

A7A Quattro Modular Automatic Spray Gun

Customer Product Manual

Document Number 1602111-06

– English –

Issued 02/25

**For parts and technical support, call the Industrial Coating
Solutions Customer Support Center at (800) 433-9319 or
contact your local Nordson representative.**

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Contact Us

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

<http://www.nordson.com>.

<http://www.nordson.com/en/global-director>

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– Original document –

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Change Record

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Safety

Introduction

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

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

Qualified Personnel

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

Intended Use

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

Some examples of unintended use of equipment include:

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

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

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:

<u>Element</u>	<u>Symbol</u>	<u>Prefix</u>
Fluorine	F	"Fluoro-"
Chlorine	Cl	"Chloro-"
Bromine	Br	"Bromo-"
Iodine	I	"Iodo-"

Check your material SDS 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.

Description

The Quattro A7A automatic spray gun is a high-cycle, air-operated, modular airless spray gun with four gun modules supplying one manifold and nozzle. It can be used for general finishing as well as ultra-high speed applications using solventborne or waterborne coatings where quick color changes are required.

Nozzles

Nozzles are not included with the spray gun. For information on Nordson airless nozzles and help in choosing the correct nozzle for your application, contact your Nordson representative.

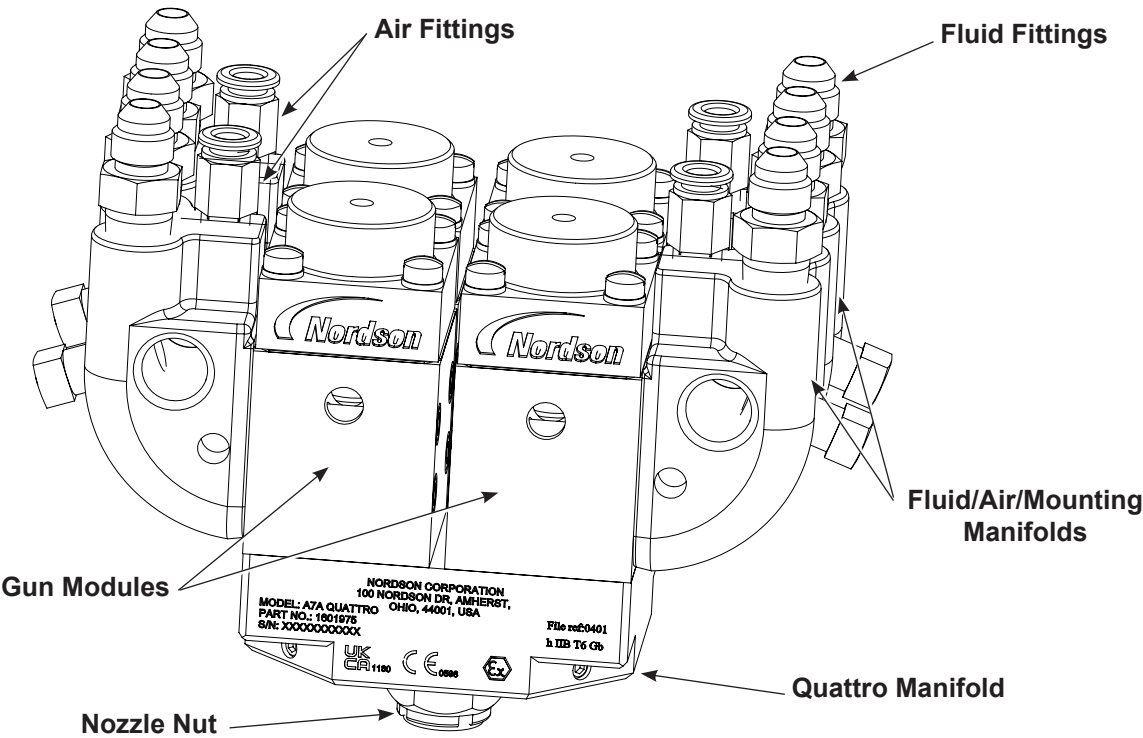


Figure 1 A7A Quattro Spray Gun

Specifications

Properties	Specification
Maximum fluid pressure	103 bar (1500 psi)
Air trigger requirements	2.75-8.27 bar (40-120 psi)
Fittings	
Fluid air supply and return	1/2-20 JIC x 1/4-in. NPT
Trigger air	1/4-in. tubing x 1/8-in. NPT
Dimensions	See Figure 2
Weight	5.21 kg (11.5 lbs)
Mounting	13-mm (1/2-in.) round bar

