# Prodigy® Robot Gun

Customer Product Manual
Part 1105518- 04

Issued 6/19

**For parts and technical support, call the Finishing Customer Support Center at (800) 433-9319.**

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NORDSON CORPORATION • AMHERST, OHIO • USA

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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
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Amherst, OH 44001

# Change Record

| Revision | Date | Change |
|---|---|---|
| 02 | 3/14 | Corrected Figure 15 to show a female connector on part being tested |
| 03 | 8/18 | Added repair kit |
| 04 | 6/19 | Page 21: Added new tubing part numbers/descriptions |
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# Prodigy® Robot Gun

## 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.

Grounding inside and around the booth openings must comply with NFPA requirements for Class 2, 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 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.

# Description

The Prodigy Robot Powder Spray Gun is designed for speed and repeatability. Supplied by a Nordson HDLV® (high-density powder, low-velocity air) pump, the Prodigy Robot Gun produces a very consistent output and soft, highly dense with powder, spray pattern. Together, the Prodigy gun and robot achieve optimum coating speed, performance, and efficiency.

A dual-slot flat spray nozzle with 1-mm slots is shipped with the gun. A wide variety of flat spray and conical spray nozzles are available for different spray patterns. Refer to pages 22 through 25 for descriptions and part numbers.

## Features

- 8-mm flexible tubing for powder delivery
- Separate high voltage and powder paths
- Uses same nozzles as Prodigy manual and automatic powder spray guns
- Unique low-surface-area profile sheds powder for fast cleaning.

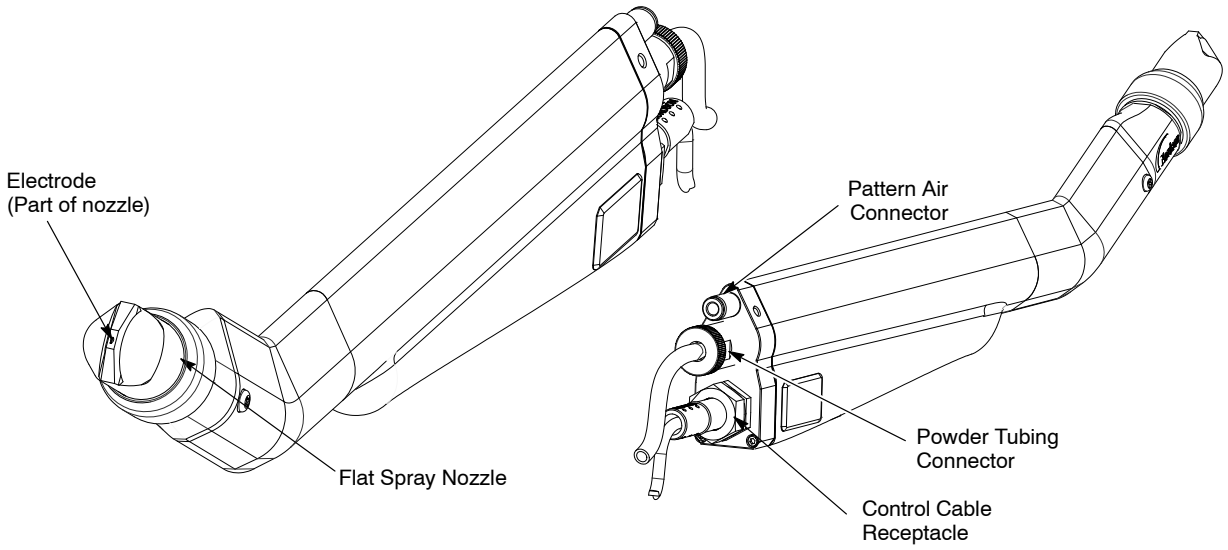


*Figure 1 Prodigy Robot Gun*

## Spray Gun Components

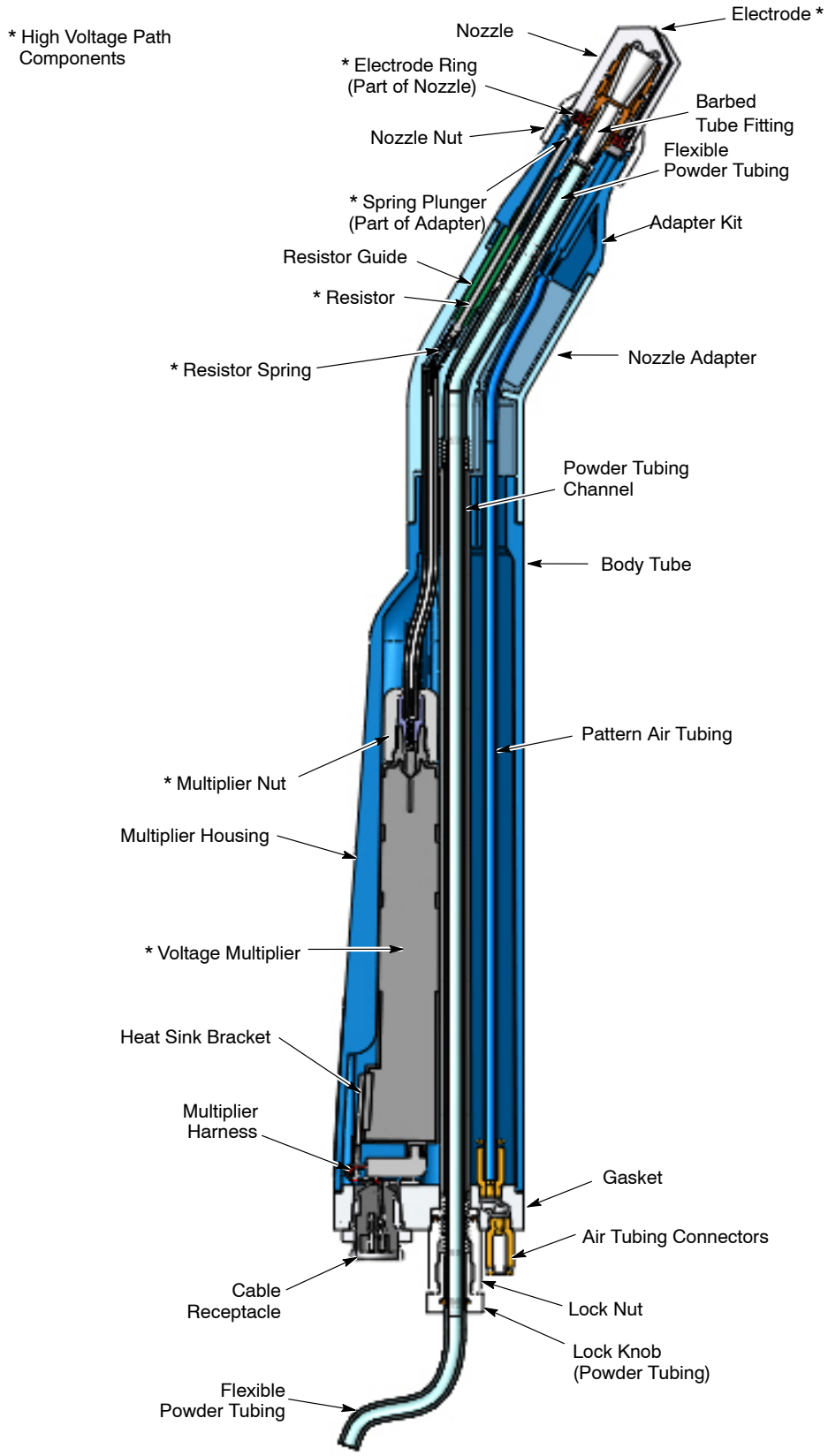


*Figure 2 Section View – Prodigy Robot Gun (Shown with 30 Degree Nozzle Adapter)*

