1081638	NUT, nozzle, handgun, Encore	1	
2	1081658	NOZZLE, flat spray,4 mm, Encore	1	A
3	1604824	ELECTRODE ASSEMBLY, Encore, flat spray	1	D
3A	1106078	• ELECTRODE, spring contact, packaged	1	
3B	1605863	• HOLDER, electrode, M3, flat spray, Encore	1	D
4	1097527	SEAL, tube, powder	1	
5	1602673	TUBE, powder, tube mount, auto, Encore, 5 ft	1	E
6	1608279	KIT, negative power supply/auto body, Encore	1	F
6A	1088558	• FILTER ASSEMBLY, handgun	1	
7	1088502	GASKET, multiplier cover, handgun, Encore	1	
8	1097520	BULKHEAD, body, front, auto, Encore	1	
9	1101381	PLATE, screw	1	
10	1097522	NUT, Allen, 4-40, stainless steel	2	
11	815666	SCREW, socket, M5 x 0.8 x 12, zinc	1	
12	983127	WASHER, lock, internal, M5, zinc	1	
13	1081616	FITTING, bulkhead, barbed, dual, [illegible] tubing	1	
14	1097518	BODY, gun, rear, auto, Encore	1	
15	1097514	RECEPTACLE, gun harnes[illegible]	1	
16	1097513	PLATE, grounding	1	
17	1605696	SCREW, socket head, M3 x 35 m[illegible]	2	
17A	983520	WASHER, lock, i[illegible]erna[illegible] M3, steel, zinc	2	
18	900617	TUBING, polyureth[illegible]e, 4 m[illegible]m OD, clear (6 ft)	AR	B
19	1103426	CABLE, e[illegible]tension [illegible]aut[illegible] Encore, 1196 mm	1	
20	1097533	RECEPTA[illegible]CLE, M1[illegible], male/female, 4P	1	
21	1602674	TUBE, clamp	1	
22A	1099828	TUBE, mount, auto, Encore, 5 ft	1	E
22B	1602611	TUBE, mount, auto, Encore, 5 ft, PVC	1	E
23	1097534	CAP, end, tube mount	1	
24	1097535	NUT, clamp, tube mount	1	
25	1003964	UNION, straight, 4 mm tube	1	
26	1609990	DIFFUSER, external, Encore HD auto packaged	1	
27	940156	• O- RING, silicone, 0.563 x 0.688 x 0.063	1	
28	1609314	PLUG, tube mount, kit, auto, Encore	1	

Continued...

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Item	Part	Description	Quantity	Note
NS	247006	CLAMP, hose, 0.637- 0.795 OD	1	
NS	939247	CLAMP, hose, Snap-it	1	
NS	1081656	NOZZLE, flat spray, 2.5 mm, Encore	1	A

NOTE: A. Refer to the Options section for a complete list of available flat spray nozzles, conical nozzles and deflectors.

B. Bulk item, order in increments of one foot.

C. For use with 11 mm and 1/2 in hose.

D. For flat spray nozzle use only. Refer to the Options section for assemblies/parts for use with conical nozzles and deflectors.

E. The type of material used for the tube mount determines the type of spray gun.

F. Application Specific: Order part number 1609053 if a positive power supply is needed. The positive power supply is sold separately from the gun body.