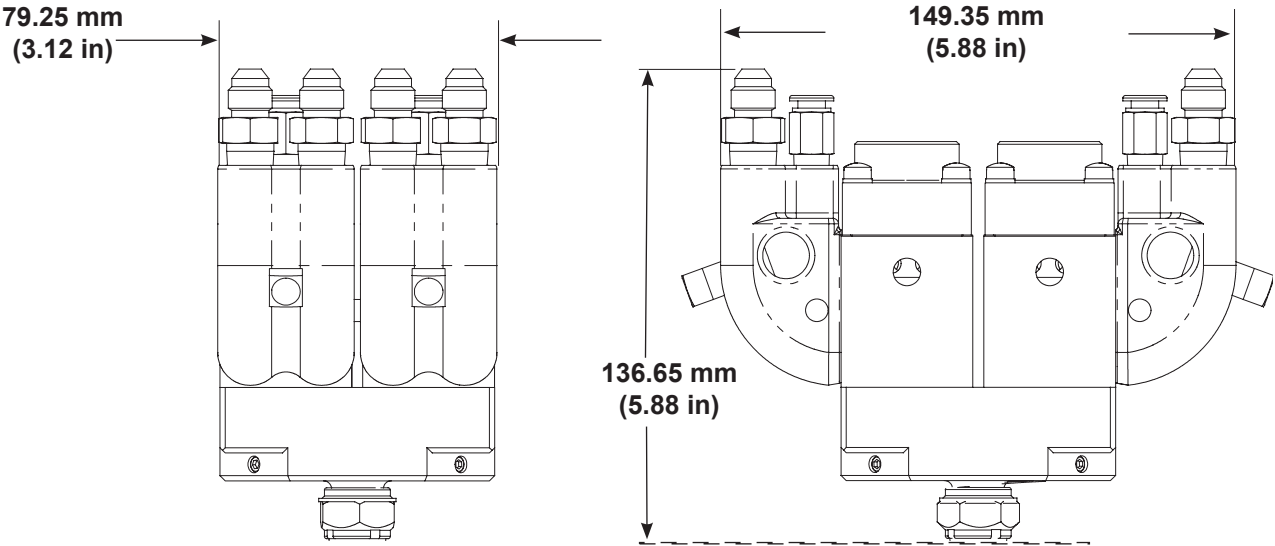


Figure 2 A7A Quattro Spray Gun Dimensions

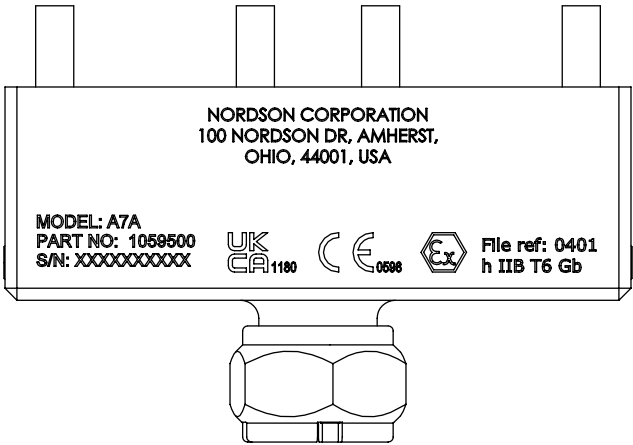


Figure 3 A7A Quattro Spray Gun EX Markings

Gun Module Components and Operation

The spray gun consists of a Quattro manifold and four gun modules, each with a fluid/air/ mounting manifold. This sectional view shows the main components of the gun modules.

