Versa-Spray® Cable-Fed Automatic Electrostatic Powder Spray Gun

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NORDSON CORPORATION • AMHERST, OHIO • USA

Notice

Trademarks

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Versa-Spray Cable-Fed Automatic Electrostatic Powder Spray Gun

1. Description

The Versa-Spray Cable-Fed Automatic Powder Spray Gun is a corona-type electrostatic powder spray gun. The gun consists of a mounting block, extension, powder inlet body, nozzle, feed tube adapter, and high voltage cable and resistor. High voltage is supplied to the resistor electrode by the high voltage cable. As the powder is sprayed from the nozzle it passes through an electrostatic corona and picks up a charge. This gun is used with a Nordson 100 PLUS or EXP-100 electrostatic power supply.

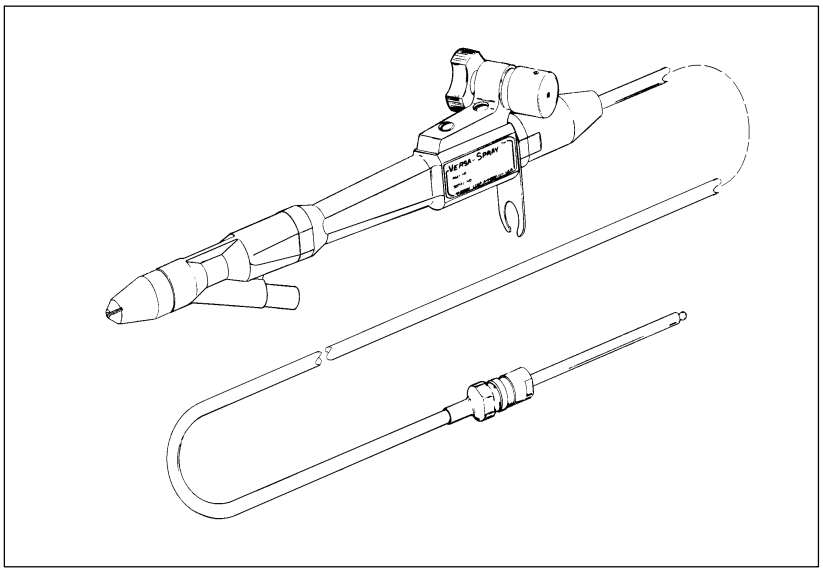

Figure 1. Cable-Fed Auto Gun

Standard Versions

- 4 mm flat spray nozzle, 8 meter cable
- 4 mm flat spray nozzle, 12 meter cable
- 4 mm flat spray nozzle, 16 meter cable

Options

Options which can be ordered separately and installed by the customer include:

- 2.5, 3, and 6 mm flat spray nozzles
- 60° and 90° cross-cut nozzles
- castle nozzle
- 32 and 45 mm conical nozzles
- 150 and 300 mm lance extensions

Also available are various sizes of deflectors for conical nozzles and a low-flow feed tubing adapter kit. For part numbers and ordering information, refer to the parts lists in this manual.

2. Installation

1. Install the gun onto a 5/8 in. (15 mm) mounting bar and secure the mounting bar to a stationary gun stand or reciprocator arm.

WARNING: This gun can only be used with the cables listed in this manual, and only with a 100 PLUS or EXP-100 power supply. Unauthorized modifications or substitutions will void your equipment warranty and any agency approvals, and could cause personal injury or property damage.

2. Connect powder feed tubing to the tubing adapter on the bottom of the powder inlet body.

   Establish a protected path for the powder feed tubing and electrostatic cable from the gun to the powder pump and electrostatic power supply. Make sure that the tubing and cable cannot be abraded, cut, or run over by heavy equipment such as forklift trucks.

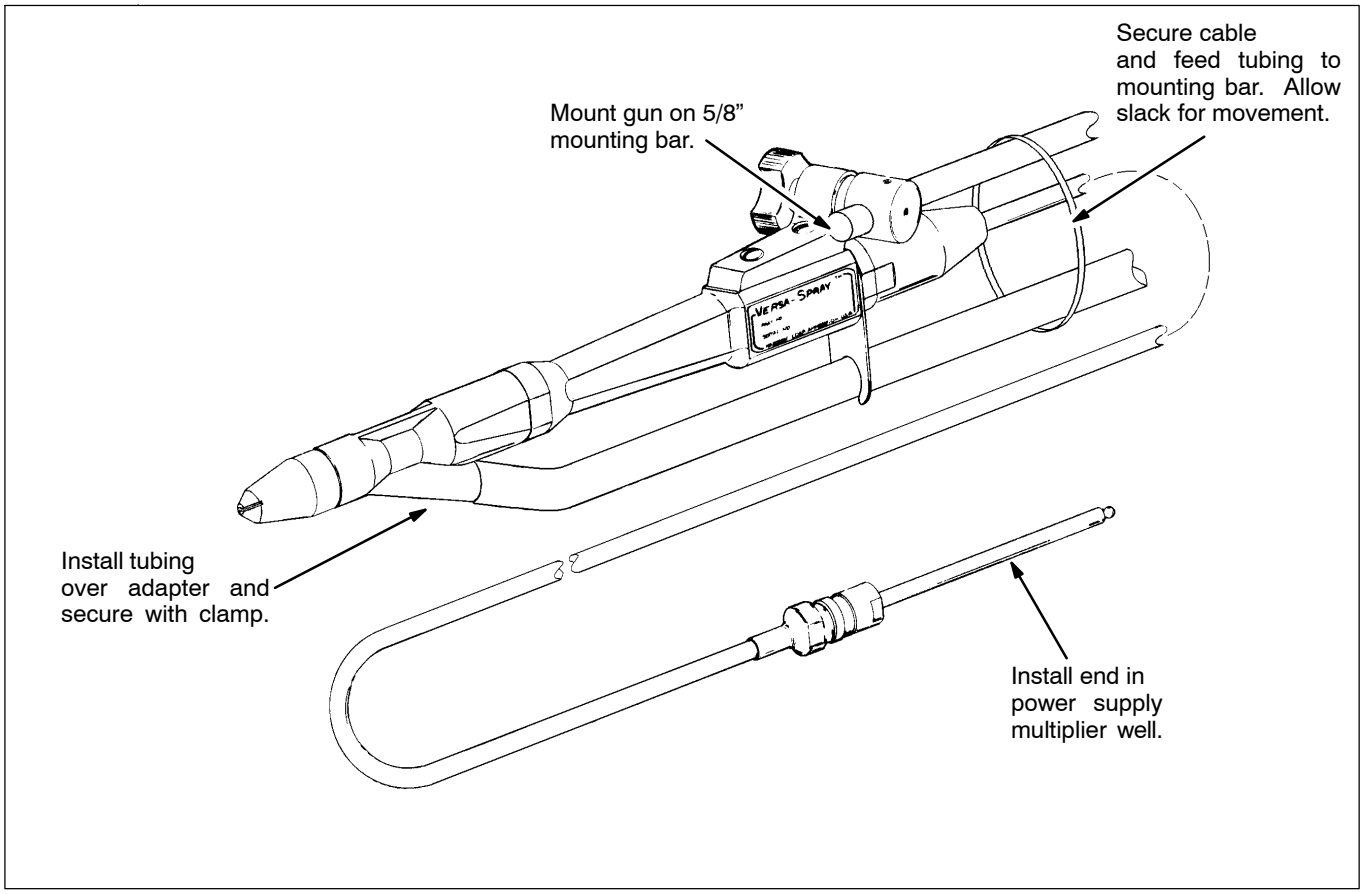

Figure 2. Gun Installation

Installation *(contd.)*

The electrostatic cable should not be bent in a radius of less than 6 inches (152 mm), nor subjected to any strain. Use elastic bands or cable ties to secure the cable and tubing to the mounting bar and reciprocator arm, if used, so that any strain is taken up by the tubing, not the cable.

3. Connect powder feed tubing to the powder pump. Wrap spiral-cut tubing around the feed tubing wherever necessary to prevent it from kinking.

NOTE: To increase powder flow and keep distribution as even as possible, the powder feed tubing should be kept short. Ideally, the tubing should not be longer than 26 ft (8 meters).

4. Connect the high voltage cable to the electrostatic power supply, as described in your power supply manual. Make sure the cable end is clean and dry before connecting.

WARNING: The electrostatic equipment in itself is safe. However, metal objects in the spray area that are isolated from ground accept and store an electrical charge and can become unsafe. Ungrounded workpieces present a fire hazard and also lose transfer efficiency. For these reasons, all objects and the work in the spray area MUST BE PROPERLY GROUNDED.

Installing Optional 32 mm Conical Nozzle

1. Remove the flat spray nozzle and the flat spray wear sleeve from the gun.

2. Install the conical wear sleeve over the electrode and resistor assembly. Be careful not to bend the electrode. DO NOT use the conical nozzle without the wear sleeve.

3. Ensure that the O-rings are in place on the nozzle. Press the nozzle into the end of the gun with a slight twisting motion until the nozzle bottoms out.