# Specifications

Specifications are subject to change without notice.

| | |
|---|---|
| **Electrical Output** | |
| Maximum rated output voltage at the electrode | 95 kV ± 10% |
| Maximum rated output current at the electrode | 100 µA ± 10% |
| **Air Pressure and Flow Requirements** | |
| Minimum input air | 4 bar (60 psi) |
| Maximum input air | 6.9 bar (100 psi) |
| Pattern air | 5.9 bar (85 psi), 6–57 l/min. (0.2–2.0 scfm) |
| **Temperature Requirement** | |
| Maximum ambient temperature | 40 °C (104 °F) |

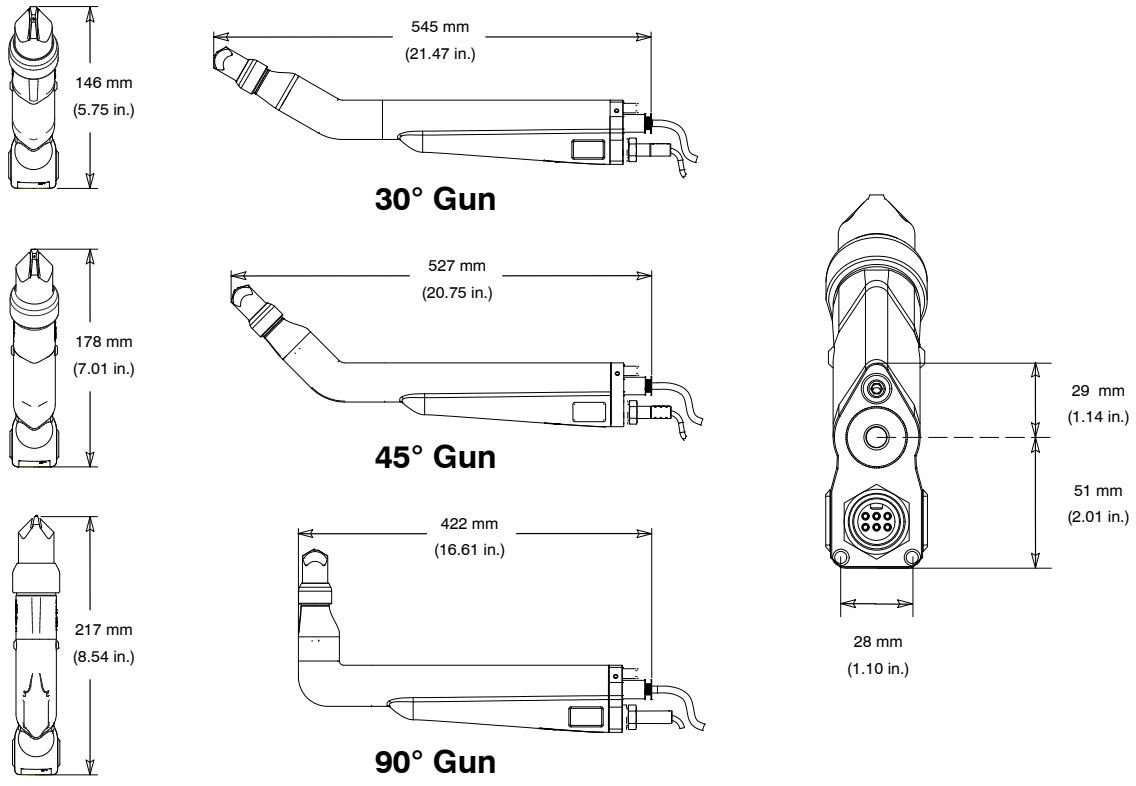


*Figure 3 Gun Dimensions*

## Air Quality Requirements

Powder spray systems require clean, dry, oil-free compressed air. Moist or oil-contaminated air can cause the powder to clog in the pump, powder feed tubing, or spray gun.

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 6.9 bar (100 psi).

## Equipment Rating

This applicator is rated for use in a potentially explosive environment (Class II, Division I Group F & G or Zone 21).

# Installation

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

## Cable and Tubing Connections

1. See Figure 4. Connect the control cable to the gun and the appropriate receptacle on the iControl cabinet. Tighten the cable nuts securely.
2. Connect blue 6-mm pattern air tubing to the gun and the appropriate outlet fitting on the pump panel.

**NOTE:** Use 8-mm flexible tubing for powder delivery, at least 20 meters long. Cut the end of the tubing square. Refer to page 21 for tubing cutter and tubing part numbers.

3. Install the lock knob on the flexible powder tubing 2 ft from the end of the tubing.
4. Unscrew the nozzle retaining nut and remove the nozzle shipped with the spray gun. Remove the barbed tube fitting from the nozzle.
5. Slide the 2-ft piece of mesh sleeving through the powder tubing channel from the front of the gun to the rear.
6. Insert the end of the flexible powder tubing into the end of the mesh sleeving at the rear of the gun, then pull the mesh sleeving and tubing through the gun.
7. Push the barbed end of the tube fitting into the end of the flexible tubing up to the first shoulder.
8. Pull the flexible tubing back through the gun until the fitting seats in the gun, then install the nozzle over the fitting and thread the nozzle nut onto the gun.
9. At the back of the gun, slide the lock knob up to the lock nut, then thread the lock knob into the lock nut until snug.
10. Route the powder tubing to the pump cabinet, and connect it to the appropriate powder pump outlet fitting (rear fitting).
11. Use spiral wrap, Velcro straps, or clamps to dress out the control cables and tubing, prevent kinking, and protect them from damage. **Do not use cable ties to bundle the powder tubing**.

