

MPV MANUAL PINCH-TUBE ABRASIVE METERING VALVE

O. M. 09351

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WARNING

Do not proceed with these instructions until you have READ the orange cover of this MANUAL and YOU UNDERSTAND its contents. *

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

***If you are using a Clemco Distributor Maintenance and Part Guide, refer to the orange warnings insert preceding the Index before continuing with the enclosed instructions.**

Electronic files include a Preface containing the same important information as the orange cover.

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1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover operation, service, and replacement parts for the Clemco manual pinch-tube abrasive metering valves.

1.1.2 These instructions contain important safety information. All operators and personnel involved with the abrasive blast process must read and understand the contents of these instructions, including the orange cover. It is equally important that the operator is trained and qualified to safely operate the blast machine and remote controls, and all other equipment used with the blast machine.

1.1.3 All personnel involved with the abrasive blasting process must be made aware of the hazards associated with abrasive blasting. The Clemco booklet "Abrasive Blasting Safety Practices" is included with every blast machine, and contains important safety information about abrasive blasting that may not be included in equipment operation manuals. To order additional copies, visit www.clemcoindustries.com or email info@clemcoindustries.com.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-2011, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

NOTICE

Notice indicates information that is considered important, but not hazard-related, if not avoided, could result in property damage.

CAUTION

Caution indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

WARNING

Warning indicates a hazardous situation that, if not avoided, could result in death or serious injury.

DANGER

Danger indicates a hazardous situation that, if not avoided, will result in death or serious injury.

1.3 **Description and Application:** The manual pinch tube metering valve features the same construction and pinch tube metering design as the PVR pinch tube remote valves, which can be used with all types of abrasives including metallic abrasives. Components are shown in Figure 1.

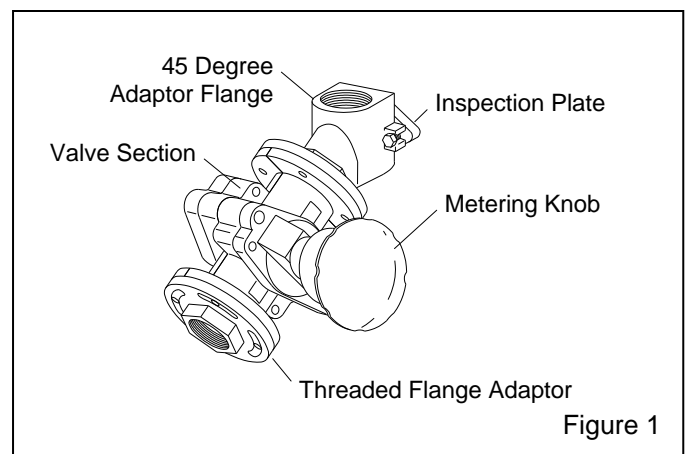


Figure 1

2.0 INSTALLATION

2.1 Empty abrasive from the blast machine.

WARNING

Failure to observe the following before performing any maintenance could cause serious injury from the sudden release of trapped compressed air.

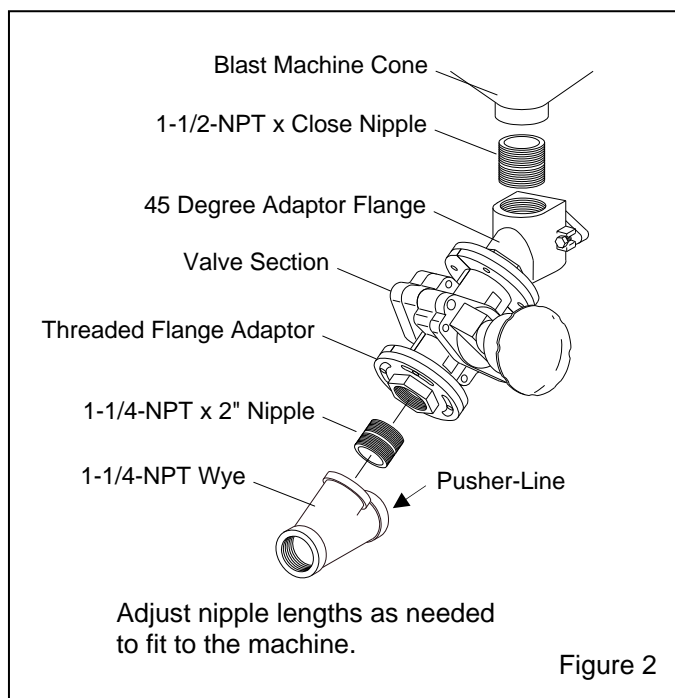
- Depressurize the blast machine.
- Lockout and tagout the compressed air supply.
- Bleed the air supply line to the blast machine.