CAUTION: The electrode has a very sharp tip. Install the deflector by its edges only. DO NOT push the deflector onto the resistor with your palm. Personal injury may result.

4. Install the conical deflector over the resistor. The deflector should bottom out on the wear sleeve.

5. Slide the pattern adjuster sleeve onto the nozzle, with the hole in the sleeve towards the mounting block end of the gun.

6. Slip the end of the adjuster rod under the pattern adjuster sleeve, so that the rounded pin on the end of the adjuster rod goes into the hole in the sleeve.

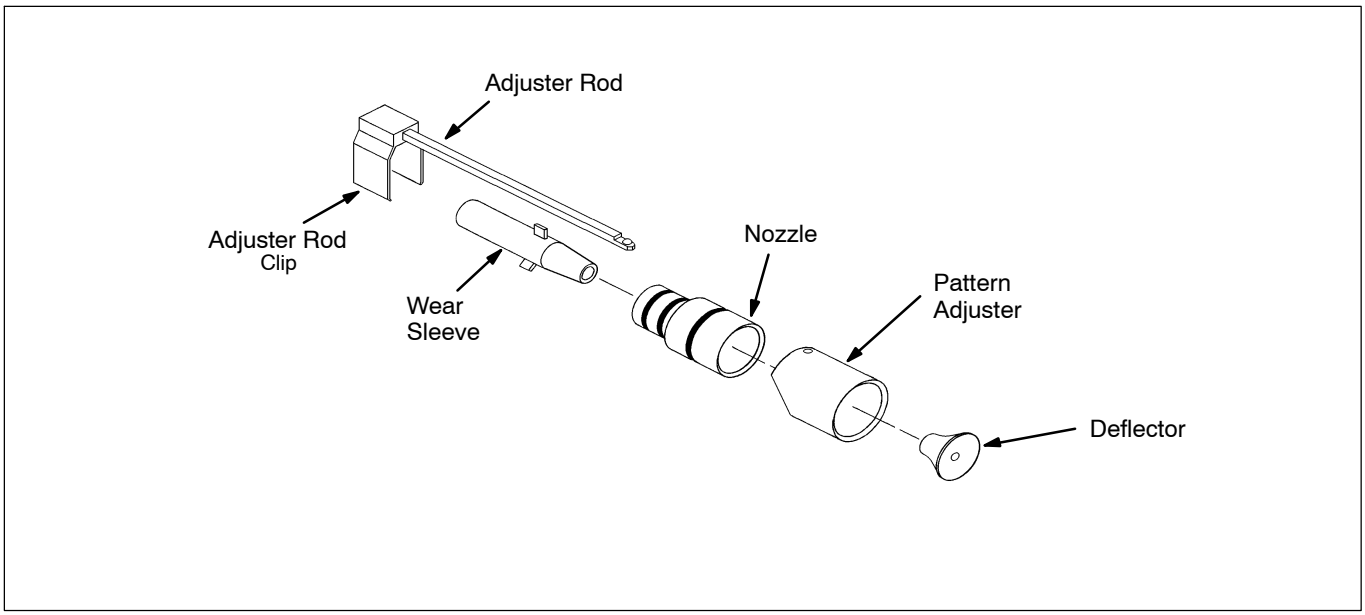

Figure 3. Conical Nozzle Assembly

7. Press down on the adjuster rod clip until it snaps onto the gun body. Slide the clip backward and forward a few times to make sure it has been assembled correctly.

Air Supply

Powder spray systems require clean, dry operating air. Moist or otherwise contaminated air can cause powder to clog in pump venturi throats, feed tubing, and gun passages, and can also cause grounding or arcing of the high-voltage electrostatic charge.

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

3. Operation

Start Up

WARNING: Read and heed the warnings and cautions given in Manual No. 30-1, General Safety Precautions for Powder Systems and Equipment, before operating this equipment.

1. Turn ON the system electrical power and air supply.

2. Turn ON the booth exhaust fans.

3. Fill the feed hopper 2/3 full with clean, dry powder. Start fluidizing air and adjust to the pressure recommended for your hopper (typically 10-15 psi [0.7-1.0 bar]). Allow time for the powder to become completely fluidized before spraying.

WARNING: Breathing finishing powders may be hazardous to your health. Obtain and read the Material Data Safety Sheets for the powders you are using. Wear appropriate respiratory protection when handling or spraying powder.

4. Turn ON the electrostatic power supply main power switch. Do not turn on the high voltage until air pressures are set.

5. Adjust pump air pressures:

   Atomizing: 30 psi (2.1 bar)

   Flow Rate: 20 psi (1.4 bar)

NOTE: Flow rate air pressure controls the volume and velocity of the powder and air mixture delivered to the gun. Atomizing air pressure controls the density (powder-to-air ratio) and velocity of the mixture. The pressures given above are average starting points. Pressures will vary due to required film build, line speed, and part configuration. Adjust air pressures to obtain desired results.

6. Test spray pattern and adjust air pressures and pattern sleeve, if used, as necessary.

7. Turn ON the high voltage at the electrostatic power supply. Adjust to 100 kV.

Start Up *(contd.)*

8. Test spray workpieces. Adjust the air pressures and kV output to achieve desired results.

If using a master control unit to control multiple guns and power supplies, the power supply high voltage and main switches can be left on after initial startup adjustments are made. Turning the master control on will then trigger pump air and high voltage.

WARNING: When gun is being controlled by a master control unit, turn OFF high voltage and main switches at the power supply and ground gun electrode, before removing gun from service for repairs.

Shutdown

1. Turn OFF the power supply high voltage and main switches. If your system uses multiple guns controlled by a master control unit, turn OFF power at the master control unit to shut down all the guns.

2. Disassemble and clean the gun powder paths and pumps. Blow out the feed tubing, from the pump into the booth (make sure exhaust fans are running). Replace worn parts.

Perform daily maintenance as described in your component and system manuals.

For information on the operation of other components of your system, refer to their respective manuals.

4. Preventive Maintenance

Daily

1. Remove the gun from the mounting bar.

2. Disconnect the powder feed tubing from the pump and gun and leave the gun end in the booth.

3. Make sure exhaust fans are running. Blow out the feed tubing, from the pump end into the booth. NEVER blow powder backwards into the pump.

4. Disassemble the gun's powder path and blow clean with low pressure compressed air.

5. Wipe parts with a clean, dry cloth and replace worn parts. If impact-fused powder has built up on contact surfaces, clean off carefully with a wooden dowel or similiar tool. Never use sharp objects to clean parts coming in contact with the powder stream. Scratches in the surfaces will allow powder to build up and fuse, clogging the gun.

NOTE: If necessary, use a cloth dampened with isopropyl or ethyl alcohol to clean parts. Remove O-rings before cleaning. Use alcohol sparingly, as a last resort. DO NOT immerse guns in alcohol. DO NOT use other solvents.

6. Clean the spray booth as described in your booth or system manual.

Periodically

WARNING: Before performing the following procedure, shut off all electrical power at a disconnect switch or breaker ahead of the power supply or master control module. Ground the electrode before removing the gun from the mounting bar. Wait three minutes after shutting off power supply before removing cable from multiplier well.

Measure the resistance of the high voltage cable and gun resistor with a megohm meter. If your readings are not in the proper range, replace the component. The resistance of the cable and the gun resistor limit the amperage at the gun electrode to safe levels. If this resistance breaks down, the amperage at the electrode could increase enough to cause electrical shock, fire, or explosion. Failure of the cable or gun resistor will cause a loss of powder wrap and poor coating efficiency.

1. Disconnect cable assembly from electrostatic power supply and measure the resistance, from cable end to gun electrode.

   Resistance of cable assembly should be:
   332 to 456 MΩ, at 500 volts.

Periodically *(contd.)*

2. If the cable assembly resistance does not meet specifications, remove the resistor kit from the cable and measure the resistance from the electrode to the end of the resistor.

Resistance of gun resistor should be:
153 -187 MΩ, at 500 volts.

Replace the gun resistor with a new resistor kit if the reading is not within the specified range. Otherwise, replace the entire cable assembly with a new 8, 12, or 16 meter cable kit, which includes a resistor kit installed on the cable and ready to install in the gun.

When replacing the gun resistor or cable assembly, refer to the section in this manual on gun disassembly and repair.

5. Troubleshooting

WARNING: Before performing any of the following procedures, shut OFF all electrical power at a disconnect switch or breaker ahead of the power supply or master control module. Ground the electrode before removing the gun from the mounting bar.

