ZCN Dispensing Gun

Customer Product Manual
Part 303 830A

NORDSON CORPORATION • AMHERST, OHIO • USA

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Notice

Trademarks

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ZCN Dispensing Gun

1. 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 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.

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 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.
- While operating manual spray guns, make sure you are grounded. Wear electrically conductive gloves or a grounding strap connected to the gun handle or other true earth ground. Do not wear or carry metallic objects such as jewelry or tools.
- If you receive even a slight electrical shock, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.
- 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.
- Make sure the spray area is adequately ventilated.
- 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.

High-Pressure Fluids

High-pressure fluids, unless they are safely contained, are extremely hazardous. Always relieve fluid pressure before adjusting or servicing high pressure equipment. A jet of high-pressure fluid can cut like a knife and cause serious bodily injury, amputation, or death. Fluids penetrating the skin can also cause toxic poisoning.

If you suffer a fluid injection injury, seek medical care immediately. If possible, provide a copy of the MSDS for the injected fluid to the health care provider.

The National Spray Equipment Manufacturers Association has created a wallet card that you should carry when you are operating high-pressure spray equipment. These cards are supplied with your equipment. The following is the text of this card:

WARNING: Any injury caused by high pressure liquid can be serious. If you are injured or even suspect an injury:

- Go to an emergency room immediately.
- Tell the doctor that you suspect an injection injury.
- Show him this card.
- Tell him what kind of material you were spraying.

MEDICAL ALERT—AIRLESS SPRAY WOUNDS: NOTE TO PHYSICIAN

Injection in the skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected directly into the bloodstream.

Consultation with a plastic surgeon or a reconstructive hand surgeon may be advisable.

The seriousness of the wound depends on where the injury is on the body, whether the substance hit something on its way in and deflected causing more damage, and many other variables including skin microflora residing in the paint or gun which are blasted into the wound. If the injected paint contains acrylic latex and titanium dioxide that damage the tissue's resistance to infection, bacterial growth will flourish. The treatment that doctors recommend for an injection injury to the hand includes immediate decompression of the closed vascular compartments of the hand to release the underlying tissue distended by the injected paint, judicious wound debridement, and immediate antibiotic treatment.

Fire Safety

To avoid a fire or explosion, follow these instructions.

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

Halogenated Hydrocarbon Solvent Hazards

Do not use halogenated hydrocarbon solvents in a pressurized system that contains aluminum components. Under pressure, these solvents can react with aluminum and explode, causing injury, death, or property damage. Halogenated hydrocarbon solvents contain one or more of the following elements:

Element	Symbol	Prefix
Fluorine	F	“Fluoro-”
Chlorine	Cl	“Chloro-”
Bromine	Br	“Bromo-”
Iodine	I	“Iodo-”

Check your material MSDS or contact your material supplier for more information. If you must use halogenated hydrocarbon solvents, contact your Nordson representative for information about compatible Nordson components.

Action in the Event of a Malfunction

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

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

Disposal

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

2. Description

See Figure 1. The ZCN dispensing gun is an air-operated, spring-closed gun used to dispense both clear and black primers in automotive applications. The gun may be used to dispense other materials as defined by your application and as determined by your Nordson representative. The ZCN dispensing gun is available in a standard model (1) and a model with a flow through felt nozzle (2).

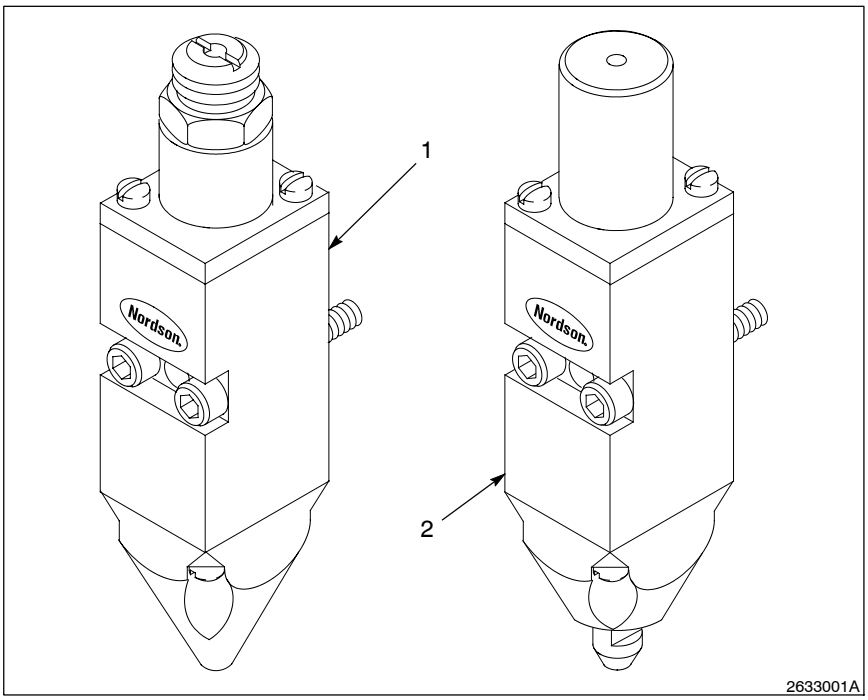

Fig. 1 ZCN Dispensing Gun (Both Models Shown)

1. Standard ZCN dispensing gun
2. ZCN dispensing gun with flow through felt nozzle

3. Installation

The ZCN dispensing gun is typically mounted on an applicator tool in the Drip and Drag primer dispensing system. The applicator tool includes a pre-machined manifold that is specific to the H200 gun and ZCN gun bodies. Installation and mounting may vary, though, depending upon your application.

Contact your Nordson representative if you require mounting information for the ZCN dispensing gun other than the information provided in the *Drip and Drag Primer Dispensing System* manual.

4. Operation

The ZCN dispensing gun dispenses material when air pressure to the gun opens the spring-closed piston. Material flows through the material supply hoses, into the gun body, and out of the nozzle. When air pressure to the gun is shut off, the spring closes and the gun stops dispensing material.