2.2 Disconnect the pusher-line at the metering valve and remove the existing valve from the blast machine.

Note: Use pipe sealant on all male pipe threads. Use new pipe fittings to connect the valve to the blast machine and to connect the CF coupling to the wye. Use a schedule 80 nipple to connect the 45 degree adaptor flange to the bottom of the blast machine.

2.3 It is recommended that the wye be attached to the flange adaptor on a bench, using a vise and pipe wrench, before attaching the valve to the blast machine. Attach the flange to the branch of a 1-1/4-NPT wye, using a 1-1/4-NPT x 2" nipple. Align the wye in line with the pusher-line, as shown in Figure 2.

2.4 Use a 1-1/2 x close, schedule 80 nipple to connect the 45 degree adaptor flange to the outlet at the bottom of the blast machine as shown in Figure 2. Position the clean-out toward the air inlet side of the machine. NOTE: If interference prohibits the installation of an assembled valve, remove the four fasteners securing the 45 degree adaptor flange to the valve section, and if necessary the threaded flange adaptor from the valve section, as shown in Figure 3, then reattach the valve section when the adaptor(s) is installed.



2.5 Reattach the pusher-line to the back side of the wye.

2.6 Use a new pipe nipple to attach the CF coupling to the wye.

2.7 Assemble all hose connections, apply air to the system and check for leaks.

3.0 ADJUST ABRASIVE FLOW

3.1 Adjust abrasive flow by turning the knob on the metering valve. The valve is shipped in the open position. The valve is closed when the knob has been turned fully clockwise. Begin with the knob set 1-1/2 turns from fully closed. To increase abrasive flow, the machine tender turns the knob no more than 1/4 turn counterclockwise while the operator is blasting. Allow 10 to 15 seconds for the flow to stabilize before readjusting. Continue making adjustments as described until the ideal flow is attained.

3.2 Optimum abrasive flow depends on the type and size of abrasive and blasting pressure, and is best determined by experience. Use as little abrasive as possible while maintaining the maximum cleaning rate. The air/abrasive mixture should be mainly air. As a rule, the stream of abrasive coming out of the nozzle should barely discolor the air when seen against a contrasting background.

4.0 SERVICE

4.1 Removing Obstructions

4.1.1 An inspection plate is provided for removing obstructions.

4.1.2 If the nature of the obstruction permits emptying the machine of abrasive, follow the instructions in the blast machine manual.

4.1.3 Turn off the compressed air supply. Lockout and tagout the air supply, and bleed the air supply line to the blast machine and make sure the pop-up valve is open.

⚠ WARNING

Do not remove the inspection plate or disassemble the valve while the machine is under pressure. Failure to fully depressurize the blast machine before performing any service could cause serious injury from the sudden release of trapped compressed air and abrasive.

4.1.4 Remove the inspection plate wing nuts and remove the inspection plate.

4.1.5 Check the valve for blockage, by inserting a finger into the opening, and feel for an obstruction or foreign object.

4.1.6 Make sure the inspection plate o-ring is in good condition and in place before reattaching the inspection plate.

4.1.7 Make sure all inspection plates and hoses are secure before restarting the machine.

4.2 Replacing the Pinch Tube

4.2.1 Periodically inspect the pinch valve. Replace the tube if air leaks from the hole at the base of the control knob, or when it is difficult to maintain consistent abrasive flow.

4.2.2 Empty the machine of abrasive, observe the warning following Paragraph 4.1.3, and depressurize the blast machine. If emptying the machine is not practical, remove the inspection plate and block the abrasive flow with a rag or similar object. Be sure to remove the rag and replace the inspection plate when service is completed.

4.2.3 Open the metering valve by turning the metering knob fully counterclockwise.

4.2.4 Remove the center valve section, by removing the eight flange bolts and sliding the center valve section out from between the flanges, as shown in Figure 3.

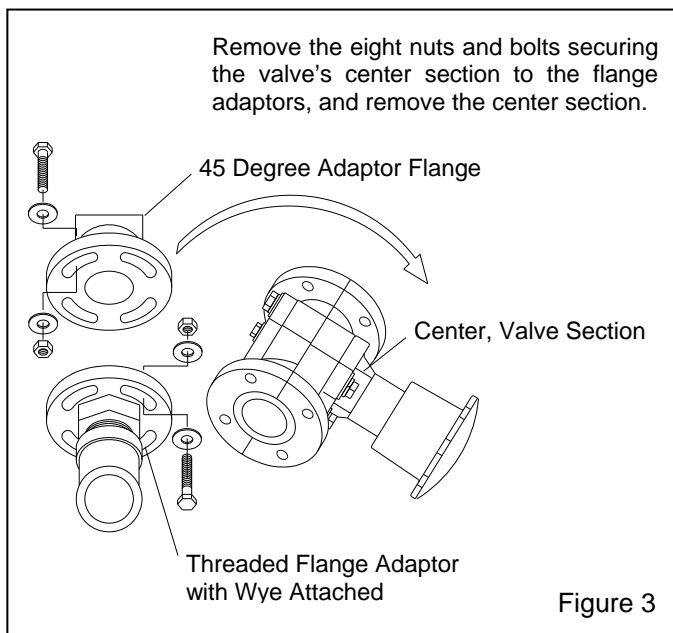


Figure 3

4.2.5 Separate the two body halves, as shown in Figure 4, by removing the two 3/8" x 4" bolts.

4.2.6 Discard the old pinch tube and replace with a new tube. Make sure the tube flanges are seated in the recesses in the body halves.