Problem	Possible Reason	Corrective Action	Refer to
Uneven pattern, unsteady or inadequate powder flow.	Blockage in gun, feed hose, or pump.	Remove feed hose from pump and blow out with compressed air. If necessary, disassemble gun and pump and clean.	Page 7
	Deflector or nozzle worn, or impact fusion affecting pattern.	Remove deflector and/or nozzle, clean, and inspect. Replace worn parts. If parts are wearing excessively or impact fusion is a problem, reduce air pressure.	Page 11
	Damp powder	Check the powder supply, air filters and dryer. Replace powder supply if contaminated.	
	Low atomizing or flow rate air pressure.	Increase atomizing and/or flow rate air pressure.	
	Improper fluidization of powder in hopper.	Increase fluidizing pressure, remove powder from hopper and clean fluidizing plate, if necessary.	
Voids in powder pattern.	Worn nozzle or deflector.	Disassemble gun and inspect parts, replace if necessary.	Page 11
	Plugged gun orifices.	Disassemble gun and clean.	Page 11
Loss of wrap, poor efficiency.	Output voltage insufficient.	Increase output voltage. Refer to power supply manual.	
	Cable assembly or electrostatic power supply failure.	Check cable assembly with megohmmeter for 332-456 MΩ at 500 V. Refer to power supply manual for multiplier test procedures.	Page 7
	Poorly grounded workpieces.	Stop conveyor and check chain, rollers and hangers for powder buildup. Clean and check for 1 MΩ or less resistance between workpiece and ground.	

***Troubleshooting** (contd.)*

Problem	Possible Reason	Corrective Action	Refer to
No kV output from gun.	Damaged high voltage cable.	Check cable assembly with megohm meter.	Page 7
	Bad gun resistor.	Check resistor with megohmmeter for 153 -187MΩ at 500 V.	Page 8
	Malfunctioning voltage multiplier.	Refer to power supply manual for multiplier test and replacement procedures.	
	Malfunctioning power supply circuit board.	Refer to power supply manual for test and replacement procedures.	

6. Disassembly and Repair

Powder Path

WARNING: Before attempting any of the following procedures, shut OFF all power at a disconnect switch or breaker ahead of the power unit or master control module. Ground the electrode before removing the gun from the mounting bar.

1. Remove the gun from the mounting bar by loosening the knurled knob on the gun mount. Disconnect the powder feed hose.

2. Remove the nozzle from the powder inlet body, rotating the nozzle while pulling it out. Remove the wear sleeve from the resistor probe.

3. Remove the hose adapter from the powder inlet body.

4. Loosen the setscrew on the underside of the powder inlet body and remove the powder inlet body from the gun.

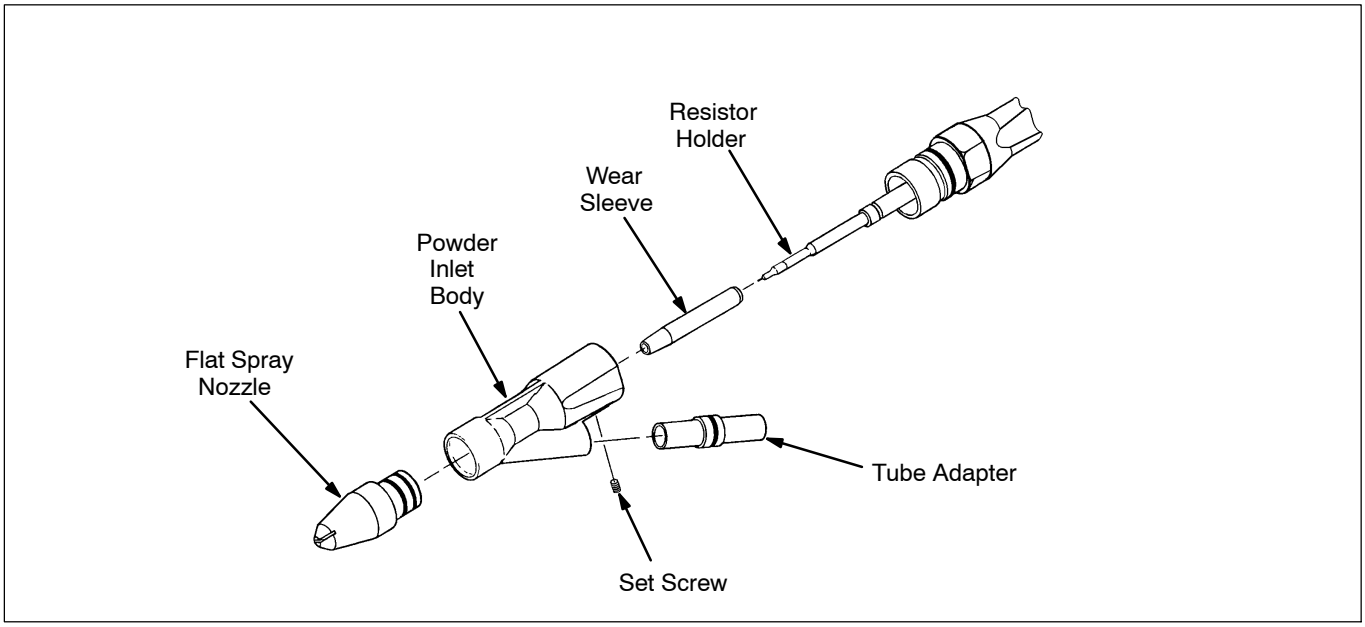

Figure 4. Disassembling Powder Path

Cleaning and Repair

1. Clean all powder path parts with compressed air and a clean cloth. DO NOT use a knife or any other sharp object to scrape off impact fusion (powder fused to inside surfaces). Powder will quickly build up in any surface scratches.

NOTE: If necessary, use a cloth dampened with isopropyl or ethyl alcohol to clean parts. Remove O-rings before cleaning. Use alcohol sparingly, as a last resort. DO NOT immerse guns in alcohol. DO NOT use other solvents.

2. Inspect all O-rings and replace if damaged.

3. Inspect all gun parts. Replace worn parts as necessary.

Reverse the disassembly procedure to re-assemble the powder path components.

Replacing Cable And Resistor

The high voltage cable and gun resistor can be replaced with a new cable service kit, or the gun resistor can be replaced separately.

WARNING: Before performing the following procedures, shut OFF all electrical power at a disconnect switch or breaker ahead of the power supply or master control module. Ground the electrode before removing the gun from the mounting bar.

Replacing Cable Assembly

1. Remove the gun from the mounting bar. Remove the nozzle assembly from the powder path and unscrew the cable from the gun extension.

2. Disconnect the cable from the electrostatic power supply. Discard the cable assembly.

3. Remove the new cable assembly from box, carefully uncoil it, and route from power supply to gun.

4. Install the resistor end of the cable assembly in the gun, being careful not to bend the electrode, and thread the cable assembly into the gun extension. Re-install the nozzle assembly.

5. Connect the cable to the power supply multiplier, as described in your power supply manual. The cable end must be clean and dry, and the multiplier well filled with dielectric oil.

Replacing Resistor Assembly

1. Remove the gun from the mounting bar. Remove the nozzle assembly from the powder path and unscrew the cable from gun extension.

2. Place one wrench on the spring cover flats and another on the cable adapter flats. Unscrew the cable adapter from the spring cover.

NOTE: Thread-locking compound is used on adapter threads during assembly. If adapter is difficult to remove, use a soft-jawed vise to hold spring cover.

3. Place the coupling flats in a soft-jawed vise, with the contact tip up, and unscrew the cable well. Discard old resistor kit parts.

4. Clean old dielectric grease off cable end. End must be clean and dry.

WARNING: The following steps must be followed to prevent resistor failure. All air inside the cable well, resistor holder, and contact must be replaced by dielectric grease when kit is installed. Air pockets will cause internal arcing and carbon tracking, leading to failure of the cable or resistor.

5. Remove the plastic shipping caps from the ends of the new resistor kit. Unscrew the well adapter (and resistor holder and resistor) from the cable well.

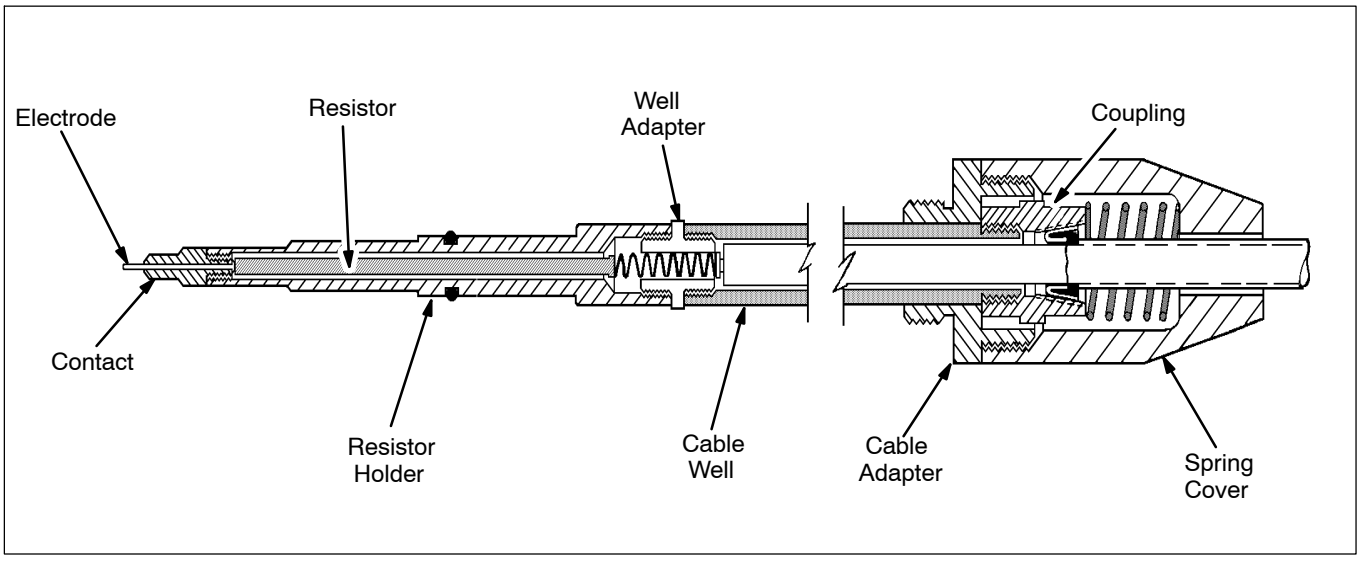

Figure 5. Replacing Resistor Assembly

Replacing Resistor Assembly
(contd.)