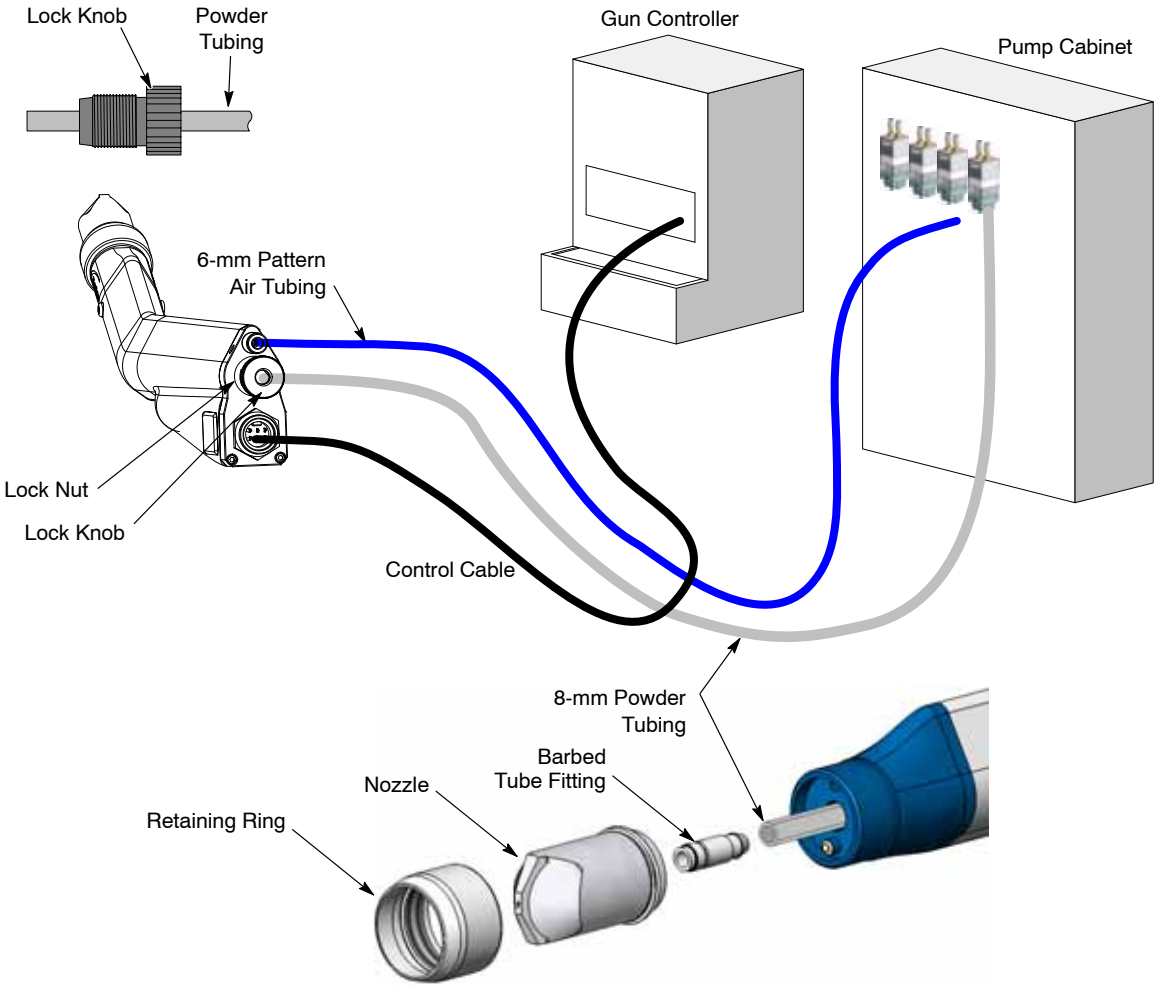


*Figure 4 Tubing and Cable Connections*

# Operation

All automatic gun functions are set and controlled by the Prodigy Gun Controller. Refer to the appropriate controller manual for instructions on making spray settings.

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

# Maintenance

**Daily:** Blow off the gun exterior and wipe it clean with a soft cloth. Inspect the nozzle and electrode for damage or wear. Replace any worn parts.

**Periodically:** Check the resistance of the voltage multiplier and resistor with a 500-volt megohm meter as described in *Continuity and Resistance Checks* on page 12. Replace any components that do not meet the specifications.

**As Required:** Disassemble the nozzle and clean the internal parts. Replace any worn parts. Refer to *Nozzle Disassembly and Cleaning* on the following page for instructions.

## Nozzle Disassembly and Cleaning

Requirements: Nozzle Tool 1073682

1. Hold the nozzle firmly in one hand. Thread the tool onto the threaded end of the insert until it bottoms out on the electrode ring.

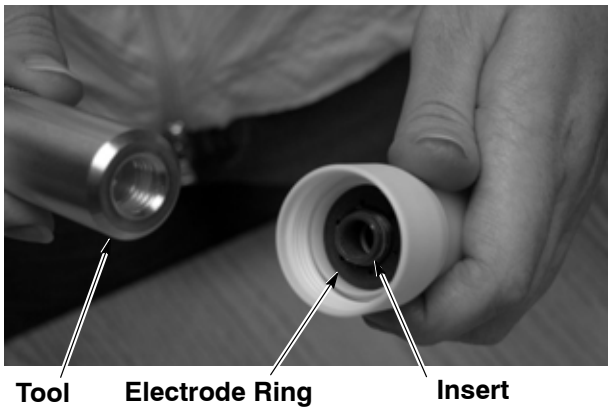


*Figure 5 Nozzle Disassembly Step 1 (Shown with Nut Installed)*

2. Turn the tool clockwise while pulling on it until the electrode ring/insert assembly comes out of the nozzle.

**NOTE:** If the electrode is pulled out of the nozzle shell, be careful to not lose it. The dual slot nozzle has the electrode glued in.

*Figure 6 Nozzle Disassembly Step 2A*

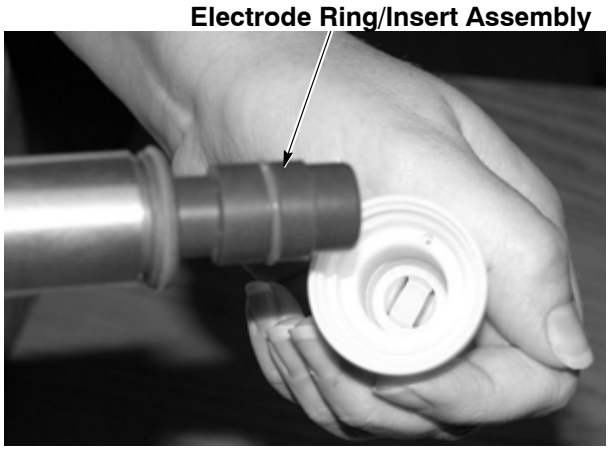


*Figure 7 Nozzle Disassembly Step 2B (New Style Assembly Shown)*

3. Unscrew the tool from the electrode ring/insert assembly and blow off the assembly with compressed air.

## Nozzle Disassembly and Cleaning *(contd)*

*Figure 8 Nozzle Disassembly Step 2B (New Style Nozzle Shown)*

4. Place the nozzle and nozzle nut in an ultrasonic cleaner to remove any impact fusion, then blow them off with compressed air. If desired, remove the nozzle nut from the nozzle by sliding the nut forward then turning it clockwise to unscrew it.
5. Blow off the insert and filter. If the filter is clogged with powder, remove it and replace it with a new one. When removing the new style filter from the insert, be careful not to scratch the inside surface of the insert.

To re-assemble the nozzle:

1. Make sure the electrode ring is threaded all the way onto the insert.
2. Thread the tool onto the threaded end of the insert.
3. Turn the tool counterclockwise to remove it from the insert. Check the nozzle. The electrode ring should be approximately $^1/_4$ inch inside the nozzle lip.

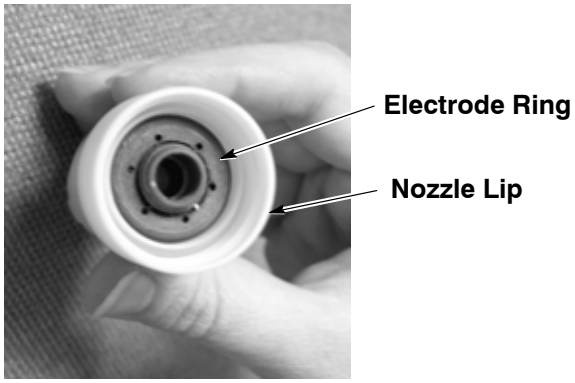


*Figure 9 Nozzle Re-assembly*

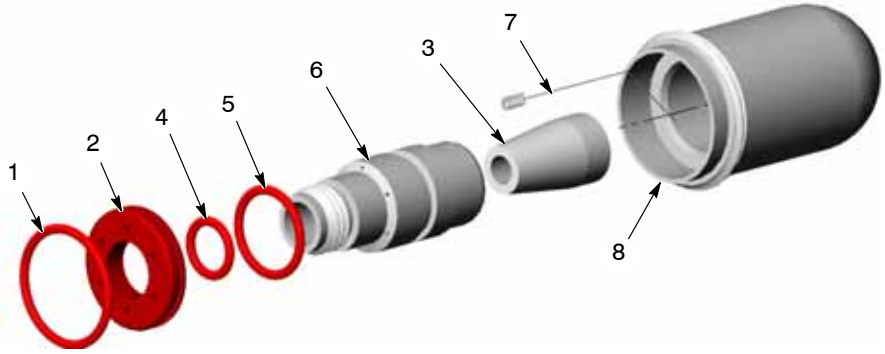


*Figure 10 Internal Components of Nozzle Assemblies*

1. O-ring
2. Electrode ring
3. Filter
4. O-ring
5. O-ring
6. Insert
7. Electrode
8. Nozzle shell

*Note:* All internal components, except the electrodes, are the same for all nozzles. For flat-spray, cross, and pinpoint nozzles, the electrode is glued into the nozzle shell with epoxy and cannot be replaced separately.

