INSTALLATION & OPERATING INSTRUCTIONS

for

GRIT MIZER™ & 780-E REMOTE CONTROLS Pneumatic and Electric

(Pot Under Pressure Type—with Either 1" or 1¼" Piping)

EMPIRE
ABRASIVE EQUIPMENT CORPORATION
2101 WEST CABOT BOULEVARD, LANGHORNE PA. 19047
• (215) 752-8800 • FAX (215) 752-9373
• TELEX 831-378 • EASY LINK 62954372

INDEX

PAGE

A. Introduction 3

Remote Control Non-Blasting 3

Remote Control Blasting 3

B. Parts Supplied by Empire 4

C. Parts That May Be Required But Not Included With Equipment 4

D. Installation 4

E. Operation 7

F. Trouble Shooting 8

G. Maintenance 9

H. Replacement Parts 10

Appendix A 14

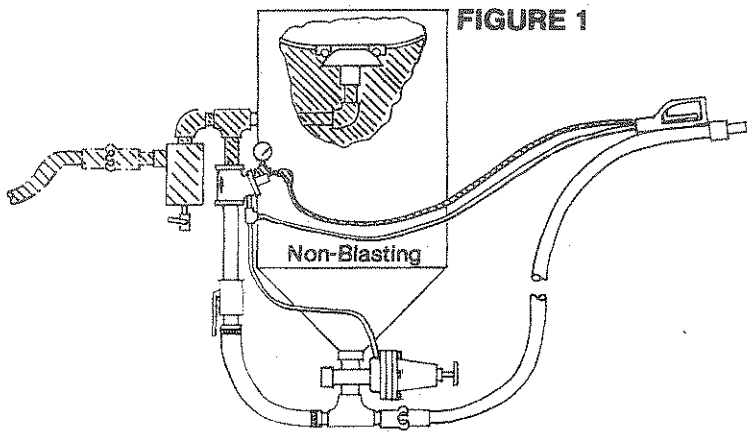
A. INTRODUCTION:

This remote control package has been designed to be installed on most single chamber blasters.

The 780 remote control permits the blaster to remain under pressure when the handle is released and allows the operator to begin blasting immediately when the handle is depressed.

Figures 1 and 2 illustrate the air flow in the non-blasting and blasting modes.

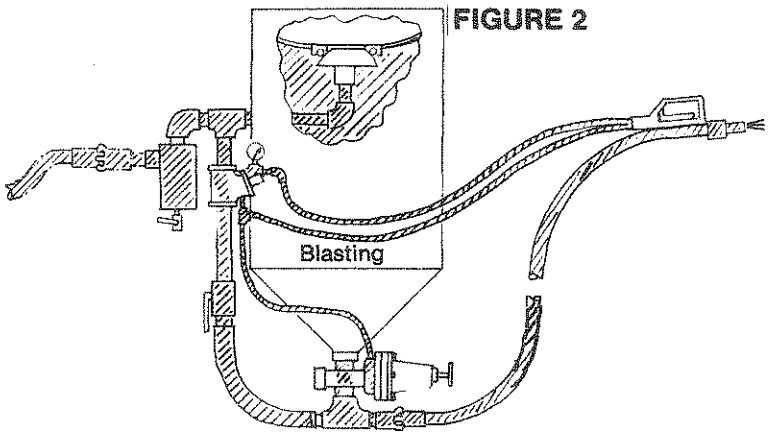
FIGURE 1



NON-BLASTING:

Main air flows from the top of the automatic air valve through the 1/8" black line and is stopped at the handle.

FIGURE 2



BLASTING:

When the handle is depressed, air flows back through the 1/4" yellow line to the automatic air valve causing it to open, and to the Automatic Sure-Flo grit valve,* causing it to open.

B. PARTS SUPPLIED BY EMPIRE:

1. Automatic Sure-Flo Grit Valve with ¼" Fitting.
2. 2" x 11/4" tee for bottom of grit valve.
3. Hose barb for 2" x 1¼" tee.
4. 780-1 or 780-2 pipe string assembly with gauge, automatic air valve, choke valve, hose barb, Dry-Flo manual drain separator with built-in swing check, manual exhaust valve.
5. Choke or air line hose fittings and worm gear clamps, control line hose, fittings and worm gear clamps.
6. Outlet bushing kit to allow Sure-Flo grit valve to be adapted to any blaster with 1", 1¼", 1½" or 2" outlet coupling.
7. 55' of dual line hose with pneumatic control or 15' battery cord and 55' control cord with electric control handle.
8. Outlet exhaust valve and silencer.

