

# **Champion™ Air-Assisted Airless Spray System with Air-Operated Piston Pump**

Customer Product Manual

Part 1084088A

Issued 12/07

**For parts and technical support, call the Industrial Coating  
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# Champion Air-Assisted Airless Spray System

## 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. 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.

## **Fire Safety** *(contd)*

- 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 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 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.

## Description

Champion Air-Assisted Airless Spray Systems are complete liquid coating systems. Two systems are available: a dolly system or a wall mount system.

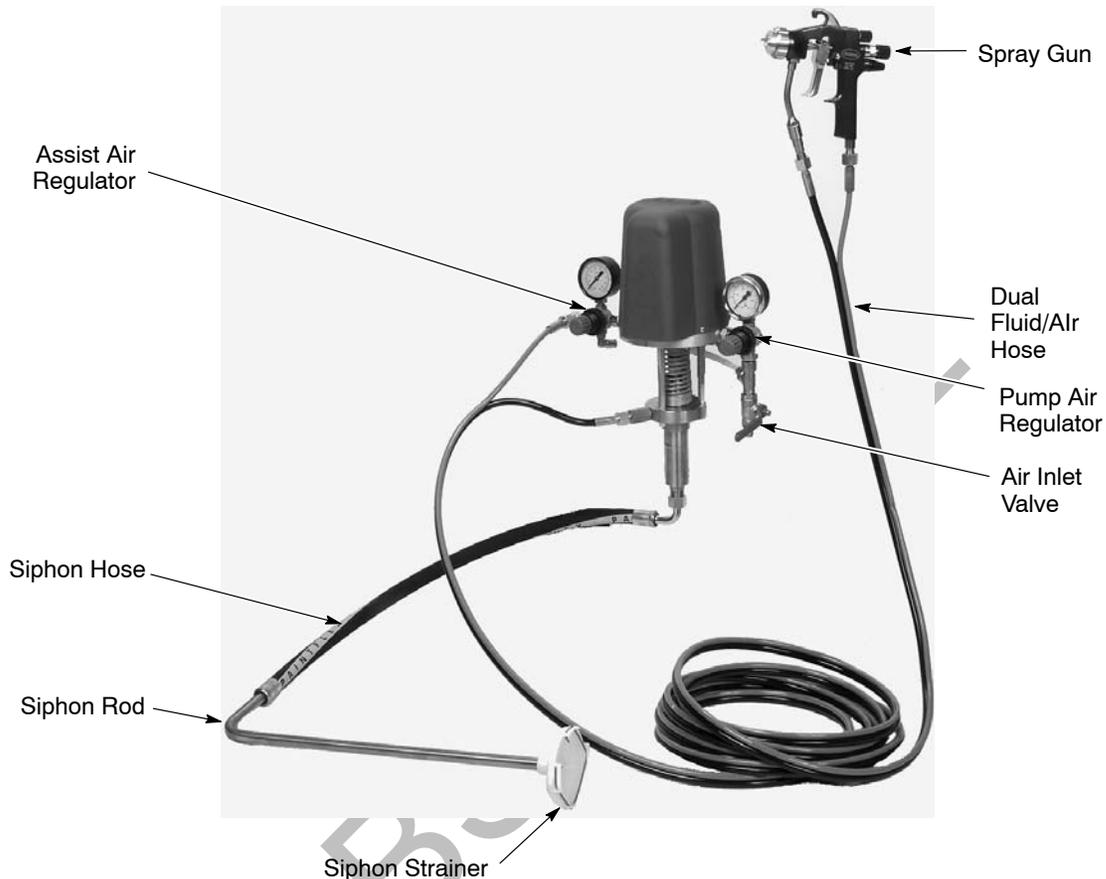


Figure 1 Siphon Connection

The pump consists of an air motor and hydraulic section. The air motor is equipped with an air valve with stall protection and mechanical override. An ABS plastic shroud covers the motor.

The hydraulic section is made of stainless steel. The seals are high-resistance polyethylene. The piston is chromium-plated and the suction and pressure valves are both stainless steel.

Two air regulator/gauge combinations are mounted on the air motor flange with pipe nipples. The right regulator controls the air pressure to the air motor and the resulting fluid output pressure. The left regulator controls the assist air pressure to the spray gun. The air inlet valve controls the air supply to the system.

The system is shipped with a mounting bracket for mounting the pump on a wall or a wheeled dolly. The dolly is included in the dolly system.

## Spray Gun

The spray gun body is aluminum alloy. The inlet line and fluid filter are stainless steel. The gun features a safety lock and adjustment knobs for fluid flow and assist air flow. The spray gun ships with a 0.011 orifice x 40 degree nozzle and a 100 mesh fluid filter.

Options for the spray gun include:

- 60 and 200 mesh filter screens.
- a wide variety of standard nozzle sizes and angles
- self cleaning nozzle assemblies

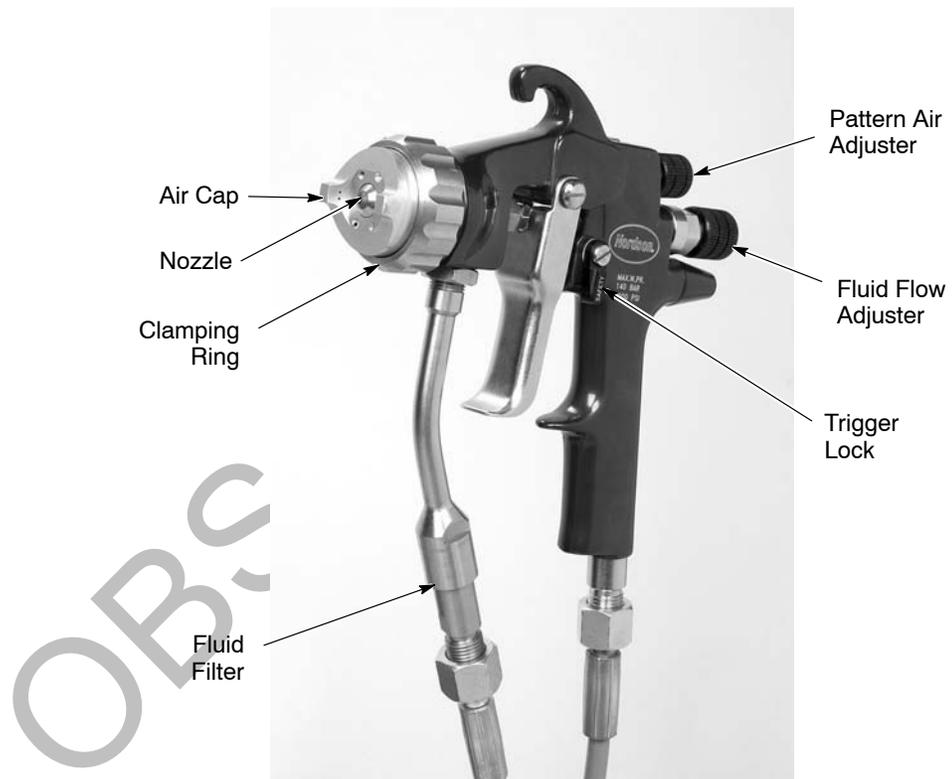


Figure 2 Spray Gun Features (Standard Air Cap and Nozzle Shown)

## Specifications

The system air supply should be clean and dry. Install an air filter/separator in the supply line to the system. Use an air dryer if necessary to remove moisture from the compressed air supply.

### Air-Operated Single Piston Pump

Feature	Specification
Pressure Ratio	20:1
Maximum Fluid Output Pressure	120 bar (1740 psi)
Maximum Air Input Pressure	6 bar (87 psi)
Minimum Air Input Pressure	1.5 bar (21.75 psi)
Fluid Output (free flow, 5 bar air pressure)	3.2 liters/minute
Fluid Output (0.013 nozzle, 5 bar air pressure)	0.5 liter/minute
Air inlet fitting	1/4 in. NPS
Fluid outlet fitting	1/4 in. NPS
Suction hose fitting (fluid inlet)	1/2 in. NPT

### Air-Assisted Airless Spray Gun

Feature	Specification
Maximum Fluid Pressure	140 bar (2030 psi)
Working Fluid Pressure	20–100 bar (290–1450 psi)
Maximum Air Pressure	5 bar (72 psi)
Working Air Pressure	1–2.5 bar (14.5–36 psi)
Air inlet fitting	1/4 in. NPS
Fluid inlet fitting	1/4 in. NPS
Weight	677 g (24 oz)

# Installation



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

## Pump Mounting

Mount the pump on a wall or a dolly, using the four 7-mm holes in the mounting bracket and 6-mm fasteners.