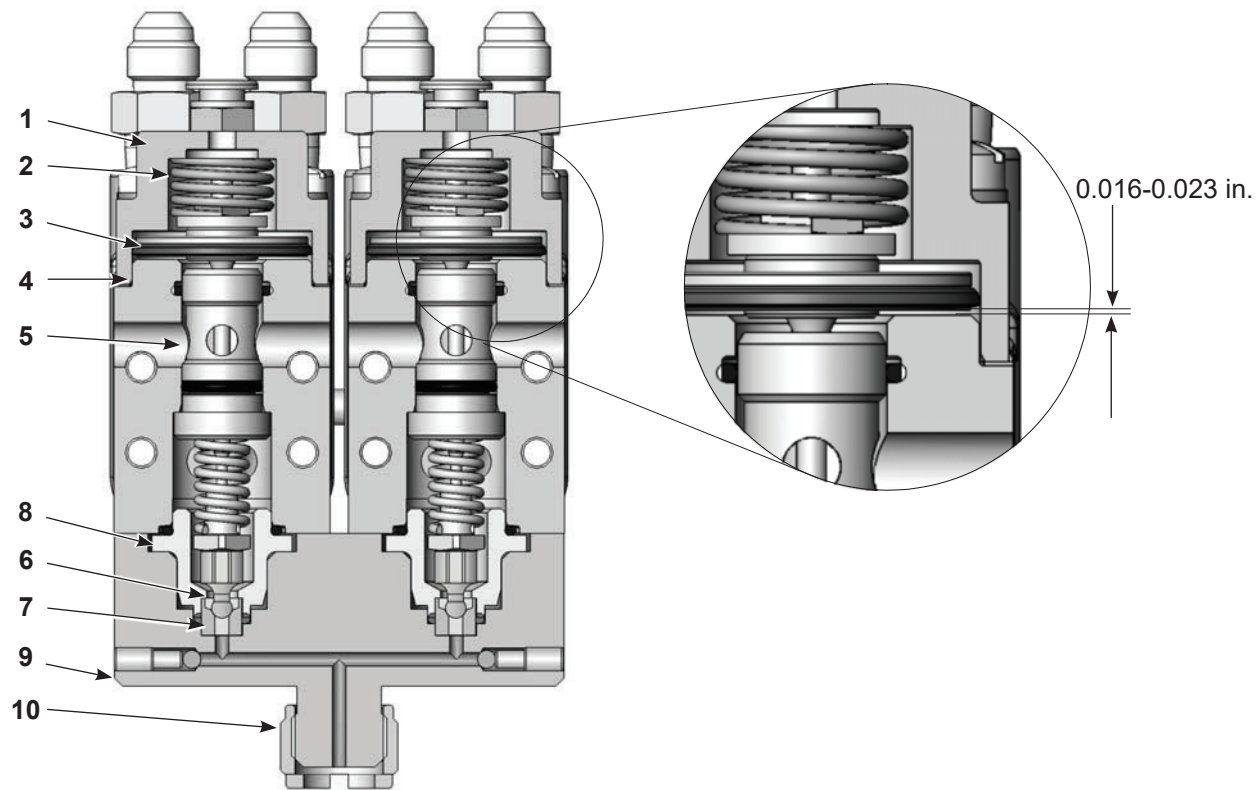


Figure 4 A7A Quattro Modular Spray Guns

- | | | |
|-----------------------|----------------------|------------------|
| 1. Air cylinder | 5. Packing cartridge | 8. Seat retainer |
| 2. Compression spring | 6. Ball tip | 9. Manifold |
| 3. Piston assembly | 7. Seat | 10. Nozzle nut |
| 4. Gun body | | |

The packing cartridge (5) stem connects the piston (3) to the ball tip (6). When the gun is triggered on, air pressure pushes against the bottom of the piston, lifting the ball tip away from the seat (7) and allowing coating material to flow through the seat and nozzle.

When the gun is triggered off, the air pressure forcing the piston up is released. The compression spring (2) and packing cartridge spring force the ball tip against the seat, stopping the flow of coating material out of the nozzle.

The packing cartridge seals prevent coating material from entering the air cylinder. If the packing cartridge seals start to leak, coating material will flow out the weep holes in the gun body.

Installation



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

Figure 5 shows the fluid and air system for one color of coating material in a typical installation.



WARNING: Ground all electrically conductive equipment in the system. Use only grounded fluid and air hoses.

