Low-Pressure Fluid Regulator

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

WARNING: System or material pressurized. Relieve pressure before opening. Failure to observe may result in serious burns.

Description

The Nordson low-pressure fluid regulator provides accurate, positive fluid pressure control to spray guns, dispensing valves, or atomizing heads.

The low-pressure fluid regulator is installed at circulating line take-offs or with pumps. It is used to reduce main line pressure and maintain the desired fluid pressure to the spray gun or atomizing head.

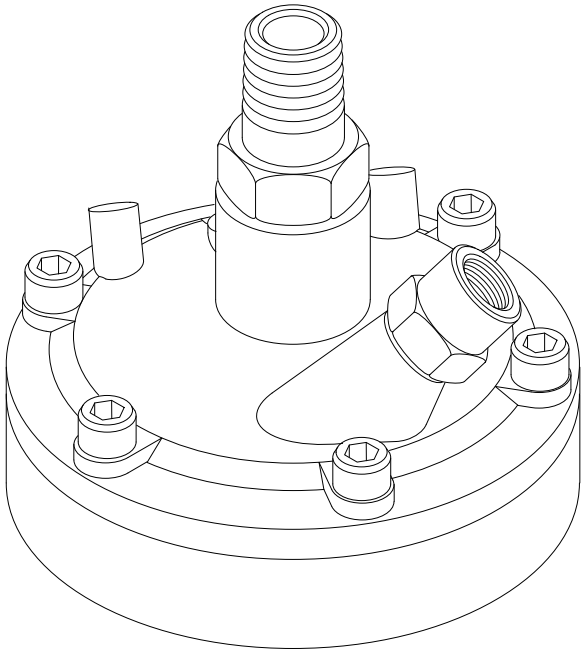

Figure 1 Low-Pressure Fluid Regulator

Specifications

Table 1 Specifications

Fluid inlet pressure:	Maximum 17.2 bar (250 psi)
Regulated fluid pressure range:	0.34–6.9 bar (5–100 psi)
Maximum flow capacity:	5.3 l/min (1.4 gal/min) at 7 bar (100 psi) inlet pressure, and 3.5 bar (50 psi) regulated pressure
Wetted parts:	Tungsten carbide, Rulon®, PTFE, 303 series stainless steel, nylon; Delrin®
Dimensions (with connectors):	Height: 6.2 mm (3.0 in.) Diameter: 93.7 mm (3.690 in.) Weight: approximately 0.9 kg (2 lb)
Air input:	$^1/_8$-in. NPT
Fluid output:	$^1/_4$-in. NPTF

Installation

NOTE: For optimum flow and minimum pigment settling, mount the low-pressure fluid regulator with the spray gun fluid supply line outlet at the bottom.

NOTE: The regulator is supported by the tubing connections and does not require any mounting brackets.

1. See Figure 2. Connect the regulator fluid supply line to the inlet (1).
2. Connect the gun fluid supply line to the outlet (2).
3. Connect the air supply line to the air inlet (3).

