AG900+ and AG900+S Applicators

Customer Product Manual
Part 1098464A
Issued 9/09

Nordson®

For CE Declaration, refer to melter manual.

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

Address all correspondence to:

Nordson Corporation
Attn: Customer Service
11475 Lakefield Drive
Duluth, GA 30097

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AG900+ and AG900+S Applicators

Safety

Read this section before using the equipment. This section contains recommendations and practices applicable to the safe installation, operation, and maintenance (hereafter referred to as “use”) of the product described in this document (hereafter referred to as “equipment”). Additional safety information, in the form of task-specific safety alert messages, appears as appropriate throughout this document.

WARNING! Failure to follow the safety messages, recommendations, and hazard avoidance procedures provided in this document can result in personal injury, including death, or damage to equipment or property.

Safety Alert Symbols

The following safety alert symbol and signal words are used throughout this document to alert the reader to personal safety hazards or to identify conditions that may result in damage to equipment or property. Comply with all safety information that follows the signal word.

WARNING! Indicates a potentially hazardous situation that, if not avoided, can result in serious personal injury, including death.

CAUTION! Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate personal injury.

CAUTION! (Used without the safety alert symbol) Indicates a potentially hazardous situation that, if not avoided, can result in damage to equipment or property.

Responsibilities of the Equipment Owner

Equipment owners are responsible for managing safety information, ensuring that all instructions and regulatory requirements for use of the equipment are met, and for qualifying all potential users.

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Safety Information

- Research and evaluate safety information from all applicable sources, including the owner-specific safety policy, best industry practices, governing regulations, material manufacturer's product information, and this document.
- Make safety information available to equipment users in accordance with governing regulations. Contact the authority having jurisdiction for information.
- Maintain safety information, including the safety labels affixed to the equipment, in readable condition.

Instructions, Requirements, and Standards

- Ensure that the equipment is used in accordance with the information provided in this document, governing codes and regulations, and best industry practices.
- If applicable, receive approval from your facility's engineering or safety department, or other similar function within your organization, before installing or operating the equipment for the first time.
- Provide appropriate emergency and first aid equipment.
- Conduct safety inspections to ensure required practices are being followed.
- Re-evaluate safety practices and procedures whenever changes are made to the process or equipment.

User Qualifications

Equipment owners are responsible for ensuring that users:

- receive safety training appropriate to their job function as directed by governing regulations and best industry practices
- are familiar with the equipment owner's safety and accident prevention policies and procedures
- receive, equipment- and task-specific training from another qualified individual

  NOTE: Nordson can provide equipment-specific installation, operation, and maintenance training. Contact your Nordson representative for information
- possess industry- and trade-specific skills and a level of experience appropriate to their job function
- are physically capable of performing their job function and are not under the influence of any substance that degrades their mental capacity or physical capabilities

Applicable Industry Safety Practices

The following safety practices apply to the use of the equipment in the manner described in this document. The information provided here is not meant to include all possible safety practices, but represents the best safety practices for equipment of similar hazard potential used in similar industries.

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Intended Use of the Equipment

- Use the equipment only for the purposes described and within the limits specified in this document.
- Do not modify the equipment.
- Do not use incompatible materials or unapproved auxiliary devices. Contact your Nordson representative if you have any questions on material compatibility or the use of non-standard auxiliary devices.

Instructions and Safety Messages

- Read and follow the instructions provided in this document and other referenced documents.
- Familiarize yourself with the location and meaning of the safety warning labels and tags affixed to the equipment. Refer to *Safety Labels and Tags* at the end of this section.
- If you are unsure of how to use the equipment, contact your Nordson representative for assistance.

Installation Practices

- Install the equipment in accordance with the instructions provided in this document and in the documentation provided with auxiliary devices.
- Ensure that the equipment is rated for the environment in which it will be used and that the processing characteristics of the material will not create a hazardous environment. Refer to the Material Safety Data Sheet (MSDS) for the material.
- If the required installation configuration does not match the installation instructions, contact your Nordson representative for assistance.
- Position the equipment for safe operation. Observe the requirements for clearance between the equipment and other objects.
- Install lockable power disconnects to isolate the equipment and all independently powered auxiliary devices from their power sources.
- Properly ground all equipment. Contact your local building code enforcement agency for specific requirements.
- Ensure that fuses of the correct type and rating are installed in fused equipment.
- Contact the authority having jurisdiction to determine the requirement for installation permits or inspections.

Operating Practices

- Familiarize yourself with the location and operation of all safety devices and indicators.
- Confirm that the equipment, including all safety devices (guards, interlocks, etc.), is in good working order and that the required environmental conditions exist.
- Use the personal protective equipment (PPE) specified for each task. Refer to *Equipment Safety Information* or the material manufacturer's instructions and MSDS for PPE requirements.
- Do not use equipment that is malfunctioning or shows signs of a potential malfunction.

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Maintenance and Repair Practices

- Perform scheduled maintenance activities at the intervals described in this document.
- Relieve system hydraulic and pneumatic pressure before servicing the equipment.
- De-energize the equipment and all auxiliary devices before servicing the equipment.
- Use only new factory-authorized refurbished or replacement parts.
- Read and comply with the manufacturer's instructions and the MSDS supplied with equipment cleaning compounds.

  NOTE: MSDSs for cleaning compounds that are sold by Nordson are available at www.nordson.com or by calling your Nordson representative.
- Confirm the correct operation of all safety devices before placing the equipment back into operation.
- Dispose of waste cleaning compounds and residual process materials according to governing regulations. Refer to the applicable MSDS or contact the authority having jurisdiction for information.
- Keep equipment safety warning labels clean. Replace worn or damaged labels.

Equipment Safety Information

This equipment safety information is applicable to the following types of Nordson equipment:

- hot melt and cold adhesive application equipment and all related accessories
- pattern controllers, timers, detection and verification systems, and all other optional process control devices

Equipment Shutdown

To safely complete many of the procedures described in this document, the equipment must first be shut down. The level of shut down required varies by the type of equipment in use and the procedure being completed.
If required, shut down instructions are specified at the start of the procedure. The levels of shut down are:

Relieving System Hydraulic Pressure

Completely relieve system hydraulic pressure before breaking any hydraulic connection or seal. Refer to the melter-specific product manual for instructions on relieving system hydraulic pressure.

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De-energizing the System

Isolate the system (melter, hoses, guns, and optional devices) from all power sources before accessing any unprotected high-voltage wiring or connection point.

1. Turn off the equipment and all auxiliary devices connected to the equipment (system).
2. To prevent the equipment from being accidentally energized, lock and tag the disconnect switch(es) or circuit breaker(s) that provide input electrical power to the equipment and optional devices.

   NOTE: Government regulations and industry standards dictate specific requirements for the isolation of hazardous energy sources. Refer to the appropriate regulation or standard.

Disabling the Guns

All electrical or mechanical devices that provide an activation signal to the guns, gun solenoid valve(s), or the melter pump must be disabled before work can be performed on or around a gun that is connected to a pressurized system.

1. Turn off or disconnect the gun triggering device (pattern controller, timer, PLC, etc.).
2. Disconnect the input signal wiring to the gun solenoid valve(s).
3. Reduce the air pressure to the gun solenoid valve(s) to zero; then relieve the residual air pressure between the regulator and the gun.

General Safety Warnings and Cautions

Table 1 contains the general safety warnings and cautions that apply to Nordson hot melt and cold adhesive equipment. Review the table and carefully read all of the warnings or cautions that apply to the type of equipment described in this manual.

Equipment types are designated in Table 1 as follows:

HM = Hot melt (melters, hoses, guns, etc.)

PC = Process control

CA = Cold adhesive (dispensing pumps, pressurized container, and guns)

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Table 1: General Safety Warnings and Cautions

Equipment Type	Warnings and Cautions
HM	**WARNING!** Hazardous vapors! Before processing any polyurethane reactive (PUR) hot melt or solvent-based material through a compatible Nordson melter, read and comply with the material's MSDS. Ensure that the material's processing temperature and flashpoints will not be exceeded and that all requirements for safe handling, ventilation, first aid, and personal protective equipment are met. Failure to comply with MSDS requirements can cause personal injury, including death.
HM	**WARNING!** Reactive material! Never clean any aluminum component or flush Nordson equipment with halogenated hydrocarbon fluids. Nordson melters and guns contain aluminum components that may react violently with halogenated hydrocarbons. The use of halogenated hydrocarbon compounds in Nordson equipment can cause personal injury, including death.
HM, CA	**WARNING!** System pressurized! Relieve system hydraulic pressure before breaking any hydraulic connection or seal. Failure to relieve the system hydraulic pressure can result in the uncontrolled release of hot melt or cold adhesive, causing personal injury.
HM	**WARNING!** Molten material! Wear eye or face protection, clothing that protects exposed skin, and heat-protective gloves when servicing equipment that contains molten hot melt. Even when solidified, hot melt can still cause burns. Failure to wear appropriate personal protective equipment can result in personal injury.