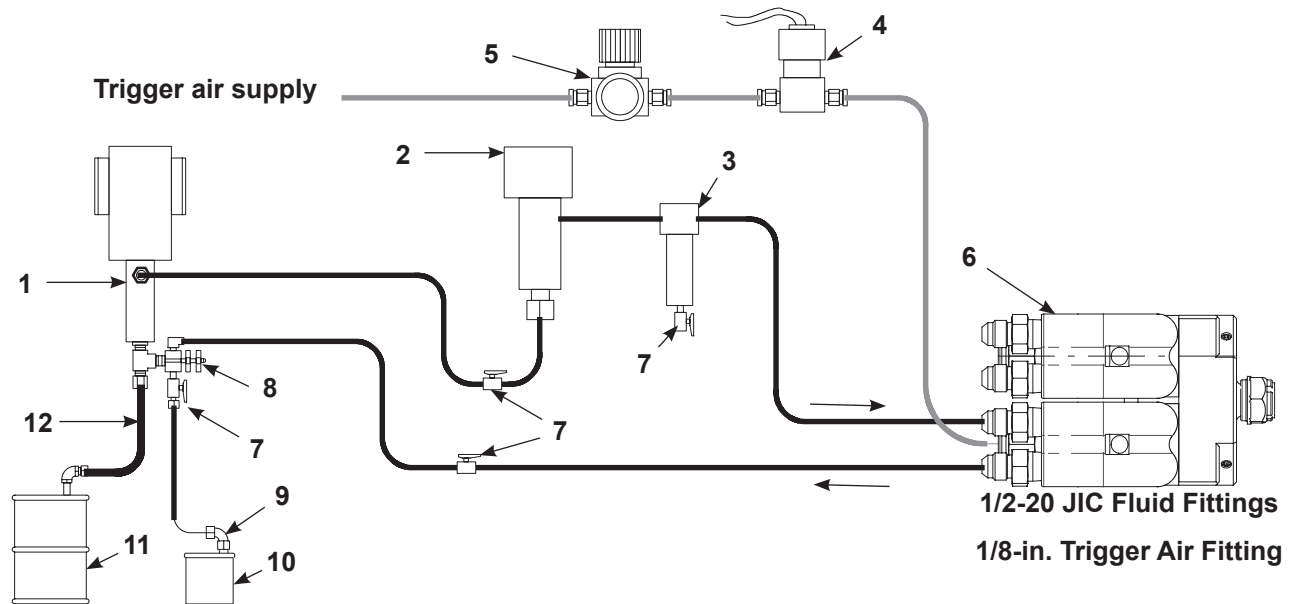


Figure 5 Typical Circulating System

- | | | |
|-------------------|----------------------|-------------------------|
| 1. Pump | 5. Air regulator | 9. Drain off rod |
| 2. Heater | 6. Spray gun | 10. Waste container |
| 3. Filter | 7. Ball valves | 11. Coating supply |
| 4. Solenoid valve | 8. Circulation valve | 12. Siphon hose and rod |

Mounting

Slide a 13-mm (1/2-in.) round mounting bar through the holes in the gun module manifolds, orient the gun as desired, and tighten the square head screws.

Fluid Connections



WARNING: In the fluid supply line, install an approved pressure relief device set to the lowest maximum working pressure of all system components. The fluid hoses must have a minimum burst pressure greater than the pressure relief device setting.

The spray gun fluid fittings have 1/2- 20 JIC threads. Connect the fluid supply and return hoses to the fittings. Either fitting can be used for supply or return.

Trigger Air Connection

Connect 1/8-inch tubing from a solenoid valve to the trigger air fitting on the manifold.

For applications faster than 600 cycles per minute, install the optional quick-exhaust valve at the air inlet. To do this, remove the air fitting and install a 1/4-in. NPT nipple in the manifold, then install the quick-exhaust valve on the nipple, and the air fitting in the quick-exhaust valve.

Nozzle Installation

Remove the nozzle nut from the end of the gun. Install your nozzle in the nozzle nut, then screw the nut onto the gun. Tighten the nozzle nut securely.

Maintenance

Flush the gun periodically to keep it clean and free of contaminants. As required, disassemble and clean the gun modules and replace any worn parts.

NOTE: Make sure the nozzle and seat sealing surfaces are clean before installing the nozzle.

Make sure the trigger air is clean and dry. If you are operating the gun at high cycle rates for long periods of time, install an air lubricator in the air supply line. This will extend the life of the air piston seal.

Troubleshooting



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

These procedures cover only the most common problems. If you cannot solve the problem with the information given here, contact the Nordson Industrial Coating Systems Customer Support Center at (800) 433- 9319 or your local Nordson representative for help.