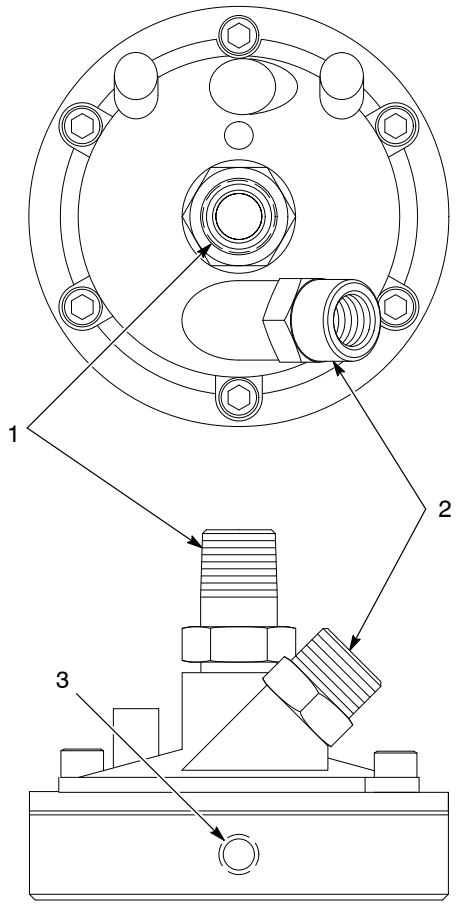

Figure 2 Low-Pressure Fluid Regulator Installation

1. Inlet (regulator fluid supply line)
2. Outlet (gun fluid supply line)
3. Air supply inlet

Operation

Clean and test the system thoroughly before admitting fluid to the low-pressure fluid regulator. This avoids contaminants from clogging or damaging the regulator.

NOTE: Always use the lowest possible air and fluid pressures for your application. High pressures cause premature spray nozzle and pump wear.

1. Partially relieve pressure in the gun fluid supply hose to ensure the correct gauge reading before reducing the regulator pressure.
2. Use an air regulator with at least 51-mm (2-in.) diameter diaphragm to control the fluid regulator.
3. Apply air pressure to the regulator.

NOTE: To increase fluid pressure, increase the input air pressure.

The output fluid pressure is remotely regulated by input air pressure controls.

WARNING: Do not substitute the fittings furnished with this regulator with any other plastic or metal fittings. Sparking caused by non-grounded metal fittings or by electrostatic breakdown in the pin holing of plastic fittings may cause fire or explosion. Refer to your spray gun manual for proper fluid inlet fittings.

Flushing

- Flush frequently after installation and between system operation.
- Always use the lowest possible pressure when flushing.
- Use a compatible solvent whenever the rest of the system is flushed.
- Flush until thoroughly clean.

Troubleshooting

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.

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NOTE: Check all suggested corrective actions in the troubleshooting chart before disassembling the low-pressure fluid regulator.

Problem	Possible Cause	Corrective Action
1. No pressure regulation	Damaged or clogged air regulator or line	Clear obstruction in line. Service the regulator if necessary.
	Damaged diaphragm	Replace the diaphragm.
2. Fluid leaks from under bonnet	Bonnet is loose	Tighten the screws. Refer to *Repair*.
	Worn gasket	Replace the gasket.
3. Pressure increases above setting	Damaged or clogged air regulator or line	Clear obstruction in the line. Repair the regulator if necessary.
	Damaged diaphragm	Replace the diaphragm.
	Seat is leaking	Replace the gasket, seat, and ball.
4. Pressure drops below setting	Damaged or clogged air regulator or line	Clear obstruction in the line. Repair the regulator if necessary.
	Empty or clogged fluid supply line	Refill or flush the supply line.
	Clogged air spray gun or fluid dispensing valve	Refer to the spray gun or valve manual for repair and maintenance instruction.
	Regulator used above the rated flow capacity	Use additional regulators, refer to *Specifications* for ratings.

Repair

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Before performing any repair procedures on the low-pressure fluid regulator, shut off the pump, release all air and fluid pressure in the regulator, and disconnect the air and fluid lines.

See Figure 3.

Disassembly

1. Remove the connector (1), O-ring (2), and spring (3) from the bonnet (11).
2. Remove the ball (4), seat (5), and gasket (6) from the bonnet.

NOTE: Handle the hard carbide ball and the seat with care.

3. Remove the screws (7), securing the regulator base (17) to the bonnet.
4. Separate the regulator base from the bonnet. Remove the jam nut (16), and washer (15) from the stem assembly (12).
5. Remove the diaphragm (14), and the gasket (13).
6. Thoroughly clean and inspect all parts. If necessary, replace worn or damaged parts.

Assembly

1. Place the gasket, diaphragm (with the PTFE side facing up toward the regulator bonnet), and washer on the stem assembly.
2. Install the jam nut, and tighten to 20–25 N•m (15–19 ft-lb).
3. Install the assembled parts into the regulator base. Install the bonnet on the regulator base.
4. Install the gasket (6), valve seat (5), and ball (4) into the bonnet (11).