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General Safety Warnings and Cautions *(contd)*

Equipment Type	Warnings and Cautions
HM, PC	**WARNING!** Equipment starts automatically! Remote triggering devices are used to control automatic hot melt guns. Before working on or near an operating gun, disable the gun's triggering device and remove the air supply to the gun's solenoid valve(s). Failure to disable the gun's triggering device and remove the supply of air to the solenoid valve(s) can result in personal injury.
HM, CA, PC	**WARNING!** Risk of electrocution! Even when switched off and electrically isolated at the disconnect switch or circuit breaker, the equipment may still be connected to energized auxiliary devices. De-energize and electrically isolate all auxiliary devices before servicing the equipment. Failure to properly isolate electrical power to auxiliary equipment before servicing the equipment can result in personal injury, including death.
HM, CA, PC	**WARNING!** Risk of fire or explosion! Nordson adhesive equipment is not rated for use in explosive environments and should not be used with solvent-based adhesives that can create an explosive atmosphere when processed. Refer to the MSDS for the adhesive to determine its processing characteristics and limitations. The use of incompatible solvent-based adhesives or the improper processing of solvent-based adhesives can result in personal injury, including death.
HM, CA, PC	**WARNING!** Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others and can damage to the equipment.

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Table 1: General Safety Warnings and Cautions *(contd)*

Equipment Type	Warnings and Cautions
HM	 **CAUTION!** Hot surfaces! Avoid contact with the hot metal surfaces of guns, hoses, and certain components of the melter. If contact can not be avoided, wear heat-protective gloves and clothing when working around heated equipment. Failure to avoid contact with hot metal surfaces can result in personal injury.
HM	**CAUTION!** Some Nordson melters are specifically designed to process polyurethane reactive (PUR) hot melt. Attempting to process PUR in equipment not specifically designed for this purpose can damage the equipment and cause premature reaction of the hot melt. If you are unsure of the equipment's ability to process PUR, contact your Nordson representative for assistance.
HM, CA	**CAUTION!** Before using any cleaning or flushing compound on or in the equipment, read and comply with the manufacturer's instructions and the MSDS supplied with the compound. Some cleaning compounds can react unpredictably with hot melt or cold adhesive, resulting in damage to the equipment.
HM	**CAUTION!** Nordson hot melt equipment is factory tested with Nordson Type R fluid that contains polyester adipate plasticizer. Certain hot melt materials can react with Type R fluid and form a solid gum that can clog the equipment. Before using the equipment, confirm that the hot melt is compatible with Type R fluid.

Other Safety Precautions

- Do not use an open flame to heat hot melt system components.
- Check high pressure hoses daily for signs of excessive wear, damage, or leaks.
- Never point a dispensing handgun at yourself or others.
- Suspend dispensing handguns by their proper suspension point.

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First Aid

If molten hot melt comes in contact with your skin:

1. Do NOT attempt to remove the molten hot melt from your skin.
2. Immediately soak the affected area in clean, cold water until the hot melt has cooled.
3. Do NOT attempt to remove the solidified hot melt from your skin.
4. In case of severe burns, treat for shock.
5. Seek expert medical attention immediately. Give the MSDS for the hot melt to the medical personnel providing treatment.

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Description

See Figure 1. The Nordson AG-900+/AG900+S modular dispensing applicator is a noncirculating unit that applies solid and foamed high performance materials such as silicones, plastisols, urethanes, epoxies, butyls and hot melts. The applicator is compatible with a variety of Nordson systems and is well suited for automated dispensing equipment.

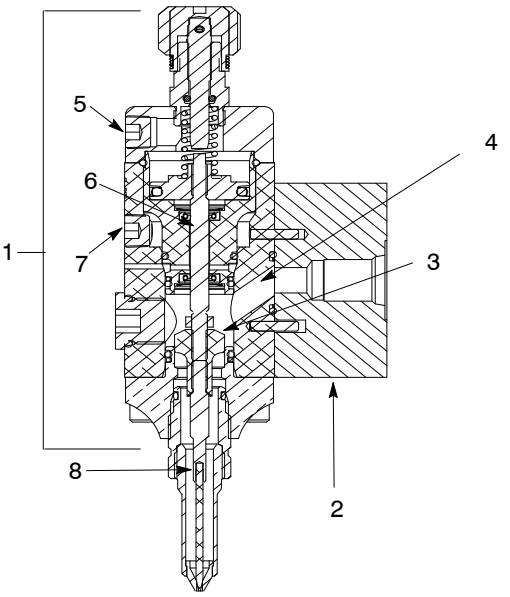

Figure 1: AG-900+ Dispensing Applicator with Zero−Cavity Nozzle

1. Applicator module
2. Adapter block
3. Needle
4. Pressure regulated material
5. Air-close port
6. Piston
7. Air-open port
8. Needle/nozzle assembly

The applicator is pneumatically triggered by a customer supplied external solenoid. The applicator assembly includes a module, and either a pressure regulator (heated or unheated) or applicator adapter body.

The AG-900+/AG900+S dispensing applicator is available as a zero cavity needle/nozzle design, or can be provided to accept standard extrusion nozzles.

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Heated AG-900+/AG900+S applicators have replaceable heater cartridge(s) in the heater block assembly mounted to the module. Resistance temperature detectors (RTDs) in the hose and in the heater block monitor temperature. Cordsets from the hose and from the heater block are connected electrically to a controlled power source such as a FoamMix processor or a standalone temperature controller.

AG900+/AG900+S applicators are set up from the factory to operate as air-open-spring-close actuation for use in dispensing lower viscosity materials. Air-close operation can be used when using materials of higher viscosity.

NOTE: If the air−close will be used, order part number 1096469 solenoid assembly with tubing.

Needle and Nozzle Design

AG-900+/AG900+S applicators accommodate needle and nozzle designs selected for each application requirement. The zero cavity needle/nozzle applicator describes zero space downstream to the cut-off where the nozzle and needle join. This prevents material from leaking, clogging and backing up in the applicator-on positions.

Material Pressure Regulator

AG-900+/AG900+S applicators are available with an optional material pressure regulator attached directly to the applicator module. This regulator provides consistent material pressure to maintain constant output rates.

Hose Connections

The following heated and unheated hose connections are available:

- dual-axis (X and Y) swivel
- fixed, 90°
- fixed, straight-in
- X-axis swivel with straight-in hose connection
- X-axis with 90° hose connection
- Y-axis swivel
- dual hose, circulating

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Specifications

Parameter	Specification
Operating temperature C (F) • Unheated • Heated	0−50°C (32−120°F) 204°C (400°F)
Maximum working pressure	210 bar (3000 psi) @ 121 °C (250 °F) 100 bar (1500 psi) @ >121 °C (250 °F)
Regulated output control pressure	100 bar (1500 psi) @ 121 °C (250 °F)
Operating air pressure	4−6.89 bar (60−100 psi)
Viscosity range	1000−1 million cps
Electrical requirements (heated applicators only)	220−240 VAC 50/60 Hz, 270W/ applicator, 100W/swivel
Weight kg (lb) • Heated • Cold	• Regulated: 1.7 (3.8) Unregulated: 1.1 (2.4) • Regulated: 1.2 (2.65) Unregulated: .75 (1.65)

Physical Dimensions

Applicator Type	With Regulator mm (in.)	Without Regulator mm (in.)
Heated	140 H x 73 W x 107 D (5.51 x 2.87 x 4.21)	140 H x 60 W x 67 D (5.51 x 2.36 x 2.64)
Cold	140 H x 50 W x 107 D (5.51 x 1.97 x 4.21)	140 H x 37 W x 67 D (5.51 x 1.46 x 2.64)

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Installation

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

The AG-900+/AG900+Smodular dispensing applicator is shipped fully assembled.

After unpacking:

1. Inspect the applicator assembly for dents, scratches, corrosion or other physical damage.
2. Heated units: inspect the cordset assemblies for damaged or bent pins or kinking in the armor shielding.
3. Tighten and secure all fasteners.

Contact Nordson immediately to report damaged or missing items.

See Figure 2.The AG-900+/AG900+S applicator is mounted on a bracket, supplied by the customer, that is secured to the applicator regulator module by using three M5 socket head screws.