NS: Not Shown

AR: As Required

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Bar-Mount Spray Gun Parts

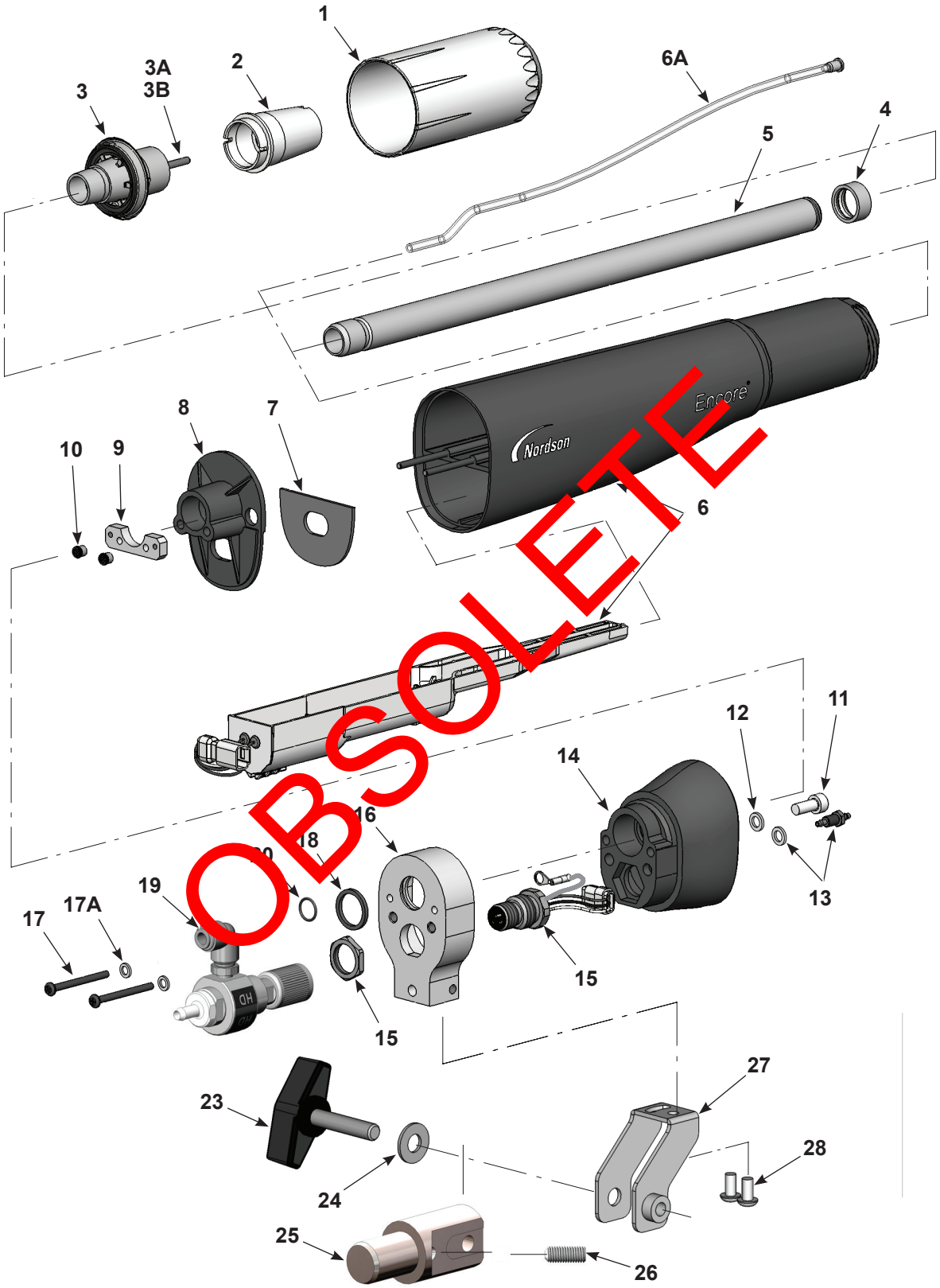

Figure 8-2 Bar-Mount Spray Gun Parts

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Bar-Mount Spray Gun Parts List

See Figure 8-2.

NOTE: Cables for the bar-mount spray gun are optional. Refer to *Cables* in the *Options section* for available cables.

Item	Part	Description	Quantity	Note
-	1606969	GUN, auto, bar mount, Encore HD	1	
1	1081638	NUT, nozzle, handgun, Encore	1	
2	1081658	NOZZLE, flat spray, 4 mm, Encore	1	A
3	1604824	ELECTRODE ASSEMBLY, Encore, flat spray	1	C
3A	1106078	• ELECTRODE, spring contact	1	
3B	1605863	• HOLDER, electrode, M3, flat spray, Encore	1	C
4	1097527	SEAL, tube, powder	1	
5	1097524	TUBE, powder, bar mount, auto, Encore	1	
6	1608279	KIT, neg power supply/auto body, Encore	1	B
6A	1088558	• FILTER ASSEMBLY, handgun	1	
7	1088502	GASKET, multiplier cover, handgun, Encore	1	
8	1097520	BULKHEAD, body, front, auto, Encore	1	
9	1101381	PLATE, screw	1	
10	1097522	NUT, Allen, 4-40, stainless steel	2	
11	815666	SCREW, socket, M5 x 0.8 x 12, zinc	1	
12	983127	WASHER, lock, internal, M5, zinc	1	
13	1081616	FITTING, bulkhead, barbed, dual, [illegible] tubing	1	
14	1097518	BODY, gun, rear, auto, Encore	1	
15	1097514	RECEPTACLE, gun harness	1	
16	1097512	ADAPTER, mount, bar	1	
17	1605696	SCREW, socket head, M3 x 35 mm	1	
17A	983520	WASHER, lock, internal, M3, steel, zinc	2	
18	1097511	QUAD RING, Viton, .614 in. ID x 0.070 in.	1	
19	1609990	DIFFUSER, external, Encore HD auto packaged	1	
20	940156	• O-RING, silicone, 0.563 x 0.688 x 0.063	1	
23	1102293	KNOB, T-handle	1	
24	1102294	WASHER, flat, 0.34 x 0.74 x 0.06 in., nylon	1	
25	1097546	ADAPTER, tube, mount, bar	1	
26	1621743	SCREW, set, cone, M8 x 20, fastner	1	
27	1097542	BRACKET, mount, bar	1	
28	982503	SCREW, button, socket, M5 x 10	2	
NS	247006	CLAMP, hose, 0.637- 0.795 OD	1	
NS	939247	CLAMP, hose, Snap-it	1	
NS	1081656	NOZZLE, flat spray, 2.5 mm, Encore	1	A

NOTE: A. Refer to the Options section for a complete list of available flat spray nozzles, conical nozzles and deflectors.

B. Application Specific: Order part number 1609053 if a positive power supply is needed. The positive power supply is sold separately from the gun body.

C. For flat spray nozzle use only. Refer to the Options section for assemblies and parts for use with conical nozzles and deflectors.