Actual daily operation of the ZCN dispensing gun is dependent upon the system in which it is installed. Refer to the *Drip and Drag Primer Dispensing System* manual for information about the typical operation of a ZCN dispensing gun.

5. Maintenance

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

WARNING: Do not loosen any hydraulic/pneumatic fitting or connection without first relieving system hydraulic/pneumatic pressure.

WARNING: System or material pressurized. Relieve pressure. Failure to observe may result in equipment damage, serious personal injury, or death.

5. Maintenance *(contd.)*

The ZCN dispensing gun operates most efficiently if you follow a basic preventive maintenance schedule. Use the following chart to schedule maintenance tasks.

Frequency	Component	Maintenance Task
During each break	Clear primer gun	• Clean the gun nozzle. • Check the gun body for cleanliness and clean as needed. • Check the clear primer dispense stream accuracy and repeatability.
	Black primer gun	• Clean the gun nozzle. • Check the gun body for cleanliness and clean as needed. • Check the black primer dispense stream accuracy and repeatability.
Every 2 weeks	Black primer gun	Inspect nozzle and needle, and replace as needed.
Every 6 weeks	Clear primer gun	Inspect nozzle and needle, and replace as needed.
Every 13 weeks	Clear primer gun	Inspect the gun body and end cap, and replace as needed.
	Black primer gun	Inspect the gun body and end cap, and replace as needed.

6. Troubleshooting

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

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

Problem	Possible Cause	Corrective Action
1. Gun not dispensing material	Material supply pressure low	Increase material supply pressure to 0.07–0.28 bar (1–4 psi), as needed to begin dispensing.
	Nozzle blocked	Follow this procedure to clear a blocked nozzle: 1. Shut off the air pressure to the material supply pump. 2. Bleed off the residual pressure in the material supply hose. 3. Shut off and lock out all power to the system. 4. Remove the nozzle. Clean the nozzle thoroughly with an appropriate solvent. 5. Reinstall the nozzle.

Continued on next page

6. Troubleshooting (contd.)

Problem	Possible Cause	Corrective Action
1. Gun not dispensing material *(contd.)*	Material supply hose blocked	Follow this procedure to clear a blocked hose: 1. Start at the pump and work toward the gun. 2. Shut down the system and relieve hydraulic pressure. 3. Disconnect the material supply hoses at each junction. 4. Power up the system and carefully check for flow. 5. Make sure to shut off power/pressure after each check before the next disconnection. Material pressure must be available at the gun.
	Air cap or piston/seal jammed	Repair the gun and replace components as necessary.
	Guns with adjustable air caps only: Air cap misadjusted	Adjustment on air cap is off and won't let needle retract. Readjust the air cap. See Figure 2. To readjust the air cap, 1. Loosen the locking nut (3). 2. Adjust the loading screw (1) counterclockwise $^3/_4$ to one full turn, as needed. 3. Retighten the locking nut.

Continued on next page

Problem	Possible Cause	Corrective Action
2. Material leaking (or dribbling) from nozzle	Seat worn	Replace the needle and seat. **NOTE:** The needle and seat are a matched set and must be replaced at the same time.
	Piston/seals sticking	See Figure 2. 1. Remove the following: • Loading screw (1) • Compression spring (2) • Locking nut (3) • Air cap (4) • Fillister screw (5) • Nozzle/needle assembly (9) • Fillister screw (10) 2. Push the piston back and forth until it is no longer stuck. 3. Reassemble the gun.
3. Material leaking from weep hole	Seals bad	Replace the seals.

Continued on next page

6. Troubleshooting (contd.)

Problem	Possible Cause	Corrective Action
4. Material stream spraying at unusual angles ("spritzing")	Material supply pressure too high	Lower material supply pressure to 0.07–0.28 bar (1–4 psi).
	Needle not aligned properly in nozzle	Readjust the needle: 1. See Figure 2. Insert a 0.040-in. hex key through the hole in the top of the air cap (4). 2. See Figures 5 and 6. Fit the hex key in the set screw (5) on the end of the nozzle/needle assembly (See Figure 2, (9)). 3. Rotate the set screw until the needle eases into position in the nozzle. A straight dispense stream will result.
	Guns with adjustable air caps only: Needle not fully retracting	When the needle will not fully retract, the adjustment on the air cap is off. Readjust the air cap. See Figure 2. To readjust the air cap, 1. Loosen the locking nut (3). 2. Adjust the loading screw (1) counterclockwise about $^1/_4$ of a turn. 3. Retighten the locking nut. The air cap must be adjusted so that it is at least $^3/_4$ turn from being completely bottomed.

7. Repair

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

WARNING: Remove all hydraulic and pneumatic pressures before completing any repair procedures. Failure to observe this warning may result in equipment damage or serious personal injury.

Follow these procedures to disassemble the ZCN gun properly prior to seal replacement or use of components from the seal kit:

Removing the Gun from the Manifold

Follow these procedures to remove the ZCN gun from its manifold:

1. Relieve system hydraulic and pneumatic pressure as follows:

   a. Shut off air pressure to the diaphragm circulation pump. Make sure that the air pressure at the pump is zero, and that all liquid circulation has stopped. Refer to the pump manual for further information.

   b. Manually trigger the gun to relieve all liquid pressure.

   c. Reduce the manifold air actuation pressure to zero.

2. See Figure 2. Using a $^{5}/_{32}$-in. hex key, remove the two socket head cap screws (11) that retain the gun to the manifold.

   NOTE: Place a rag under the gun when removing it from the manifold. Residual black primer may drip from the gun and manifold.

Removing the Gun from the Manifold *(contd)*

3. Remove the gun from the manifold. You may need to pry the gun from the manifold if black primer has cured and is holding the gun in position. To free the gun from the manifold:

CAUTION: Do not use a screwdriver or pry the gun along the seal mating surface. Damage to the gun could result.

   a. Use a razor blade to cut into the black primer that bonds the gun to the manifold.

   b. Cut along the sides and corners of the manifold/gun bond until the gun is free.

4. Remove the two O-rings (7) from the mating surface of the gun.

5. Wipe any residual black primer from the mating surface of the manifold. This will aid in reinstallation and keep black primer from the air side of the gun.