6. Insert the end of the cable into the externally threaded end of the cable well and slide the well partially over the cable. Place your thumb over the open end of the cable well and slide the well over the cable until the well bottoms out on the coupling. Thread the well into the coupling and finger-tighten. This procedure forces grease back around the cable end, eliminating any air pockets.

7. Slide the metal cable adapter over the cable well. Thread the well adapter into the end of the cable well and wipe off the excess grease.

8. Slide the spring and spring cover up over the coupling. Apply 1-2 drops of thread-locking compound to the cable adapter threads and screw the adapter into the spring cover until it bottoms out.

9. Install the cable assembly into the gun, being careful not to bend electrode. Thread the cable adapter into the gun and hand-tighten.

10. Re-install nozzle assembly on gun.

Replacing Electrode

To replace a bent or broken electrode:

1. Remove the nozzle assembly.

2. Unscrew the contact from the resistor holder and discard.

3. Apply dielectric grease to the threads of the new contact, and into the end of the resistor holder. No air pockets are permissible.

4. Screw the new contact into the resistor holder and wipe up excess grease.

7. Parts Lists

Using The Parts Lists

Reference Numbers

The number in the REF. column indicates the number assigned to the part in the illustration preceding the list. The code NS means the part is Not Shown in the illustration.

Notes

A letter in the NOTE column refers to a note below the parts list which gives additional information concerning that part. *Special attention should be given to noted parts.*

Part Numbers

Part numbers are given only for saleable parts or kits. Parts that are not sold separately are sometimes shown for clarity.

Descriptions

Descriptions are indented to show the relationship between parts for ordering purposes. A part indented once is a component of the top level assembly, a part indented twice is a component of both the first one level indented item above it and the top level assembly. For example:

Ref.	Note	Part No.	Description	Qty.
–		000 000	Top Level Assembly	1
1	A	000 000	• Assembly or Part	2
2		000 000	• • Subassembly or Part	1

If you order item 1, items 2 & 3 will be included.
If you order item 2, item 3 will be included.
If you order item 3, you will receive item 3 only.

Quantities

Quantities given in all parts lists except recommended spares lists are the quantities needed to assemble the next level assembly. The code “ASR” (As Required) is used for bulk items such as tubing, which is ordered in increments of one foot.

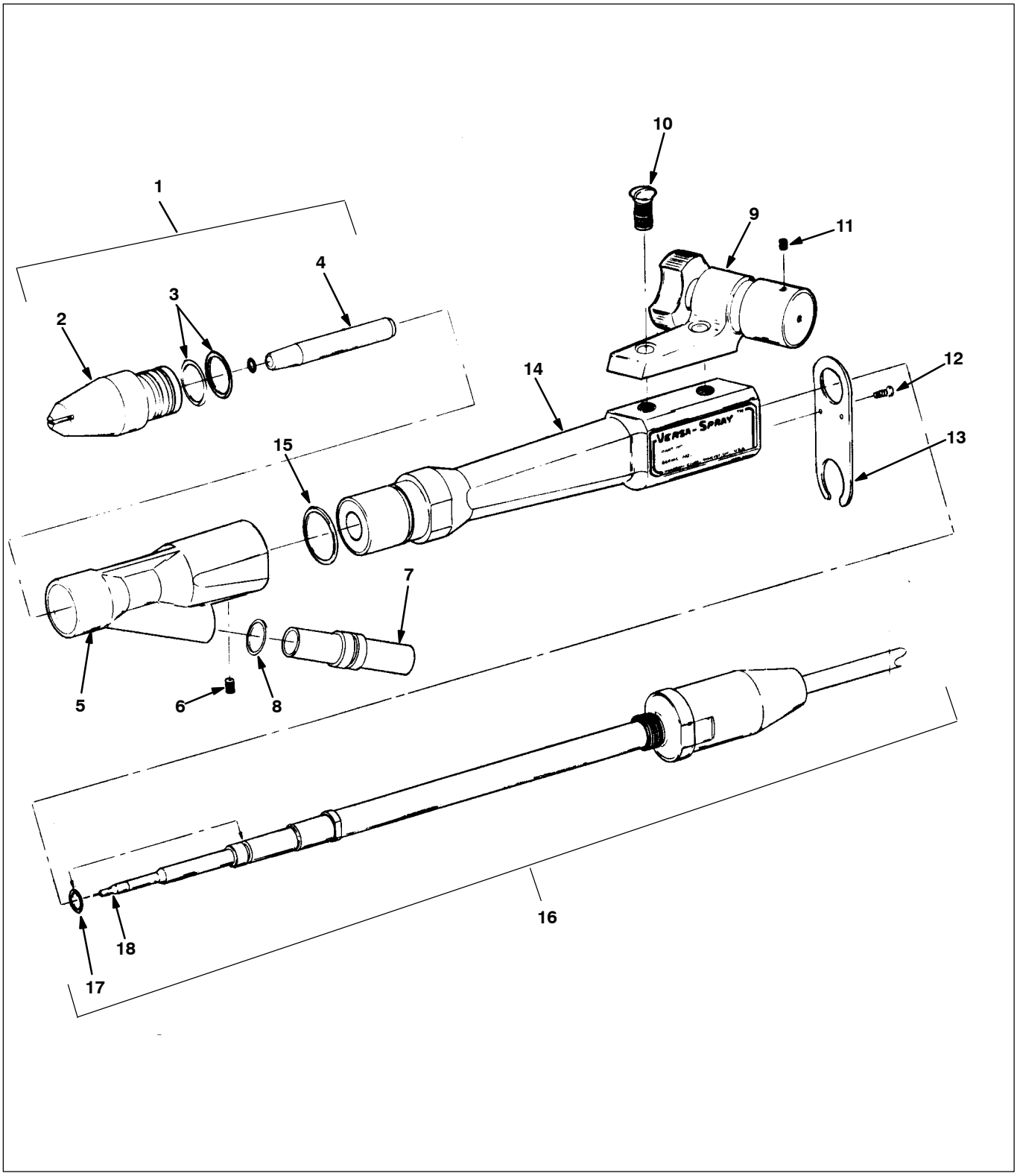

Figure 6. Exploded View of Cable-Fed Automatic Gun

Gun Assembly Parts List

Ref.	Note	Kit Part No.	Part No.	Description	Qty.
–			133 399	Gun, Automatic, 8M Cable, Versa-Spray	1
–			133 400	Gun, Automatic, 12M Cable, Versa-Spray	1
–			133 401	Gun, Automatic, 16M Cable, Versa-Spray	1
1	A	134 380	←	• Service Kit, Nozzle, Flat Spray, 2.5 mm	1
1	B	141 044	←	• Service Kit, Nozzle, Flat Spray, 4 mm	1
2			141 045	• • Nozzle, Flat Spray, 4 mm, w/O-rings, Tivar	1
3			941 181	• • • O-ring, Silicone, .875 x 1.063 x .094 in.	1
4			134 385	• • Sleeve, Wear, Flat Spray, w/O-ring	1
5			125 612	• Body, Inlet	1
6			982 455	• Screw, Set, M6 x 1.0 x 8, Nylon, Black	1
7			134 386	• Adapter, Hose, w/O-ring	1
8			940 163	• • O-ring, Silicone, .625 x .750 x .063 in.	1
9			133 409	• Mount, Gun, w/Pivot	1
10			981 708	• • Screw, M8 x 1.25 x 20 mm, Black	2
11			982 067	• • Screw, Set, Cup, M5 x 5, Black	2
12			982 187	• Screw, Flat Hd, M3 x 8	1
13			133 417	• Bracket, Tube, Retaining	1
14			–	• Extension, Gun, Versa-Spray	1
15			940 243	• O-ring, Silicone, 1.125 x 1.250 x .062 in.	1
16	C	133 423	←	• Service Kit, 8M Cable	1
16	C	133 424	←	• Service Kit, 12M Cable	1
16	C	133 425	←	• Service Kit, 16M Cable	1
17			940 117	• • O-ring, Silicone, .312 x .438 x .063 in.	1
18			132 748	• • Contact, Cable	1

Note A: Guns w/revision B part numbers include 134384 nozzle.