NOTE: The seat can be turned upside down and reused.

5. Install the connector (1), O-ring (2) and spring (3). Tighten to 31–36 N•m (23–27 ft-lb).

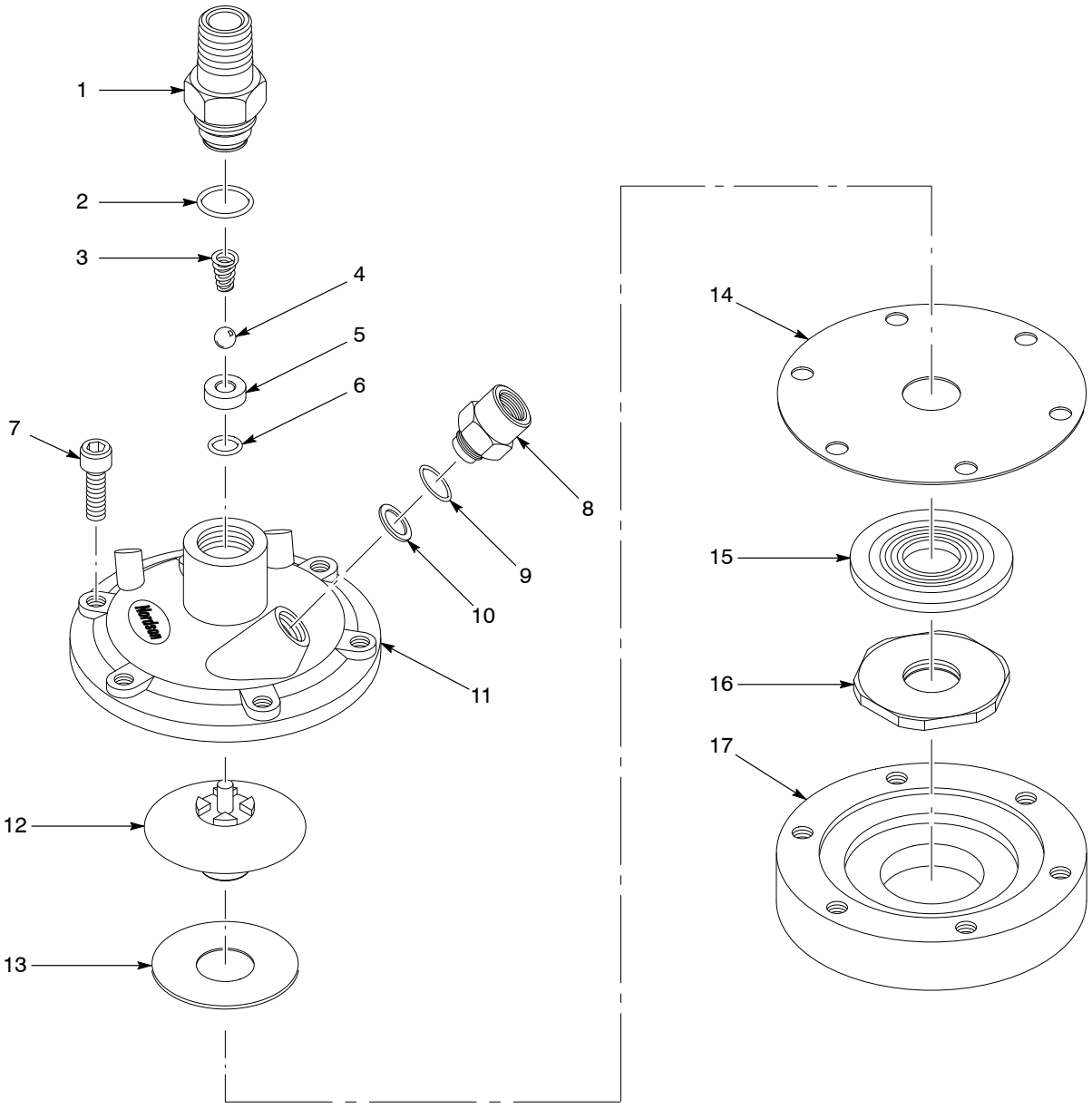

Figure 3 Low-Pressure Fluid Regulator

1. Connector
2. O-ring
3. Spring
4. Ball
5. Seat
6. Gasket
7. Screw
8. Connector
9. O-ring
10. Gasket
11. Bonnet
12. Stem assembly
13. Gasket
14. Diaphragm
15. Washer
16. Nut
17. Regulator base

Tightening Sequence

See Figure 4.