NS: Not Shown

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External Diffuser for Encore HD Automatic Spray Guns

See Figure 8-3. This external diffuser is shipped with Encore HD automatic spray guns.

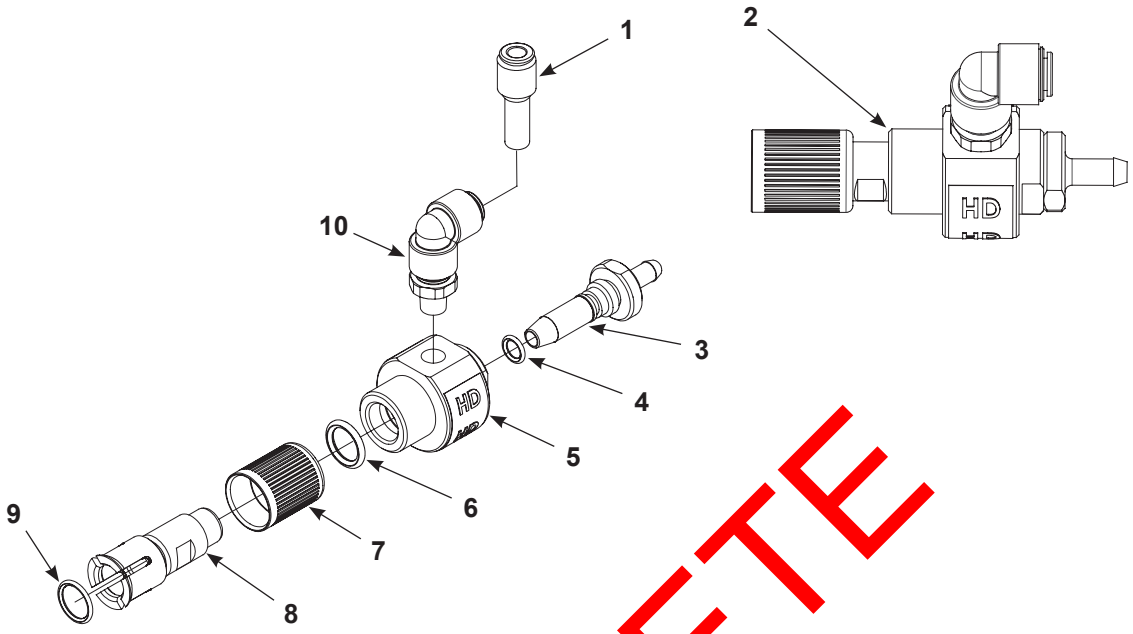

Figure 8-3 Encore HD External Diffuser

Item	Part	Description	Quantity	Note
—	1609990	KIT, diffuser, external, Encore HD, auto, packaged	1	
1	972286	REDUCER, 8 mm stem x 6 mm	1	A
2	1609987	DIFUSSER, external, Encore HD Auto	1	
3	1606892	• ADAPTER, hose, diffuser, Encore HD	1	
4	940117	• O-RING, silicone, 0.312 x 0.438 x 0.063	1	
5	- - - - - -	• HOUSING, external diffuser, Encore HD	1	
6	941131	• O-RING, silicone, 0.562 x 0.750 x 0.094	1	
7	- - - - - -	• RETAINER, connector, hose, univ, auto, Encore	1	
8	1606890	• ADAPTER, diffuser, Encore HD	1	
9	1036432	• O-RING, silicone, 13 mm ID x 2 mm W	1	
10	1609989	• ELBOW swivel, 8 mm T x ⅛ BSPT	1	
NS	1106373	• FITTING, straight, 10 mm t - 8 mm t	1	B

NOTE: A. Use the reducer for installations configured with 6 mm tubing.

B. This fitting is used for installations with 10 mm tubing coming from the pump cabinet or feed center. These installations need to reduce down to 8 mm tube for the last 3 meters prior to gun/diffuser connection.

AR: As Required

NS: Not Shown

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Section 9
Options

Optional 6-ft Tube Mount Spray Gun

See Figure 9-1 for the parts illustration, and the standard 5-ft tube mount spray gun parts list for all other parts.

Item	Part	Description	Quantity	Note
-	1606971	GUN, auto, tube mount, Encore HD, 6 ft	1	
5	1602675	• TUBE, powder, tube mount, auto, Encore, 6 ft	1	
19	1097536	• CABLE, extension, auto, Encore, 1496 mm	1	
21	1602676	• TUBE, clamp, 6 ft	1	
22	1097532	• TUBE, mount, auto, Encore, 6 ft	1	

Hose Hanger

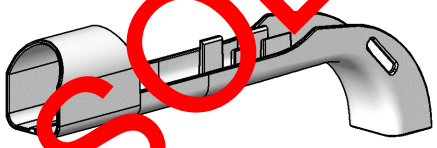

Figure 9-1 Optional Hose Hanger

See Figure 9-1. The hose hanger assembles to the tube-mount spray gun to support the powder hose, air tubing, and spray gun cable.

Part	Description	Note
1612462	HANGER, hose, automatic gun	

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Cables

These cables connect the spray gun to the spray gun controller (Encore HD iControl integrated control unit).