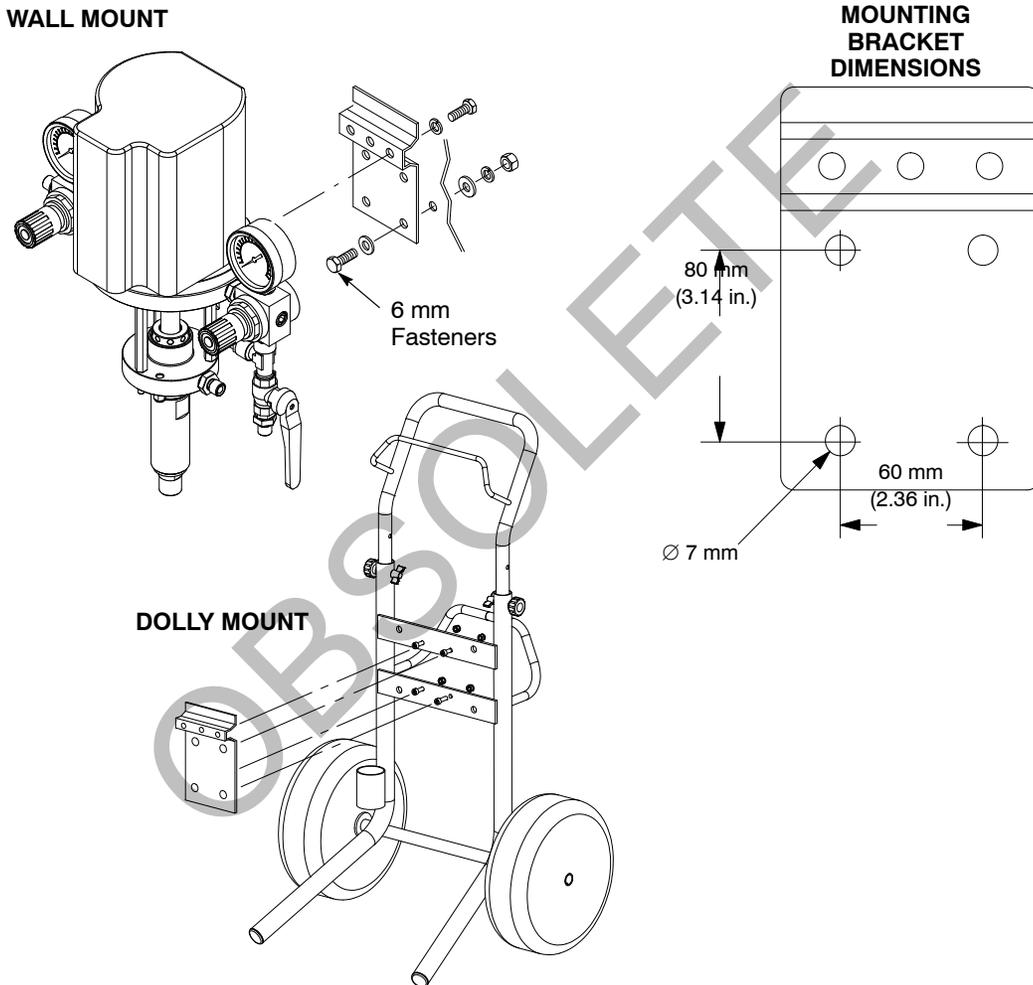


Figure 3 Pump Mounting

## Grounding



**WARNING:** Ground the system and all conductive equipment in the spray area before operating the system. Failure to observe this warning could result in a fire or explosion caused by a static discharge.

Use the supplied ground cable to connect the pump to a true earth ground.

## Siphon and Air Supply Hose Connections

See Figure 4.

1. Connect the siphon hose to the siphon inlet on the bottom of the pump.
2. Connect a compressed air supply hose to the 1/4 in. NPS inlet fitting below the air inlet valve.
3. Connect the dual fluid/air hose to the pump and the spray gun. Make sure to connect the red air hose to the air regulator and the fitting in the gun handle.
4. Collapse the guard spring and fill the solvent cup with solvent fluid. This fluid lubricates the piston and seals. One 16 ounce container of solvent fluid is supplied with the pump. Refer to *Parts* for ordering information.

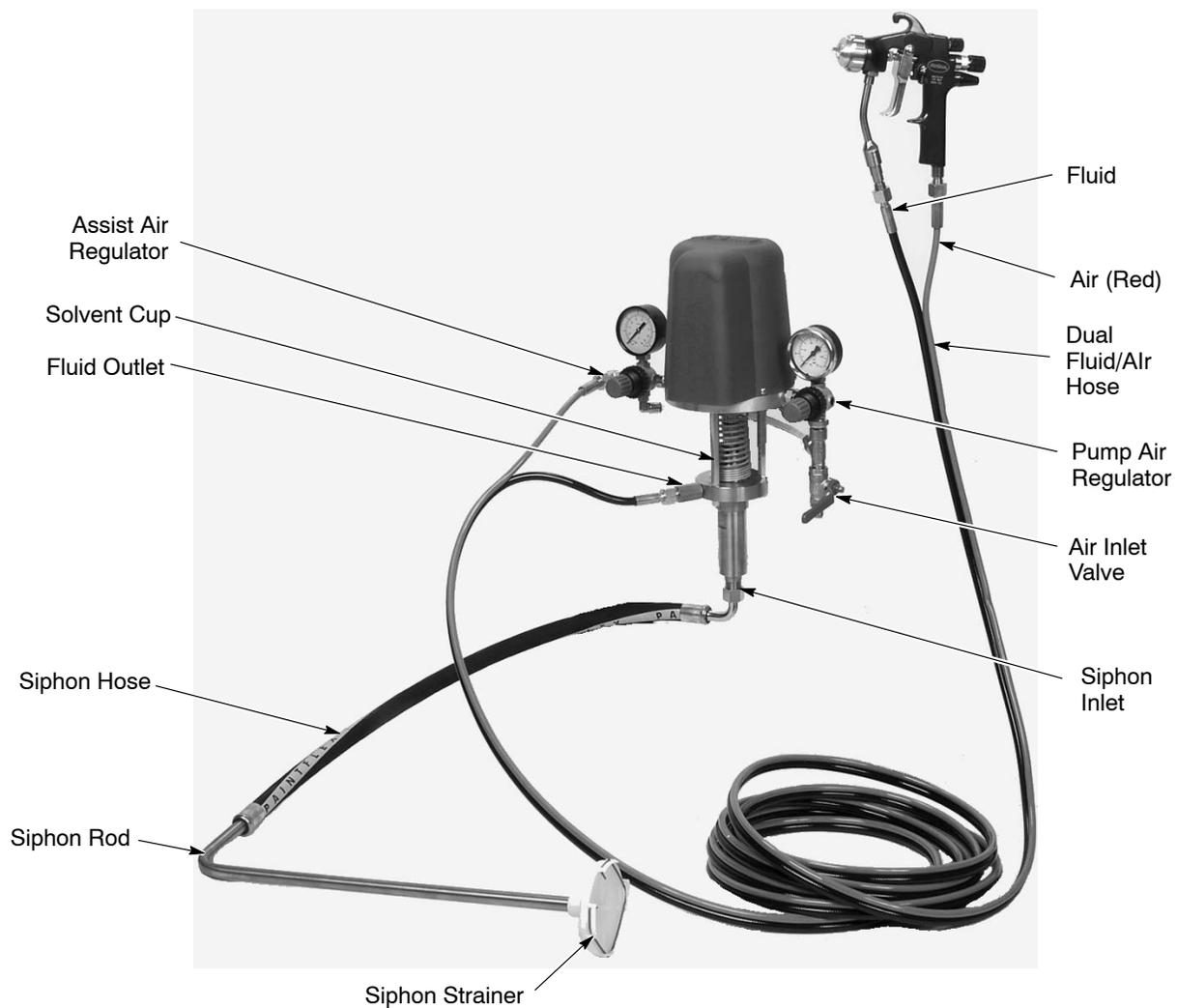


Figure 4 System Connections

## Operation



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



**WARNING:** High-pressure fluids are extremely hazardous. Lock the trigger anytime you stop spraying. Do not point the spray gun at any part of your body or at anyone else. Do not operate the fluid delivery system if any component is leaking. Failure to observe this warning could result in an injection injury. Refer to the *High-Pressure Fluids* section in *Safety* for more information.