## Troubleshooting

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

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 or the Nordson Finishing Customer Support Center at (800) 433–9319 for help.

| Problem | Possible Cause | Corrective Action |
|---|---|---|
| **1. Unsteady or inadequate powder flow** | Fault in pump, pump manifold, or pump control card | Refer to HDLV pump manual for troubleshooting. |
| | Blockage in gun powder tube or in 8-mm powder tubing | Purge gun and powder tubing. Replace powder tube or tubing if necessary. |
| | Damp or contaminated powder supply, powder supply not properly fluidized | Check powder supply, make sure powder is being fluidized properly. |
| **2. Uneven pattern** | Insufficient pattern air flow | Increase pattern air flow. |
| | Blocked nozzle | Clean or replace nozzle. |
| | Worn powder tube | Purge gun, disconnect the powder tubing, and examine powder tube ID. |
| **3. Loss of wrap, poor transfer efficiency** | Low electrostatic voltage | Increase electrostatic voltage. |
| | 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. |
| | Poor connection in high voltage path inside spray gun | Perform the *Multiplier and Resistor Assembly Resistance Tests* on page 12. |
| | Fault in gun control card | Refer to the controller manual for troubleshooting. |
| **4. No kV output** | Damaged control cable | Perform the cable continuity tests on page 14.<br>If an open or short is found, replace the cable. |
| | Fault in gun control card | Refer to the controller manual for troubleshooting. |
| | Faulty voltage multiplier or poor connection in high voltage path | Perform the resistance checks on page 12.<br>Check all high voltage path connections. See Figure 2. |
| **5. No powder output** | Blockage in powder tubing | Check powder tubing. |
| | Fault in gun control card | Refer to the Prodigy controller manual for troubleshooting. |
| | Fault in pump control card or pump | Refer to HDLV pump manuals for troubleshooting. |

# Continuity and Resistance Tests

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

**WARNING:** Turn off the electrostatic voltage and ground the spray gun electrode before performing the following tasks. Failure to observe this warning could result in a severe shock.

## Resistance Tests

Use a 500 volt megohm meter to make these tests.

### Multiplier/Resistor Test – All Versions

1. See Figure 11. Remove the retaining nut (1) and nozzle (2).
2. Disconnect the control cable.
3. Short together receptacle pins 2, 3, and 4 and connect them to the positive megohm meter probe.

**CAUTION:** You must short multiplier receptacle pins 2, 3, and 4 together before performing this test to avoid damaging the multiplier.

4. Connect the negative megohm meter probe to the adapter spring plunger.

The megohm meter reading should be 400–510 megohms.

If the reading is out of this range, test the components of the high voltage path separately as described in the following tests. Replace any components that test out of range.

If the reading is infinite, there is no continuity through the high voltage path. Check the high voltage path connections (see Figure 2). If you have a tube-mount gun, test the electrode cable for continuity.


*Figure 11 Multiplier/Resistor Test*

### Resistor Test – All Versions

Remove the resistor as described in *Resistor Replacement* on page 16.

Resistor reading should be 153–187 megohms.

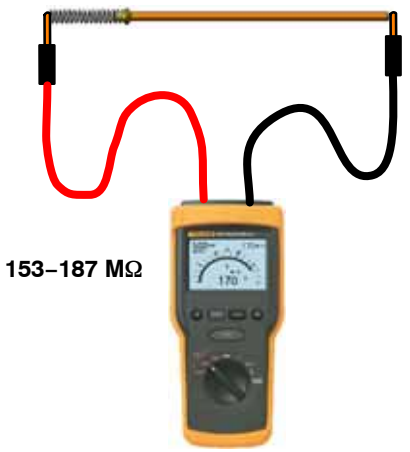


*Figure 12 Resistor Test*

## Multiplier and Contact Test

Remove the multiplier as described in *Multiplier Replacement* on page 18.

Connect the optional shorting plug (refer to *Options* for the part number) to the multiplier receptacle or short together the three receptacle pins.

**CAUTION:** Before performing this test, the multiplier receptacle pins must be shorted together to avoid damaging the multiplier.

The resistance of the multiplier/contact assembly should be 150–220 megohms. If the reading is out of this range, test the contact tip and multiplier separately.

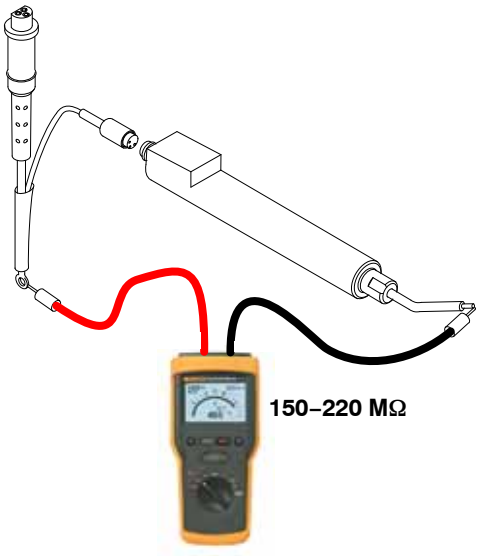


*Figure 13 Multiplier/Contact Test*

## Multiplier Test

Connect the optional shorting plug (refer to Options for part number) to the multiplier receptacle or short together the three receptacle pins.

**CAUTION:** Before performing this test, the multiplier receptacle pins must be shorted together to avoid damaging the multiplier.

Test from the shorting plug or shorted pins to the brass contact inside the multiplier well. Resistance should read 140–200 megohms.

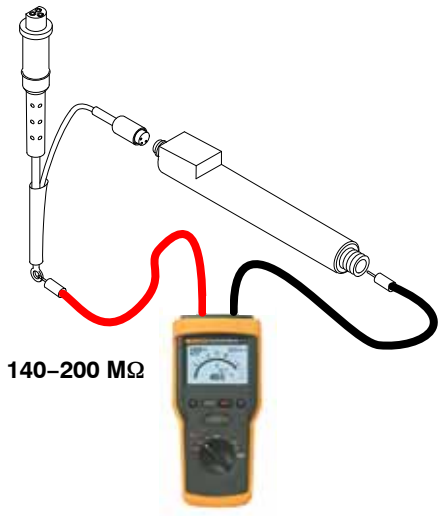


*Figure 14 Multiplier Test*

## Electrode Cable Test

Resistance should be 3–5 megohms.

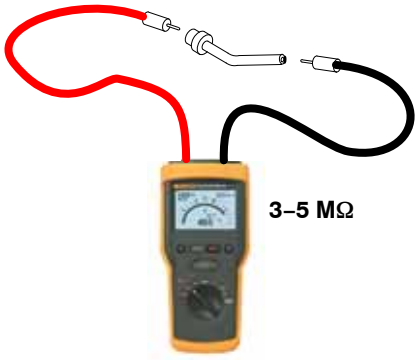


*Figure 15 Electrode Cable Test*

## Control Cable Continuity Test

Disconnect the control cable at both ends. Use Figure 16 and a standard ohmmeter to check the control cable from pin to pin.