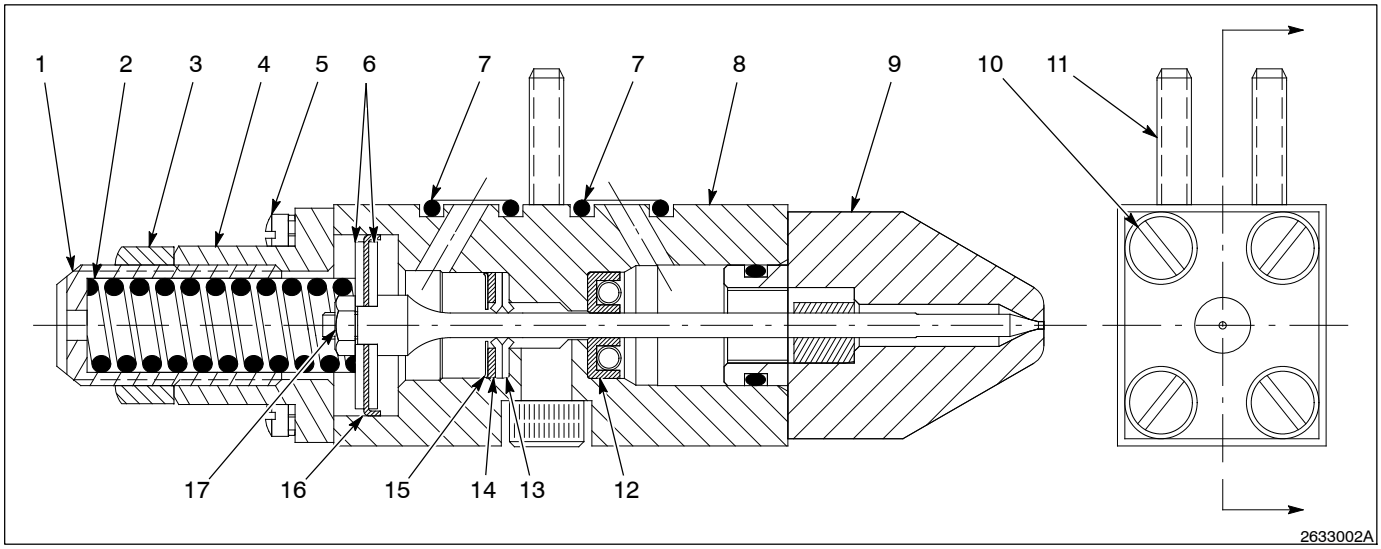

Fig. 2 ZCN Dispensing Gun, Cutaway View (Standard Gun)

1. Loading screw
2. Compression spring
3. Locking nut
4. Air cap
5. Fillister screw
6. Piston washer
7. O-ring
8. Gun body
9. Nozzle/needle assembly
10. Fillister screw
11. Socket screw
12. Spring seal
13. Formed hat seal
14. Seal support disc
15. Retaining ring
16. Piston seal washer
17. Needle nut

Disassembling the Gun

Perform the following procedures in an environment that will allow you to preserve the cleanliness of gun components and keep the components organized.

WARNING: Make sure that there is adequate ventilation in the work area. There will be residual black primer in the gun. Failure to observe this warning could result in personal injury.

Removing the Air Cap

1. See Figure 2. Using a slotted screwdriver, remove the two fillister head screws (5) with attached washers from the air cap end of the gun. Remove the screws by alternately turning each a few turns.
2. Remove the air cap assembly (1, 3, 4) from the gun body (8).
3. Remove the compression spring (2).

Disassembling the Liquid Side of the Gun

1. See Figure 2. Loosen and remove the four 8-32 fillister head screws (10) that retain the nozzle/needle assembly (9) to the gun body (8).

CAUTION: The needle will remain in the gun body as the nozzle is removed. Take care not to bend the nozzle when you remove it. You could damage the needle.

2. Remove the nozzle from the gun body:
   a. Grasp the nozzle firmly and twist it with respect to the gun body.
   b. Simultaneously pull on the nozzle in order to start its removal.
   c. Use a thin, flat tip screwdriver to move the nozzle out of the gun body.
   d. Once the nozzle starts to come out of the body, continue to pull and twist until the nozzle is removed.

Disassembling the Liquid Side of the Gun (contd.)

3. Push the needle from the tapered (pointed) end of the nozzle so that the piston portion protrudes from the gun body. Pull the needle from the gun body and set it aside for additional rework.

4. If there is still primer left in its liquid state in the gun body, use a clean shop rag to wipe the components clean of residual material.

Disassembling the Air Side of the Gun

1. See Figure 2. Remove the retaining ring (15) from the air side of the gun body (8) using the retaining ring removal tool. Discard the retaining ring.

2. Remove the seal support disc (14) from the air side of the gun body. Remove the two preformed hat seals (13) from the air side of the module. Discard the seal support disk and the preformed hat seals.

CAUTION: Take care not to damage the walls of the liquid cavity as they are an O-ring seal surface. Damage to the walls of the liquid cavity can result in damage to the gun or its components or alterations in material application.

CAUTION: Residual black primer should not be scraped in its dry, cured state. Such scraping could result in damage to the surfaces of module components. Soaking in lacquer thinner is required to soften cured black primer. MEK will not soften cured black primer.

WARNING: Soaking parts in lacquer thinner should be done in a well-ventilated area. Failure to observe this warning could result in personal injury.

3. Use a plastic scraper or solder aid to remove residual, cured, black primer from the liquid side of the gun.

4. Use the removal tool to remove the spring seal (12) from the liquid side of the module.

Disassembling the Needle

See Figure 2. If the needle and nozzle are to be reused, perform the following steps:

1. Disassemble the needle assembly:

   a. Place the open end of a $^{5}/_{32}$-in. combination wrench across the flats on the needle.

   b. Place the box portion of a $^{3}/_{16}$-in. wrench on the needle nut (17) that retains the piston washers (6) to the needle.

   c. See Figures 5 and 6. Use the wrenches to free the $^{3}/_{16}$-in. nut from the set screw (5).