Part	Description	Note
1097537	CABLE, auto, Encore, 8 m (26.25 ft)	
1097539	CABLE, auto, Encore, 12 m (39.4 ft)	
1097540	CABLE, auto, Encore, 16 m (52.5 ft)	
1601344	CABLE, extension, Encore, 4 m (13.1 ft)	

Flat Spray Nozzles

See Figure 9-2. The 2.5- and 4-mm flat spray nozzles are shipped with the spray gun. All other flat spray nozzles are optional.

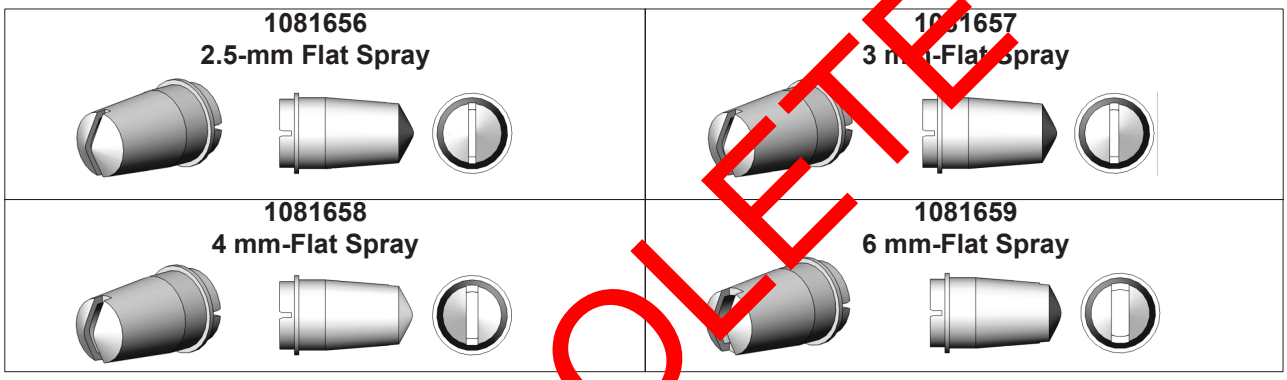

Figure 9-2 Flat Spray Nozzles

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Cross-Cut Nozzles

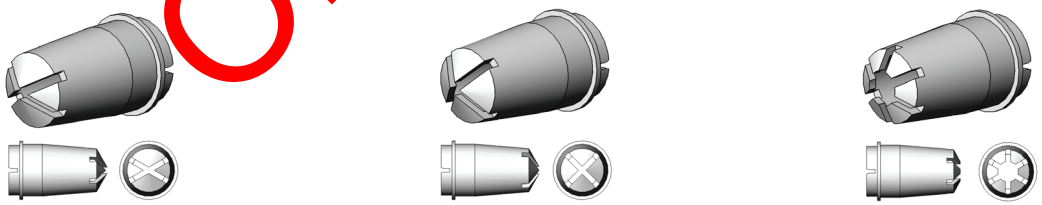

Figure 9-3 Cross-Cut Nozzles

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45-Degree Corner-Spray Nozzle

See Figure 9-4.

Spray Pattern	Wide fan pattern perpendicular to the spray gun axis
Slot Type	Angled, cross slot
Application	Flanges and recesses

Part	Description	Note
1102872	NOZZLE, corner spray, Encore	

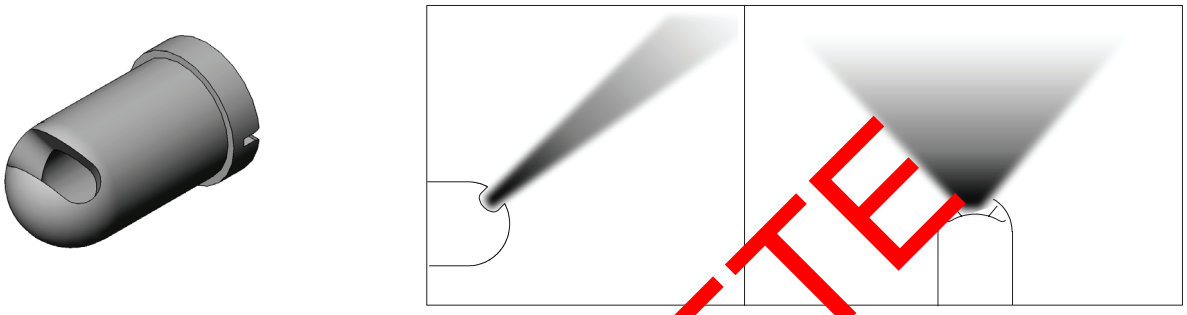

Figure 9-4 45-Degree Corner Spray Nozzle

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45-Degree In-Line Flat-Spray Nozzle

See Figure 9-5.