**WARNING:** Ground the system and all conductive equipment in the spray area before operating the system. Failure to observe this warning could result in a fire or explosion caused by a static discharge.

## Startup

Before operating the system, make sure that

- the spray gun nozzle, air cap, and retaining ring are correctly installed.
- all fluid and air connections are secure and leak-free.
- all conductive system components and flammable material containers are securely connected to a true earth ground.
- the pump solvent bowl is filled with solvent fluid. If the bowl is overflowing the upper pump seal is leaking. To correct, tighten the bowl.

**NOTE:** When starting a new spray system for the first time, remove the air cap and nozzle and flush the pump, fluid hose, and spray gun with a solvent compatible with the coating material you will be using. Flushing will remove contaminants from the system.

## Daily Operation

1. Place the suction strainer in a grounded container of coating material.
2. With the pump air regulator turned all the way off, open the air inlet valve. The pump will not start operating until air pressure is applied to the air motor.

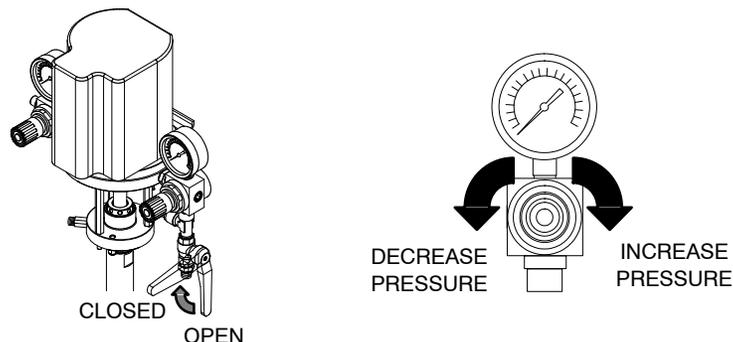


Figure 5 Air Inlet Valve Positions

3. Unlock the spray gun trigger lock.
4. Aim the spray gun into the spray booth or ground the spray gun against the inside of a grounded container, maintaining firm contact between the spray gun body and the side of the container.
5. Pull the spray gun trigger, then adjust the pump motor air pressure to approximately 2 bar (29 psi).
6. When all air is flushed from the fluid hose and gun and only coating material is spraying from the gun, release the trigger.
7. Adjust the pump air pressure to at least 4 bar (58 psi) and the assist air pressure to approximately 1.5 bar (22 psi). These are suggested production starting pressures. Adjust them as needed for best results. Refer to *Adjusting Assist Air* for more information.



**WARNING:** When taking breaks or leaving the spray area, always engage the spray gun trigger lock. This will prevent accidental triggering of the gun. Failure to observe this instruction could result in an injection injury.

## Spray Adjustments

Finishing technique and application efficiency is a combination of operator experience and experimentation. Coating material atomization and spray pattern width depends on nozzle size, fluid pressure, coating material viscosity, and assist air pressure.

To adjust the coating material atomization, perform the following steps. If these adjustments do not improve atomization change the nozzle or the coating material viscosity.

1. Set the assist air pressure as low as possible (1.5 bar (22 psi) minimum).
2. Point the spray gun into the booth and trigger the gun.
3. Adjust the assist-air pressure regulator to achieve the desired atomization. Increasing the air pressure provides finer atomization. Decreasing the air pressure provides coarser atomization.
4. See Figure 2. Adjust the fluid flow and fan pattern air with the adjuster knobs to achieve the desired fan pattern.
5. To change the orientation of the fan pattern, loosen the clamping ring and rotate the air cap. The position of the air cap horns determine the orientation of the fan pattern.

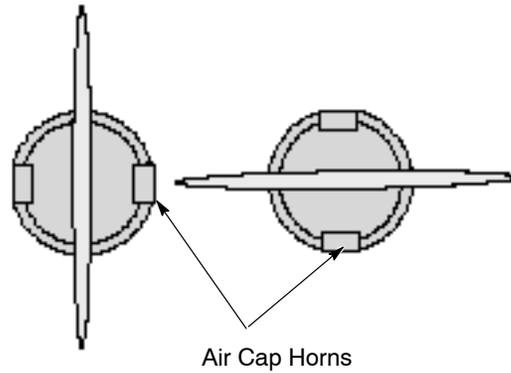
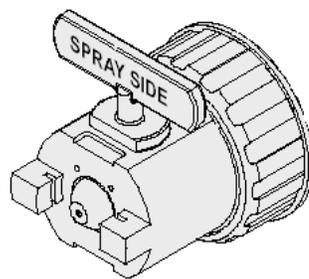


Figure 6 Fan Pattern Orientation

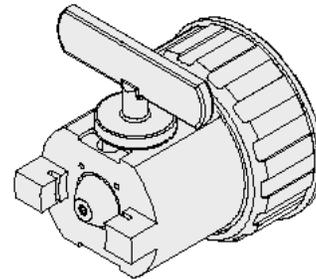
### **Using the Self-Cleaning Nozzles**

If your spray gun is equipped with a self-cleaning nozzle, follow these instructions to clean the nozzle if it becomes obstructed.

1. With the trigger released, turn the cleaning lever 180 degrees counterclockwise so that the words SPRAY SIDE face toward the rear of the gun.
2. Point the spray gun into the spray booth, or ground the spray gun against the inside of a grounded container, maintaining firm contact between the spray gun body and the side of the container.
3. Pull the trigger to clean the nozzle.
4. Release the trigger and turn the cleaning lever 180 degrees clockwise so the words SPRAY SIDE face toward the front of the gun.
5. Resume painting.



Normal Painting Position



Cleaning Position

Figure 7 Self Cleaning Nozzle Operation

## System Flushing

Flush the system with a compatible solvent when changing coating materials or when shutting the system down for extended periods of time. To flush the system:

1. Release the spray gun trigger.
2. Remove the suction rod from the coating material and allow the material to drain out.
3. Place the suction rod in a grounded container of compatible solvent.
4. Adjust the pump air pressure to 2.5–3 bar (36.5–44 psi).
5. Remove the air cap and nozzle from the spray gun. If shutting down the system, clean the air cap and nozzle.
6. Ground the spray gun against the inside of a grounded container, maintaining firm contact between the spray gun body and the side of the container.
7. Pull the trigger. When solvent starts flowing from the gun, release the trigger, ground the gun firmly against the inside of the grounded solvent container and pull the trigger again. Allow the solvent to circulate through the system for a few minutes.
8. Remove the siphon rod from the solvent container and allow it to drain.
9. Close the pump air valve and then release the gun trigger.

## Shutdown

1. Close the air inlet valve.
2. Ground the spray gun against the inside of a grounded container, maintaining firm contact between the spray gun body and the side of the container.
3. Pull the trigger to relieve the fluid pressure in the spray gun, hose, and pump.
4. Engage the trigger lock.

**NOTE:** If shutting down the system for maintenance or repairs or production shutdowns longer than overnight, flush the system with a solvent or cleaning solution compatible with the coating material, then perform the recommended routine maintenance procedures for the gun and pump.

## System Maintenance



**WARNING:** Always close the air inlet valve and relieve the system fluid pressure before performing maintenance and repair procedures. Failure to observe this warning could result in personal injury.

### Spray Gun

#### Daily

Clean the gun daily or at the end of each working session.

1. Unscrew the clamping ring and remove the air cap, nozzle, and if the nozzle is a self-cleaning version, the joint gasket.
2. Clean the air cap and nozzle thoroughly with a compatible solvent. Soak the nozzle in solvent if necessary.
3. If necessary, use a nozzle wire to clean a nozzle. Always insert the wire through the nozzle orifice against the direction of flow (from front to back).
4. Clean the head of the gun and the fluid tip.
5. When done cleaning, reassemble the nozzle and air cap and install them on the spray gun.

#### Periodically

At least once a week disassemble the front of the gun and clean the needle and air passages.

**DO NOT USE POINTED METAL TOOLS TO CLEAN CLOGGED PASSAGES.** Damaging the air and fluid passages will reduce spray quality.

Clean the gun body with a cloth soaked in solvent. If you immerse the gun in solvent, rotate the fan pattern and fluid flow adjustment knobs all the way clockwise to prevent solvent from damaging the internal seals.