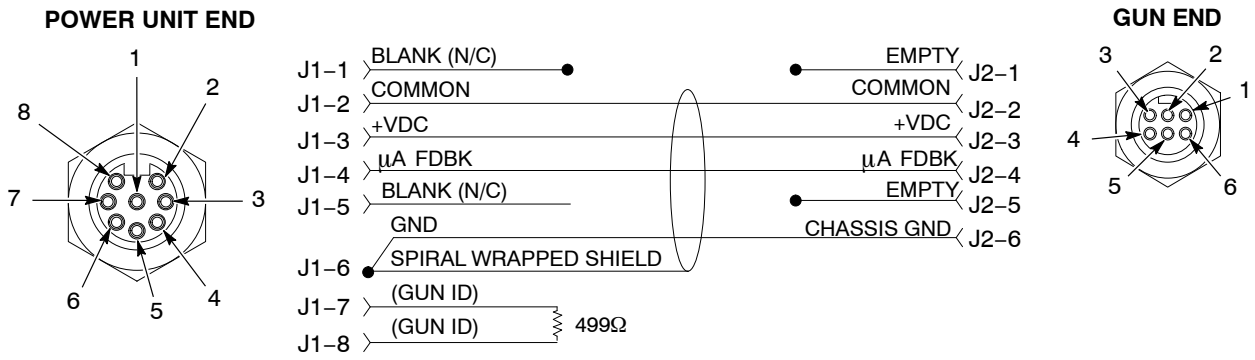


*Figure 16 Control Cable Continuity Tests*

# Repair

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

**WARNING:** Turn off the electrostatic voltage and ground the spray gun electrode before performing the following tasks. Failure to observe this warning could result in a severe shock.

## Nozzle Replacement

1. See Figure 17. Remove the retaining nut (1) and nozzle (2).

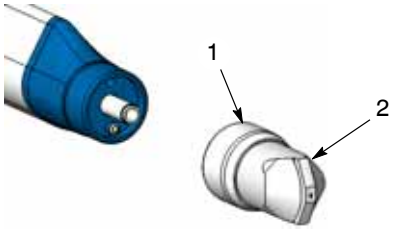


*Figure 17 Removing Nozzle*

2. See Figure 18. Unscrew the nozzle (2) from the retaining nut (1).

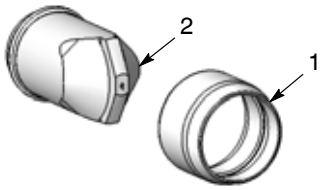


*Figure 18 Nozzle and Retaining Nut*

3. Screw a new nozzle into the retaining nut, then screw the retaining nut back onto the adapter.

## Resistor Replacement

### Resistor Removal

1. Disconnect the air tubing and control cable.
2. See Figure 17. Remove the nozzle.
3. See Figure 19. Pull the barbed tube fitting (3) out of the gun and disconnect the flexible powder tubing from the tube fitting.


*Figure 19 Removing Barbed Tube Fitting*

4. See Figure 20. Unscrew the lock knob (20) and pull the powder tubing out of the lock nut (18).


*Figure 20 Disconnecting Powder Tubing*

5. Remove the spray gun from the gun mount and move it to a clean work area.
6. See Figure 21. Remove the two screws (22) with a 2.5 mm hex wrench, then unscrew the lock nut (18).


*Figure 21 Removing Heat Sink Screws and Lock Nut*

7. See Figure 22. Pull the heat sink (16) away from the housing (11) just enough to disconnect the air tubing (5) from the connector (14).

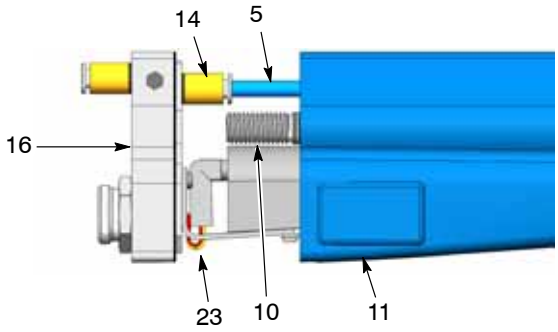


*Figure 22 Pulling the Heat Sink away from the Housing*

8. See Figure 23. Pull the adapter (4) away from the housing (11) far enough to access the resistor guide (6).
9. Pull the resistor out of the resistor guide.

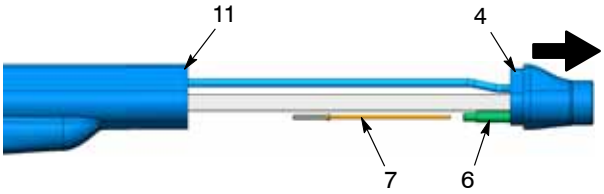


*Figure 23 Removing the Resistor*

### Resistor Installation

1. See Figure 23. Inject 0.6 cc of dielectric grease into the resistor guide (6).
2. Insert the new resistor into the resistor guide, rotating the resistor while pushing it in until it bottoms out. Rotating the resistor helps release trapped air pockets from the grease. Clean off any excess grease.
3. Insert the resistor (7) into the resistor guide(6).
4. See Figure 22. Connect the air tubing (5) to the connector (14), then push the heat sink (16) back up against the housing while fitting the rear powder tubing channel (10) through the heat sink. Make sure the harness wires (23) are not pinched between the housing (11) and the heat sink.
5. See Figure 21. Screw the lock nut (18) onto the powder tubing channel and tighten it securely. Do not overtighten it or you will strip the plastic threads on the powder tubing channel.
6. Install the two socket-head screws (22) in the heat sink and tighten them securely.
7. Perform the *Multiplier and Resistor Resistance Test* on page 12 to make sure the high voltage path is continuous and all connections are sound. If you do not get the proper reading, check all connections in the high voltage path (see Figure 2).
8. Insert the 2-ft mesh sleeving through the powder tubing channel.
9. Install the lock knob (20) over the end of the flexible powder tubing. Insert the end of the flexible powder tubing into the mesh sleeving, and pull the powder tubing through the gun to the front.
10. See Figure 19. Install the barbed tube fitting (3) into the end of the flexible tubing, then pull the tubing back until the fitting seats into the gun.
11. See Figure 20. Thread the lock knob (20) into the lock nut (18) and tighten snugly.
12. See Figure 17. Install the nozzle (2) over the fitting and tighten the retaining nut (1).
13. Reconnect the air tubing and control cable.

## Multiplier Replacement

### Multiplier Removal

1. Perform Steps 1–7 of the *Resistor Removal* procedure.
2. See Figure 24. Pull the heat sink (16), with multiplier (13) attached, out of the housing. Continue pulling until you can grasp the multiplier nut (12).
3. Unscrew the multiplier nut (12A) and disconnect the electrode cable (12B) from the multiplier (13).

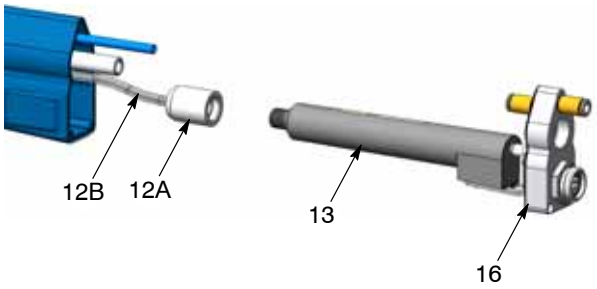


*Figure 24 Removing the Multiplier from the Housing and Disconnecting Electrode Cable*

4. See Figure 25. Remove the screw (26) and lockwasher (25), then remove the multiplier (13) from the bracket (24C).
5. Disconnect the harness plug (23) from the multiplier.