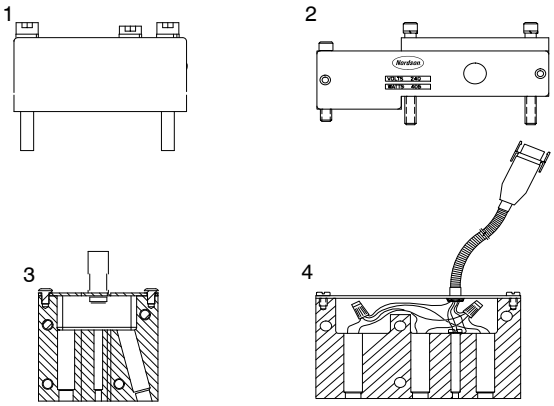

Figure 2: Socket Screws for Bracket Mounting with Adapter Block and Regulator Heaters

1. Applicator bracket
2. Mounting bracket for heated regulator
3. Heater assembly for adapter block
4. Heater assembly for regulator

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Physical Dimensions *(contd)*

To install the AG-900+/AG900+S applicator, perform the following procedures:

1. See Figures 3 and . Remove the M5 mounting screws.

NOTE: On heated applicators, these screws also secure the heater assembly module to the applicator.

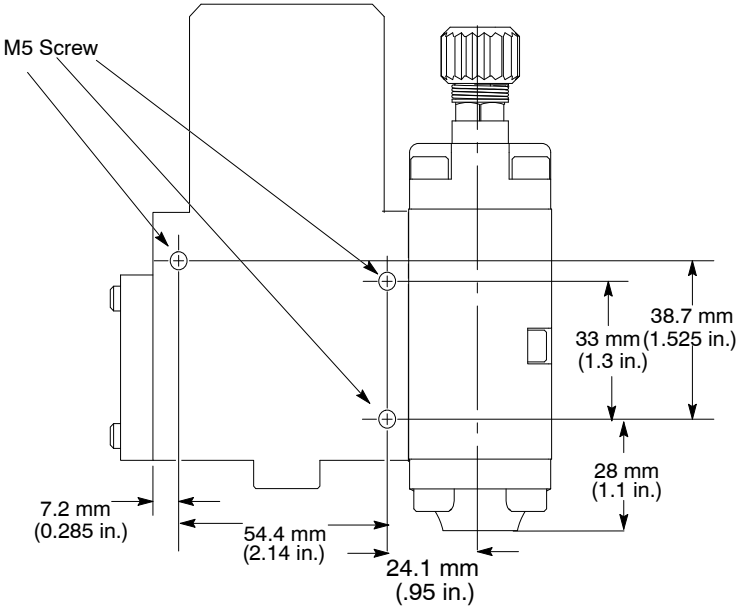

Figure 3: Mounting Dimensions for AG-900+/AG900+S Applicator with Regulator

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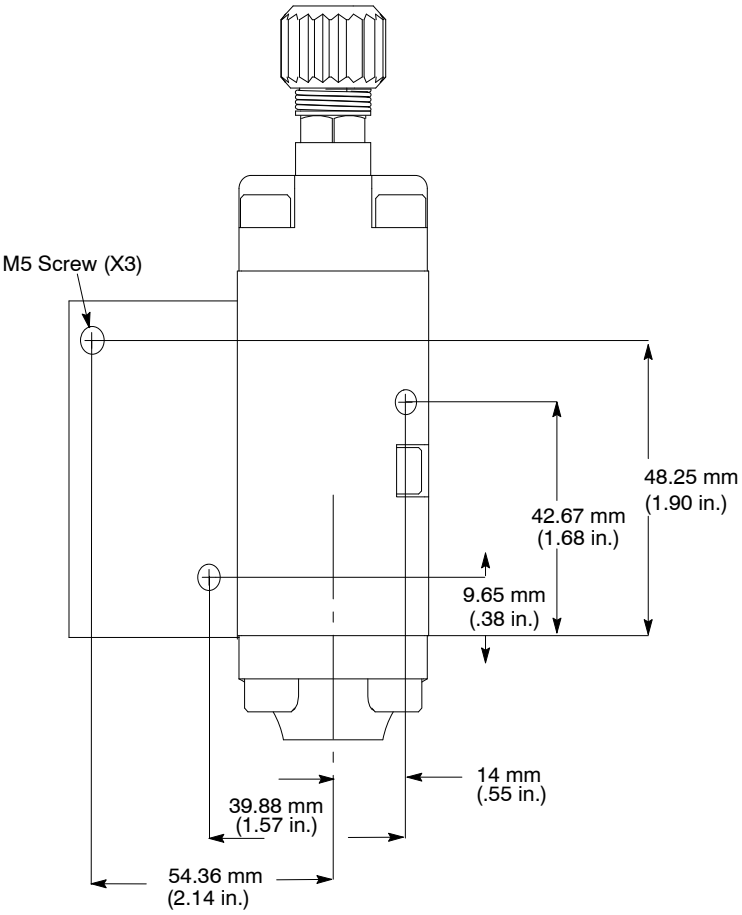

Figure 4: Mounting Dimensions for AG-900+/AG900+S Applicator with Adapter Block

2. Position the applicator assembly against the customer-supplied bracket, and then reinstall the three M5 screws and tighten securely.
3. Remove the steel hex cap from the $^{1}/_{8}$ NPT port in the applicator body, and then thread an air supply line to the port. Use PTFE tape or an equivalent on the air supply line.
4. See Figure 5. Thread a muffler to the air-close port.

   NOTE: Order part number 1096469 solenoid assembly with tubing to use air-close.
5. Connect the air line(s) to an independently regulated, filtered, unlubricated and controlled air supply.
6. For heated applicators only: connect the male plugs from the heater block adapter to the female accessory connectors located on the heated hose or extension cords.

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Operation

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

The needle and nozzle is typically installed onto the applicator at the factory.

1. See Figure 6. Rotate the knurled needle adjustment knob (1) clockwise until it stops.
2. Turn the adjustment knob 4−5 turns counterclockwise.
3. Apply material pressure to the applicator. Adjust the knob until no material flows from the nozzle.

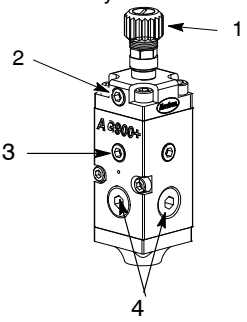

Figure 6: AG900+/AG900+S Module

1. Needle adjustment knob
2. Air close inlet
3. Air open inlet
4. $^{9}/_{16}$−18 in. SAE port

4. Apply air pressure to the applicator.
5. To adjust output pressure at the nozzle, turn the regulator adjustment screw clockwise to increase pressure, counterclockwise to decrease pressure. Change setting on the melter if no regulator is used.

   NOTE: A change in pressure causes a change in maximum velocity and flow. Pressure adjustments can be made with the applicator in the on or off position.

   NOTE: Install a gauge into one of the $^{9}/_{16}$−18 inch SAE ports (4) monitor applicator pressure.

   NOTE: When using the air−close feature, adjust the air−close regulator for minimum pressure by turning the air regulator adjustment screw counterclockwise several turns. Make final adjustments to the air−close regulator to achieve good cut-off at the nozzle after obtaining the material output flow rate.

The applicator is now ready for normal operation.

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Maintenance

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

WARNING! Halogenated hydrocarbon solvents are dangerous when used to clean components in a pressurized fluid system. The use of halogenated hydrocarbons in the system could result in an explosion. Refer to *Safety*.

CAUTION! Never heat system components with a torch or an open flame. Use an electric oven with forced air circulation or a flameless electric heat applicator. Do not heat plastic parts above 230 °C (450 °F).

To keep the AG-900+/AG900+S applicator operating efficiently, follow a preventive maintenance schedule. Refer to Table 3.

Maintenance Schedule

Table 2: AG-900+ Applicator Maintenance

Interval	Activity
Daily	Keep the unit free of dust.
Monthly	Inspect all hydraulic, pneumatic, and electrical connections, nozzle, and all other exterior parts. Repair, replace, and clean these parts as necessary. Inspect hoses for kinks, fraying, and cuts. Replace hoses, if necessary. Check for air leaks. If found, inspect all joints and connections using a leak detector fluid. Refer to *Parts* for ordering information. **NOTE:** Thoroughly wet any area using a leak detector fluid and give sufficient time to detect bubbles.
Every 6 Months	Rebuild or replace the regulator (if used).

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Troubleshooting

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

This section contains troubleshooting procedures. These procedures cover only the most common problems that may be encountered. If the problem cannot be solved with the information given here, contact Nordson for help.