Remove the fluid filter from the spray gun weekly and clean it. Replace the screen if it is damaged.

With a synthetic oil, lubricate the threaded parts of the gun such as the clamping ring, the fluid flow and fan pattern valves, and the trigger travel adjustment, to prevent seizing. **The lubricant must not contain silicone.**

### Pump

#### Daily

Check the level of solvent in the solvent cup. Add solvent as necessary.

Flush the system at the end of the day if the coating materials you are using settle out or cure in the system. Refer to *System Flushing*.

### **Periodically**

Clean the exterior of the pump. Flush the system as necessary. Refer to *System Flushing*.

Check the piston rod for wear.

## **System**

### **Daily**

Check the fluid and air hoses for leaks or damage. Replace leaking or damaged hoses.

If using an air filter/separator, drain it.

### **Monthly**

Check all equipment fasteners and make sure they are tight.

Check all hose connections.

OBSOLETE

## Troubleshooting



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

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact your local Nordson representative for help.

### Pump Problems

Problem	Possible Cause	Corrective Action
1. <b>Spray gun nozzle, filter, or siphon filter clogged</b>	Contamination in the coating material or cured material in the pump or hose entering the fluid stream.	Remove the nozzle and clean. Remove the spray gun filter and clean or replace. Remove the siphon filter and clean. Flush the system. Disassemble and clean the pump. Filter the coating material.
2. <b>Decrease in fluid pressure</b>	Pump air pressure too low	Increase pump air pressure.
	Contaminants in the pump siphon valve preventing it from fully closing	Remove and clean siphon valve.
	Partially clogged siphon or spray gun filter	Remove and clean filters. Eliminate cause of contamination.
	Worn pump seals	Replace pump seals.
	Fluid viscosity too high	Lower fluid viscosity.
3. <b>Pump cycles irregularly, fan pattern too narrow</b>	Spray gun nozzle worn or too large for material	Replace nozzle.
	Fluid output pressure too low	Increase pump air pressure.
	Fluid too viscous	Decrease viscosity of fluid.
	Pump siphon and pressure valves sticking	Disassemble pump and clean or repair as needed.
4. <b>Pump stroking but not pumping fluid</b>	Nozzle too large	Use nozzle with a smaller orifice.
	Fluid too viscous	Decrease viscosity of fluid.
	Siphon valve stuck open	Clean siphon valve.
	Air leak in siphon fitting, siphon hose, or siphon rod	Check for leaks. Fix any leaks found.
	Siphon filter clogged	Remove and clean filter screen.
<i>Continued...</i>		

Problem	Possible Cause	Corrective Action
<b>5. Pump cycles when spray gun triggered is released</b>	Pump pressure or siphon valves, piston, or seals are worn	Disassemble pump and replace worn components.
<b>6. Ice forms on air motor and affects operation</b>	Compressed air supply has too much moisture	Use compressed air filter/separators or an air dryer to remove water from the compressed air supply.
	Pump is operating too fast	Reduce demand on pump by using a smaller nozzle.

## Spray Gun Problems

Problem	Possible Cause	Corrective Action
<b>1. Fan pattern irregular or narrow</b>	Clogged holes in air cap or air distributor	Remove and clean the air cap or air distributor.
	Damaged swivel joint gasket (self-cleaning nozzle)	Replace swivel joint gasket.
	Partially clogged, worn, or damaged nozzle	Clean or replace nozzle.
<b>2. Leaking packing gland</b>	Loose packing gland nut	Tighten packing gland nut.
	Worn packing gland seals	Replace packing gland.
<b>3. Coating material leaks from nozzle when trigger is released</b>	Contamination or cured material preventing ball from seating	Remove seat and clean ball and seat with a compatible solvent and a brush.
	Worn or damaged ball and seat	Replace the ball and seat.
	Loose seat	Tighten the seat.
	Dirty nozzle and joint gasket (self-cleaning nozzle)	Disassemble nozzle and clean.
<b>4. Assist air continues to flow when trigger is released</b>	Air valve not closing	Remove and clean air valve. Lubricate air valve rod.
	Air valve packing gland nut too tight	Loosen packing gland nut.

## Repair



**WARNING:** Before making any repairs to the system components, close the pump air valve and relieve the fluid pressure by pointing the spray gun into a container and pulling the trigger. Make sure all fluid pressure is relieved. Failure to observe this warning could result in a fluid injection injury.

**NOTE:** Use only metric tools when making repairs to the spray gun and pump, to avoid damaging components.

### *Spray Gun Repair*

#### **Standard Nozzle Replacement**

1. Unscrew the clamping ring and remove the air cap.
2. Remove the nozzle from the inside of the air cap.

When replacing the nozzle, fit the stud on the side of the nozzle into the groove in the air cap.

#### **Self-Cleaning Nozzle Replacement**

1. Unscrew the clamping ring.
2. Remove the nozzle assembly from the spray gun.
3. Remove the swivel joint gasket and nozzle from the air cap. Clean all parts.
4. Install the air cap into the clamping ring.
5. Insert the nozzle into the air cap. Align the T-handle with the direction of flow and slide it forward until the stop is over the top of the air cap and the shaft is up against the front of the cutout.
6. Insert the swivel joint gasket into the air cap with the dished out end facing the nozzle.
7. Rotate the nozzle 90 degrees, so that the spray side is facing forwards.
8. Install the nozzle assembly on the spray gun. Tighten the clamping ring securely.

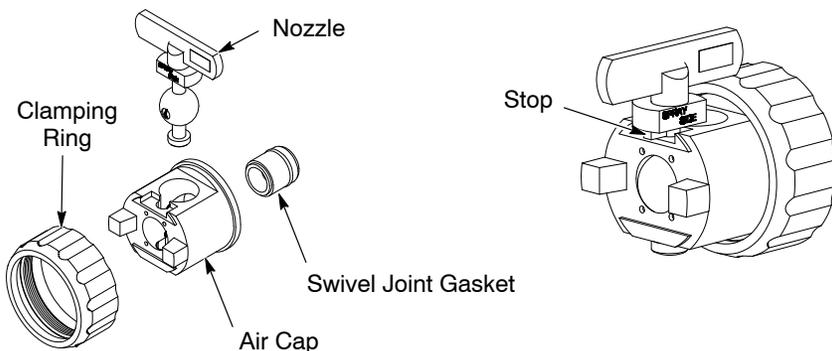


Figure 8 Self Cleaning Nozzle Assembly

## Ball and Seat Replacement

See Figure 9.

1. Remove the air cap and nozzle from the spray gun.
  2. Pull the trigger and remove the seat from the tip holder with a 10-mm socket wrench. Pulling the trigger pulls the ball away from the seat and prevents damage to the ball while removing the seat.
  3. Remove the fluid flow adjuster assembly from the spray gun.
  4. Before removing the ball assembly from the gun, measure the length of the ball assembly with a set of calipers or other instrument. Write this length down.
  5. Loosen the packing gland nut.
  6. Unscrew the collet nut from the shaft of the ball assembly.
  7. Grasp the ball firmly and carefully pull the wire out of the collet nut and through the packing gland.
  8. To install the new ball assembly, unscrew the collet nut from the shaft of the ball assembly and pull the wire out of the collet. Do not bend the wire or lose the collet.
  9. Lubricate the ball wire with a synthetic oil. **Do not use an oil containing silicone.**
  10. Carefully insert the end of the wire into the packing gland from the front of the gun and push it through the gland.
  11. Install the collet nut on the wire, then install the shaft into the gun body and screw the the collet nut into the shaft. The length of the assembly, with the collet nut tightened, should be the same as the old assembly (refer to step 4).
- NOTE:** If the ball assembly is too short, it will not seat properly and coating material will leak from the seat when the trigger is released. To correct this, re-adjust the length of the ball assembly.
12. Tighten the packing gland nut slightly.
  13. Install the fluid flow adjuster assembly into the spray gun. Make sure the thrust bearing is installed on the spring and that the spring is installed with the bearing facing out before you screw the adjuster into the body.
  14. Install the trigger on the spray gun, making sure the trigger slot fits between the packing gland nut and the collet nut, over the wire.
  15. Pull on the trigger and install the seat into the tip holder. Do not release the trigger until the seat is tightened.
  16. Install the air cap and nozzle.