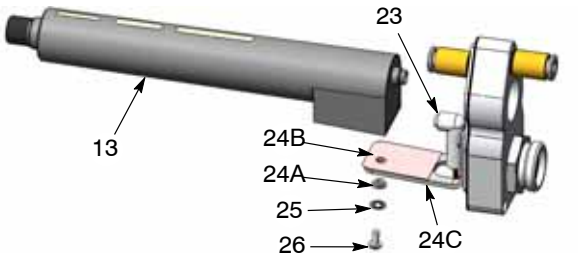


*Figure 25 Replacing the Multiplier*

6. Make sure the thermally conductive pad (24B) and nylon shoulder washer (24A) are intact. If not, install a new heat sink bracket kit, which includes a new bracket (24C), pad, and washer.

### Multiplier Installation

1. See Figure 25. Connect the harness plug (23) to the multiplier (13).
2. Make sure the nylon shoulder washer (24A) is correctly installed into the bracket (24C). Install the multiplier on the bracket, tucking the harness wiring into the slot in the bracket.
3. Secure the multiplier to the bracket with the screw (26) and lockwasher (25).
4. See Figure 26. Inject approximately 0.3 cc of dielectric grease into the multiplier well, so that it is about 75% full.

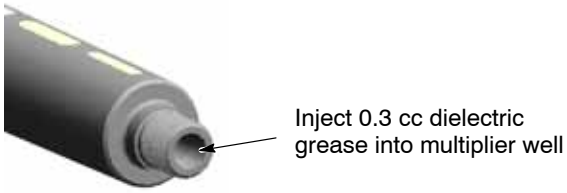


*Figure 26 Multiplier Well Greasing*

5. See Figure 24. Insert the spring end of the electrode cable (12B) into the multiplier well until it bottoms out, then screw the multiplier nut (12A) down tight.
6. Perform steps 5–12 of *Resistor Installation*.

# Parts

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

## Spray Gun Parts List

See Figure 27.

| Item | Part | Description | Quantity | Note |
|---|---|---|---|---|
| — | 1105561 | GUN, robot, 30 degree, Prodigy | 1 | I |
| — | 1105562 | GUN, robot, 45 degree, Prodigy | 1 | I |
| — | 1105563 | GUN, robot, 90 degree, Prodigy | 1 | I |
| 1 | 1047536 | • NUT, retaining | 1 | |
| 2 | 1073706 | • KIT, nozzle, flat spray, dual slot, converging angle, 1 mm | 1 | E, J |
| 3 | 1105287 | • TUBE, barbed, Tivar®, Prodigy robot | 1 | |
| 4 | 1105286 | • KIT, adapter, tapper M4, Prodigy robot | 1 | |
| 5 | 900742 | • TUBING, polyurethane, 6/4 mm, blue | 1.4 ft | A |
| 6 | 1047933 | • GUIDE, resistor | 1 | |
| 7 | 1053912 | • KIT, resistor, cable, series | 1 | B |
| 8 | 1105288 | • CHANNEL, front, powder tube, Prodigy robot | 1 | |
| 9A | 1104203 | • ADAPTER, nozzle, 30 degree, Prodigy robot | 1 | F |
| 9B | 1104204 | • ADAPTER, nozzle, 45 degree, Prodigy robot | 1 | G |
| 9C | 1104206 | • ADAPTER, nozzle, 90 degree, Prodigy robot | 1 | H |
| 10 | 1105430 | • CHANNEL, rear, powder tube, Prodigy robot | 1 | |
| 11 | 1047501 | • HOUSING, 95 kV, Prodigy, auto | 1 | |
| 12A | 1103950 | • NUT, multiplier | 1 | |
| 12B | 1105516 | • KIT, electrode, Prodigy robot | | |
| 13 | 288552 | • POWER SUPPLY, 95 kV, negative | 1 | |
| 14 | 972399 | • CONNECTOR, male, w/hex, 6 mm tube x $^{1}/_{8}$ in. unithread | 2 | |
| 15 | 1047510 | • GASKET, heatsink | 1 | |
| 16 | 1105431 | • HEATSINK, Prodigy robot | 1 | |
| 17 | 945127 | • O-RING, Viton, 13.4 x 2.1 mm | 1 | |
| 18 | 1047932 | • NUT, lock, Prodigy, auto | 1 | |
| 19 | 1047796 | • GRIP RING, 8mm TE | 1 | C |
| 20 | 1047934 | • KNOB, lock, powder tube | 1 | |
| 21 | 940117 | • O-RING, silicone, 0.312 x 0.438 x 0.063 in. | 1 | |
| 22 | 1054073 | • SCREW, socket head, M3 x 20 mm, steel, zinc | 2 | |
| 23 | 1050007 | • HARNESS, gun, Prodigy, auto | 1 | |
| 24 | 1054590 | • KIT, heat sink, Prodigy, auto | 1 | D |
| 25 | 983520 | • WASHER, lock, internal, M3, steel, zinc | 3 | |
| 26 | 1054074 | • SCREW, pan head, rec, 4–40, 0.25 in. zinc | 1 | |
| 27 | 982341 | • SCREW, pan head, recessed, M3 x 10, zinc | 2 | |
| NS | 1093531 | • SLEEVING, mesh, tube insertion tool | 2 ft | |

NOTE
A: Bulk part number, order in increments of 1 foot, cut to required length.
B: Kit includes one applicator with 3-cc of dielectric grease.
C: Also available in packages of 10. Order part 1053911.
D: Kit includes heat sink bracket, thermally conductive pad, and M4 nylon shoulder washer.
E: Optional nozzles available. Refer to pages 22 through 25.
F: Unique to 30 degree Prodigy robot gun only.
G: Unique to 45 degree Prodigy robot gun only.
H: Unique to 90 degree Prodigy robot gun only.
I: Part is obsolete.
J: Not included in repair kit PN 1611774.