2. Remove the set screw and place it aside.

3. Remove the washers and seal from the end of the needle.

Cleaning the Gun Before Reassembly

If the gun body is to be reused, you must clean all residual primer from the gun body. Clear primer is easily cleaned with lacquer thinner. Black primer can also be loosened with lacquer thinner; however, you will need to scrape the gun with a plastic instrument in order to sufficiently remove enough material to reuse the parts.

NOTE: If your gun has a coating of black primer, soak the gun body in lacquer thinner for at least 48 hours prior to scraping of residual black primer.

Assembling the Gun

Before reassembling the gun, be sure to visually inspect all parts of the gun for scratches and other damage. Replace all damaged components. Always replace O-rings and other seals.

Follow these procedures to reassemble your ZCN gun. Assemble the gun in a clean, well-lit work area. Make sure it is free of dirt, debris, and extraneous parts.

Assembling the Needle

1. See Figure 2. Build the nozzle/needle assembly (9) as follows, using parts from the seal kit and the appropriate nozzle/needle kit:

   a. See Figures 5 and 6. Apply a light coating of thread sealant to the threads of the set screw (5).

   b. See Figure 2. Install a piston washer (6) against the shoulder of the needle.

   c. Install the piston seal washer (16) on top of the installed washer.

   d. Install a second piston seal washer on top of the seal.

      NOTE: Make sure that the washers and seal are centered and are in complete contact before performing the following step.

   e. Install the needle nut (17) on the set screw. Torque the nut to 1 N•m (9 in.-lb) using an adjustable torque screwdriver and a $^{3}/_{16}$-in. 6-point hex socket. Hold the needle using a $^{5}/_{32}$-in. wrench.

   f. See Figure 7. Apply the piston insertion tool (3) to the piston seal washer. This will ensure that the seal properly conforms to the edges of the piston seal washer and to the cylinder in the air side of the module.

2. Place the needle aside for future installation.

Assembling the Liquid Side of the Gun

See Figure 3. Install the spring seal (7) into the liquid side of the gun body, as follows:

1. Make sure that the spring (open) side of the seal faces out of the module. See Figure 3 for installation orientation.

2. Use light finger pressure to guide the seal into the small bore on the liquid side of the module body.

3. Seat the spring seal using the base tool (8). Place the gun body (6) and base tool down on a smooth, clean, flat surface in the orientation shown in Figure 3.

   NOTE: Always install the module assembly tool so that the small end contacts components in the module body. Do not install the tool large-end first.

4. Push on the gun body to seat the spring seal.

NOTE: Installation is complete when the seal can no longer be pushed further into the module, and the top edge of the seal is located below the chamfer in the module body. There will be a noticeable drop, approximately 0.32 cm. ($^1/_8$-in.), as the seal seats in position.

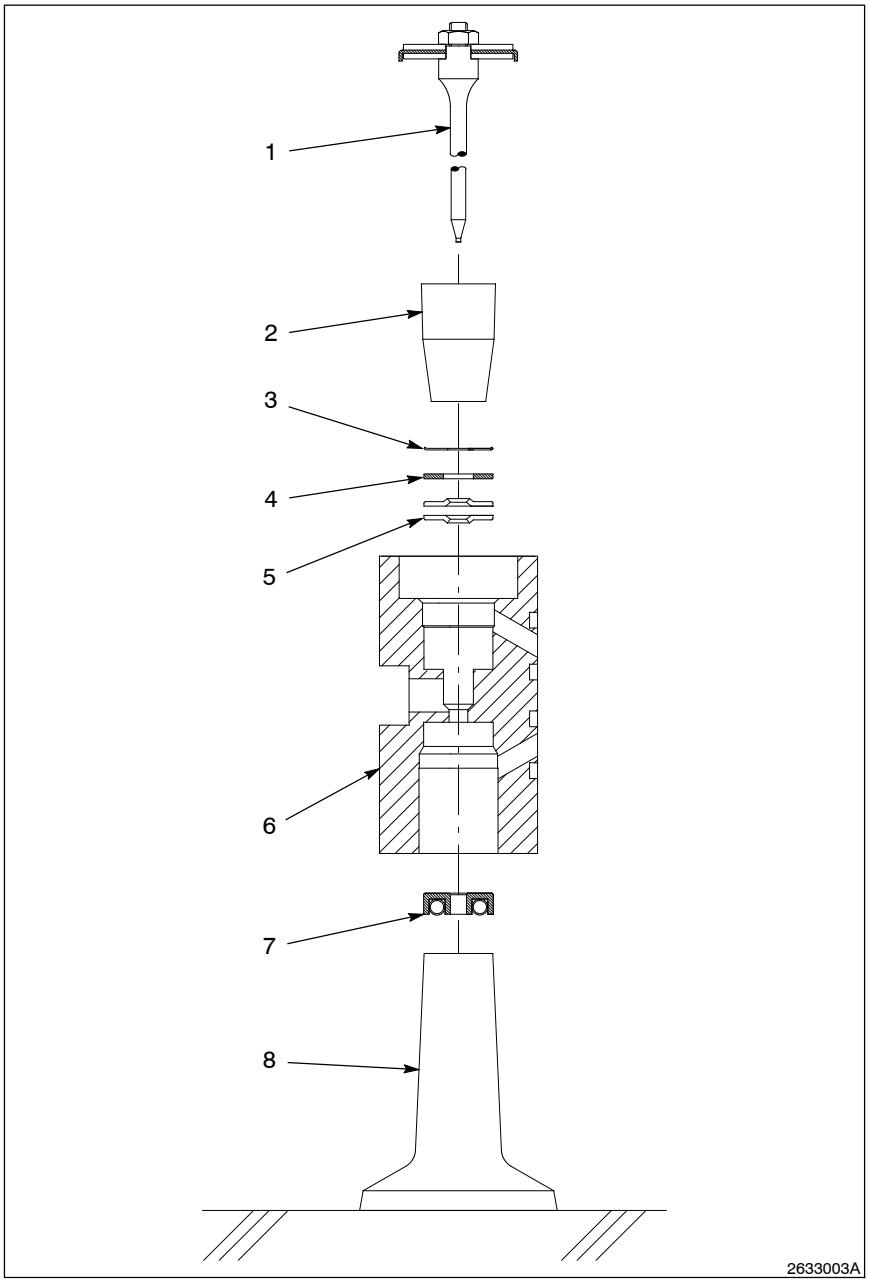

Fig. 3 Assembling the ZCN Dispensing Gun

1. Needle assembly
2. Module assembly tool
3. Retaining ring
4. Seal support disk
5. Preformed hat seal
6. Gun body
7. Spring seal
8. Base tool