Table 3: Troubleshooting Table

Problem	Possible Cause	Corrective Action
1. Applicator fails to trigger.	Needle adjusted fully closed	Turn the needle adjustment knob at least two turns counterclockwise or trigger the applicator.
	Low air supply pressure	Verify that triggering air pressure is 4.14−6.89 bar (60−100 psi).
	Air leaking at spare air supply port	Check air ports for leakage. Seal any leaks with PTFE tape.
	Air leaking at applicator body weep hole	Replace piston cartridge assembly.
	Needle piston seal damaged	Replace seal cartridge assembly.
2. Applicator fails to shut off.	Foreign material in nozzle needle seat	Remove and clean nozzle tip.
	Damaged needle return spring	Inspect and replace spring.
	Damaged nozzle	Replace nozzle/needle set.
	Air supply to applicator not shutting off	Troubleshoot air supply pressure system.
	Material pressure too high	Connect air-close kit P/N 1096469. Air-close air pressure too low.

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Problem	Possible Cause	Corrective Action
3. Applicator or swivel fails to heat.	Loose connections	Disconnect and lock out power. Remove heater cover and inspect wires. Restore any loose connections.
	Open or shorted heater	Measure cold resistance across the heater with a VOM. 0 ohms means the heater is shorted. Infinite ohms means the heater is open.
	Open or shorted RTD	Measure cold resistance across the RTD with a VOM. 0 ohms means the RTD shorted. Infinite ohms means the RTD is open.
	Short circuit in the cordset	Measure cold resistance between connector pins and green ground lead in the heater module. 0 or very low resistance means the cordset shorted. Replace cordset.
4. Bead is too large or too small.	Dispense pressure set too high or too low	Adjust material supply pressure (if applicable). Turn regulator adjustment screw (if installed). If the bead is still too large or too small, replace the regulator spring or adjust needle stroke.
5. Bead is dispensed with a hammerhead (large to small).	Regulator operating outside of normal pressure range	Turn regulator adjustment screw counterclockwise. (If applicable)
	Worn regulator seat	Rebuild regulator (If applicable). Refer to the *Repair* section.

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Repair

WARNING! Allow only personnel with appropriate training and experience to operate or service the equipment. The use of untrained or inexperienced personnel to operate or service the equipment can result in injury, including death, to themselves and others, and damage to the equipment.

WARNING! Disconnect equipment from line voltage. Failure to observe thiswarning may result in personal injury, death, or equipment damage.

This section provides procedures for replacing AG-900+/AG900+S parts.

Replace the Needle/Nozzle

Disassembly

To disassemble your applicator to replace the nozzle/needle assemblies, perform the following procedure:

1. Heated applicators: disconnect and lock out input electrical power from the applicator.

   NOTE: Do not remove the module from the regulator body or applicator adapter body unless applicator location prohibits easy access.

2. If location requires the AG900+/AG900+S module to be removed from the regulator or adapter block to access components, do so by removing the two socket head screws from the front of the module and pulling it free.

   NOTE: Module must be pulled straight away to avoid damage to locating dowel pins on back face of module.

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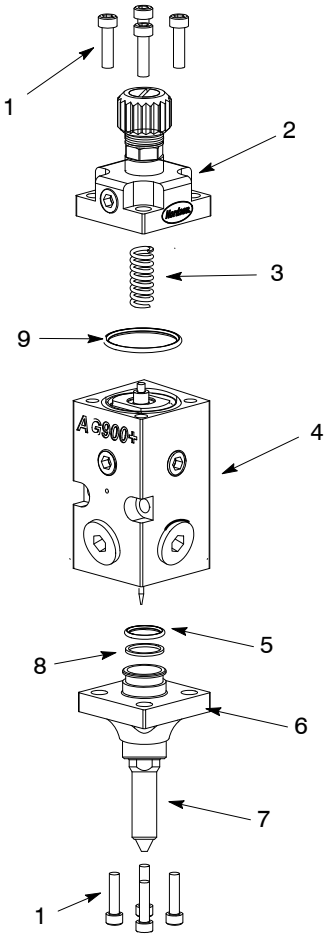

Figure 7: AG-900+/AG900+S Applicator Assembly

1. Socket head screws
2. Air cap
3. Spring
4. Module body with piston/cartridge and needle assemblies installed
5. O-ring
6. Nozzle flange
7. Nozzle
8. Back-up ring
9. Large o-ring (top of piston/cartridge assembly)

3. See Figure 7.Remove the four socket head screws (1), from the air cap (2) and then lift the cap and spring (3) free of the applicator module.

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Disassembly *(contd)*

4. Remove the existing nozzle from the AG900+/AG900+S module by removing the 4 socket head screws (1) from the nozzle flange (6) (the nozzle will remain attached to the flange).
5. Remove (unscrew) old nozzle (7) from nozzle flange(6).
6. Push the piston/cartridge assembly and needle assembly (located inside of applicator module body) out of the top of the module by pressing tip of needle assembly against a soft surface (i.e. piece of wood or wood work surface).

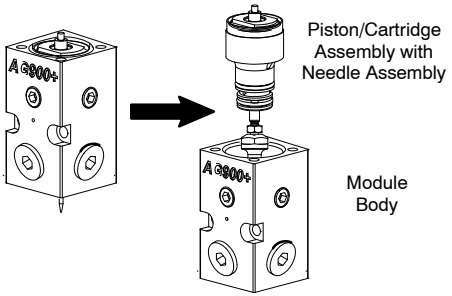

Figure 8: Removing Piston/Cartridge and Needle Assembly from Module Body

7. Remove large o-ring (9) from top of piston/cartridge assembly.

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AG900+/ Modules

a. See Figure 9. Loosen jam nut (3) on piston shaft and back nut up until against piston shaft shoulder (4).

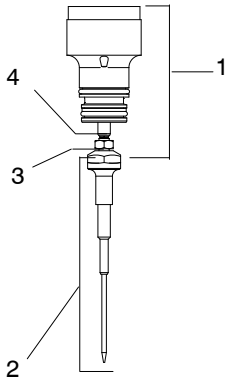

Figure 9: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle assembly
3. Jam nut
4. Piston shaft shoulder

b. Unscrew old needle assembly from the piston/cartridge assembly.

NOTE: If piston assembly spins − put wrench on wrench flats on top of piston.

c. See Figure 10. Remove o-rings and back-up ring from piston/cartridge assembly.

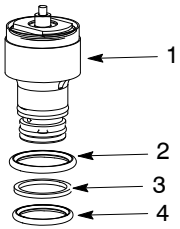

Figure 10: Piston/Cartridge Assembly and Needle Assembly

1. Piston/Cartridge Assembly
2. Larger o-ring
3. Back-up ring
4. o-ring

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AG900+S Modules

a. See Figure 11.Using two $^{5}/_{16}$ in. open wrenches, loosen the needle from the cartridge rod.

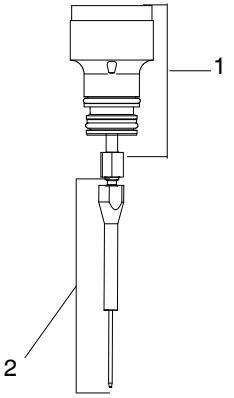

Figure 11: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle assembly

b. See Figure 10. Remove o-rings and back-up ring from piston/cartridge assembly.

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Assembly

1. Install new o-rings and back-up ring on piston/cartridge assembly.
2. **AG900+ Module:** See Figure 12. Install the new needle assembly onto the piston/cartridge assembly. Turn until the needle bottoms out against the end of the piston shaft.

   AG900+S Module: See Figure 11. Install the new needle assembly onto the piston/cartridge assembly. Turn until the needle bottoms out against the end of the piston shaft.

   NOTE: If the piston shaft is not fully seated inside the needle assembly, the piston/cartridge assembly with the needle assembly will not properly seat in the applicator module and nozzle, resulting in adhesive leaking.

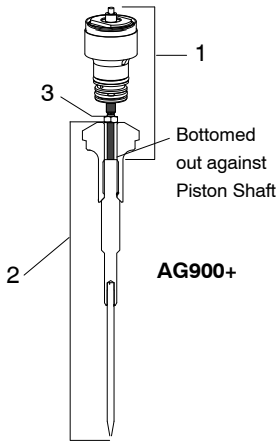

Figure 12: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle Assembly
3. Jam nut

3. **AG900+ Module:** Tighten jam nut.
   AG900+S Module: Tighten the needle against the cartridge rod using two $^{5}/_{16}$ in. open end wrenches.
4. Clean module bore.
5. Apply o-ring lubricant to the module bore inside the module body.

CAUTION! Apply o-ring lubricant to module body bore ONLY. Lubricating o-rings directly or individual components causes back-up rings to become dislodged when module is assembled.

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Assembly *(contd)*

6. Install piston/cartridge assembly into module body. Carefully press on top of the cartridge to properly engage cartridge o-rings into the module body bore.

   NOTE: You will hear a small pop when the assembly seats in the module body.