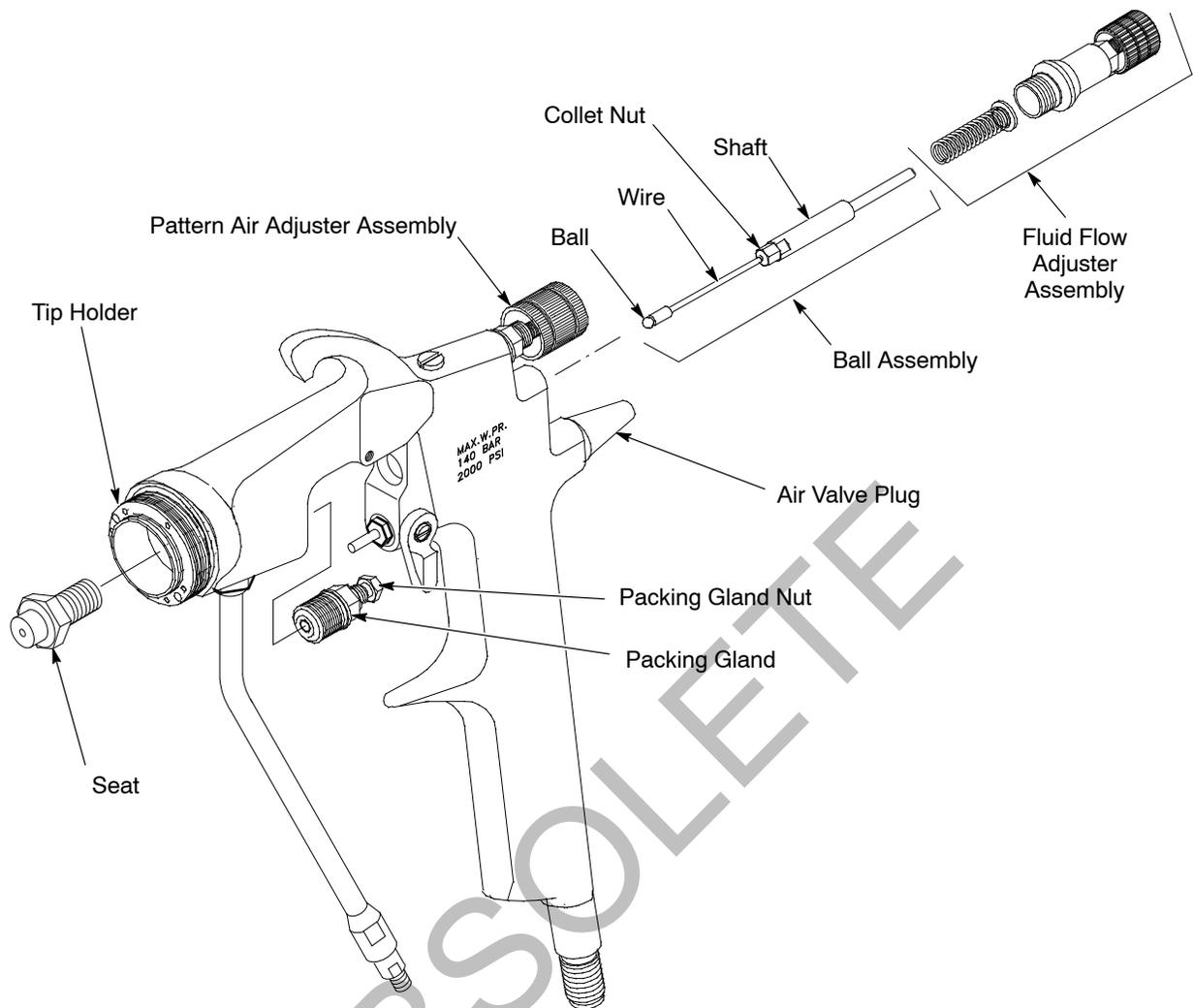


Figure 9 Ball and Seat Replacement

### Air Valve O-ring, Shaft, and Spring Replacement

1. See Figure 12. Remove the cone-shaped plug from the rear of the spray gun with a metric hex wrench.
2. Remove the air valve rod and spring from the spray gun.
3. Use a metric hex wrench to remove the air valve from the spray gun. The socket is in the center of the valve. Replace the O-ring and re-install the valve.

### Pattern Air Adjuster Replacement

1. See Figure 12. Remove the adjuster assembly from the spray gun with a metric open-end wrench or adjustable wrench. This is a one-piece assembly and cannot be repaired.
2. Replace it with a new one if necessary.

## Pump Repair



**WARNING:** Close the air valve and relieve the fluid pressure in the system by grounding the spray gun on the inner side of a grounded container and pulling the trigger before making any repairs to the pump.

### Air Motor Replacement

1. Close the air valve and relieve the system fluid pressure. Disconnect the air and fluid hoses from the pump.
2. See Figure 10. Remove the blue plastic safety guard (1).
3. Disconnect the air hose (2) from the air valve quick-disconnect fitting.
4. Disconnect the hydraulic piston from the air motor by removing the retaining ring (3) and coupling pin (4).
5. See Figure 11. Unscrew the three lock nuts from the bottom ends of the tension rods and remove the hydraulic section from the pump.
6. See Figure 10. Unscrew the coupling (5) from the motor piston.
7. Remove the four M10 screws (6) from the bottom of the air motor flange.
8. Remove the air motor (7) from the flange (8).
9. Install a new air motor on the flange with the four M10 screws.
10. Screw the coupling into the motor piston.
11. Install the hydraulic section on the tension rods and secure it with the three lock nuts.
12. Connect the coupling to the hydraulic piston with the pin.
13. Connect the air hose to the air valve quick-disconnect fitting.
14. Install the blue plastic safety guard over the air motor.
15. Connect the fluid and air hoses to the pump.

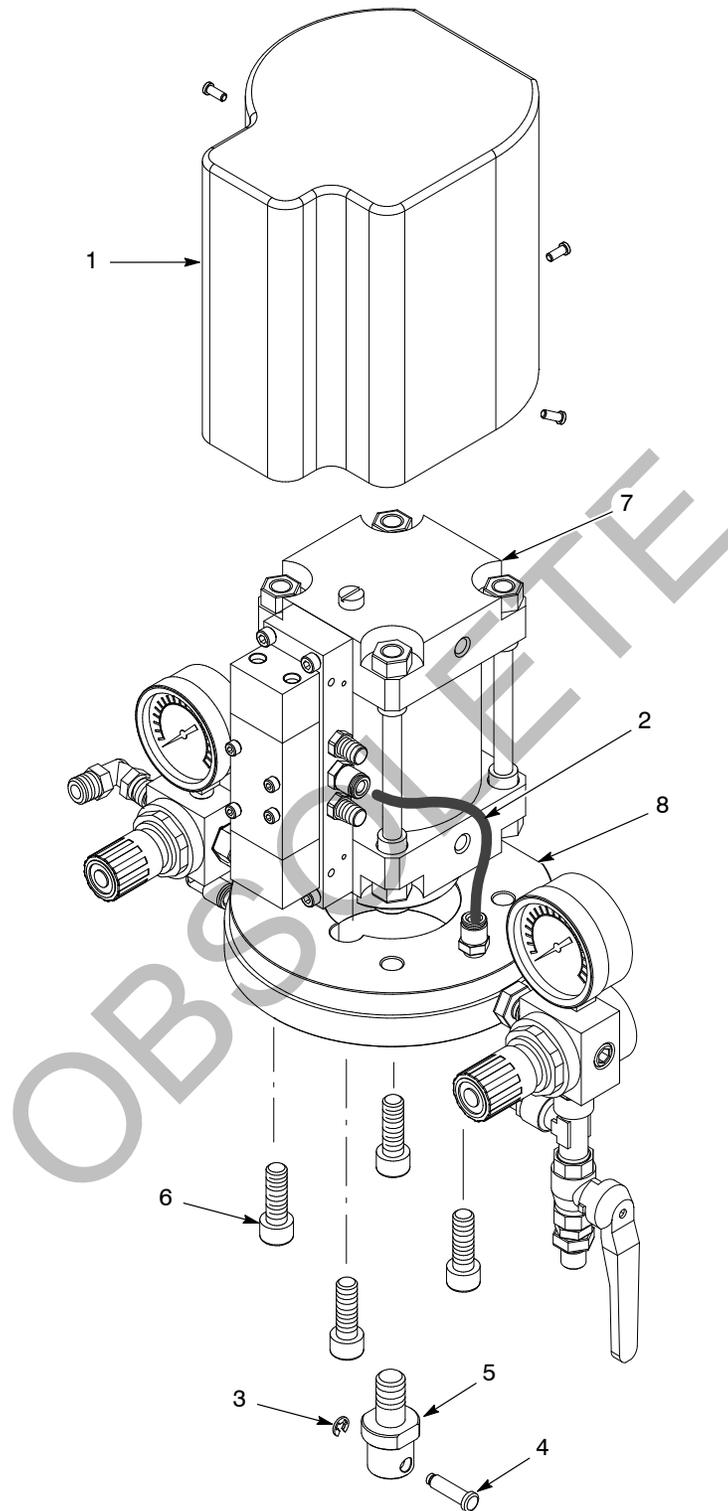


Figure 10 Air Motor Replacement

- |                   |                   |              |
|-------------------|-------------------|--------------|
| 1. Cover          | 4. Connecting pin | 7. Flange    |
| 2. Air tubing     | 5. Coupling       | 8. Air motor |
| 3. Retaining ring | 6. Screws M10     |              |