C. PARTS THAT MAY BE REQUIRED AND NOT SUPPLIED BY EMPIRE:

1. Fittings to match exhaust coupling with 1" manual exhaust valve assembly.
2. Fittings to match inlet coupling with Empire pipe string.
3. Blast hose, couplings and nozzle.

D. INSTALLATION

Figures 3 through 8 show the installation of a 780 remote control on an Empire blaster.

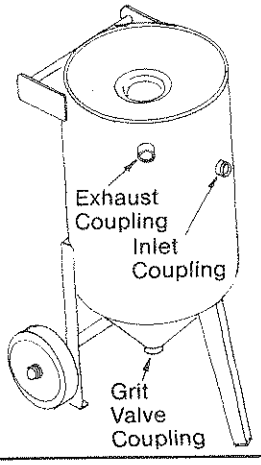
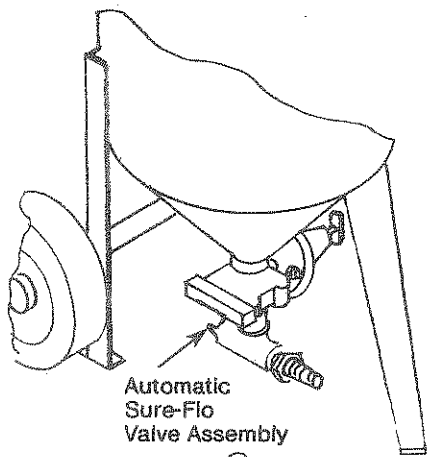


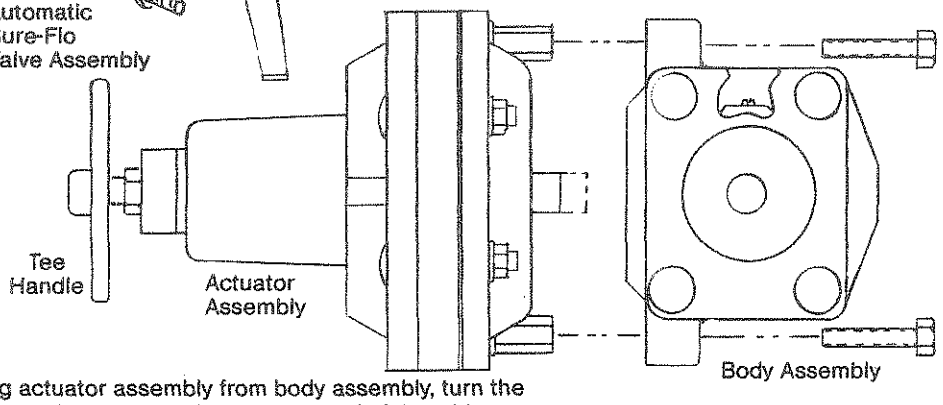
FIGURE 3

1. Strip existing piping controls and grit valve from tank as shown.
2. If exhaust coupling (located high on tank) is 1" no extra fittings are needed. If this coupling is not 1" provide fitting to accept 1" MPT.
3. If inlet coupling matches pipe string size (1" or 1¼") no extra fittings are needed. If this coupling does not match pipe string provide fitting to match.
4. If the grit valve coupling is 1", 1¼", 1½" or 2" no additional fittings are required.

FIGURE 4

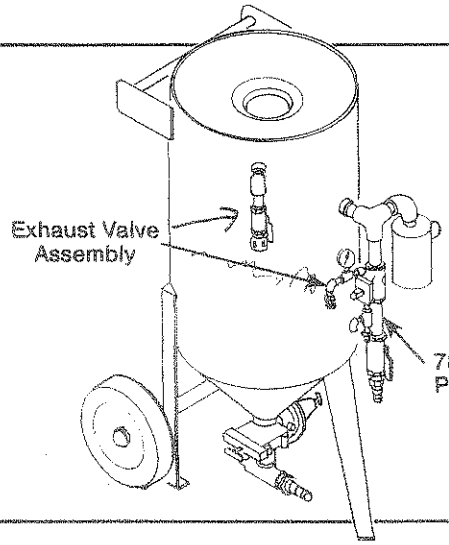


1. Install automatic Sure-Flo grit valve under tank as shown. Use the fittings provided to match the 2" MPT Sure-Flo with the tank coupling.
2. If tank legs are too close together to allow grit valve to be installed, remove the actuator assembly by loosening two bolts as show below.
3. After installing the Sure-Flo body replace the actuator assembly as described below.