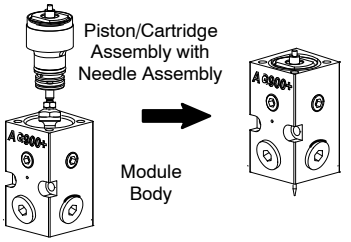

Figure 13: Installing Piston/Cartridge with Needle Assembly

7. See Figure 14. Install new large o-ring (9) on top of piston cartridge.
8. Back out the stroke adjustment knob before installing the cap.

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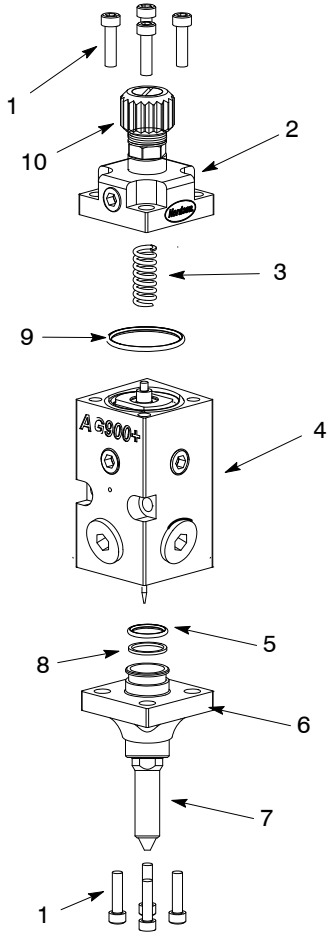

Figure 14: AG-900+/AG900+S Applicator Assembly

1. Socket head screws
2. Air cap
3. Spring
4. Module body with piston/cartridge and needle assemblies installed
5. O-ring
6. Nozzle flange
7. Nozzle (reference only)
8. Back-up ring
9. Large o-ring (top of piston/cartridge assembly)
10. Stroke adjustment knob

9. Re-install spring(3) and cap (2). Insert two of the four socket head screws (1) in opposite corners of the cap. Depress the cap and hand-tighten the two screws. Insert the remaining screws into the cap and tighten all four screws to 7−8 ft.lbs.

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Assembly *(contd)*

10. Install new o-ring (5) and back−up ring (8)onto nozzle flange

11. Re-install nozzle flange (6) onto applicator module body (4). Insert two of the four socket head screws (1) in opposite corners of the flange. Hold the flange in place and hand-tighten the two screws. Insert the remaining screws into the flange and tighten all four screws to 7−8 ft.lbs.

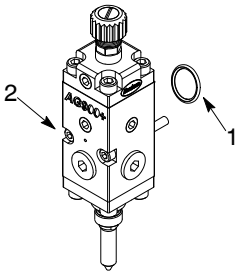

Figure 15: Applicator Module

1. Module o-ring
2. Socket head mounting screws

12. If module was removed from the regulator or adapter block, place small amount of o-ring lubricant on new o-ring and install o-ring in groove on back of module body.

13. Attach the applicator module to the regulator or adapter block. Insert guide pins into the mating holes for proper alignment.

14. Apply Never Seez lubricant to the two socket head mounting screws. Install the two socket head mounting screws into the applicator body and tighten.

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Replace the Piston/Cartridge Assembly

Disassembly

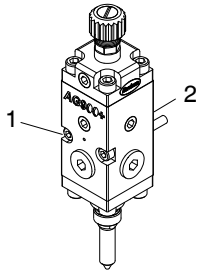
To disassemble your applicator to replace the piston/cartridge assembly, perform the following procedure:

1. Heated applicators: disconnect and lock out input electrical power from the applicator.

   NOTE: Do not remove the module from the regulator body or applicator adapter body unless applicator location prohibits easy access.

   NOTE: Standalone modules are mounted using threaded holes in the applicator body. Remove screws before proceeding.

2. See Figure 16. If location requires the AG900+/AG900+S module to be removed from the regulator or applicator body adapter to access components, do so by removing the two socket head screws from the front of the module and pulling it free.



NOTE: Module must be pulled straight away to avoid damage to locating dowel pins on back face of module.

Figure 16: AG-900+/AG900+S Applicator Assembly

1. Socket head screw
2. Module body

3. See Figure 17. Remove the four socket head screws (1), from the air cap (2) and then lift the cap and spring (3) free of the applicator module.

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Disassembly *(contd)*

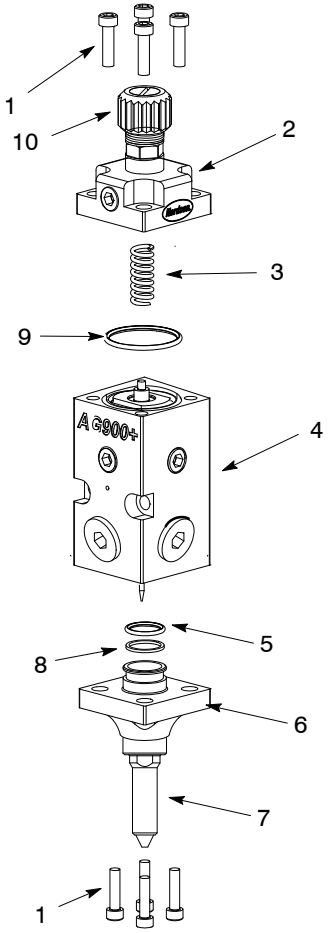

Figure 17: AG-900+/AG900+S Applicator Assembly

1. Socket head screws
2. Air cap
3. Spring
4. Module body with piston/cartridge and needle assemblies installed
5. O-ring
6. Nozzle flange
7. Nozzle (reference only)
8. Back-up ring
9. Large o-ring (top of piston/cartridge assembly)
10. Needle stroke adjustment knob

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4. Remove the nozzle (7)and nozzle flange (6) from the AG900+/AG900+S module by removing the 4 socket head screws (1) from the nozzle flange (the nozzle will remain attached to the flange). Do not remove nozzle from nozzle flange.
5. Push the piston/cartridge assembly and needle assembly (located inside of applicator module body) out of the top of the module by pressing tip of needle assembly against a soft surface (i.e. piece of wood or wood work surface).

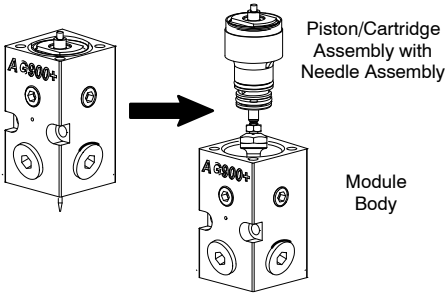

Figure 18: Removing piston/cartridge and Needle Assembly from Applicator Module Body

6. Remove large o-ring (9) from top of piston/cartridge assembly.

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AG900+ Modules

a. See Figure 19. Loosen jam nut (3) on piston shaft and back nut up until against piston shaft shoulder (4).

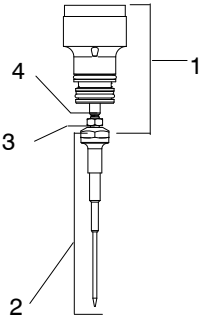

Figure 19: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle assembly
3. Jam nut
4. Piston shaft shoulder

b. Unscrew the old needle assembly from the piston/cartridge assembly.

AG900+S Modules

a. See Figure 20.Using two 5/16 in. open wrenches, loosen the needle from the cartridge rod.

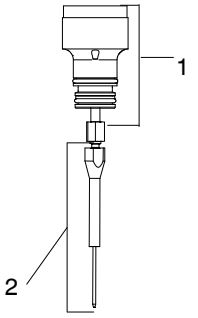

Figure 20: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle assembly

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7. Unscrew old needle assembly from the piston/cartridge assembly.

   NOTE: If piston assembly spins − put wrench on wrench flats on top of piston.

Assembly

1. Install the needle assembly onto the new piston/cartridge assembly. Turn until the needle nut bottoms out against the end of the piston shaft shoulder.

   NOTE: If the piston shaft is not fully seated inside the needle assembly, the piston/cartridge assembly with the needle assembly will not properly seat in the applicator module and nozzle, resulting in adhesive leaking.

2. **AG900+ Module:** See Figure 21. Install the new needle assembly onto the piston/cartridge assembly. Turn until the needle bottoms out against the end of the piston shaft. Tighten jam nut.

   AG900+S Module: See Figure 20. Install the new needle assembly onto the piston/cartridge assembly. Turn until the needle bottoms out against the end of the piston shaft.