## Upper Seal Replacement

1. See Figure 10. Disconnect the hydraulic piston from the air motor by removing the retaining ring (3) and coupling pin (4).
2. See Figure 11. Unscrew the three lock nuts (2) from the bottom of the tension rods (1). Remove the hydraulic section from the tension rods.
3. Unscrew the upper packing holding nut (4) from the flange (19) and slide it off the piston (10).
4. Remove the guide bushing (5) and lip seal (6) from the piston.
5. Remove the seal (7) from the flange.
6. Install new components in reverse order. When installing the upper seal holding nut, press down firmly while threading the nut into the flange. Tighten the nut securely.

## Pressure Valve Replacement

1. See Figure 10. Disconnect the hydraulic piston from the air motor by removing the retaining ring (3) and coupling pin (4).
2. See Figure 11. Unscrew the three lock nuts (2) from the bottom of the tension rods (1). Remove the hydraulic section from the tension rods.
3. Remove the upper packing holding nut (4) from the flange (19).
4. Unscrew the pump sleeve (9) from the flange and remove the piston (10) from the sleeve.
5. Insert a 4-mm pin in the hole at the top of the piston to hold the piston from turning. Use a 6-mm hex wrench to unscrew the pressure valve body (14) from the piston. Remove the ball (13), washer (11), and lip seal (12) from the valve.
6. Install new valve components and reassemble the hydraulic section in reverse order. Replace the sleeve O-ring (8) before installing the sleeve.

## Siphon Valve Replacement

The siphon valve can be replaced without disassembling any other part of the pump or removing it from its mounting.

1. See Figure 11. Place a 32-mm open-ended or adjustable wrench on the sleeve (9) flats to prevent it from turning.
2. Unscrew the siphon valve (18) from the sleeve with a 20-mm open-ended or adjustable wrench.

The siphon valve assembly consists of the valve body, the ball cage, ball, and seal (15, 16, 17, 18). If worn or damaged, the complete assembly can be replaced. The seal is also included in the pump packings kit.

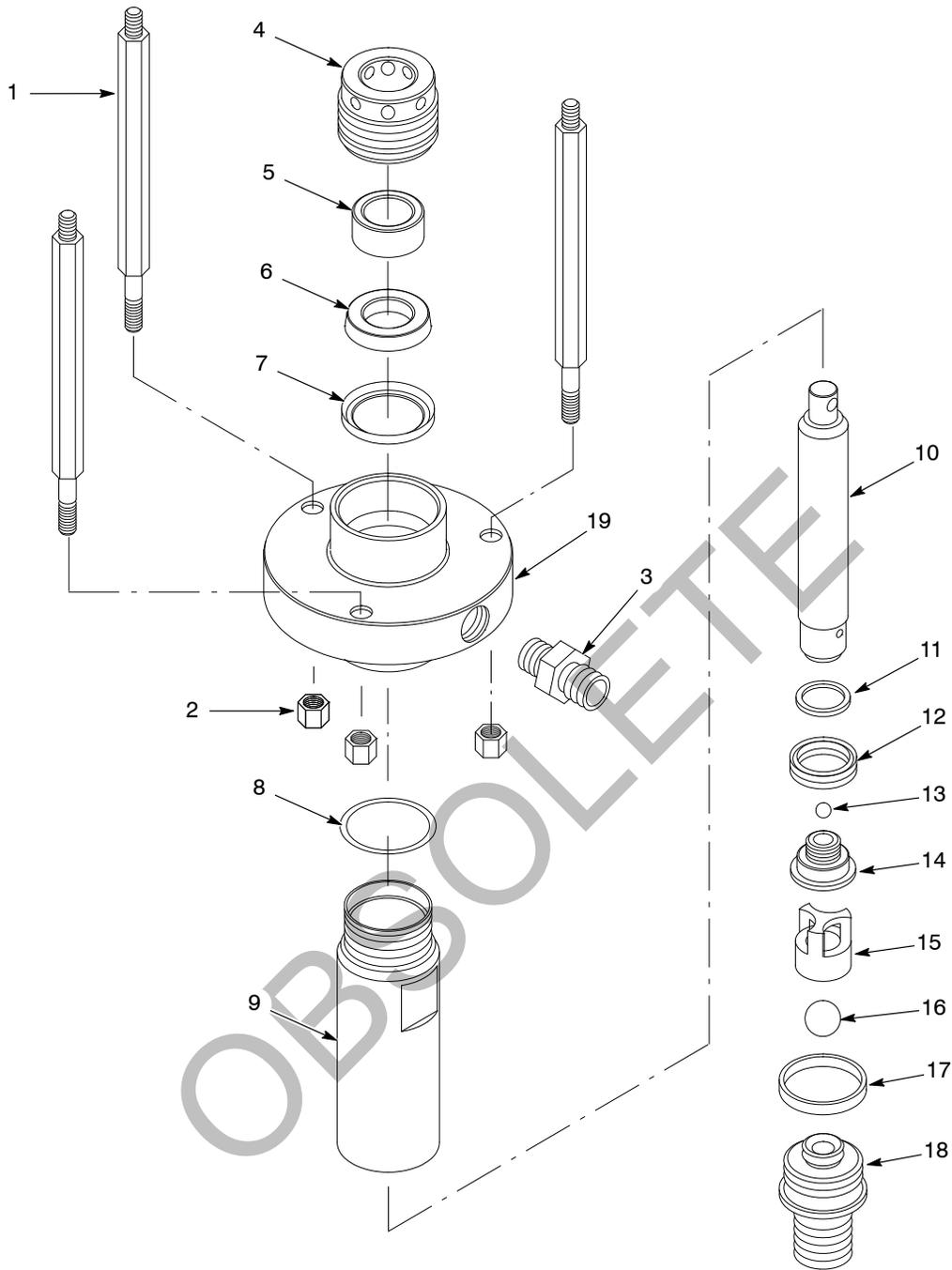


Figure 11 Hydraulic Section Repair

- |                             |                   |                    |
|-----------------------------|-------------------|--------------------|
| 1. Tension rods             | 8. O-ring         | 14. Pressure valve |
| 2. Lock nuts                | 9. Pump sleeve    | 15. Ball cage      |
| 3. Outlet fitting           | 10. Piston        | 16. Siphon ball    |
| 4. Upper packing holder nut | 11. Washer        | 17. Siphon seal    |
| 5. Rod guide bushing        | 12. Lip seal      | 18. Siphon valve   |
| 6. Upper lip seal           | 13. Pressure ball | 19. Pump flange    |
| 7. Seal                     |                   |                    |

## Parts

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

### Systems and System Components

The following parts lists list the dolly and wall mount system components.