Assembling the Air Side of the Gun

See Figure 3. Follow these procedures to assemble the air side of the ZCN dispensing gun:

1. Assemble the preformed hat seals (5) in the air side of the gun module as follows:

   a. Place two preformed hat seals into the matching stepped bore on the air side of the module. Orient the preformed seals as shown in Figure 3. Place a seal support disc (4) (flat washer) on top of the hat seals.

   b. Place the module on a flat surface, liquid side down with the base tool (8) installed in the liquid side of the module. See Figure 3 for proper tool orientation.

   c. Insert the module assembly tool (2) onto the seal support disc oriented as shown. Use a flat piece of metal or the side of an adjustable wrench to push on the tool and aid in seating the hat seals.

2. Remove the module assembly tool and install the push-on retaining ring (3) on top of the seal support disc. Use the module assembly tool (2) to push the retaining ring into position. Visually check to ensure the retaining ring is seated on the support disc.

3. Insert the needle assembly (1) into the gun:

   a. Push the assembled needle through the hat seals. Install it just far enough (about $^1/_8$-in.) to stabilize it in the seals.

   b. See Figure 2. Slip the module assembly tool onto the needle. Push the needle with centered module tool until the tool is trapped between the retaining ring and the piston washer (6).

   c. Ensure the module with inserted needle is still on the base tool so that the needle resides in the center of the tool.

   d. Put the base on a smooth, flat surface and push on the needle with attached piston washer. Push down until the clearance between the bottom piston washer and module is 0.33 cm (0.130 in.). This is where the retaining ring, seal support disc, and hat seals are seated.

   e. Remove the assembled module from the base. Pull the needle back out of the module and remove and stow the module assembly tool.

4. Install the piston into the air side of the gun module as follows:

   a. See Figure 7. Install the piston insertion tool (3) onto the piston seal (See Figure 3, (16)) so that the lip on the tool faces the cylinder in the module body.

   b. Push the needle, piston, and insertion tool up against the air cylinder side of the module. Note that the lip on the tool will engage the walls of the cylinder and guide the piston seal washer (16) into the cylinder without kinking.

   c. Push the piston and seal completely into the air cylinder.

   d. Remove the piston insertion tool.

CAUTION: Needles and nozzles are supplied in matched sets. Do not mix needles and nozzles of different sets. Leakage or poor stream targeting will result.

5. See Figures 5 and 6. Install the nozzle as follows:

   a. Apply a light coating of Petrolatum to the O-rings (4 and 6) on the nozzle assembly.

   b. Ensure that the compression ring (1) is in place and that the needle guide (3) is properly installed.

      NOTE: When installed correctly, the needle guide should appear as a flat triangular piece within the bore of the nozzle. If the guide is installed backwards, there will appear to be a circular recess in the center of the needle guide.

   c. If you have improperly installed the needle guide, remove the compression ring and needle guide. Turn the needle guide around so that the end of the guide with the small feet goes into the nozzle bore first, and then reinstall the guide and a new compression ring.

      NOTE: You must replace the compression ring if you remove it. Refer to the *Standard Nozzle Assembly Kits* or the *Flow Through Felt Nozzle Assembly Kit* parts lists for part information.

   d. Slip the needle into the nozzle and needle guide. Push the nozzle into the small bore on the liquid side of the module body. Push the nozzle on until the back of the nozzle seats on the face of the module body.

   e. See Figure 2. Coat the threads of each fillister head screw (10) with PTFE paste.

Assembling the Air Side of the Gun (contd.)

f. Insert a fillister head screw into each of the four holes in the nozzle. Use a flat-bladed screwdriver to snug each screw to finger tight. Use the torque screwdriver and $^1/_4$-in. screwdriver socket to torque each screw to 1.8 N•m (16 in.-lb).

NOTE: It may be necessary to mount the module body in a vice to apply sufficient torque as required for the fillister head screws which retain the nozzle.

Installing the Air Cap

See Figure 2. Follow these procedures to install the air cap (4) on the ZCN dispensing gun:

1. Install the compression spring (2) into the air cap.

NOTE: There are adjustable and fixed air caps. Contact your Nordson Corporation representative if you need further information on the different air caps.

2. Coat two fillister screws (5) with PTFE paste.

3. Hold the air cap and spring on the installed piston. Insert the two coated screws. Use a flat-bladed screwdriver to tighten the screws finger tight. Use the adjustable torque screwdriver and $^1/_4$-in. square drive screwdriver socket to torque the screws to 1.4 N•m (12.5 in.-lb).

Mounting the Gun on the Manifold

Follow these procedures to mount the gun on the manifold of the applicator tool:

NOTE: Make sure that the O-ring grooves are free of radial scratches. Scratches cause leaks and must be polished out to ensure a leak-free seal.

1. See Figure 2. Insert two new O-rings (7) in the grooves on the outside, mating surface of the module body.

2. Apply PTFE paste to the two socket head cap screws (11) used to retain the module to the manifold mounted on the applicator tool.

3. Position the gun body (8) on the manifold.

4. Install the cap screws and tighten finger tight. Use a $^5/_{32}$-in. hex key to tighten the screws hand tight.

Restore the system to operation in accordance with the applicator system manual.

8. Parts

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use this five-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Using the Illustrated Parts List

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

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

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

Item	Part	Description	Quantity	Note
—	000 000	Assembly	1	
1	000 000	• Subassembly	2	A
2	000 000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

ZCN Guns with Fixed End Caps

See Figure 4.