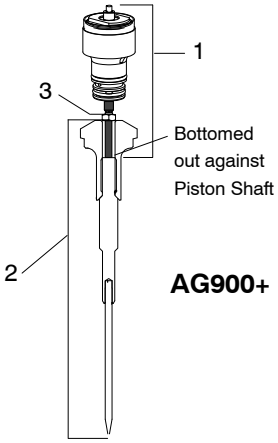

Figure 21: Piston/Cartridge Assembly and Needle Assembly

1. Piston/cartridge assembly
2. Needle Assembly
3. Jam nut

3. Clean applicator module bore.
4. Apply o-ring lubricant to the module bore inside the applicator module body.

CAUTION! Apply o-ring lubricant to module body bore ONLY. Lubricating o-rings directly or individual components causes back-up rings to become dislodged when module is assembled.

5. Install piston/cartridge assembly into applicator module body. Carefully press on top of the cartridge to properly engage cartridge o-rings into the module body bore.

   NOTE: You will hear a small pop when the assembly seats in the module body.

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Assembly *(contd)*

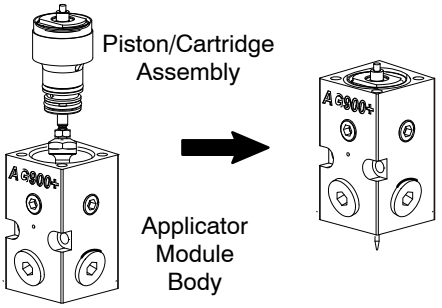

Figure 22: Installing Piston/Cartridge with Needle Assembly

6. See Figure 23. Install new large o-ring (9) on top of piston cartridge.
7. Re-install spring(3) and cap (2). Insert two of the four socket head screws (1) in opposite corners of the cap. Depress the cap and hand-tighten the two screws. Insert the remaining screws into the cap and tighten all four screws to 7−8 ft.lbs.
8. Install new o-ring (5) and back−up ring (8) onto nozzle flange (6).
9. Re-install nozzle flange (6) onto applicator module body (4). Insert two of the four socket head screws in opposite corners of the flange. Hold the flange in place and hand-tighten the two screws. Insert the remaining screws into the flange and tighten all four screws to 7−8 ft.lbs.
10. If module was removed from the regulator or applicator body adapter, place small amount of o-ring lubricant on new o-ring and install o-ring in groove on back of module body.
11. Attache the applicator module to the regulator or applicator adapter body. Insert guide pins into the mating holes for proper alignment.
12. Apply Never Seez lubricant to the two socket head mounting screws. Install the two socket head mounting screws into the applicator body and tighten.

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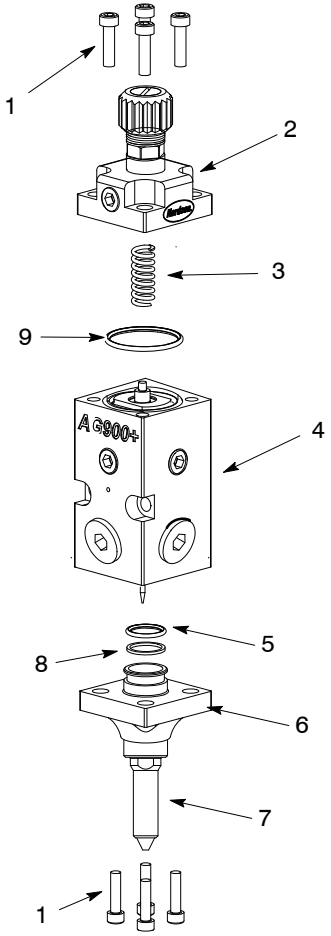

Figure 23: AG-900+/AG900+S Applicator Assembly

1. Socket head screws
2. Air cap
3. Spring
4. Applicator module body with piston/cartridge and needle assemblies installed
5. O-ring
6. Nozzle flange
7. Nozzle
8. Back-up ring
9. Large o-ring (top of piston/cartridge assembly)

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Body-Seal Replacement

To replace the body seal, perform the following procedure:

1. See Figure 24. Place a small amount of o-ring lubricant on new o-ring and install o-ring in groove on back of module body.
2. Attach the applicator module to the regulator or applicator adapter body. Insert guide pins into the mating holes for proper alignment.
3. Apply Never Seez lubricant to the two socket head mounting screws. Install the two socket head mounting screws into the applicator body and tighten.

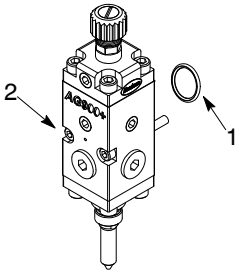

Figure 24: Applicator Body

1. Applicator module o-ring
2. Socket head mounting screws

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Regulator Spring Replacement

The following paragraphs provide procedures for spring replacement of the regulator.

Disassembly

To disassemble the regulator, perform the following procedure:

1. For heated applicators only, disconnect and lock out input electrical power from the system. Unplug the regulator heater cordset and the hose connection cordset.
2. Relieve pressure to the applicator See Figure 25.. Disconnect the material supply hose from the hose connection, then remove the three M5 socket head screws. Remove the applicator assembly from the bracket.

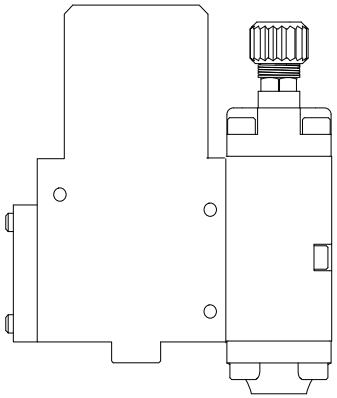

Figure 25: AG-900+/AG900+S Applicator

3. Remove the two M5 socket head screws from the applicator body. Carefully remove the applicator module from the regulator module.

   NOTE: Perform this step to prevent damage to the nozzle/needle service kit during regulator assembly.

4. See Figure 26. Unscrew and remove the regulator adjustment screw (1) from the regulator body. Remove the spring seat (2), thrust bearing (4), and spring (3) from the regulator piston bore.

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Assembly

To assemble the AG-900+/AG900+S regulator, perform the following procedure:

5. Lubricate O-rings with Parker lubricant.
6. Lubricate the thrust bearing (4). Replace spring, spring seat, and thrust bearing into the regulator body.
7. Lubricate the adjusting screw (1) with Never Seez lubricant and insert into regulator body.
8. Position the applicator body against the regulator and secure it in place with the two M5 socket head screw. Apply Never Seez lubricant to the screws before installing them.
9. Secure the applicator assembly to the bracket with the three M5 socket head screws. Apply Never Seez lubricant to the screws before installing them. Reconnect the material supply hose to the hose connection.
10. For heated applicators, reconnect the input electrical power to the applicator. Plug in the regulator heater cordset and the hose connection cordset and resume normal operation.

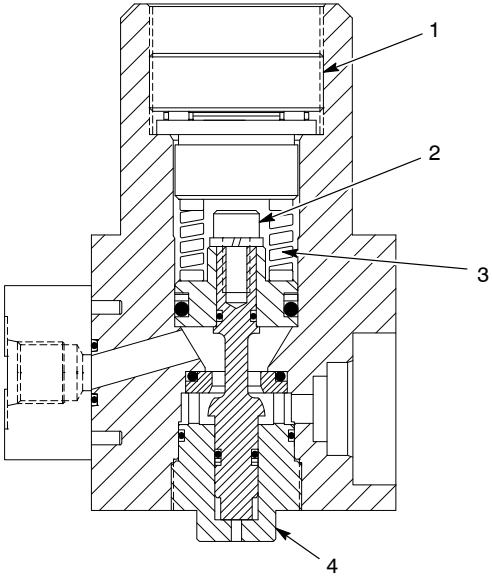

Figure 26: AG-900+/AG900+S Applicator Regulator Assembly

1. Regulator adjustment screw
2. Spring seat
3. Spring
4. Thrust bearing

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Regulator Heater Cartridge Replacement

To replace the regulator heater cartridges, perform the following procedure:

1. Disconnect and lock out input electrical power from the applicator.

   NOTE: Do not perform the following step unless the location of the applicator assembly prohibits easy access to the heater cartridges and RTD.

2. See Figure 27. Unplug the heater cordset from the hose or extension cable, remove the three socket head screws, pull the applicator assembly away and separate the heater assembly from the applicator.

