

*Section 10*

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***Pressure Control Valve***

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## Section 10

# Pressure Control Valve

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### **1. Description**

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This document details the pressure control valve installed on 800M applicators

Two pressure control valves may be used on the applicator, a PUMP pressure control valve and a PROCESS pressure control valve. Both are located at the end of the manifold opposite from the pump and drive assembly.

Depending upon the type of spray process, the PROCESS pressure control valve may be replaced by a plug when deemed to be unnecessary.

The pressure control valve is a spring-loaded mechanical device which operates much like a relief valve. The spring compression can be adjusted to establish a specific back pressure, regardless of flow. The pressure control valve has the advantage that it is self-relieving, that is, if debris obstructs the adhesive flow at the valve, pressure will increase and the valve will open more to allow the debris to pass. The system pressure will then lower to the previously set value.

The pressure control valve is adjustable to 1200 psi (8274.7 kPa).

**2. Setup and Adjustment**

***Pump Pressure Control Valve***

1. If your system has no other method for displaying hydraulic pressure, install a pressure readout device inline with the SUPPLY hose.
2. Bring the unit to operating temperature and set the system to MANUAL mode (if applicable).
3. (Figure 10-1) Loosen the locknut (9) to allow for adjustment of the socket head screw.
4. Adjust the pump speed to the maximum required output rate with the return valves open.
5. Turn the socket head screw until the pressure readout device displays approximately 300 psig (2068. kPa). Turning the screw clockwise increases system pressure. Turning the screw counterclockwise decreases system pressure.
6. Tighten the locknut to secure this setting.

***Process Pressure Control Valve***

1. Bring the unit to operating temperature and set the system to MANUAL mode (if applicable).
2. (Figure 10-1) Loosen the locknut (9) to allow for adjustment of the socket head screw.
3. If your system has no other method for displaying hydraulic pressure, refer to the hydraulic schematic in Section 6 of this manual and install a pressure readout device. This device should be installed at a port which will sense hydraulic pressure downstream of the pump discharge and prior to the dispensing and recirculation modules.
4. Start the melter pump and set its speed to supply 125% of the maximum applicator flow rate (see Section 3).

### Process Pressure Control Valve (contd.)

5. Open the dispensing modules.
6. Start the applicator pump and adjust its speed to the maximum required output rate.
7. Record the hydraulic pressure as measured by the device installed in step 3.
8. Close the dispensing modules and open the recirculation valves.
9. Turn the socket head screw until the pressure as displayed by the readout device installed in step 3 is as close as possible to the pressure recorded in step 7. Turning the screw clockwise increases system pressure. Turning the screw counterclockwise decreases system pressure.
10. Tighten the locknut to secure this setting.
11. Stop the applicator and melter pumps, then close the recirculation valves.

### 3. Disassembly and Repair

Allow only qualified personnel to repair this equipment.

#### Safety Recommendations

Personnel servicing this equipment should be familiar with Section 1 of the manual, *Safety Instructions*. Follow the safety recommendations that apply to the procedure you are doing in this part of the manual.



**WARNING:** Hot. Risk of burns. Wear heat-protective clothing, goggles (ANSI Z87.1-1989 or equal), and safety gloves.

This warning is especially important when breaking any hydraulic connection in the system. If you have not properly relieved system pressure, hot material can be released forcefully, causing serious burns.

Wearing protective clothing is also important when you must work near, touch, or handle hot equipment parts. This includes modules, pumps, manifolds, nozzles, and heaters. Applicator parts are typically heated to a temperature of 300-400 °F (149-204 °C).

**Safety Recommendations**  
(contd.)



**WARNING:** Risk of burns. Failure to relieve system pressure before breaking a mechanical connection could result in serious burns. Hot melt material may spray out as the connection is loosened. Examples of procedures that call for breaking mechanical connections are pump replacement and module replacement. Relieve system pressure before breaking any mechanical connection in the hydraulic system.

Follow the next procedure called *Relieving Hydraulic Pressure*. You must perform several steps correctly to relieve pressure in all parts of the system.



**WARNING:** Risk of burns. Air exits the nozzle at high temperatures and can burn the skin. Shut off the flow of process air used on CF spray applicators before working on the applicator.



**WARNING:** Risk of burns. Applicator parts, which are typically heated to a temperature of 300-400 °F (149-204 °C), can cause severe burns. Let hot equipment that must be touched, handled, or removed cool down before starting disassembly and repair procedures. However, do not let the equipment cool down completely. If the adhesive solidifies, you may not be able to break connections. You can use the Temperature Standby function to reduce temperatures.



## Relieving Hydraulic Pressure



**WARNING:** Risk of burns. Failure to relieve system pressure can result in hot material spraying from a connecting point, possibly causing serious burns. Before removing a hose, an applicator module, or any other part of the pressurized system, you must first relieve system pressure.

1. Turn the melter and applicator pumps off.
2. Place collecting pans under the applicator drain valve and the melter manifold drain valve.
3. Follow instructions in the melter manual for opening the melter manifold drain valve.
4. Use a flat blade screwdriver to turn the applicator reverse-flush filter to the DRAIN position.
5. Open the applicator drain valve.
6. (If applicable) Trigger the dispensing modules at the solenoid valve(s). This is especially important because this is the only way to relieve pressure downstream of the pump.
7. Hydraulic pressure is relieved when material stops flowing from the drain valve and dispensing modules. Close the applicator and melter drain valves.
8. Set the reverse-flush filter to RUN.

This completes the procedure for relieving hydraulic pressure.