Item	Part	Part	Description	Quantity	Note
—	228 570	—	Module, black primer, H200, 0.032-in., ZCN		A
—	—	228 571	Module, clear primer, H200, 0.020-in., ZCN		B
2	987 022	987 022	• Spring, comp, 1.146 x 0.360 OD x 0.065	1	
4	238 276	—	• Air cap, fixed, black	1	
4	—	238 277	• Air cap, fixed, clear	1	
5	981 758	981 758	• Screw, fillister, 6-32 x 0.625, bl	2	
6	272 293	272 293	• Washer, piston	2	
7	940 116	940 116	• O-ring, EPR, 0.313 x 0.438 x 0.063	2	
8	276 113	276 113	• Body, module	1	
9	- - - - - -	- - - - - -	• Nozzle needle assembly, ZCN	1	C
10	981 073	981 073	• Screw, fillister, 8-32 x 0.375, steel, zinc	4	
11	981 129	981 129	• Screw, socket, 10-32 x 1.000, zinc	2	
12	117 544	117 544	• Seal, spring, $^{1}/_{8}$ x $^{7}/_{16}$ x $^{3}/_{32}$, PTFE	1	
13	750 553	750 553	• Seal, hat, formed	2	
14	983 012	983 012	• Disc, seal support	1	
15	986 502	986 502	• Retaining ring, internal, 43, push on	1	
16	272 294	272 294	• Washer, seal, piston	1	
17	274 822	274 822	• Nut, zero cavity needle	1	
NS	900 303	900 303	• Lubricant, silicone	AR	
NS	900 236	900 236	• Sealant, paste, PTFE	AR	

NOTE A: Order this gun for dispensing black primer.

B: Order this gun for dispensing clear primer.

C: You will receive the appropriate size nozzle and needle assembly (0.020-in. or 0.032-in.) depending upon which gun you order. Refer to the Standard Nozzle Assembly Kits parts list, in this section.

AR: As Required

NS: Not Shown

ZCN Guns with Adjustable Caps

See Figure 4.

Item	Part	Part	Description	Quantity	Note
—	238 278	—	Module, black primer, H200, 0.032-in. dia	1	A
—	—	238 279	Module, clear primer, H200, 0.020-in. dia	1	B
1	272 288	272 288	• Screw, loading	1	
2	987 022	987 022	• Spring, comp, 1.146 x 0.360 OD x 0.065	1	
3	272 289	272 289	• Nut, locking, $^1/_2$-28	1	
4	276 112	276 112	• Air cap, adjuster	1	
5	981 758	981 758	• Screw, fillister, 6-32 x 0.625, bl	2	
6	272 293	272 293	• Washer, piston	2	
7	940 116	940 116	• O-ring, EPR, 0.313 x 0.438 x 0.063	2	
8	276 113	276 113	• Body, module	1	
9	- - - - - -	- - - - - -	• Nozzle, assembly, ZCN	1	C
10	981 073	981 073	• Screw, fillister, 8-32 x 0.375, sl, zinc	4	
11	981 129	981 129	• Screw, socket, 10-32 x 1.000, zinc	2	
12	117 544	117 544	• Seal, spring, $^1/_8$ x $^7/_{16}$ x $^3/_{32}$, PTFE	1	
13	750 553	750 553	• Seal, hat, formed	2	
14	983 012	983 012	• Disc, seal support	1	
15	986 502	986 502	• Retaining ring, internal, 43, push-on	1	
16	272 294	272 294	• Washer, seal, piston	1	
17	274 822	274 822	• Nut, zero cavity needle	1	
NS	900 236	900 236	• Sealant, paste, PTFE	AR	
NS	900 303	900 303	• Lubricant, silicone	AR	

NOTE A: Order this gun for dispensing black primer.

B: Order this gun for dispensing clear primer.

C: You will receive the appropriate size nozzle and needle assembly (0.020-in. or 0.032-in.) depending upon which gun you order. Refer to the *Standard Nozzle Assembly Kits* parts list, in this section.

AR: As Required

NS: Not Shown

ZCN Gun with Flow Through Felt Nozzle

See Figure 4.

Item	Part	Description	Quantity	Note
—	325 120	Module, clear and black, ZCN, flow through felt, 0.032-in. dia		A
2	987 022	• Spring, comp, 1.146 x 0.360 OD x 0.065	1	
4	238 276	• Air cap, fixed, black	1	
5	981 758	• Screw, fillister, 6-32 x 0.625, bl	2	
6	272 293	• Washer, piston	2	
7	940 116	• O-ring, EPR, 0.313 x 0.438 x 0.063	2	
8	276 113	• Body, module	1	
10	981 073	• Screw, fillister, 8-32 x 0.375, steel, zinc	4	
11	981 129	• Screw, socket, 10-32 x 1.000, zinc	2	
12	117 544	• Seal, spring, $^{1}/_{8}$ x $^{7}/_{16}$ x $^{3}/_{32}$, PTFE	1	
13	750 553	• Seal, hat, formed	2	
14	983 012	• Disc, seal support	1	
15	986 502	• Retaining ring, internal, 43, push on	1	
16	272 294	• Washer, seal, piston	1	
17	274 822	• Nut, zero cavity needle	1	
18	325 122	• Nozzle assembly with needle, ZCN, flow through felt, 0.032-in. dia	1	B
NS	900 303	• Lubricant, silicone	AR	
NS	900 236	• Sealant, paste, PTFE	AR	

NOTE A: Order this gun for dispensing black primer with a flow through felt nozzle.

B: Refer to the *Flow Through Felt Nozzle Assembly Kits* parts list, in this section, for a breakdown of parts information for this nozzle.