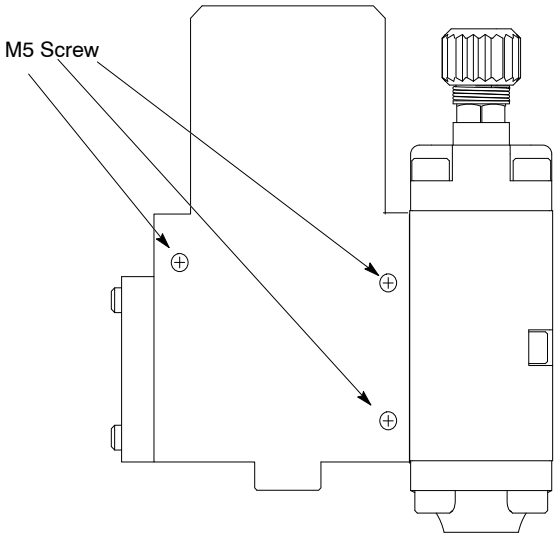

Figure 27: AG-900+/AG900+S Applicator

3. See Figure 28. Remove the two pan head screws (3) and the heated cover (2).
4. Remove the ground screw assembly (5).

   NOTE: The heater cartridges are wired in parallel. Note their connections before proceeding.

5. Remove the two porcelain wire connectors (4) that secure heater leads to the cordset leads, separate the leads, and then pull the heater cartridges (1) from the heater body (6).

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Regulator Heater Cartridge Replacement *(contd)*

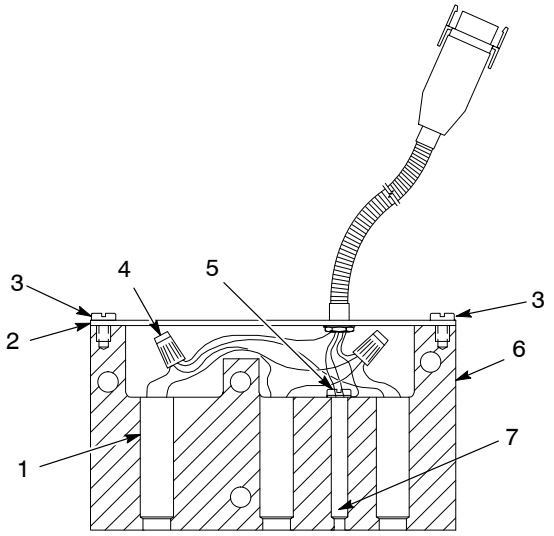

Figure 28: AG-900+/AG900+S Applicator Heater Assembly

1. Heater cartridge
2. Heated cover
3. Pan head screw
4. Porcelain wire connector
5. Ground screw assembly
6. Heater body
7. RTD

6. Coat the new heater cartridges with thermal joint compound, then slide the heater cartridges into the heater body.
7. Reconnect the heater cartridge leads in parallel as noted earlier, then reinstall the porcelain wire connectors.
8. Secure the ground wire in place using the screw and lockwasher.
9. Apply Never Seez lubricant to the two pan head screws and use them to reinstall the cover in place.
10. If the heater assembly was removed from the regulator, apply Never Seez lubricant to the socket head screws, position the heater assembly against the regulator, position the applicator assembly at the mounting bracket and reinstall the three socket head screws.
11. Connect the regulator heater plug to the processor or extension cable and apply input power.

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Using the Illustrated Parts Lists

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use these five-column parts lists, and the accompanying illustrations, to describe and locate parts correctly. The following chart provides guidance for reading the parts lists.

The number in the *Item* column corresponds to the circled item number in the parts list illustration. A dash in this column indicates that the item is an assembly.

The number in the *Part* column is the Nordson part number you can use to order the part. A series of dashes indicates that the part is not saleable. In this case, you must order either the assembly in which the part is used or a service kit that includes the part.

The *Description* column describes the part and sometimes includes dimensions or specifications.

The *Note* column contains letters that refer to notes at the bottom of the parts list. These notes provide important information about the part.

The *Quantity* column tells you how many of the part is used to manufacture the assembly shown in the parts list illustration. A dash or AR in this column indicates that the amount of the item required in the assembly is not quantifiable.

Item	Part	Description	Qty	Note
–	0000000	Assembly A	–	
1	000000	• Part of assembly A	2	A
2	– – – – – –	• • Part of item 1	1	
NS	0000000	• • • Part of item 2		
NOTE A: NS: Not Shown				

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AG-900+ Applicator Assembly

See Figure 29.

Item	Part	Description	Qty	Note
–	1049800	Module, AG900+	1	
1	981830	Screw, Socket, M6 x 25, zinc	8	
2	254423	Needle Stroke Adjustment Compl	1	
3	277595	Spring, 17−7PH, H400	1	
4	—	Air cap		
5	1078078	Plug, pipe, skt,1/8−NPT, brass, $^{3}/_{4}$ in. taper	3	
6	940231	O-ring, Viton, 1.063 x 1.188 x 0.063	1	A
7	1049892	Piston Assy, Air, AG900+	1	A
8	1051774	cartridge Assy, AG900+	1	A
9	345628	Nut, hex, M4	1	
10	940161	O-Ring, Viton, 0.614 ID x 0.070@, BR, 10416	1	A
11	973574	Plug, O−ring, $^{9}/_{16}$−18	2	
12	954033	Back−up Ring, Single, $^{9}/_{16}$ x $^{11}/_{16}$	1	A
13	940151	O-Ring, Viton, 0563 x 0.688 x 0.063	1	
14	1047878	Nozzle flange	1	
15	—	Nozzle	1	B
16	982374	Screw, Socket, M5 x 40, BL	2	

NOTE A: Included in piston/cartridge kit, P/N 1074141.

B: Nozzles are ordered according to customer specifications. Contact Nordson Customer Service at 877−NORDSON for ordering information.

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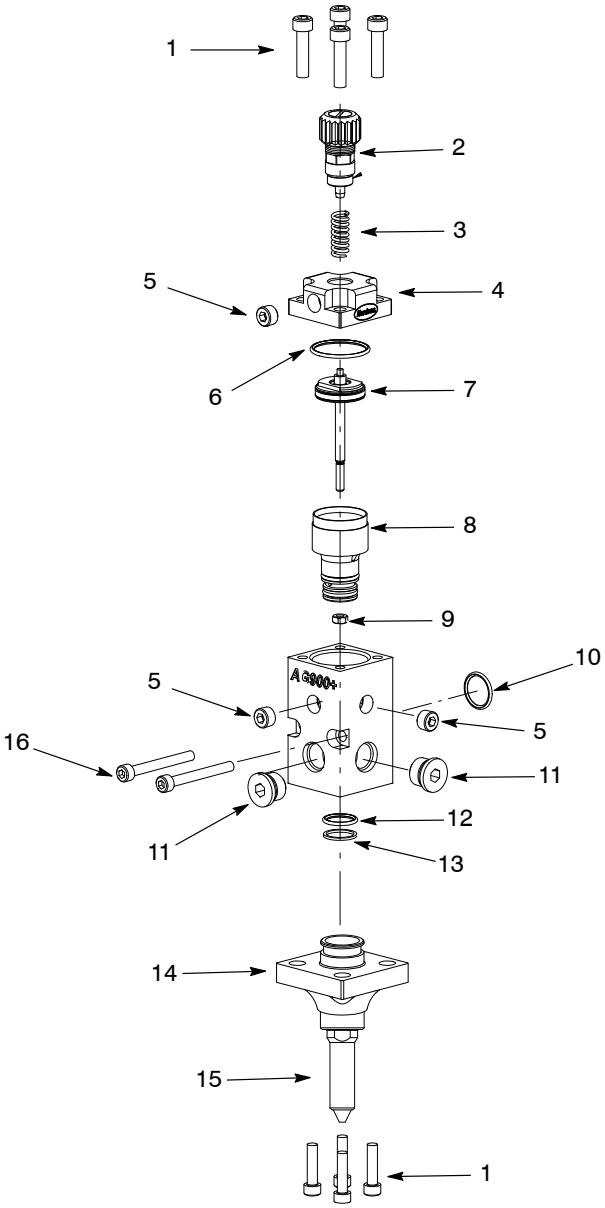

Figure 29: AG-900+ Applicator

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AG900+S Applicator Assembly

See Figure 30.

Item	Part	Description	Qty
–	1088351	Module, AG900+S	–
1	254423	Needle stroke adjustment	1
2	277595	Spring, 17−7PH	1
3	981830	Scr, skt, M6 x 25, Zn	8
4	1049803	Air cap	1
5	940231	O-ring, Viton, 1.063x1.188x.063	1
6	1086828	Cartridge/needle assy, AG900+S	1
7	1088484	Gun body	1
8	940161	O-ring, Viton, .614ID x.070	1
9	1047878	Nozzle flange	1
10	982374	Scr, skt, M5x40	2
11	973574	Plug, o-ring, str thd, $^{9}/_{16}$−18	2
12	1078078	Plug, pipe, skt, $^{1}/_{8}$ NPT, br	3
13	954033	Back-up ring, single, $^{9}/_{16}$ x $^{11}/_{16}$	1
14	940151	O-ring, Viton, .563 x .688 x .063	1
15	–	Nozzle	1

NOTE: Nozzles are ordered according to customer specifications. Contact Nordson Customer Service at 877−NORDSON for ordering information.