#### Dolly System

Part	Description	Note
1084033	SYSTEM, dolly, Champion AAA, w/hose assembly	
1084019	<ul style="list-style-type: none"> <li>GUN, Champion AAA</li> </ul>	
1084030	<ul style="list-style-type: none"> <li>PUMP, N-20, 20:1</li> </ul>	
1084031	<ul style="list-style-type: none"> <li>DOLLY, Champion, collapsible</li> </ul>	
1084032	<ul style="list-style-type: none"> <li>HOSE, Champion, high pressure, 25 ft.</li> </ul>	

#### Wall Mount System

Part	Description	Note
1084034	SYSTEM, dolly, Champion AAA, w/hose assembly	
1084019	<ul style="list-style-type: none"> <li>GUN, Champion AAA</li> </ul>	
1084030	<ul style="list-style-type: none"> <li>PUMP, N-20, 20:1</li> </ul>	
1084032	<ul style="list-style-type: none"> <li>HOSE, Champion, high pressure, 25 ft.</li> </ul>	

## Spray Gun Parts and Kits

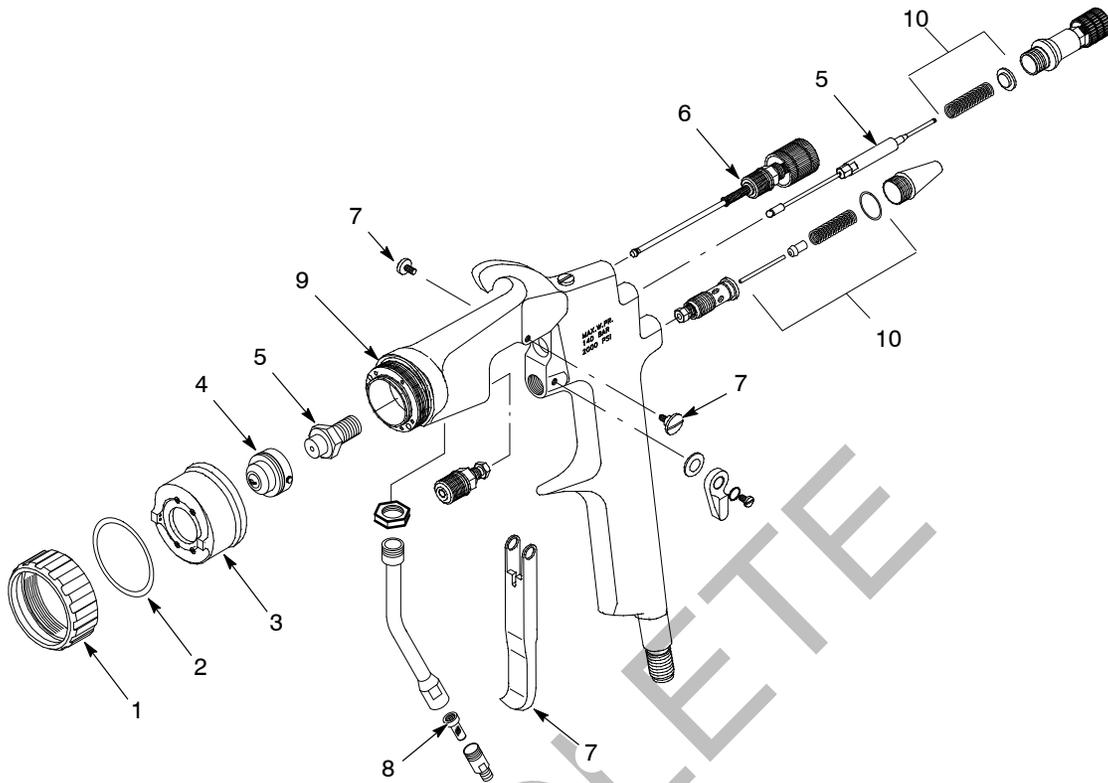


Figure 12 Spray Gun Parts

Item	Part	Description	Quantity	Note
-	1084019	GUN, Champion, AAA	1	
1	1084042	• RING, clamping, standard nozzle	1	
2	1084040	• RING, friction, PTFE	1	A
3	1084043	• AIR CAP, standard	1	
4	1084069	• NOZZLE, 11 x 40 (0.011 x 40 degree)	1	B
5	1084047	• KIT, needle and seat	1	
6	1084048	• ADJUSTER, air jet	1	
7	1084037	• KIT, trigger lever	1	
8	1084049	• FILTER, 100 mesh (black)	1	B
9	1084039	• HOLDER, tip	1	
10	1084036	• KIT, gaskets, springs, seals	1	C
NS	247646	• CARD, medical alert, injection	1	

NOTE A: Included in 1084036 Kit.  
 B: Optional nozzles available. Refer to Optional Standard Nozzles.  
 C: Optional filters available in 60 and 200 mesh. Refer to Miscellaneous Optional Parts and Kits.

## Optional Self-Cleaning Nozzle

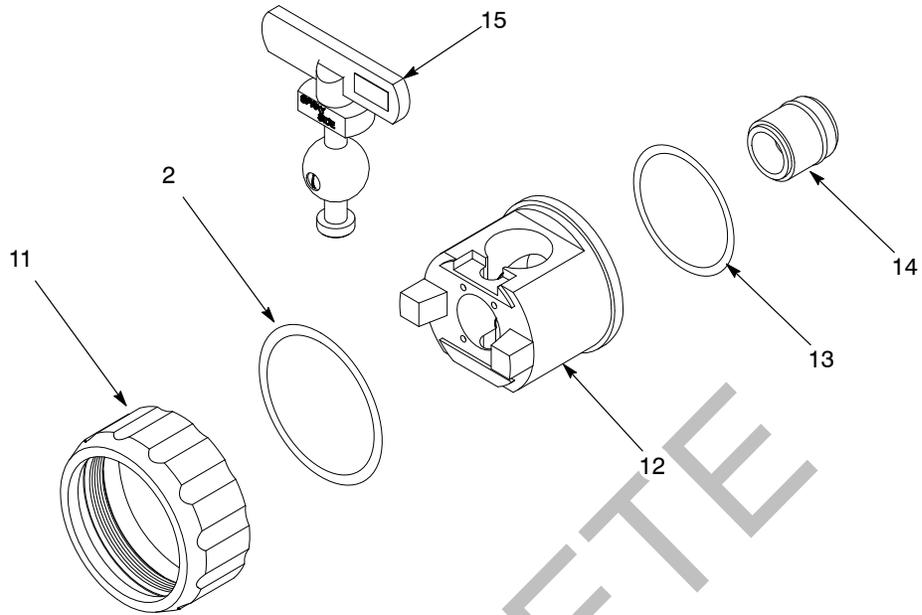


Figure 13 Self-Cleaning Nozzle Parts

Item	Part	Description	Quantity	Note
2	1084040	RING, friction, PTFE	1	
11	1084041	RING, clamping, self-cleaning	1	
12	1084044	AIR CAP, self-cleaning nozzle	1	
13	1084045	GASKET, air separation cap	1	
14	1084046	GASKET, self-clean swivel joint	1	
15	-----	NOZZLE, self-cleaning	1	A

NOTE A: Choose nozzle from list of optional self-cleaning nozzles.

## Optional Standard Spray Gun Nozzles

Nozzle Stamp is stamped on back of nozzle.

Nordson Part No.	Description	Nozzle Stamp
1084063	NOZZLE, 7 x 20 (0.007 x 20 degrees)	03-033
1084064	NOZZLE, 7 x 40 (0.007 x 40 degrees)	03-093
1084065	NOZZLE, 9 x 20 (0.009 x 20 degrees)	04-033
1084066	NOZZLE, 9 x 40 (0.009 x 40 degrees)	04-093
1084067	NOZZLE, 9 x 60 (0.009 x 60 degrees)	04-153
1084068	NOZZLE, 11 x 20 (0.011 x 20 degrees)	06-033
1084069	NOZZLE, 11 x 40 (0.011 x 40 degrees) (standard nozzle) *	06-093
1084070	NOZZLE, 11 x 50 (0.011 x 50 degrees)	06-113
1084071	NOZZLE, 13 x 20 (0.013 x 20 degrees)	09-033
1084072	NOZZLE, 13 x 40 (0.013 x 40 degrees)	09-093
1084073	NOZZLE, 13 x 60 (0.013 x 60 degrees)	09-153
* 11 x 40 Nozzle supplied with gun has nozzle stamp of 411 instead of 06-093.		

## Optional Self-Cleaning Spray Gun Nozzles

Nozzle Stamp is stamped on T-Handle.