Spray Pattern	Narrow fan pattern in-line with spray gun axis
Slot Type	Three angled slots in-line with spray gun axis
Application	Top and bottom coating; typically no in/out part positioning

Part	Description	Note
1102871	NOZZLE, 45-degree, flat spray, Encore	

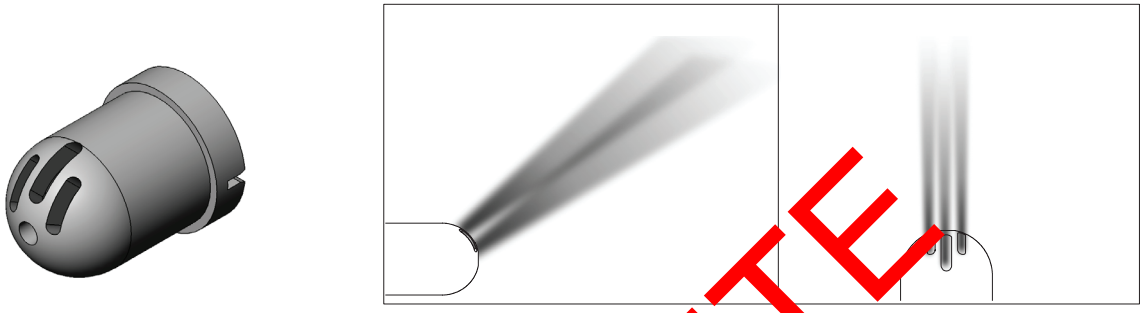

Figure 9-5 45-Degree Flat Spray Nozzle

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Conical Nozzle, Deflectors, and Electrode Assembly

See Figure 9-6. The conical nozzle and deflectors must be used with the conical electrode holder. These parts are optional and must be ordered separately.

Conical Nozzle and Deflectors

1082060
Conical Nozzle

1083201
16-mm Deflector

1083205
19-mm Deflector

1083206
26-mm Deflector

1083207
38-mm Deflector

All deflectors include a 1098306 O-ring, Viton, 3mm x 1.1mm wide

Figure 9-6 Conical Nozzle and Deflectors

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Conical Nozzle Kit

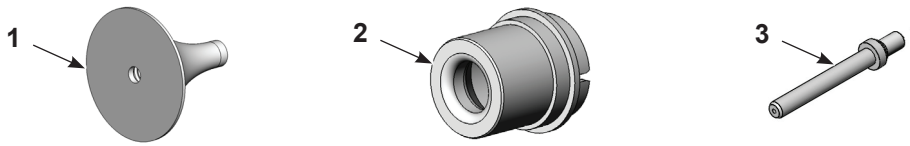

Figure 9-7 Conical Nozzle Kit

Item	Part	Description	Quantity	Note
—	1604828	KIT, conical nozzle, Encore	1	
1	1083206	• DEFLECTOR, 26mm	1	
2	1082060	• NOZZLE, conical	1	
3	1605861	• ELECTRODE HOLDER, conical	1	

Conical Electrode Assembly

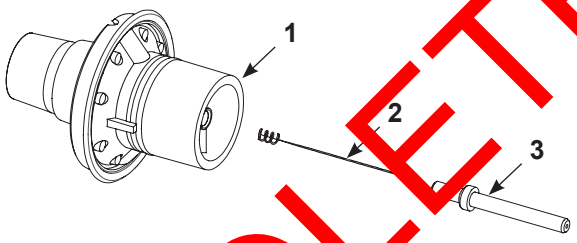

Figure 9-8 Conical Electrode Assembly

Item	Part	Description	Quantity	Note
—	1106076	ELECTRODE ASSEMBLY, conical, Encore	1	
1	- - - - - -	• ELECTRODE SUPPORT	1	
2	1106078	• ELECTRODE	1	
3	1605861	• ELECTRODE HOLDER, Conical	1	

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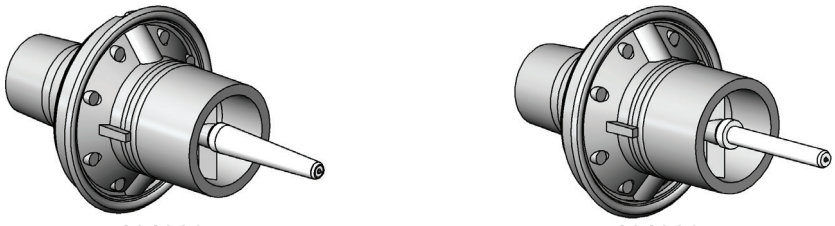
XD Electrode Support

The XD (extended duty) Electrode Support provides 2 to 3 times longer wear life than that of the standard duty electrode support.



1613834
XD Flat Spray Electrode Support

1613835
XD Conical Spray Electrode Support

Figure 9-9 Conical Spray and Flat Spray Electrode Supports

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Encore Angled Spray Extensions

See Figure 9-10. Encore angled spray extensions are available in 45, 60, and 90 degree versions. They are designed to be used on Encore automatic powder spray guns, allowing powder to be sprayed at varying angles to the spray gun mounting orientation.

All angled spray extensions are optional. See instruction sheet P/N 1605615 for parts, service kits, and more information.