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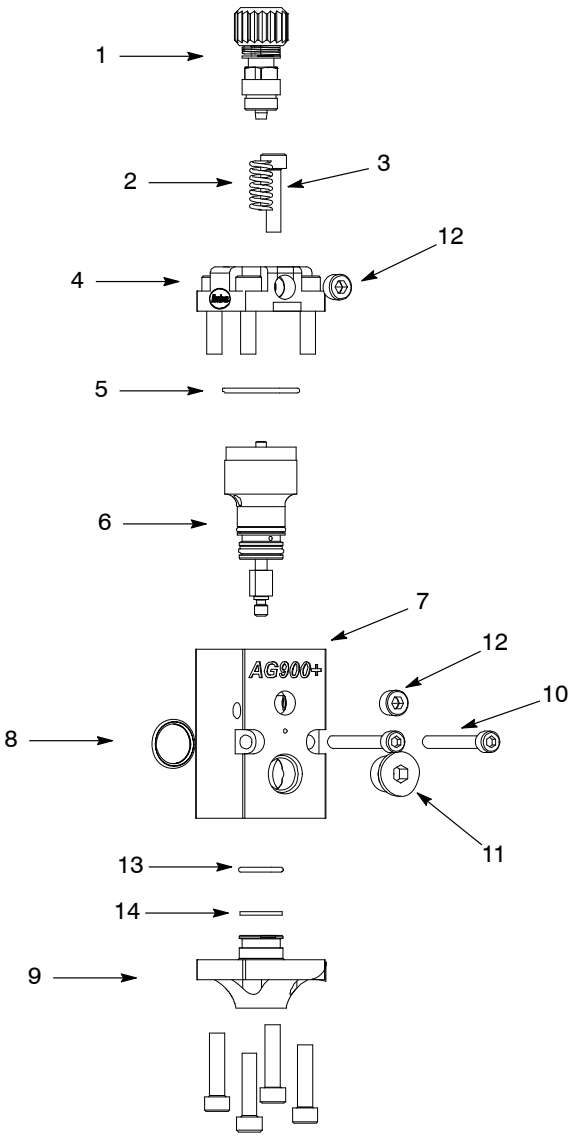

Figure 30: AG900+S Applicator

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Applicator Heaters

Heaters with Regulators

See Figure 31. Order this heater when used with a regulator. The assembly below uses three heater cartridges. Refer to *Cordsets and Heaters* for replacement ordering information.

Part	Description
161392	Hi temperature heater assembly, T-style cordset
1075670	Hi temperature heater assembly, BM-style cordset

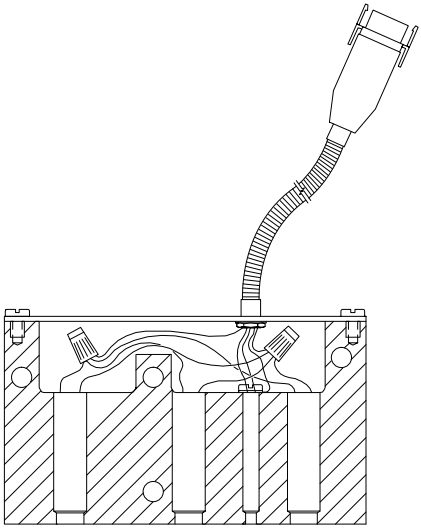

Figure 31: AG900+/AG900+S Applicator Heater

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Heaters with Adapter Blocks

See Figure 32. Order this heater when used without a regulator. The assembly below uses two heater cartridges. Refer to *Cordsets and Heaters* for ordering information.

Part	Description
303352	Hi temperature heater assembly, T-style cordset
135990	Hi temperature heater assembly, BM-style cordset

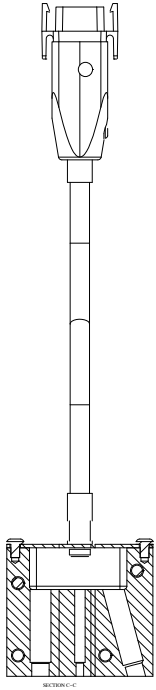

Figure 32: Heater Assembly for Adapter Block

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Cordsets and Heaters

Replacement cordsets include an RTD.

Part	Description
274685	Cordset, T-style
276957	Cordset, BM-style
938122	Heater, cartridge, .375D, 1.28 L, 135W, 240V
186199	RTD, T-style
1039110	RTD, BM-style

Regulator

See Figure 33.

Item	Part	Description
—	154989	Module, regulator, hi temperature
1	982224	Screw, set, adjusting, regulator
2	155822	Seat, spring, with bearing
3	987081	Spring, compression, 1.0 x 1.0 x 1.0 in
4	324762	Bearing, thrust, 0.075 x 1.250 x 0.078 in.

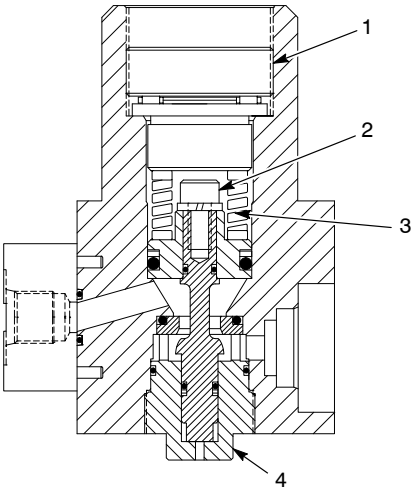

Figure 33: Regulator Assembly

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Swivels

High Pressure Swivels

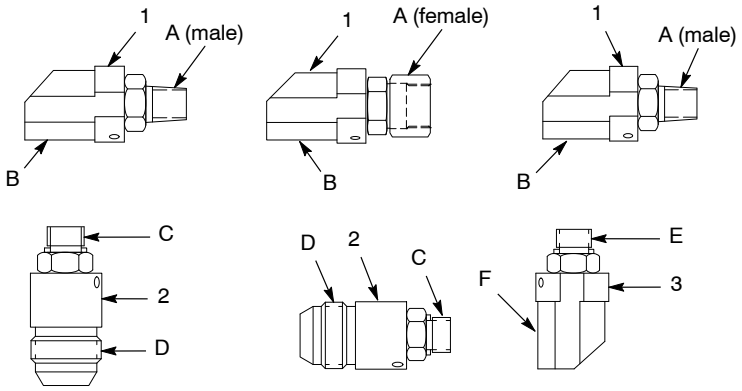

Figure 34: High Pressure Swivel Components

Item	Part	Swivel End	Swivel End	Note
		A	B	
1	139091	SAE-6 (male)	SAE-6 (female)	
		C	D	
2	139092	SAE-6 (male)	JIC-5 (male)	A
	139093		JIC-6 (male)	A
	139094		JIC-8 (male)	A
	139095		JIC-10 (male)	A
	139096		JIC-12 (male)	A
	139097		JIC-20 (male)	A
		E	F	
1	139091	SAE-6 (male)	SAE-6 (female)	
NOTE A: These straight swivels can also be used alone as single swivels.				

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Swivel Lock

Part	Description
156208	Swivel lock

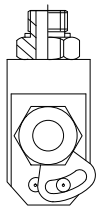

Figure 35: Swivel Lock

Heated Swivels

Part	Description
277816	Swivel, heated, SAE−6 x elbow

Nozzle Heaters

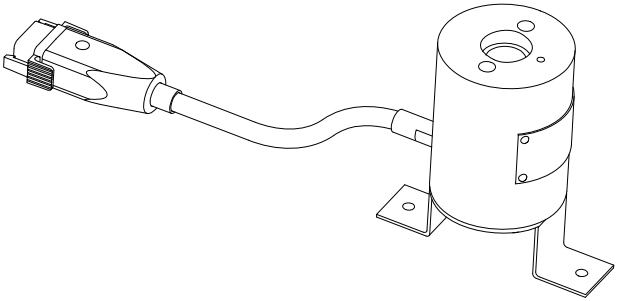

Figure 36: T−style Nozzle Heater

Part	Description
1020118	Nozzle heater, T−style
134744	Nozzle heater, BM style

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Service Accessories

Part	Description
900341	Lubricant, Never−Seez™, 16oz can
275386	Compound, thermal joint, 2 oz
900464	Adhesive, Loctite 242, removable, 50ml
900223	Lubricant, o-ring, 4 oz
900301	Grease, lubricant, silicone, 150 gram
1096469	Kit, solenoid, AG900+S, w/tubing
1096633	Kit, solenoid, AG900+S

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