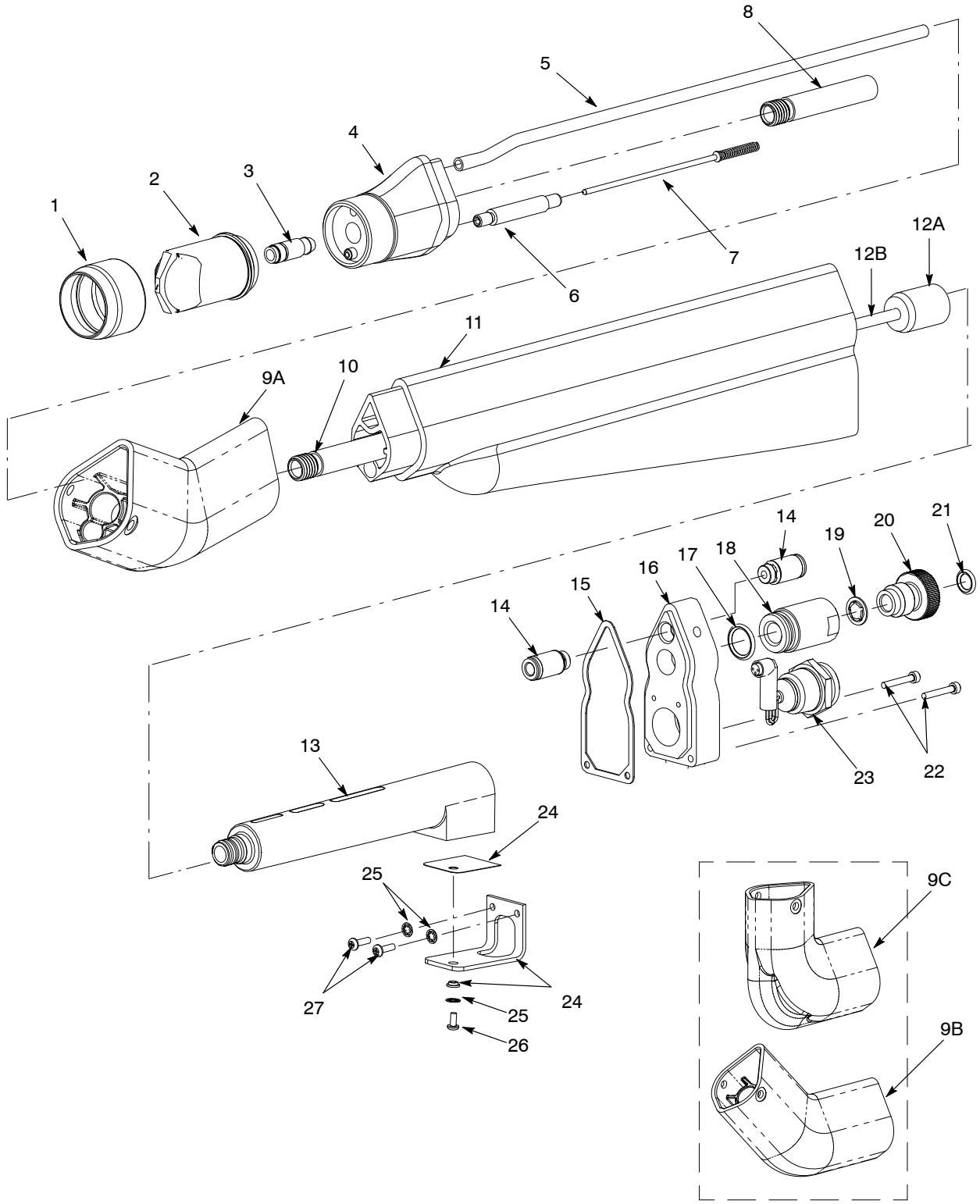


*Figure 27 Spray Gun Parts*

## Service Kits

| Part | Description | Note |
|---|---|---|
| 1054599 | KIT, cable, Prodigy, auto | A |
| 1054590 | KIT, heat sink, Prodigy, auto | A |
| 1054529 | KIT, adapter, Prodigy, spring, auto | A |
| NOTE A: Refer to the spray gun parts list and notes for contents. | | |

## Robot Gun Body Service Kit

| Part | Description | Note |
|---|---|---|
| 1611774 | KIT, repair, gun body, Prodigy, robot, 45 degree | A, B |
| NOTE A: Refer to the spray gun parts list and notes for contents.<br>B: 30-degree and 90-degree nozzles are available by purchasing 9A and 9C (respectively) from the parts table on page 19 | | |

## Options

### Miscellaneous Options

| Part | Description | Note |
|---|---|---|
| 1073682 | KIT, tool, insertion/extraction, nozzle | |
| 1050040 | CABLE, Prodigy, auto, 8 meter | |
| 1050043 | CABLE, Prodigy, auto, 12 meter | |
| 1069306 | CABLE, Prodigy, auto,16 meter | |
| 302112 | POWER SUPPLY, 95 kV, positive | |
| 245733 | APPLICATOR, dielectric grease | A |
| 161411 | PLUG, shorting, IPS | B |
| NOTE A: Carton of 12 3-cc dielectric grease applicators.<br>B: Use for testing voltage multiplier/resistor/electrode resistance. | | |


*Figure 28 Optional Shorting Plug and Nozzle Tool*

### Powder and Air Tubing

Powder and air tubing are not supplied with the spray gun.

| Part | Description | Note |
|---|---|---|
| 1613849 | TUBING, powder, 8 mm x 6 mm, 40 m | |
| 1613850 | TUBING, powder, 8 mm x 6 mm, 160 m | |
| 1078006 | ADAPTER, tube, barb, powder, Prodigy pump, generation II | |
| 900742 | TUBING, polyurethane, 6/4 mm, blue (Air) | |
| 1062178 | TUBING CUTTER, 12 mm or less | |

## Nozzles

### Conical Nozzles

| Part | Description | Effective Pattern Size | Usage | Note |
|---|---|---|---|---|
| 1062223 | KIT, nozzle, 70 degree, conical | 4–6 inches (101–152 mm) | General use on manual or automatic guns | A |
| 1062160 | • NOZZLE, 70 degree, conical (shell) | | | C |
| 1062166 | KIT, nozzle, 100 degree, conical | 6–8 inches (152–230 mm) | General use on manual or automatic guns | B |
| 1062161 | • NOZZLE, 100 degree, conical (shell) | | | C |
| 1073819 | KIT, nozzle, conical, 40 degree, conical | 2–4 inches (51–102 mm) | Manual coating and touch-up | B |
| 1073818 | • NOZZLE, 40 degree, conical (shell) | | | C |

NOTE A: One of each supplied with spray gun.
B: Optional nozzles, not included with spray gun.
C: Nozzle shell only. Does not include internal components.

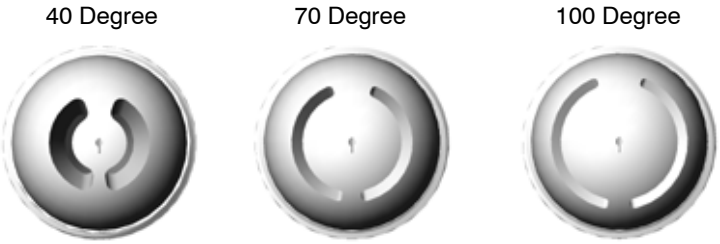


*Figure 29 Conical Nozzles*

## Conical Nozzle Components

Refer to spray gun parts list for nozzle tool used to disassemble nozzles.

| Item | Part | Description | Quantity | Note |
|---|---|---|---|---|
| 1 | 940203 | O-RING, silicone, 0.875 x 1.00 x 0.063 in. | 1 | |
| 2 | 1047537 | ELECTRODE ring | 1 | |
| 3 | 940126 | O-RING, silicone, 0.375 x 0.50 x 0.063 in. | 1 | |
| 4 | 940163 | O-RING, silicone, 0.625 x 0.75 x 0.063 in. | 1 | |
| 5 | 1073625 | INSERT, metric, conical/flat nozzles | 1 | |
| 6 | 1073624 | CONE, porous, nozzle | 1 | A |
| 7 | 1062177 | ELECTRODE, spring contact, 0.094 dia, Prodigy | 1 | |
| NOTE A: Also available in quantities of 10. Order kit 1073707. | | | | |