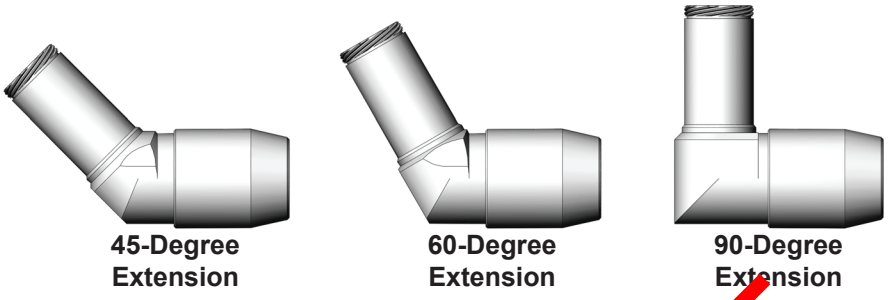

Figure 9-10 Angled Spray Extensions

Item	Part	Description	Note
—	1605703	EXTENSION, spray, 45 degree, Encore	
—	1605614	EXTENSION, spray, 60 degree, Encore	
—	1604084	EXTENSION, spray, 90 degree, Encore	

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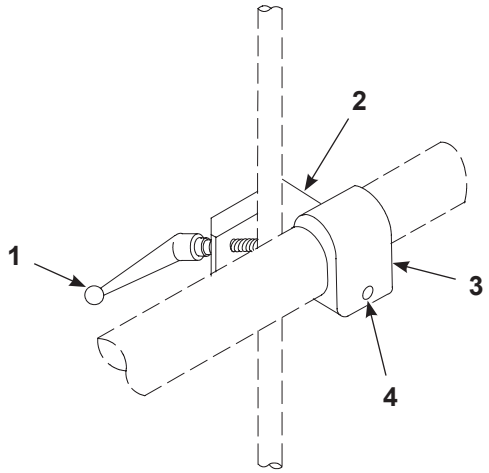
Tube-Mount Spray Gun Mounting Assemblies

All mounting assemblies are optional.

Standard Mount



Pivoting Mount

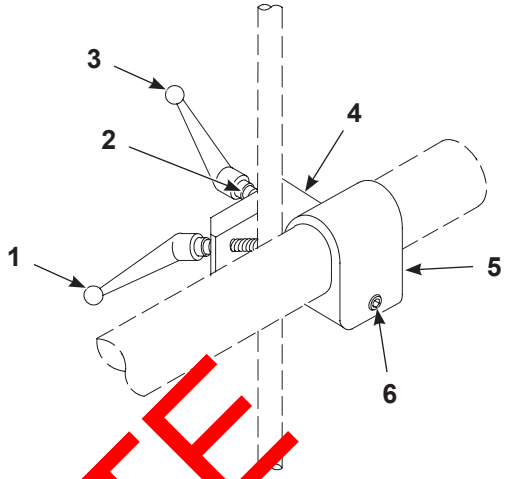


Figure 9-11 Spray Gun Bar Mounts for Tube-Mount Spray Guns

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Standard Mount Assembly

Item	Part	Description	Quantity	Note
—	1010717	MOUNT, assembly, automatic gu	1	
1	248957	• HANDLE, adjustment, 3/8- 16 x 1.77 in	1	
2	- - - - - -	• MOUNT, clamp, automatic gun	1	
3	- - - - - -	• MOUNT, sleeve, autom gun	1	
4	981561	• SCREW, socket 3/8 16 x in., zinc	3	

Pivot Mount Assembly

Item	Part	Description	Quantity	Note
—	341756	MOUNT, tube holder, assembly	1	
1	248957	• HANDLE, adjustment, 3/8- 16 x 1.77 in.	1	
2	983061	• WASHER, flat, 0.406 x 0.812 x 0.065 in., zinc	1	
3	249074	• HANDLE, adjustment, 3/8- 16 x 2.75 in.	1	
4	- - - - - -	• MOUNT, clamp, automatic gun	1	
5	- - - - - -	• MOUNT, sleeve, automatic gun	1	
6	981561	• SCREW, socket, 3/8- 16 x 1.00 in., zinc	3	

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Extrusion Mounting Assembly

Use this assembly to mount a tube-mount spray gun to a rigid bracket mounted on a T-slot extrusion.