Note B: Guns w/revision C part numbers include 141045 nozzle. This nozzle produces a slightly smaller effective fan pattern, higher film build rate, and increased transfer efficiency.

Note C: Choose one service kit for replacement cable and gun resistor.

Resistor Service Kit

Ref.	Part No.	Description	Qty.
–	133 421	Kit, Resistor w/Cable Well	1
17	132 748	• O-ring, SIlicone 312 x .438 x .063 in.	1
18	940 117	• Contact, Cable	1
–	–	• Holder, Resistor	1
–	–	• Resistor, Cable	1
–	–	• Adapter, Cable Well	1
–	–	• Well, Cable	1

Optional Flat Spray Nozzles

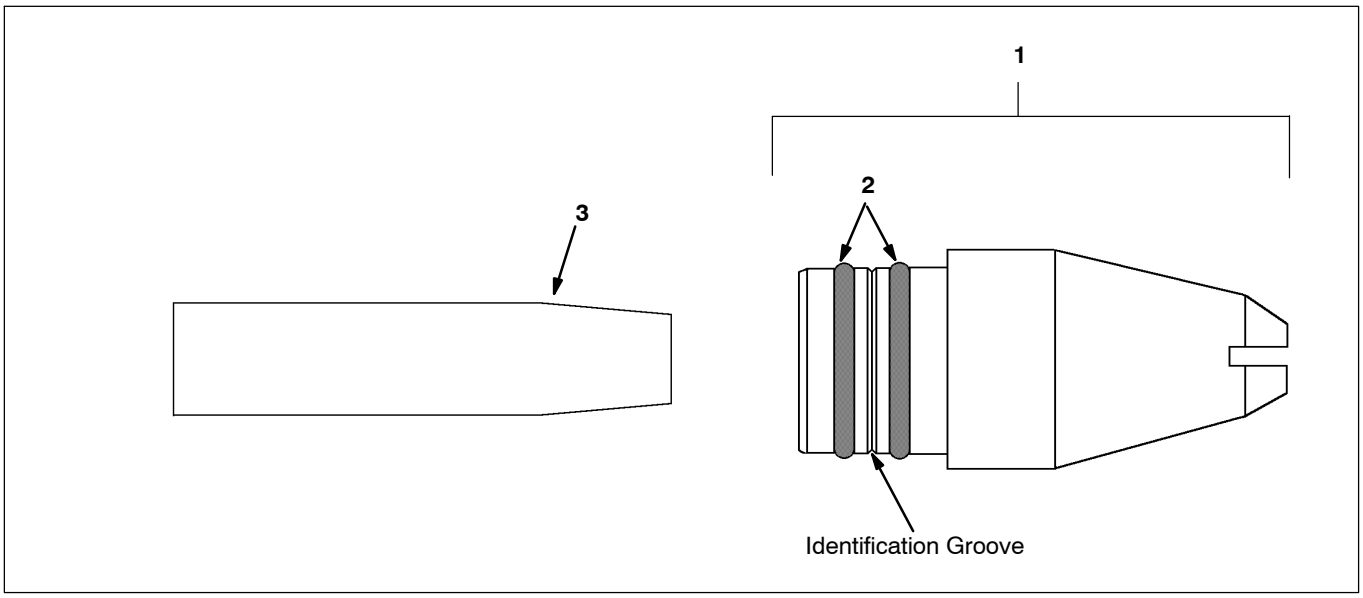

Figure 7. Optional Flat Spray Nozzle Service Kits (Illustration applies to 2.5, 3, 4, & 6 mm Nozzles)

2.5 mm Flat Spray Nozzle

Ref.	Note	Part No.	Description	Qty.
–		134 380	Service Kit, Nozzle, Flat Spray, 2.5 mm	1
1		134 384	• Nozzle, Flat Spray, 2.5 mm, w/O-rings, Tivar	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

3 mm Flat Spray Nozzle

Ref.	Note	Part No.	Description	Qty.
–		139 935	Service Kit, Nozzle, Flat Spray, 3 mm	1
1		139 902	• Nozzle, Flat Spray, 3 mm, w/O-rings, Tivar	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

4 mm Flat Spray Nozzle

Ref.	Note	Part No.	Description	Qty.
–		141 044	Service Kit, Nozzle, Flat Spray, 4 mm	1
1		141 045	• Nozzle, Flat Spray, 4 mm, w/O-rings, Tivar	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

6 mm Flat Spray Nozzle

Ref.	Note	Part No.	Description	Qty.
–		139 937	Service Kit, Nozzle, Flat Spray, 6 mm	1
1		139 903	• Nozzle, Flat Spray, 6 mm, w/O-rings, Tivar	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

Optional Cross-Cut Nozzles

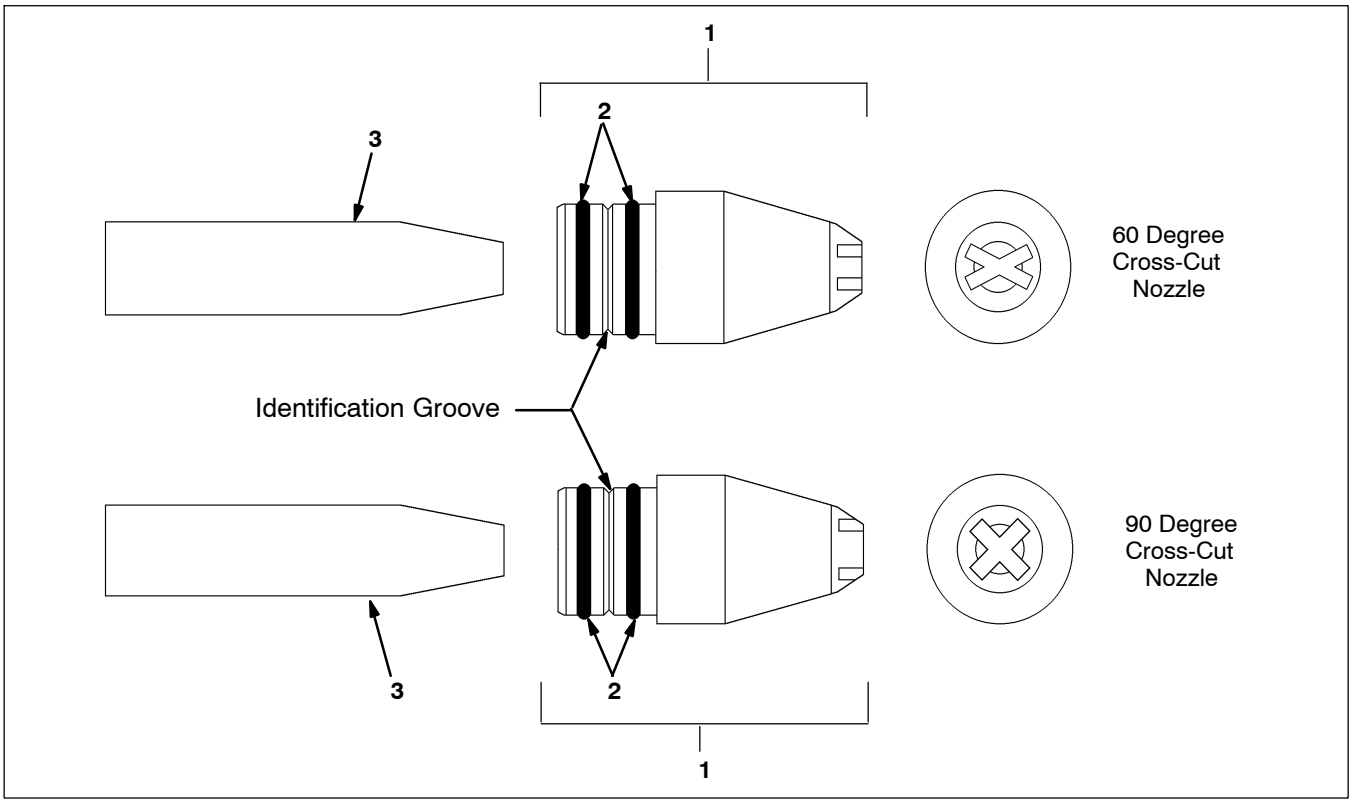

Figure 8. 60° & 90° Cross-Cut Nozzles

60° Cross-Cut Nozzle

Ref.	Note	Part No.	Description	Qty.
–		141 013	Service Kit, Nozzle, Cross-Cut, 60°	1
–		141 017	• Nozzle, Cross-Cut, 60°, w/O-rings	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

90° Cross-Cut Nozzle

Ref.	Note	Part No.	Description	Qty.
–		141 014	Service Kit, Nozzle, Cross-Cut, 90°	1
1		141 015	• Nozzle, Cross-Cut, 90°, w/O-rings	1
2	A	941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1
Note A: Nozzles without identification groove use 940212 O-ring, nozzles with groove use 941181 O-ring.				