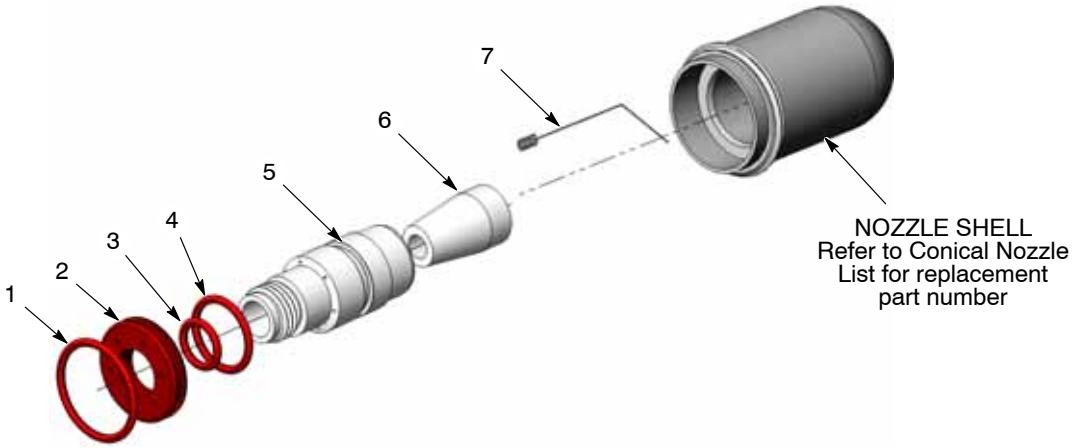


*Figure 30 Conical Nozzle Components*

## Flat Spray and Cross Nozzles

Refer to Figure 32 and parts list for nozzle internal components.

| Part | Description | Effective Pattern Size | Usage | Note |
|---|---|---|---|---|
| 1073706 | KIT, nozzle, flat spray, dual slot, converging angle, 1 mm | 8–10 inches (203–254 mm) | General use on manual or automatic guns | |
| 1073726 | • KIT, nozzle, dual converging slots, shell with electrode | | | C |
| 1077385 | KIT, nozzle, flat spray, Prodigy, 75 degree | 6–8 inches (152–230 mm) | General use on manual or automatic guns | A |
| 1077395 | • NOZZLE, shell with electrode, flat spray, Prodigy, 75 degrees | | | C |
| 1077382 | KIT, nozzle, flat spray, Prodigy, 90 degree | 2–4 inches (51–102 mm) | Manual coating and touch-up | A |
| 1077394 | • NOZZLE, shell with electrode, flat spray, Prodigy, 90 degree | | | C |
| 1077388 | KIT, nozzle, flat spray, Prodigy, 115 degree | 9–11 inches (229–279 mm) | General use on manual or automatic guns | A |
| 1077396 | • NOZZLE, shell with electrode, flat spray, Prodigy, 115 degree | | | C |
| 1077392 | KIT, nozzle, flat spray, Prodigy, 140 degree | 11–13 inches (279–330 mm) | Large flat surfaces | A |
| 1077397 | • NOZZLE, shell with electrode, flat spray, Prodigy, 140 degree | | | C |
| 1073911 | KIT, nozzle, flat spray, Prodigy, 180 degree | 13–15 inches (330–381 mm) | Large flat surfaces | A |
| 1077393 | • NOZZLE, shell with electrode, flat spray, Prodigy, 180 degree | | | C |
| 1077584 | NOZZLE assembly, cross, Prodigy, 4 slot, 60 degree | 3–5 inches (76–127 mm) | Manual coating and touch-up | B |
| 1077893 | • NOZZLE, shell with electrode, cross, Prodigy, 4 slot, 60 degree | | | C |
| 1077585 | NOZZLE assembly, cross, Prodigy, 4 slot, 90 degree | 2–4 inches (51–102 mm) | Manual coating and touch-up | B |
| 1077894 | • NOZZLE, shell with electrode, cross, Prodigy, 4 slot, 90 degree | | | C |
| 1077586 | NOZZLE assembly, cross, Prodigy, 6 slot, 60 degree | 2–3 inches (51–76 mm) | Manual coating – deep recesses | B |
| 1077895 | • NOZZLE, shell with electrode, cross, Prodigy, 6 slot, 60 degree | | | C |
| 1077587 | NOZZLE assembly, pinpoint, Prodigy, 10 hole | Pinpoint | Manual coating – touch-up and deep recesses | B |
| 1077896 | • NOZZLE, shell with electrode, pinpoint, Prodigy, 10 hole | | | C |

NOTE A: These kits include spare nozzle shell with electrode.
B: Complete nozzle assembly with shell.
C: Nozzle shell with electrode only.

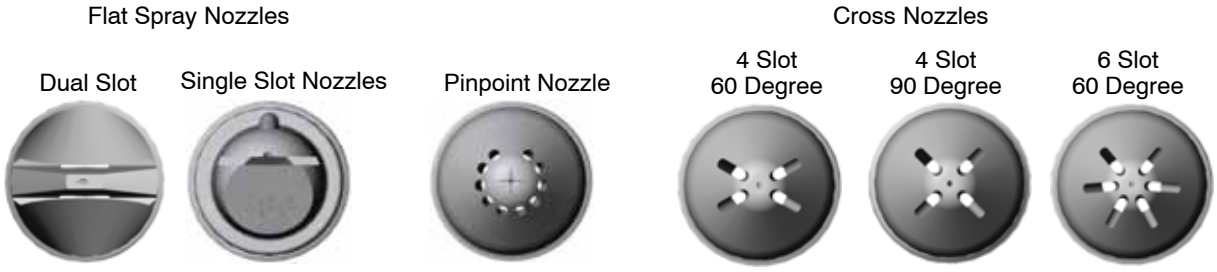


*Figure 31 Flat Spray, Pinpoint, and Cross Nozzles*

## Flat Spray and Cross Nozzle Components

Refer to Miscellaneous Options on page 21 for nozzle tool used to disassemble nozzles.

| Item | Part | Description | Quantity | Note |
|---|---|---|---|---|
| – | — | • NOZZLE ASSEMBLIES | 1 | A |
| 1 | 940203 | • O-RING, silicone, 0.875 x 1.00 x 0.063 in. | 1 | |
| 2 | 1047537 | • ELECTRODE ring | 1 | |
| 3 | 940126 | • O-RING, silicone, 0.375 x 0.50 x 0.063 in. | 1 | |
| 4 | 940163 | • O-RING, silicone, 0.625 x 0.75 x 0.063 in. | 1 | |
| 5 | 1073625 | • INSERT, metric, conical/flat nozzles | 1 | |
| 6 | 1073624 | • CONE, porous, nozzle | 1 | B |
| 7 | — | • NOZZLE shell with electrode | 1 | A |
| NOTE A: Refer to Nozzle parts list on previous page for part numbers.<br>B: Also available in quantities of 10. Order kit 1073707. | | | | |

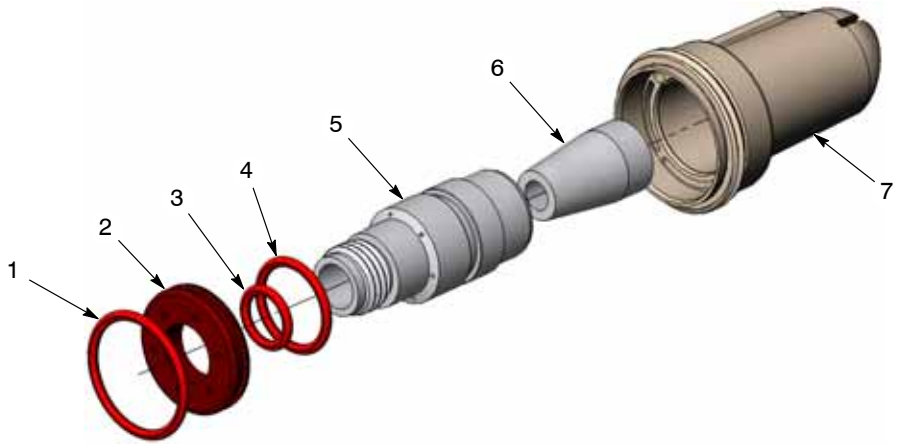


*Figure 32 Flat Spray and Cross Nozzle Components*