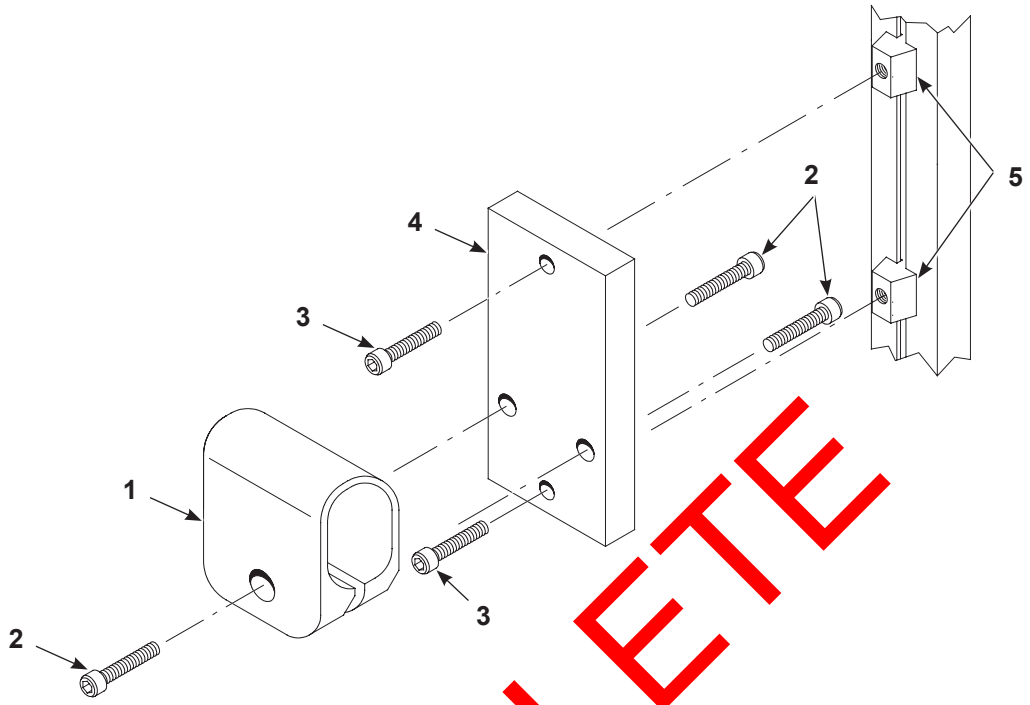

Figure 9-12 Extrusion Spray Gun Mount Assembly for Tube-Mount Spray Guns

Item	Part	Description	Quantity	Note
—	1016515	PLATE, adapter, support, gun bar assembly	1	
1	1013964	• MOUNT, sleeve, with screws, automatic	1	
2	981561	• • SCREW, socket, 3/8- 16 x 1.00 in., zinc	3	
3	981528	• SCREW, socket, M8 x 30, zinc	2	
4	1016458	• PLATE, attachment, support, gun bar	1	
5	1016533	• NUT, T-slot, steel, M8	2	

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Spray Gun Bar for Bar-Mount Spray Guns

The spray gun bar is optional. It clamps onto 1-in. diameter mounting bars.

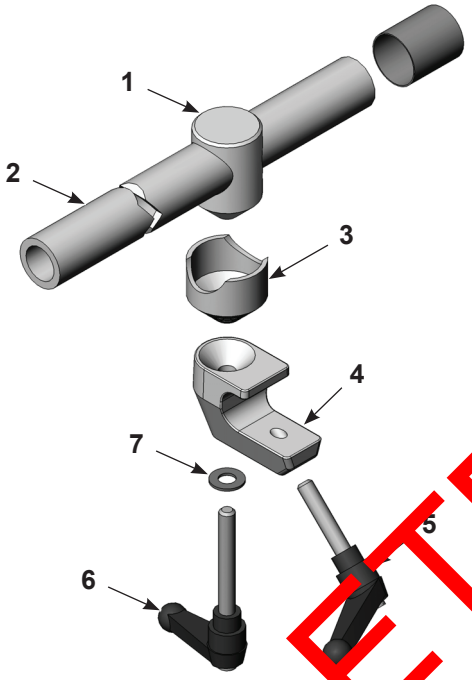

Figure 9-13 Spray Gun Bar for Bar-Mount Spray Guns

Item	Part	Description	Quantity	Note
-	341727	GUN BAR, aluminum, 1.25 in. OD x 4 ft., assembly	1	
1	327732	• BODY, locking, 1.25 in. diameter	1	
2	327704	• ROD, adjusting, aluminum, 1.25 in. OD x 4 ft	1	
3	327733	• SLEEVE, locking, 1.25 in. diameter	1	
4	248669	• BODY, adjust mounting	1	
5	248957	• HANDLE, adjust, 3/8-16 x 1.77 in.	1	
6	249074	• HANDLE, adjust, 3/8-16 x 2.75 in.	1	
7	983061	• WASHER, flat, 0.406 x 0.812 x 0.065 in., zinc	1	

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Ion Collector Kit

The ion collector kit is optional. It can be used on either Encore HD automatic spray gun model.