Optional Castle Nozzle

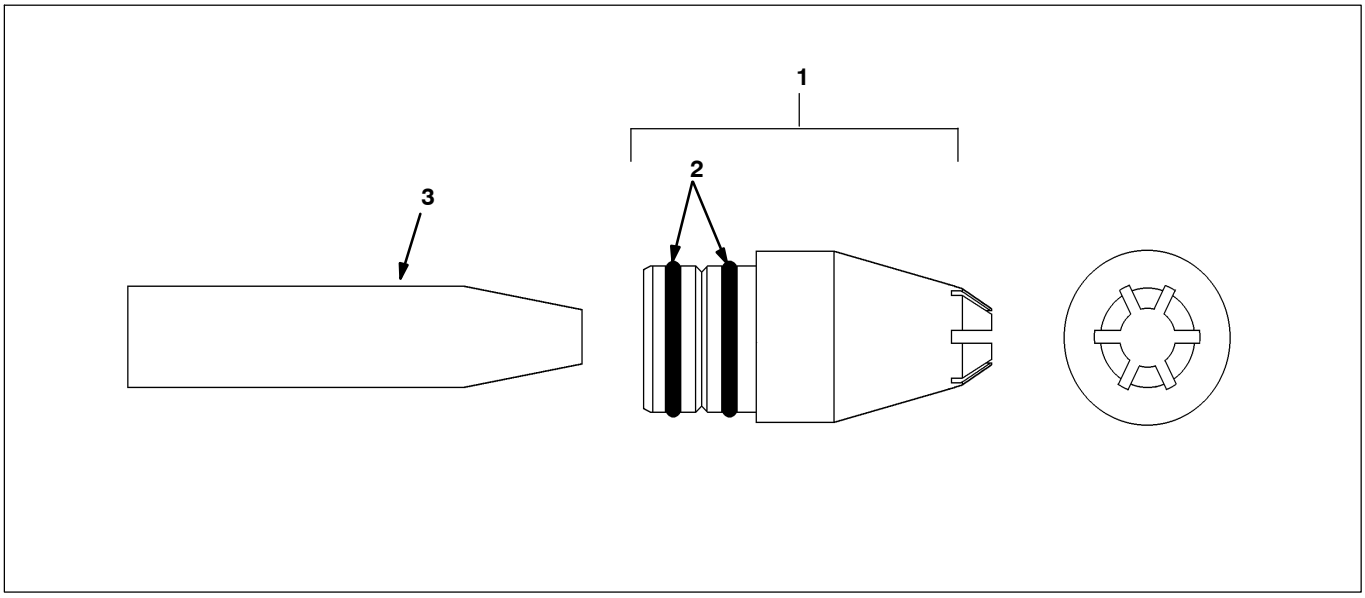

Figure 9. Optional Castle Nozzle Service Kit

Ref.	Note	Part No.	Description	Qty.
–		147 495	Service Kit, Nozzle, Castle, .375	1
1		147 877	• Nozzle, Castle, .375, w/O-rings	1
2		941 181	• • O-ring, Silicone	2
3		134 385	• Sleeve, Wear, Flat Spray, w/O-ring	1

Optional 32 mm Conical Nozzle

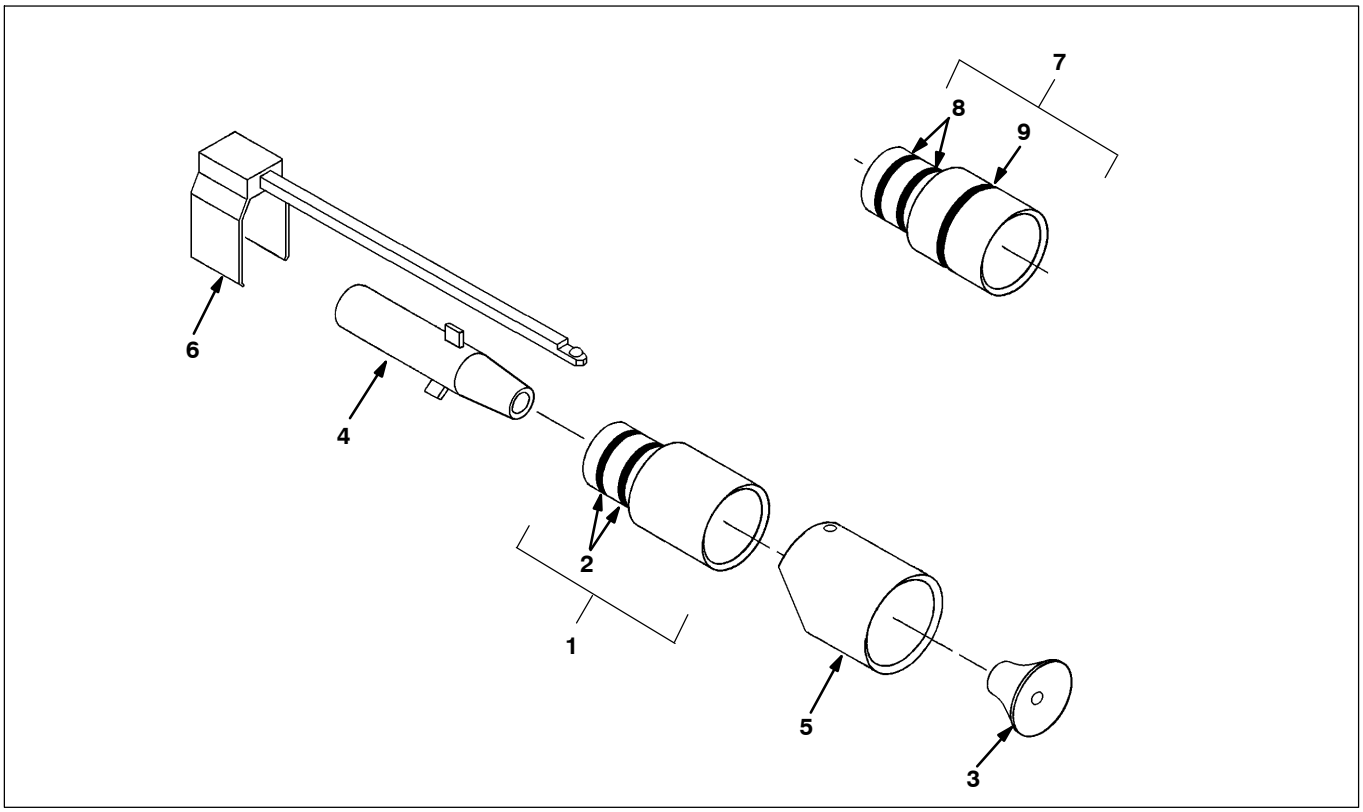

Figure 10. Optional 32 mm Conical Nozzle

Ref.	Note	Part No.	Description	Qty.
–		134 576	Service Kit, Nozzle, 32 mm, Auto	1
1	A	–	• Nozzle, 32 mm dia., w/O-rings, Tivar	1
2	A	940 212	• • O-ring, Silicone, .938 x 1.063 x .063 in.	2
3		133 734	• Deflector, 26 mm dia., w/O-ring, Tivar	1
4		132 348	• Sleeve, Wear, Conical, Tivar	1
5		134 580	• Sleeve, Pattern, Versa-Spray	1
6		134 577	• Adjuster, Sleeve	1
Note A: Replaced by the following parts:				
7	B	145 558	• Nozzle, 32 mm, w/O-rings	1
8		941 181	• • O-ring, Silicone, .875 x 1.063 x .094 in.	2
9		941 215	• • O-ring, Silicone, 1.062 x 1.250 x .094 in.	1
Note B: New nozzle has larger cross-sectional O-rings (item 8) and additional O-ring (item 9) and groove on large O.D.				