Problem	Possible Cause	Corrective Action
1. Leaking around nozzle or nozzle retaining nut	Dirty or damaged nozzle or seat sealing surfaces	Tighten the nozzle nut. If the leak persists, relieve system pressure. Remove the nozzle nut and clean the nozzle and seat sealing surfaces. If the leak persists, replace the nozzle or seat (the ball tip and seat are a matched set and must be replaced together).
2. Leaking from weep holes	Worn packing cartridge	Replace the packing cartridge with the appropriate kit. Refer to Parts.
3. Spitting	Dirty or worn ball and seat	Clean or replace the ball and seat.
	Actuating or trigger air lines too long	Mount the solenoid on or as close as possible to the gun.
	Air trapped in fluid system	Purge air from system by opening the drain valve until no air bubbles are seen, or spraying until spitting stops. Make sure the pump is not siphoning air into the fluid system.
4. On/Off cycle response poor or gun not opening or closing	Air piston assembly worn or out of adjustment	Adjust or replace the air piston assembly.
	Low air pressure to the solenoid valve	Increase the air pressure to between 2.7- 4.1 bar (40- 60 psi).
	Trigger air lines too long	Mount the solenoid on or as close as possible to the gun.
	Fluid pressure too high	Reduce the fluid pressure. The guns will not close if their maximum working pressure is exceeded.

Spray Gun Repair



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



WARNING: Shut off the fluid pump and relieve the system fluid pressure before disconnecting the gun module from the spray gun. High pressure fluid is dangerous and can cause injection injuries.

Disassembly

1. See Figure 6. Flush the spray gun (1) with clean solvent or cleaning solution.
2. Relieve the system fluid and air pressure.
3. Remove the nozzle nut (22) and nozzle.
4. For each gun module:
 - a. Remove the air cylinder (4), gasket (5), and compression spring (6).
 - b. Hold the packing cartridge (11) stem with a wrench and remove the lock nut (7).
 - c. Unscrew the piston assembly (8) from the stem and separate the seal nut, O-ring and piston (8A, 8B, 8C).
 - d. Remove the screws (17, 18), and the gun body (10) from the manifold (16).
 - e. Push the packing cartridge (11) out of the body.
 - f. Hold the packing cartridge stem with one wrench while unscrewing the ball tip (12A) from the stem with another wrench.
 - g. Remove the large O-ring (13), seat retainer (14), seat (12B), and small O-ring (15) from the manifold.
5. If necessary, remove the screws (19) and manifold (20) from the gun body.
6. Remove the three O-rings (15) from the body.

Cleaning and Inspection

1. Clean the wetted parts with a compatible cleaning solution.
2. The ball tips and seats are matched sets. If either are worn or damaged, replace both.
3. Inspect the piston seal (8C). If it is worn or damaged replace the piston (8).
4. Inspect all gaskets and O-rings. Replace any that are damaged, using the service kit listed in *Parts*.

Assembly

5. If coating material was leaking from the weep holes in the gun bodies, replace the packing cartridges.
1. If removed, install three O-rings (15) into the grooves in the gun body
2. Install the manifold (20) on the gun body (10) and tighten the screws (19) securely.
3. Assemble each gun module as follows:
 - a. If removed, install the O-ring (9) in the internal groove in the body (10).
 - b. Apply VC-3 thread-locking compound to the bottom threads of the packing cartridge (11) stem.
 - c. Screw the ball tip (12A) onto the packing cartridge stem and tighten securely.
 - d. Push the packing cartridge into the gun body.
 - e. Install the O-ring (15), seat (12B), and seat retainer (14) in the manifold (16).
 - f. Install the O-ring (13) on the seat retainer.
 - g. Install the body onto the manifold and tighten the screws (17, 18) securely.
 - h. Thread the piston assembly (8) onto the packing cartridge stem until it rests against the gun body.
 - i. See Figure 4. Thread the lock nut (7) part way down the stem. Turn the piston assembly counterclockwise 1/2 to 3/4 turn, until it is 0.016- 0.023 inches from the gun body. Thread the lock nut down against the piston assembly.
 - j. Apply a drop of VC-3 thread-locking compound to the lock nut threads. Hold the packing cartridge stem with a small wrench while tightening the lock nut against the piston assembly.
 - k. Install the compression spring (6) on top of the piston.
 - l. Install the gasket (5) and air cylinder (4). Install the screws (2) and lockwashers (3) and tighten the screws securely.
4. When all gun modules have been rebuilt, install the nozzle in the nozzle nut (21), then thread the nozzle nut onto the manifold and tighten it securely.

SERVICE NOTES

- 1 Apply VC-3 thread-locking compound to threads before installing ball tip.
- 2 Apply VC-3 thread-locking compound to threads before tightening.
- 3 Apply pipe thread adhesive/sealant (Loctite High Temp SS567 or equivalent) to threads before installing.