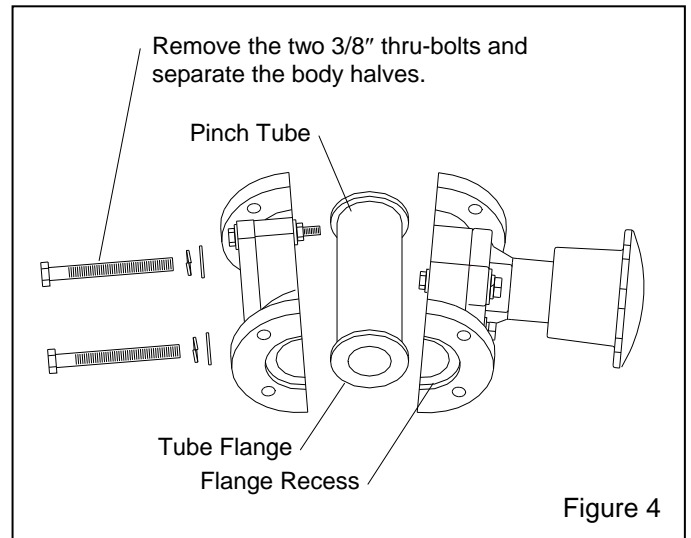


Figure 4

4.2.7 With the new pinch tube in place, reassemble the body halves and attach the valve's center section to the adaptor flanges.

4.2.8 Return the machine to operation and adjust abrasive flow.

5.0 TROUBLESHOOTING

5.1 No abrasive flow

5.1.1 Metering valve closed. Closed is when the metering knob is fully clockwise.

5.1.2 Machine empty. Check abrasive level.

5.1.3 Foreign material jamming the valve, refer to Section 4.1.

5.1.4 Obstruction in media valve. Clear as follows:

5.1.4.1 Fully open the valve, full open is when the knob is turned fully counterclockwise. While blasting, close the choke valve to force out small obstructions or wet abrasive.

⚠ WARNING

To avoid serious injury from the release of trapped compressed air, depressurize the blast machine, lockout and tagout the compressed air supply before continuing.

5.1.4.2 For larger obstructions, shut the machine down to examine the metering valve. Remove the inspection plate and clear obstruction.

5.2 Abrasive flow decreases shortly after blasting starts.

5.2.1 Abrasive bridging in the blast machine. This is usually caused by using very fine abrasive, reusing worn out abrasive, or by moist air.

5.3 Abrasive Bridging

5.3.1 Frequent bridging or blockage in the blast machine and metering valve can be caused by damp abrasive. Blast media becomes damp by blasting parts that are slightly oily (when using recycled abrasive), from moisture in the compressed air line, or from absorption.

5.3.2 To avoid contaminating recyclable abrasive by the workpiece, all parts should be clean and dry. If parts are oily or greasy, degrease and dry them prior to blasting.

5.3.3 Moist compressed air: Moisture in the air supply may be due to a faulty compressor that overheats, or pumps oil or moisture into the air line; an air line that is too long permitting moisture to condense on the inside; and from high humidity. Drain filters and receiver tank regularly. If the problem persists, a dryer or aftercooler may be required in the air supply line.

5.3.4 Absorption: Some abrasive tends to absorb moisture from the air, especially fine-mesh media in high humidity areas. Empty media from the blast machine at the end of the work day, and store media in an area protected from damp environment.

5.0 REPLACEMENT PARTS

5.1 Optional Accessories, not shown

- (-) Nipple, 1-1/4-NPT x 2" 01718
- (-) Nipple, 1-1/2-NPT x close, schedule 80 01791
- (-) Wye, 1-1/4-NPT standard 01818

5.2 Pinch Tube Metering Valve Assembly, Figure 5

Item	Description	Stock No.
(-)	MPV Manual Pinch Tube Metering Valve	04321
1.	Metering knob assembly	05072
2.	Inspection plate	02440
3.	O-ring, 1-3/4" OD	01990
4.	Body, pinch valve, 2 required	05677
5.	Flanged adaptor, 45 degree	05672
6.	Flanged adaptor	05673
7.	Cover plate	05674
8.	Pinch tube, 1" ID	04635
9.	Nut, 5/16-NC wing	03213
10.	Cap screw, 5/16-NC x 1"	03152