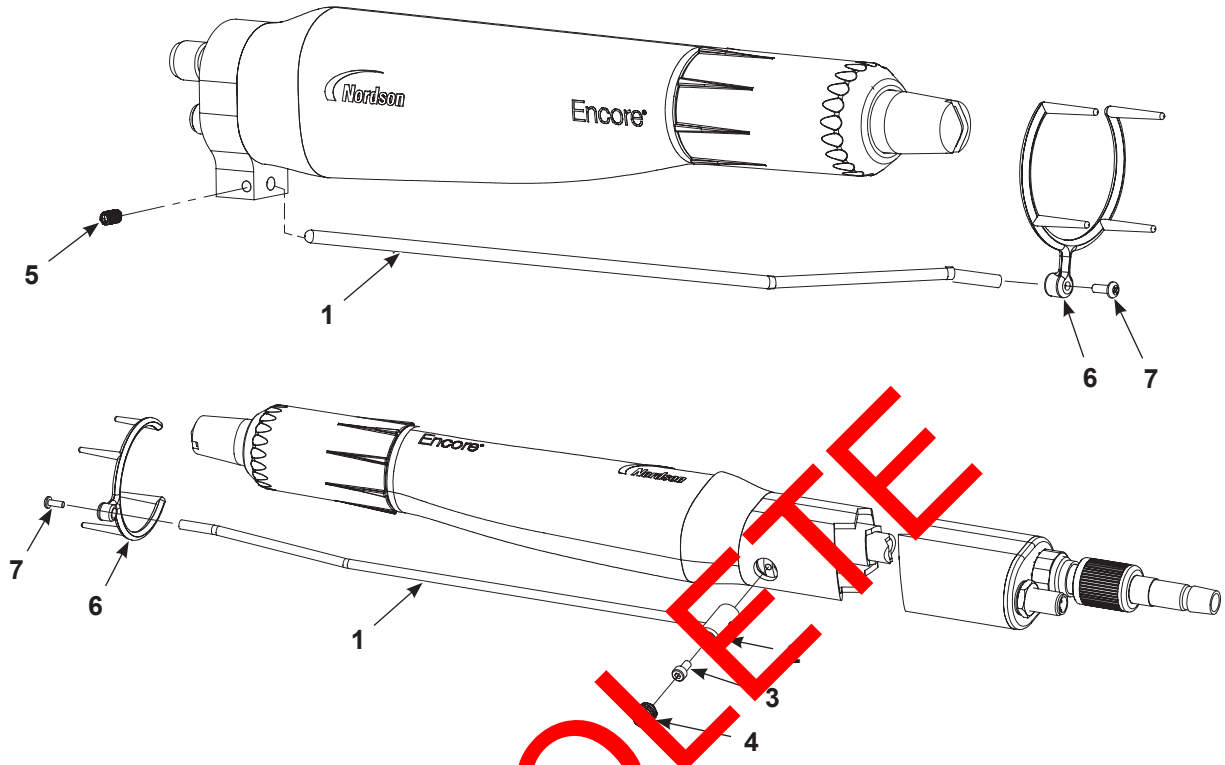

Figure 9-14 Ion Collector Kit (for clarity, some parts are not shown)

Item	Part	Description	Quantity	Note
-	1602357	KIT, collector, ion, Encore HD	1	
1	- - - - - -	• ROD, ion collector, inse	1	
2	1097547	• POST, collector, io	1	
3	105800	• SCREW, socket head, M4 x 0.7 x 8 mm	1	
4	1097696	• SCREW, set, nylon tip, M10 x 10, black	1	
5	1097543	• SCREW, set, nylon tip, M5 x 8, black	1	
6	- - - - - -	• TIP, ion collector, multi-point	1	
7	982017	• SCREW, pan, rec, M3 x 8, zinc	1	

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EU DECLARATION of CONFORMITY

Product: Encore HD Automatic Powder Spray System

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

Models: Encore HD Automatic Applicator and Encore HD iControl 2

Description: This high density, automatic electrostatic powder spray system includes applicator, control cable and associated controllers. These controls are available in a 4 - 32 applicator control cabinets as a main console with a pc and display or an auxiliary console without the pc or display. There is an optional Pedestal unit for remote mounting of the display within the hazardous zone or classified area.

Applicable Directives:
2006/42/EC - Machinery Directive
2014/30/EU - EMC Directive
2014/34/EU - ATEX Directive

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60204-1 (2018)	EN61000-6-3 (2007)
EN60079-0 (2020)	EN50050-2 (2013)	EN61000-6-2 (2005)
EN60079-31 (2014)	EN50177 (2012)	EN55011 (2016)

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex II 2 D / 2mJ = Auto Applicators
- Ex II (2) D = Main Console and Auxiliary Console Controllers
- Ex II (2) 3 D = Optional Pedestal

ATEX Product Certificates:
- FM13ATEX0006X (Applicators) (Dublin, Ireland)
- FM16ATEX0055X (Controllers) (Dublin, Ireland)

ATEX Quality System Certificat
- 0598 SGS Fimko Oy (Helsinki, Finland)

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Date: **06Jan22**

Jeremy Krone
Engineering Manager
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UK DECLARATION of CONFORMITY

Product: Encore HD Automatic Powder Spray System

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

Models: Encore HD Automatic Applicator and Encore HD iControl 2

Description: This high density, automatic electrostatic powder spray system includes applicator, control cable and associated controllers. These controls are available in a 4 - 32 applicator control cabinets as a main console with a pc and display or an auxiliary console without the pc or display. There is an optional Pedestal unit for remote mounting of the display within the hazardous zone or classified area.

Applicable Directives:
Supply Machinery Safety 2008
Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Regulation 2016
Electromagnetic Compatibility Regulation 2016

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60204-1 (2018)	EN61000-6-3 (2007)
EN60079-0 (2020)	EN50050-2 (2013)	EN61000-6-2 (2005)
EN60079-31 (2014)	EN50177 (2012)	EN55011 (2016)

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex II 2 D / 2mJ = Auto Applicators
- Ex II (2) D = Main Console and Auxiliary Console Controllers
- Ex II (2) 3 D = Optional Pedestal

ATEX Product Certificates:
- FM21UKEX0223X (Applicators) (Maidenhead, Berkshire, UK)
- FM21UKEX0221X (Controllers) (Maidenhead, Berkshire, UK)

ATEX Quality System Certificat
- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)

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Date: 06Jan2022

Jeremy Krone
Supervisor Product Development Engineering
Industrial Coating Systems
Amherst, Ohio, USA

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