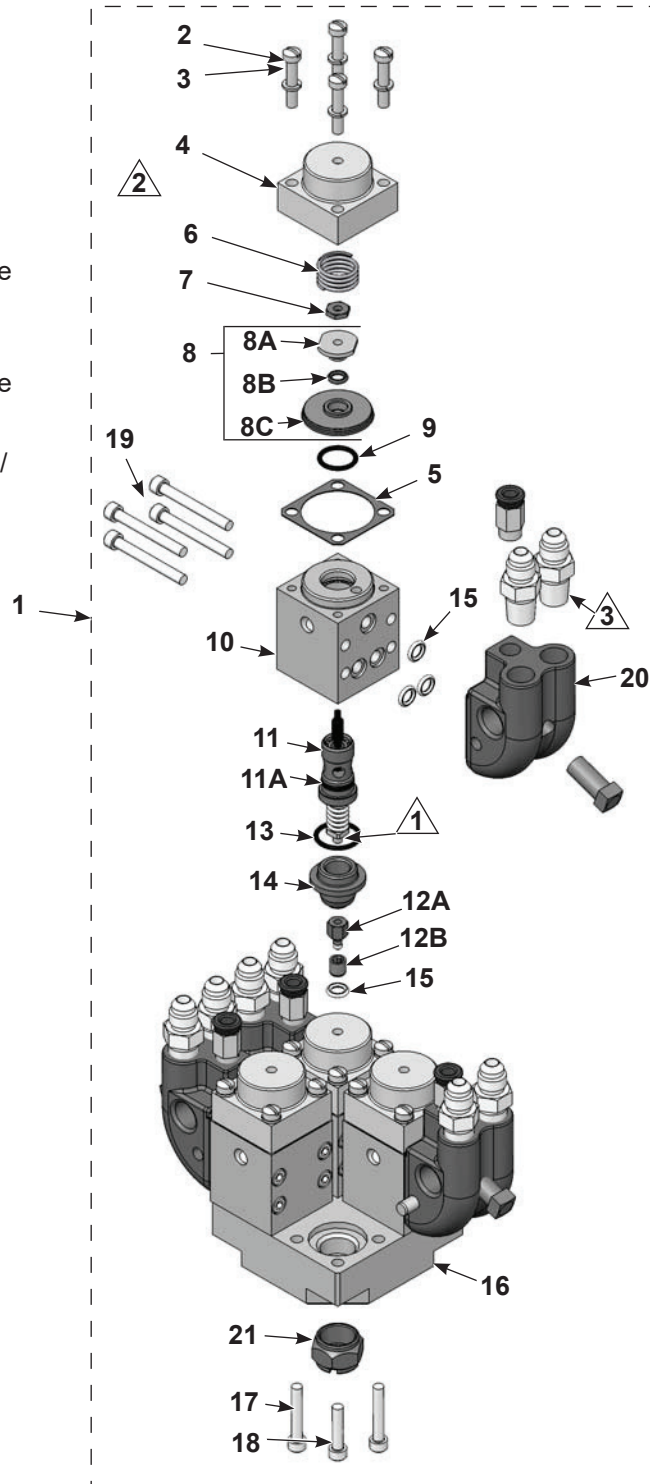


Figure 6 A7A Quattro Spray Gun Repair

Parts

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

Item	Part	Description	Quantity	Note
1	1601975	GUN, A7A, Quattro, stainless steel, LBS	1	
2	981140	• SCREW, fillet head, #10- 32 x 1.00 in., slotted, zinc	16	
3	983120	• WASHER, lock, split, #10, steel, nickel	16	
4	-----	• CYLINDER, air	4	
5	153031	• GASKET, gun, H20	4	A
6	342279	• SPRING, compression, 0.75 x 0.72 x 0.06 in., stainless steel	4	
7	702118	• NUT, lock, #10- 32, upper	4	A
8	138737	• PISTON, H20/A7A H.P. assembly	4	A
8A	-----	• • NUT, seal, lock	1	A
8B	940090	• • O-RING, Viton, 0.208 ID x 0.070 in. wide, brown	1	A
8C	-----	• • PISTON	1	A
9	940157	• O-RING, Viton, black, 0.562 x 0.688 in.	4	A
10	-----	• BODY, gun	4	
11	1039171	• CARTRIDGE, packing, protective coating	4	
11A	940134	• • O-RING, Viton, 0.438 x 0.563 x 0.063 in.	1	
12	320019	• BALL and seat, A7A, nickel	4	B
12A	-----	• • BALL TIP	1	B
12B	-----	• • SEAT	1	B
13	940174	• O-RING, Viton, black, 0.688 x 0.813 in.	4	A
14	134975	• RETAINER, seat, A7A	4	
15	940105	• O-RING, PTFE, 0.250 x 0.375 x 0.06 in.	16	A
16	-----	• MANIFOLD, assembly, Quattro, A7A	1	
NS	248932	• • PLUG	2	
NS	900013	• • BALL, 440 stainless steel, 0.125 in., 100	2	
17	981975	• SCREW, socket, cap, 10- 32 x 1.25 in.	8	
18	981824	• SCREW, socket, 10- 32 x 0.875 in.	4	
19	981847	• SCREW, socket, 10- 32 x 1.625, zinc	16	
20	1054583	• MANIFOLD, A7A	2	
21	152496	• NUT, retaining	1	
22	981405	• SCREW, square, set, 3/8- 16 x 0.750 in., cup, zinc	4	
23	972029	• CONNECTOR, male, 3/7, 1/2- 20 x 1/4 in. NPT, stainless steel	8	
24	972716	• CONNECTOR, male, 1/4 in. tube x 1/8 in. NPT	4	
25	331475	• PIN, dowel, 0.250 x 0.625 in., H & G	2	
NS	247646	• CARD, medical alert, injection	1	
NS	152999	• WRENCH	1	
NS	901905	• BRUSH	1	
NS	901911	• WRENCH, adjustment, module	1	