1. Tighten the screws to 0.8–1.1 N•m (7–10 in.-lb) according to the tightening sequence.
2. Tighten the screws to 14 N•m (125 in.-lb) three times, consecutively, to compensate for diaphragm relaxation.

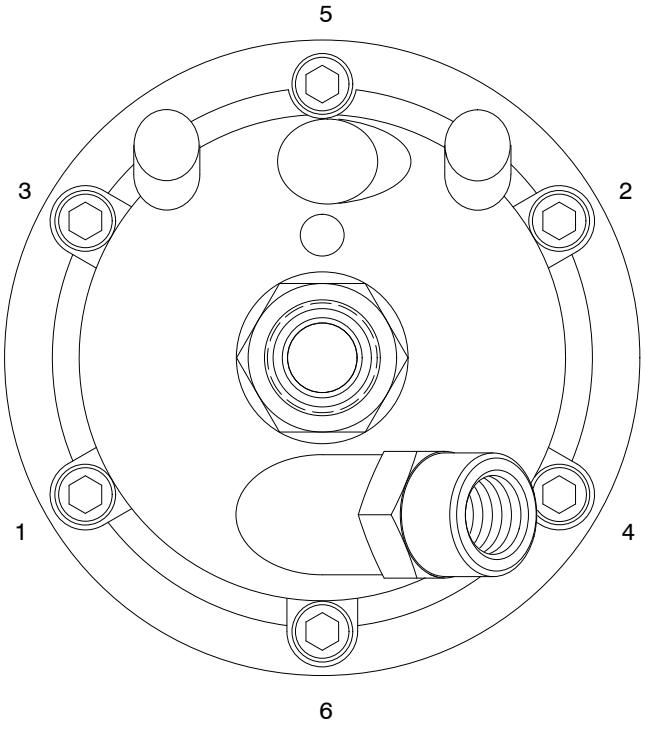

Figure 4 Tightening Sequence

Parts

Low-Pressure Regulator

See Figure 3.

Item	Part	Description	Quantity	Note
—	333825	REGULATOR, low-pressure	1	
1	- - - - - -	• CONNECTOR, fluid regulator, $^{3}/_{8}$-in. NPT	1	
7	- - - - - -	• SCREW,$^{1}/_{4}$-20 x $^{3}/_{4}$-in. long	6	
8	- - - - - -	• CONNECTOR, fluid regulator, $^{1}/_{4}$-in. NPTF	1	
10	- - - - - -	• GASKET	1	
11	- - - - - -	• BONNET, fluid regulator	1	
12	- - - - - -	• STEM ASSEMBLY	1	
15	- - - - - -	• WASHER, Delrin®, 1.94 x 0.686 x 0.130 in.	1	
16	- - - - - -	• NUT, jam	1	
17	- - - - - -	• BASE, fluid regulator	1	

Low-Pressure Fluid Regulator Rebuild Kit

See Figure 3.