Nordson Part No.	Description	Nozzle Stamp
1084075	NOZZLE, self clean, 0.007 x 20 degree	207
1084076	NOZZLE, self clean, 0.007 x 40 degree	407
1084077	NOZZLE, self clean, 0.009 x 20 degree	209
1084078	NOZZLE, self clean, 0.009 x 40 degree	409
1084079	NOZZLE, self clean, 0.009 x 60 degree	609
1084080	NOZZLE, self clean, 0.011 x 20 degree	211
1084081	NOZZLE, self clean, 0.011 x 40 degree	411
1084082	NOZZLE, self clean, 0.011 x 60 degree	611
1084083	NOZZLE, self clean, 0.013 x 20 degree	213
1084084	NOZZLE, self clean, 0.013 x 40 degree	413
1084085	NOZZLE, self clean, 0.013 x 60 degree	613

## Miscellaneous Optional Parts and Kits for Spray Gun

Part	Description	Note
1084051	FILTER, gun, 60 mesh (white)	A
1084049	FILTER, gun, 100 mesh (black)	A
1084050	FILTER, gun, 200 mesh (yellow)	A
1084062	KIT, nozzle O-rings	
1084061	KIT, gun cleaning	
1084060	WIRE, nozzle cleaning	
NOTE A: Filters supplied in packs of 10. Filter supplied with gun is 100 mesh.		

## Pump Parts

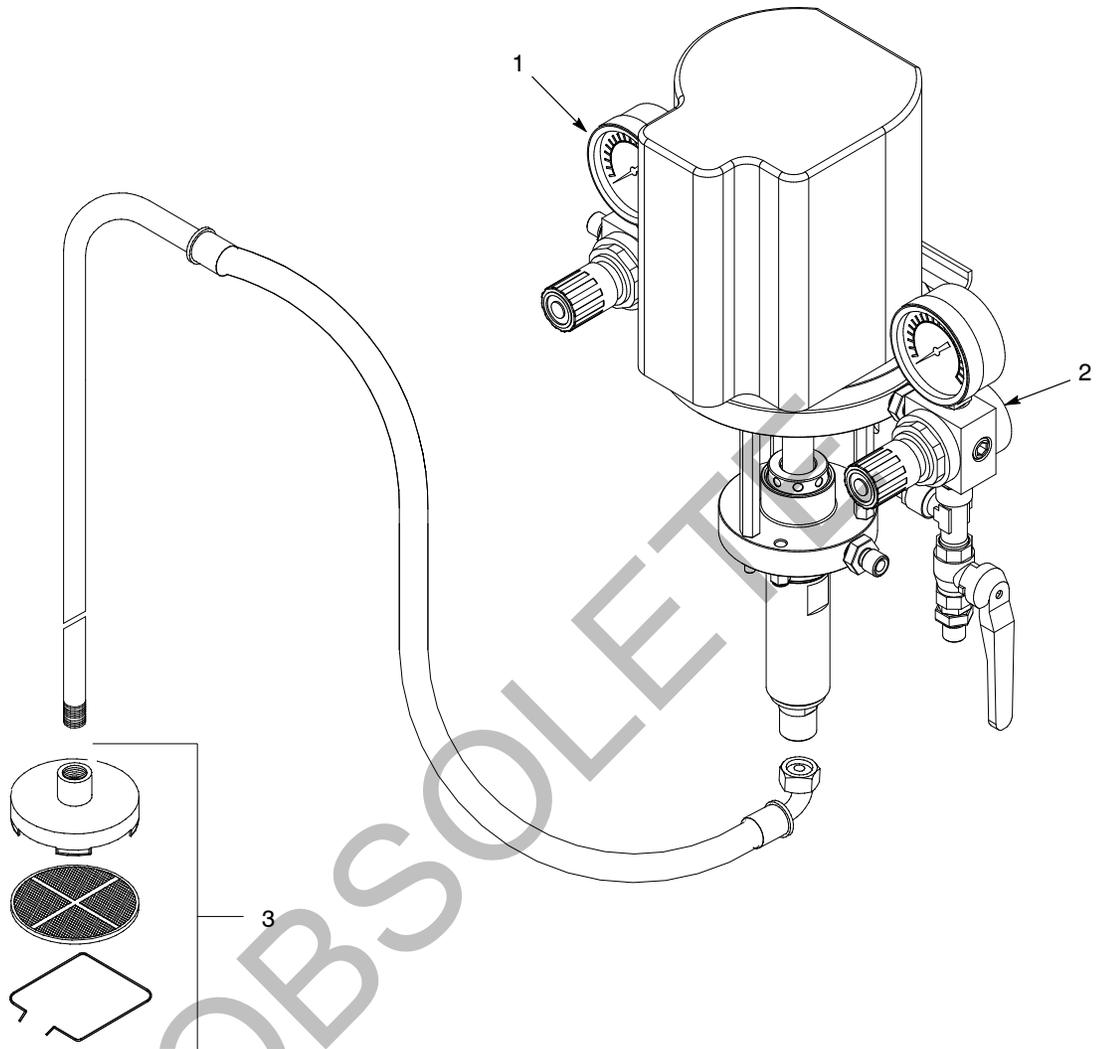


Figure 14 Pump Parts (1 of 2)

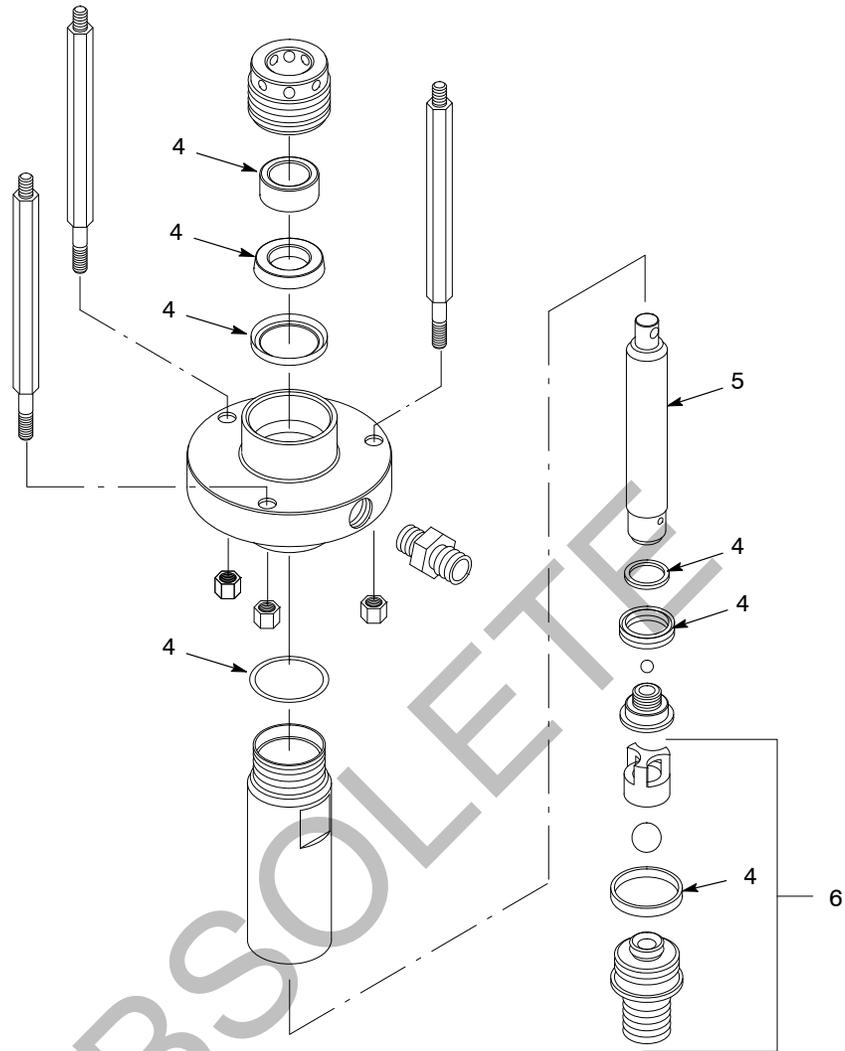


Figure 15 Pump Parts (2 of 2)

Item	Part	Description	Quantity	Note
-	1084030	PUMP, N-20, 20:1	1	
1	1084056	• REGULATOR, air, gun, w/gauge	1	
2	1084055	• REGULATOR, air, pump, w/gauge	1	
3	1084058	• KIT, siphon filter, 1/2 in.	1	
NS	1084053	• KIT, air piston seals (air motor)	1	
4	1084052	• KIT, packings, N-20, 20:1	1	
5	1084057	• PISTON, pump fluid	1	
6	1084059	• VALVE, siphon	1	
NS	1084054	• SOLVENT, pump, cup lube fluid, 16 ounce	1	