Optional 150 mm and 300 mm Lance Extensions

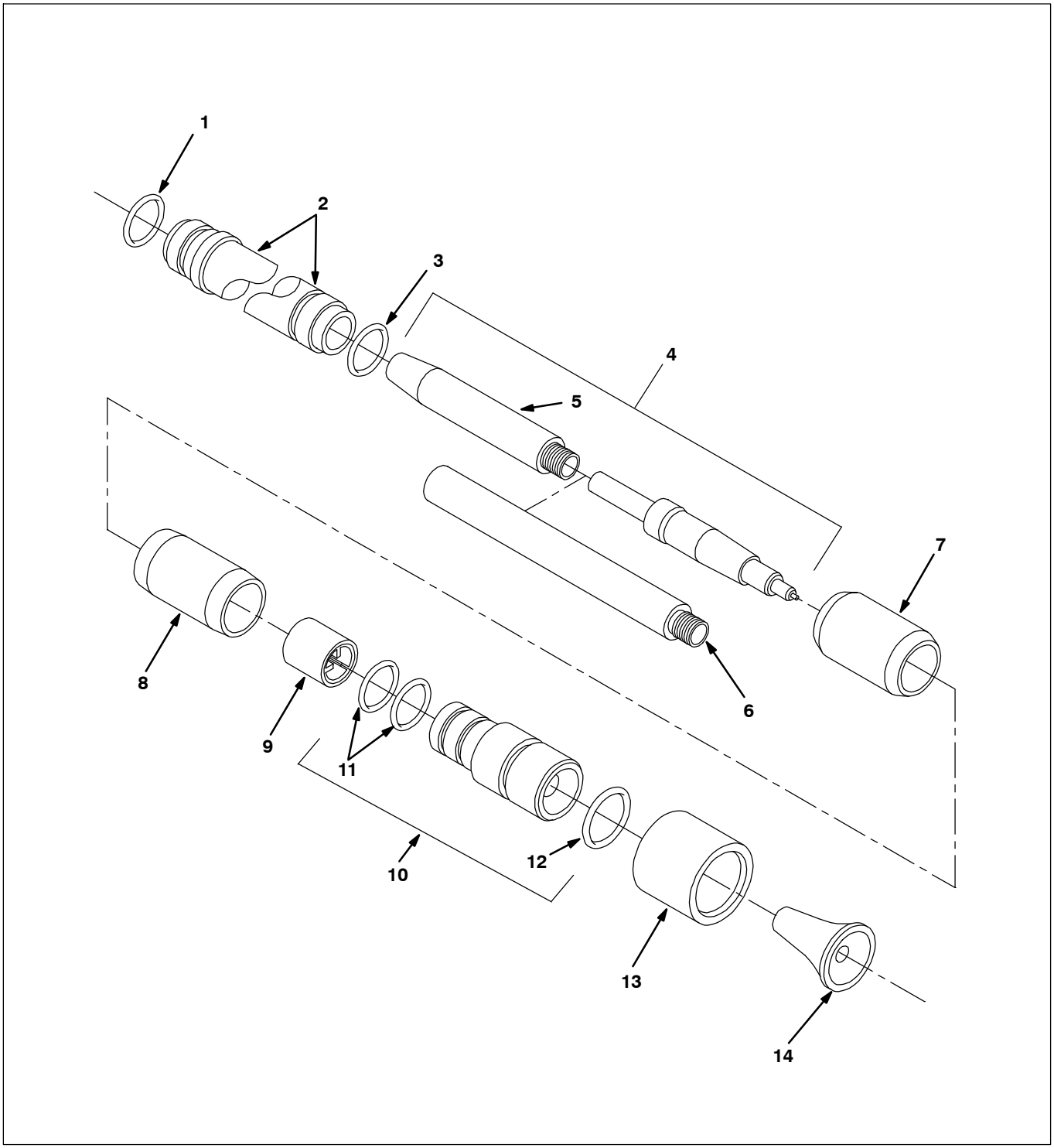

Figure 11. 150 mm & 300 mm Lance Extensions

Optional 150 mm and 300 mm Lance Extensions Parts Lists

Ref.	Note	Part No.	Description	Qty.
–		133 730	Extension, Lance, 150 mm	1
–		133 731	Extension, Lance, 300 mm	1
1		940 212	• O-ring, Silicone, .938 x 1.063 x 063 in.	1
2		133 728	• Tube, Extension, 150 mm	1
2		133 729	• Tube, Extension, 300 mm	1
3		940 224	• O-ring, Silicone, 1.00 x 1.125 x .063 in.	1
4	C	160 066	• Electrode, Lance, 150 mm	1
5	C	160 020	• • Sleeving, Contact	1
4	C	160 068	• Electrode, Lance, 300 mm	1
5	C	160 020	• • Sleeving, Contact	1
6		160 021	• • Link, Apdapter, 300 mm	1
7		133 719	• Support, Lance	1
8		133 721	• Connector, Nozzle	1
9		249 194	• Support, Cable	1
–	A	–	• Nozzle, 32 mm, w/O-rings	1
–	A	940 212	• • O-ring, Silicone, .938 x 1.063 x .063 in.	2
–	B	–	• Adjuster, Pattern, w/O-ring	1
–	B	940 262	• • O-ring, Silicone, 1.250 x 1.375 x .063 in.	1
10		145 558	• Nozzle, w/O-ring	1
11		941 181	• • O-ring, Silicone	2
12		941 215	• • O-ring, Silicone	1
13		144 759	• Adjuster, Pattern, 26 mm	1
14		133 734	• Deflector, 26 mm, w/O-ring	1

Note A: Obsolete, replaced by item 13, P/N 145558 nozzle.

Note B: Obsolete, replaced by item 16, P/N 144759 pattern adjuster.

Note C: Replaces 133732 electrode, 150 mm and 133733 electrode, 300 mm. Use 130727 sleeve, contact with old style electrodes.

Optional Deflectors and Hose Adapter

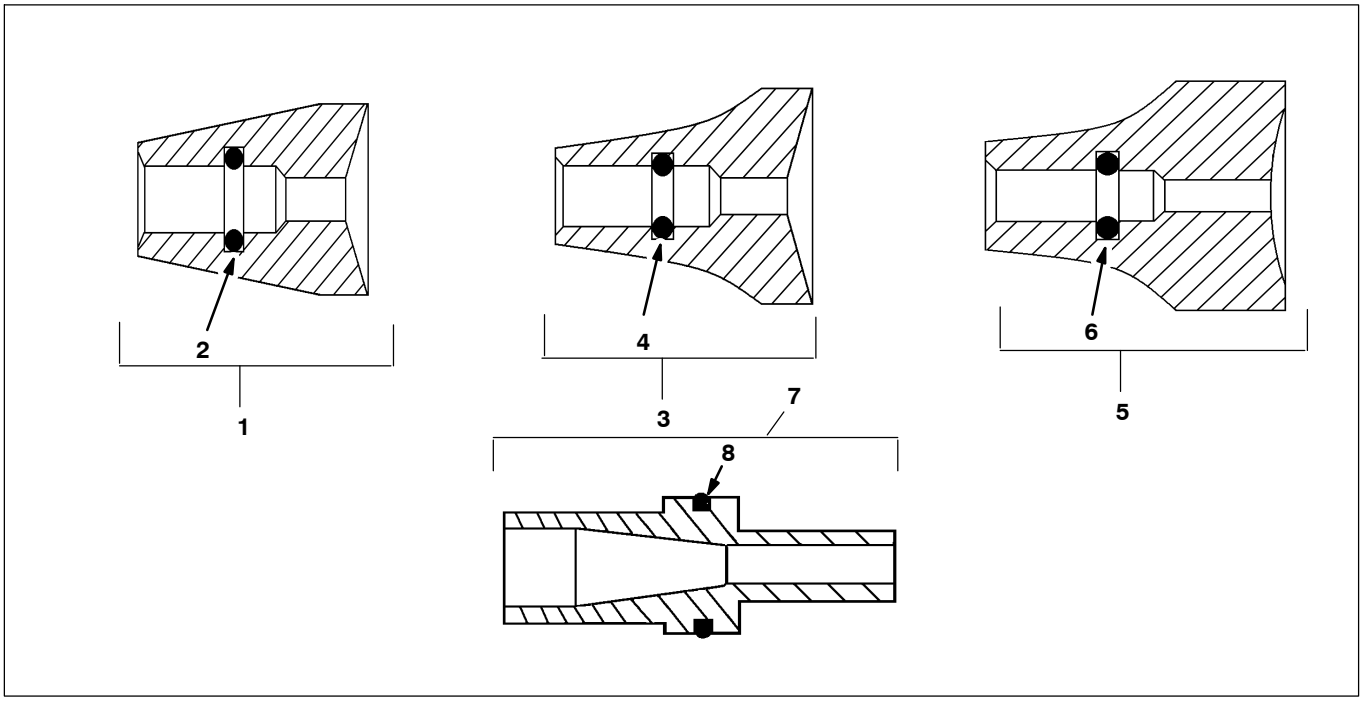

Figure 12. Optional Deflectors and Hose Adapter (Drawing Not To Scale)

Ref.	Part No.	Description	Qty.
1	135 865	Deflector,14 mm dia., Tivar, w/O-ring	1
2	940 084	• O-ring, Silicone, .188 x .312 x .062 in.	1
3	147 880	Deflector, 16 mm dia., Tivar, w/O-ring	1
4	940 084	• O-ring, Silicone, .188 x .312 x .062 in.	1
5	133 714	Deflector, 19 mm dia., Tivar, w/O-ring	1
6	940 084	• O-ring, Silicone, .188 x .312 x .062 in.	1
7	135 896	Adapter, Hose, Low-Flow, w/O-ring	1
8	940 163	• O-ring, Silicone, .625 x .750 x .063 in.	1

Gun Mounting Bar

Part No.	Description
133 403	Bar, Gun, Mounting

Powder Feed Tubing

Note: Bulk part numbers, order in one foot increments.