NOTE: A. Included in 1072408 Service Kit, Rebuild, Modular A7A Guns.

B. To replace the ball and seat, order kit 337305.

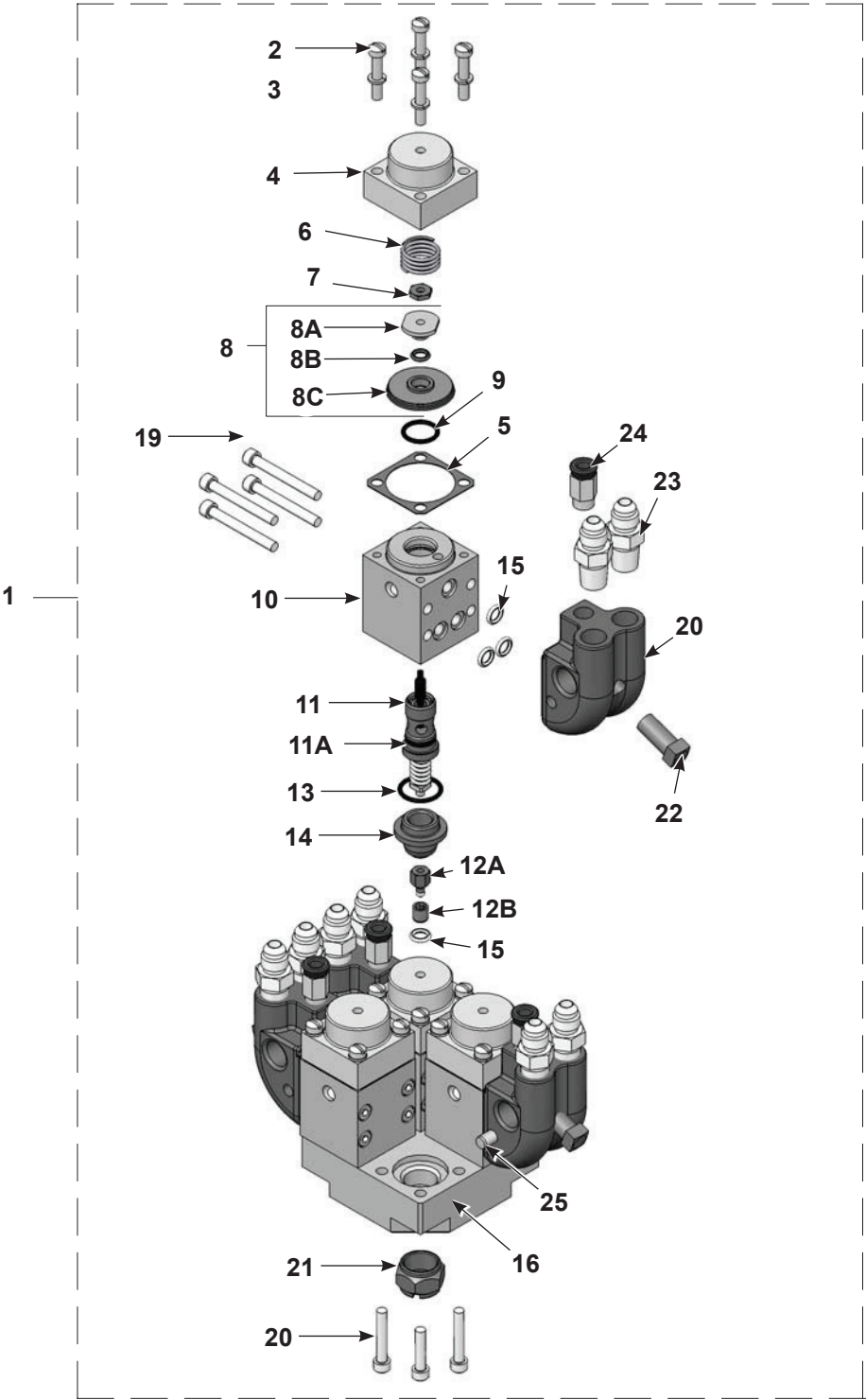


Figure 7 A7A Quattro Gun Parts

Options

Part	Description	Note
159146	Mounting bar, gun, universal 46-cm (18-in.)	
901262	Quick exhaust valve	
973000	Nipple, steel, schedule 40, 1/8 in. NPT, 0.75 in. long	A
NOTE: A. Use to install quick-exhaust valve.		

Service Kits

Part	Description	Note
1072408	SERVICE KIT, rebuild, modular A7A guns	A
337305	KIT, ball and seat, nickel	B
NOTE: A. Order four kits to rebuild all four gun modules. B. Used on single gun only.		

Service Parts

Part	Description	Note
900424	COMPOUND, thread lock, VC-3	
900481	ADHESIVE, pipe thread/hydraulic sealant	

Options

Part	Description	Note
159146	Mounting bar, gun, universal 46-cm (18-in.)	
901262	Quick exhaust valve	
973000	Nipple, steel, schedule 40, 1/8 in. NPT, 0.75 in. long	A
NOTE: A. Use to install quick-exhaust valve.		

Service Kits

Part	Description	Note
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Service Parts

Part	Description	Note
900424	COMPOUND, thread lock, VC-3	
900481	ADHESIVE, pipe thread/hydraulic sealant	

EU DECLARATION of Conformity

Product: Automatic Airless Spray Applicators, A7A

Models: A7A Quattro Modular, A7A Dual Modular, A7A Single Modular, A7A Extended Lancing with Spray Monitor Port, Standard A7A with Spray Monitor Port

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

Description: These are all air operated high pressure airless spray guns. The Lancing one listed above is used for lancing into an object to be coated.

Applicable Directives:

2006/42/EC - Machinery Directive

2014/34/EU - ATEX Directive

Standards Used for Compliance:

EN/ISO12100 (2010)

EN/ISO80079-36 (2016)

EN/ISO80079-37 (2016)

EN1953(2013)

Principles:

This product has been manufactured according to good engineering practice.

The product specified conforms to the directive and standards described above.

Flammable Atmosphere Marking: Ex h IIB T6 Gb

Tech File: Sira / CSA Group, NB 2813 (Arnhem, Netherlands)

DNV - ISO9001

ATEX Quality Notification – SGS Fimko Oy, NB 0598 (Helsinki Finland)



Date: 02FEB25

Jeremy Krone
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Nordson Authorized Representative in the EU

Person authorized to compile the relevant technical data.

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Nordson Deutschland GmbH
Heinrich-Hertz-StraBe 42-44
D-40699 Erkrath



Nordson Corporation • 100 Nordson Drive, Amherst, Ohio, 44001 • USA

DOC13024-05

UK DECLARATION of Conformity

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

Product: Automatic Airless Spray Applicators, A7A

Models: A7A Quattro Modular, A7A Dual Modular, A7A Single Modular, A7A Extended Lancing with Spray Monitor Port, Standard A7A with Spray Monitor Port

Description: These are all air operated high pressure airless spray guns. The Lancing one listed above is used for lancing into an object to be coated.

Applicable UK Regulations:

Supply Machinery (Safety) Regulations 2008.

Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Regulation 2016.

Standards Used for Compliance:

EN/ISO12100 (2010)

EN/ISO80079-36 (2016)

EN/ISO80079-37 (2016)

EN1953(2013)

Principles:

This product has been manufactured according to good engineering practice.

The product specified conforms to the directive and standards described above.

Flammable Atmosphere Marking: Ex h IIB T6 Gb

Tech File – NB 0518 Sira CSA Group, UK

Quality System:

- DNV ISO9001

- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)



Date: 02FEB25

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