Item	Part	Description	Quantity	Note
—	333850	KIT, fluid regulator, lp, rebuild	1	
2	- - - - - -	• O-RING, PTFE	1	
3	- - - - - -	• SPRING	1	
4	- - - - - -	• BALL, carbide, 0.31250, 25	1	
5	- - - - - -	• SEAT, valve	1	
6	- - - - - -	• GASKET, seat, Mylar®	1	
9	- - - - - -	• O-RING	1	
13	- - - - - -	• GASKET, Rulon®	1	
14	- - - - - -	• DIAPHRAGM	1	

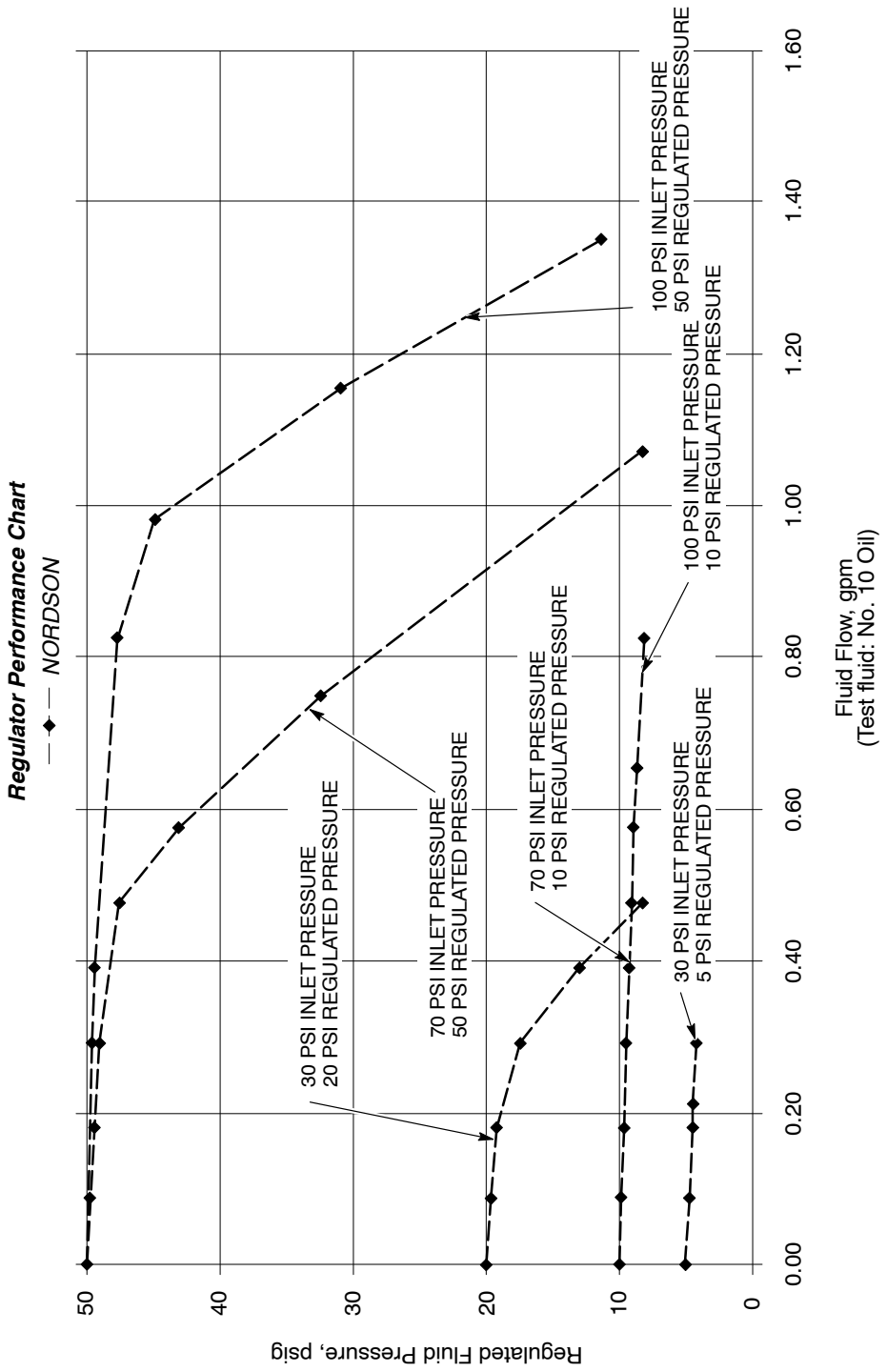

Figure 5 Regulator Performance Chart

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