AR: As Required

NS: Not Shown

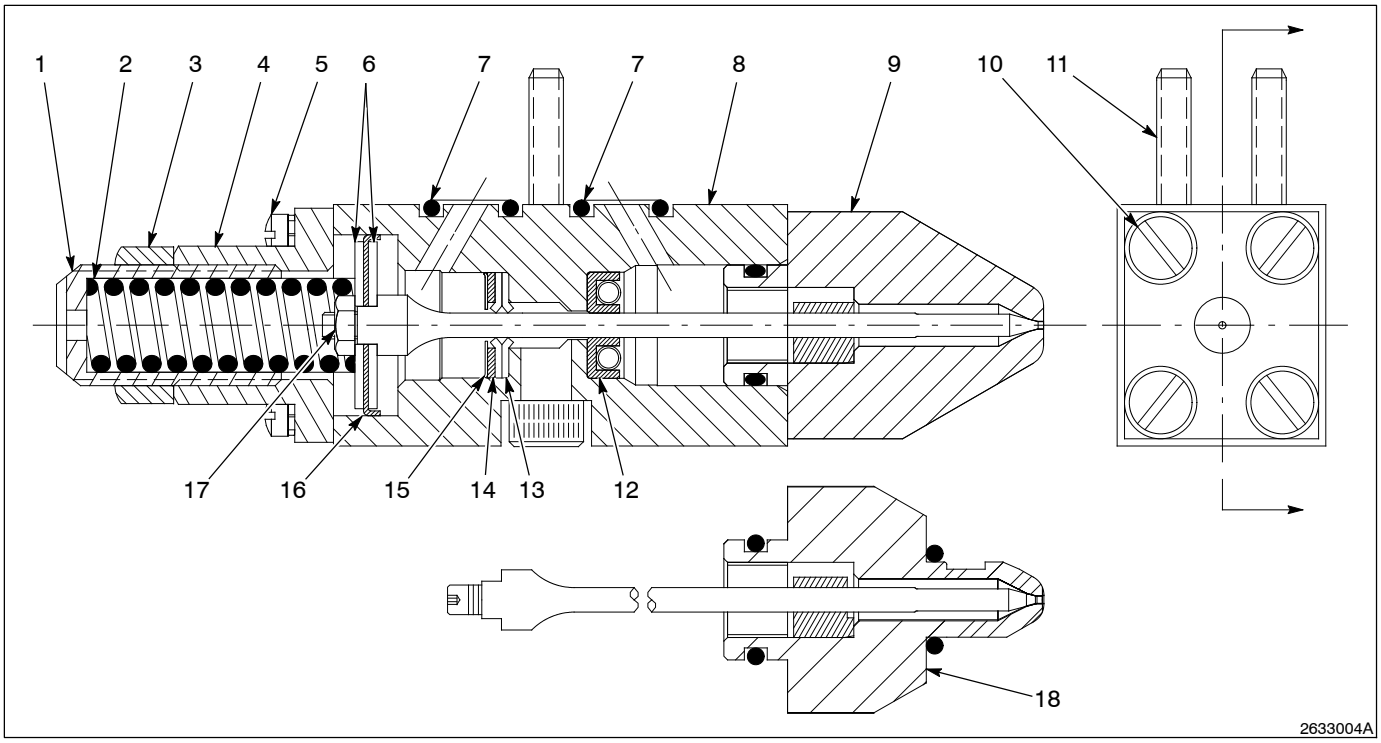

Fig. 4 ZCN Dispensing Gun Parts

Parts List: ZCN Guns with Fixed End Caps

Parts List: ZCN Guns with Adjustable Caps

Parts List: ZCN Guns with Flow-Through Felt Nozzles

Standard Nozzle Assembly Kits

See Figure 5 except where noted.

Item	Part	Part	Description	Quantity	Note
—	228 549	—	Kit, nozzle assembly, 0.032-in. dia, ZCN	1	A
—	—	228 548	Kit, nozzle assembly, 0.020-in. dia, ZCN	1	B
1	131 815	131 815	• Ring, compression	1	
2	- - - - - -	- - - - - -	• Nozzle/needle set, ZCN	1	C
3	- - - - - -	- - - - - -	• Needle, guide, H200 RC/ZC	1	
4	945 067	945 067	• O-ring, EPR, 0.375 x 0.500 x 0.063	1	
5	981 750	981 750	• Screw, socket set, 4-40 x 0.375, cup, bl	1	
NS	900 419	900 419	• Adhesive, retaining cylindrical	AR	
10	981 073	981 073	• Screw, fillister, 8-32 x 0.375, steel, zinc	4	D

NOTE A: Order this kit if you have a ZCN gun with a 0.032-in. needle orifice, parts 228 570 and 238 278.
B: Order this kit if you have a ZCN gun with a 0.020-in. needle orifice, parts 228 571 and 238 279.
C: Depending upon which nozzle assembly kit you order, you will receive the appropriate-sized orifice.
D: See Figure 4 to locate and identify this part.
AR: As Required
NS: Not Shown

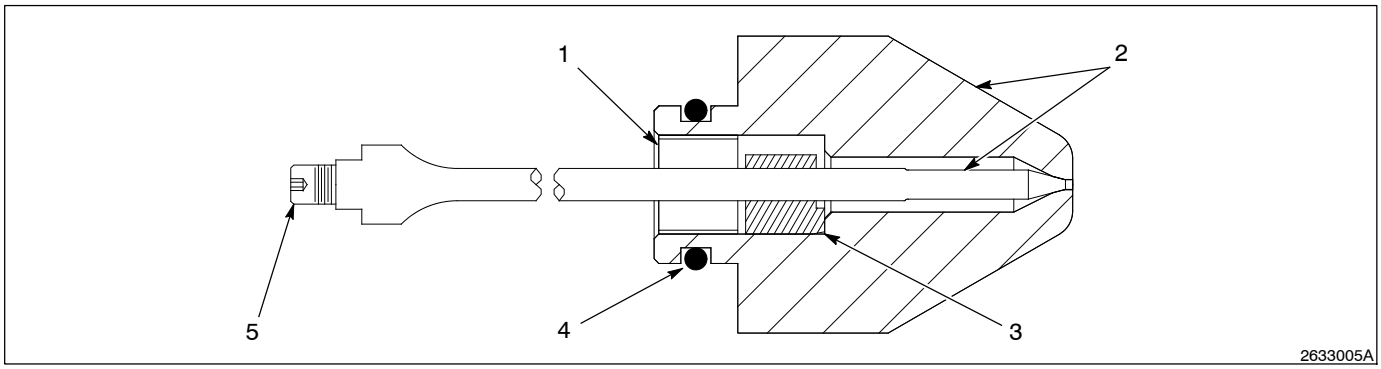

Fig. 5 Standard ZCN Nozzle Parts

Flow Through Felt Nozzle Assembly Kit

See Figure 6.