**Rebuilding the Pressure Control Valve**

1. Disconnect and lock out input power from the applicator.
2. Relieve system hydraulic pressure as detailed earlier in this publication.
3. Unscrew and remove the pressure control valve from the manifold.
4. Remove the socket head screw (8) and nut (9) from the valve body (1). See Figure 10-1.
5. Unscrew and remove the hollow lock screw (2) from the valve body.
6. Remove the ball seat (12), ball carrier assembly (4), compression spring (10) and valve piston (3) from the valve body.
7. Remove and discard the o-rings (5, 6 and 7).
8. Inspect the components for wear or damage. Clean the undamaged components by heating them, in a container of Type R solvent warmed to the melting point of the adhesive being used. Then use a fine bristle brush to remove traces of adhesive from the components.
9. Coat the new o-rings with lubricant (15), then install them as shown in Figure 10-1.
10. Reassemble the rest of the valve, then thread it into the manifold. Torque the assembly to 17-23 ft-lb (23-31 Nm).

**Note:** Coat the threads of the socket screw (8) with anti-seize compound before threading it into the valve body.

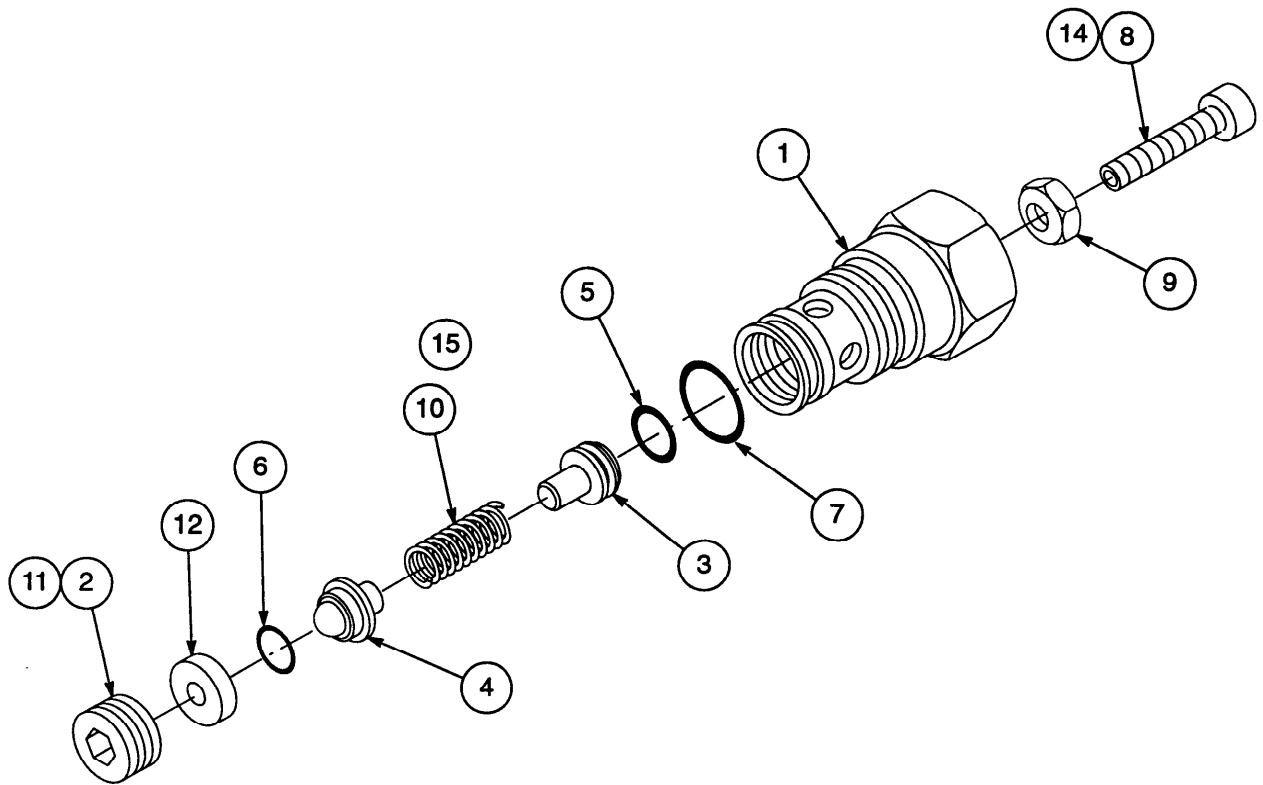
**Note:** Coat the threads of the hollow lock screw with adhesive (11) before completing reassembly.



**4. Parts List with  
Illustration**

**Pressure Control Valve  
Assembly (P/N 275 691)**

Item No.	Part No.	Description	See Note	Qty. in Assembly
1	275 694	Body, Valve, Pressure Control		1
2	275 740	Screw, Lock, Hollow, 3/4-16 x 0.375 in.		1
3	275 696	Piston, Valve, Pressure Control		1
4	275 697	Carrier Assembly, Ball		1
5	940 133	O-ring, Viton, 0.438 x 0.563 x 0.063 in.		1
6	940 191	O-ring, Viton, 0.813 x 0.938 x 0.063 in.		1
7	945 039	O-ring, Viton, 0.750 Tube		1
8	981 830	Screw, Socket Head, M6 x 25 mm		1
9	984 703	Nut, Hex, M6		1
10	987 036	Spring, Compression, 1/2 in. OD x 1.00 in. long		-
11	900 419	Adhesive, Threadlocking		1
12	140 764	Seat, Ball, Pressure Control Valve		-
14	900 344	Anti-Seize Compound		-
15	900 223	Lubricant, O-ring		-



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Figure 10-1 Pressure Control Valve Assembly