Part No.	Description
900 550	Tubing, Powder, High-Flow (1/2 in. I.D.)
900 549	Tubing, Powder, Low-Flow (3/8 in. I.D.)

Automatic Purge Adapter Kit

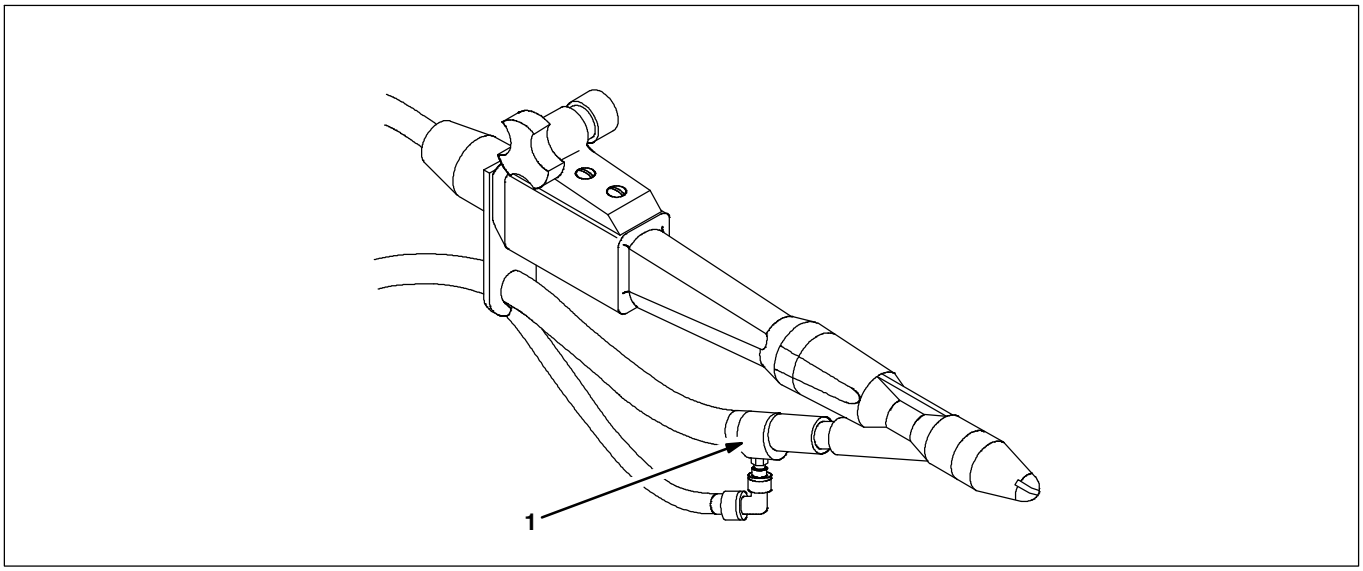

Figure 13. Automatic Purge Adapter Kit

Ref.	Note	Part No.	Description	Qty.
1	A	157 094	Adapter, Purge, Hose, Versa-Spray	1
Note A: See page 28 for parts list.				

Adapter, Purge, Versa-Spray

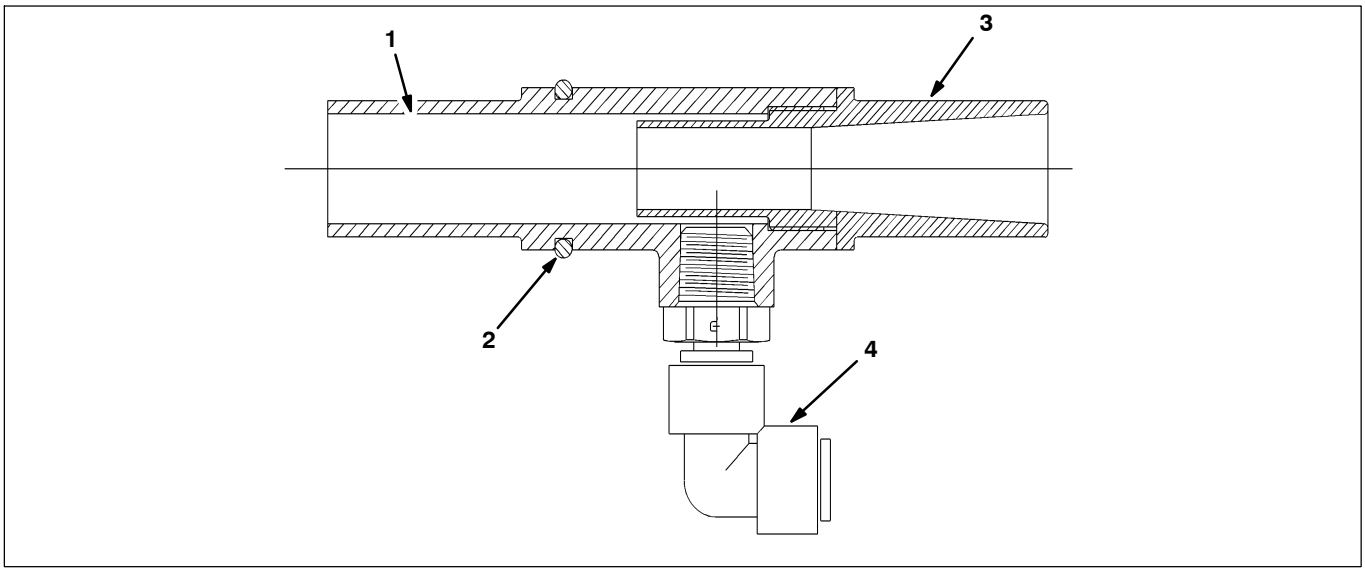

Figure 14. Versa-Spray Hose Purge Adapter

Ref.	Note	Part No.	Description	Qty.
–		157 094	Adapter, Purge, Hose, Versa-Spray	1
1		–	• Adapter, Purge, Outlet	1
2		940 163	• O-ring, Silicone, .625 x .750 x .062 in.	1
3		–	• Adapter, Purge, Inlet	1
4		971 675	• Fitting, Swivel, Elbow, 1/4 in. Tubing x 1/4 in. NPT	1

Low-flow Purge Adapter Inlet (Optional)

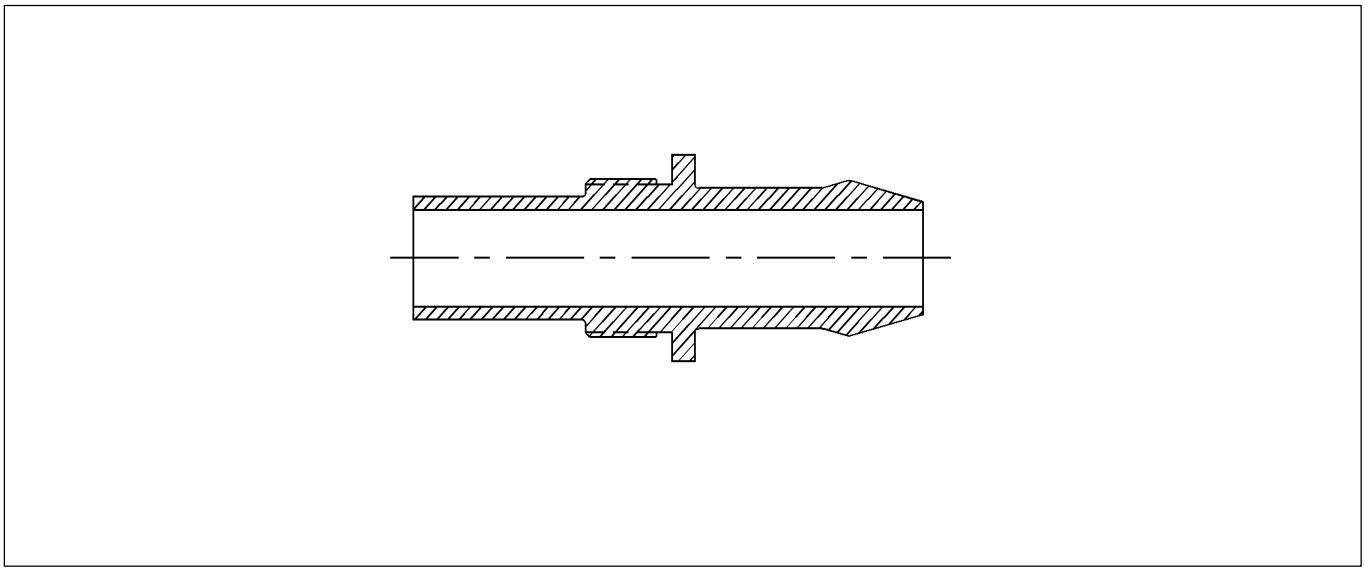

Figure 15. Low-flow Purge Adapter Inlet

Ref.	Note	Part No.	Description	Qty.
–		163 917	Adapter, Purge, Inlet, Low Flow	1

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