Item	Part	Description	Quantity	Note
—	325 122	Nozzle assembly, with needle, ZCN, flow through felt, 0.032 dia.	1	A
1	131 815	• Ring, compression	1	
2	- - - - - -	• Nozzle/needle set, ZCN	1	
3	- - - - - -	• Needle, guide, H200 RC/ZC	1	
4	945 067	• O-ring, EPR, 0.375 x 0.500 x 0.063	1	
5	981 750	• Screw, socket set, 4-40 x 0.375, cup, bl	1	
6	940 116	• O-ring, EPR, 0.313 x 0.438 x 0.063	1	
NS	900 419	• Adhesive, retaining cylindrical	AR	

NOTE A: Order this kit for the ZCN dispensing gun with flow through felt nozzle, part 325 120.
AR: As Required
NS: Not Shown

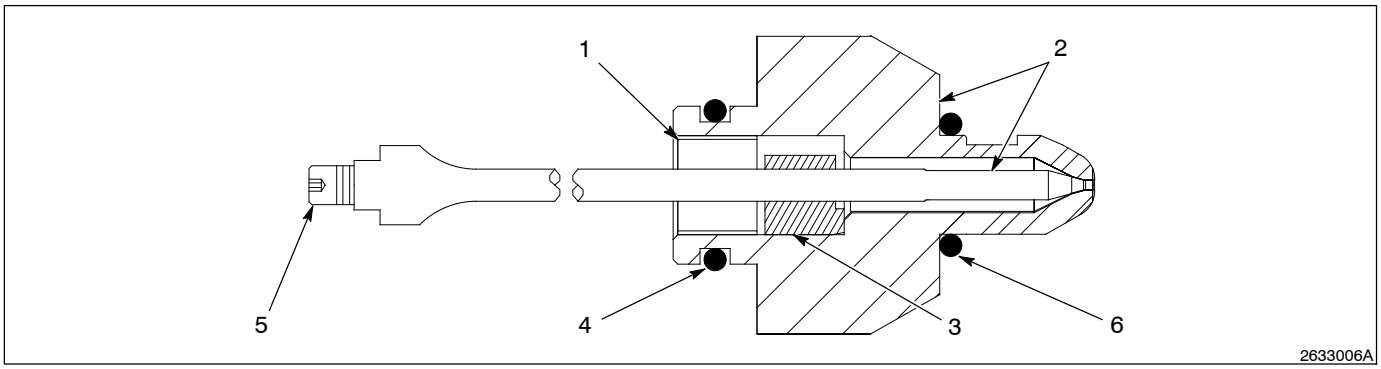

Fig. 6 Flow Through Felt ZCN Nozzle Parts

ZCN Gun Seal Kit

See Figure 4 except where otherwise noted.

Item	Part	Description	Quantity	Note
—	155 106	Service kit, seal, clear and black, H200 gun	1	
1	272 823	• Tool, module assembly	1	A
2	272 824	• Tool, base	1	A
3	274 973	• Tool, piston insertion	1	A
4	945 067	• O-ring, EPR, 0.375 x 0.500 x 0.063	1	B
6	272 293	• Washer, piston	2	
7	940 116	• O-ring, EPR, 0.313 x 0.438 x 0.063	2	
12	117 544	• Seal, spring, $^{1}/_{8}$ x $^{7}/_{16}$ x $^{3}/_{32}$, PTFE	1	
13	750 553	• Seal, hat, formed	2	
14	983 012	• Disc, seal support	2	
15	986 502	• Retaining ring, internal, 43, push-on	1	
16	272 294	• Washer, seal, piston	1	
NS	272 821	• Tool, retaining ring removal	1	
NS	940 153	• O-ring, Thiokol, 0.563 x 0.688 x 0.06	1	C

NOTE A: See Figure 7 to locate and identify this part.

B: See Figures 5 and 6 to locate and identify this part.

C: This O-ring, part 940 153, is not used for the ZCN dispensing gun. Discard this O-ring when you receive your kit.

NS: Not Shown

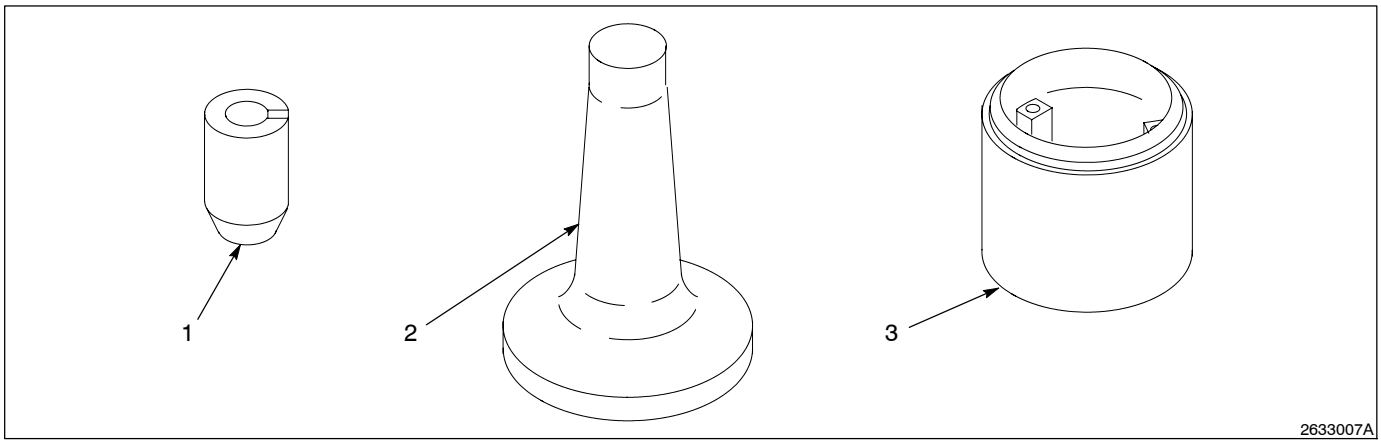

Fig. 7 ZCN Dispensing Gun Repair Accessories