Before removing actuator assembly from body assembly, turn the tee handle counter clockwise until no resistance is felt — this causes the actuator plunger to retract making it easier to disassemble and assemble the Sure-Flo. With plunger fully retracted, the two bolts holding the actuator can be removed.

FIGURE 5



1. Install exhaust valve assembly in exhaust coupling.
2. Install 780-1 (1" NPT) or 780-2 (1¼ NPT) pipe string assembly in inlet coupling as shown.

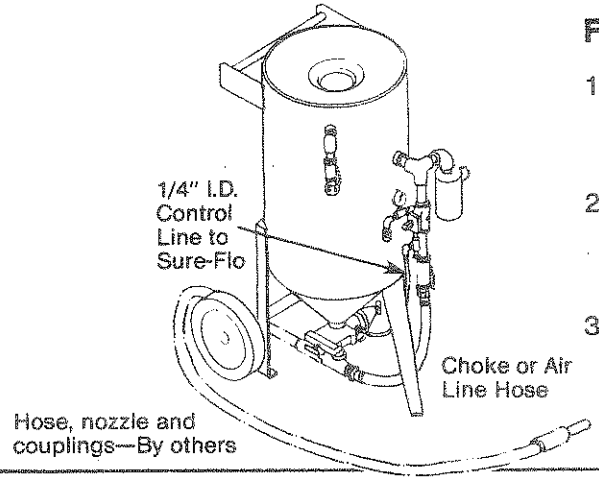


FIGURE 6

1. Cut choke or air line connection hose to length and install hose barbs. Secure with worm gear clamps provided.
2. Attach Sure-Flo control line as shown. Note: Cut ¼" I.D. hose to length and secure with worm gear clamps provided.
3. Blaster is now ready for installation of either pneumatic or electric controls. See following pages for instructions.

FIGURE 7

INSTALLATION OF PNEUMATIC CONTROLS

1. Attach female fitting on yellow dual line to male fitting as shown.
2. Attach female fitting on black dual line to male fitting as shown.
3. Tape dual line to blast hose every five feet. Attach pneumatic Saf-Stop handle with worm gear clamps provided.
4. Check that all fittings, hoses and piping are tight.

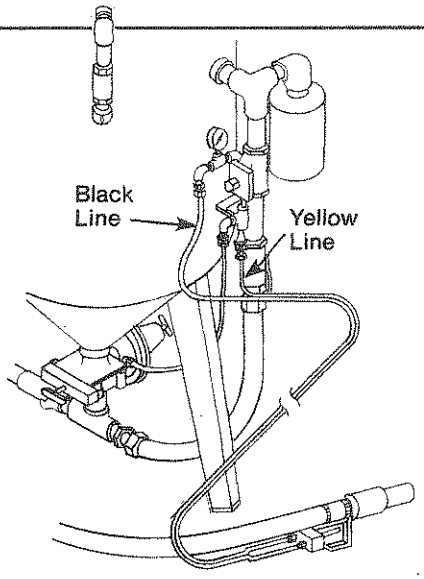
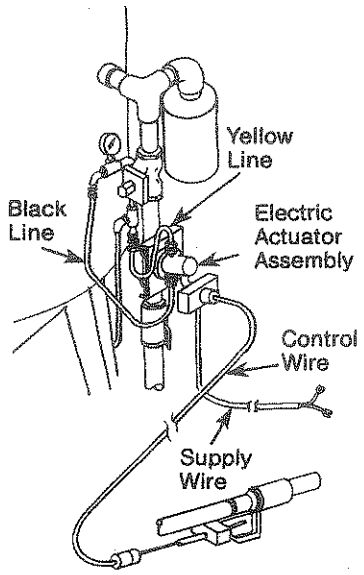


FIGURE 8

INSTALLATION OF ELECTRIC CONTROLS

1. Using U-clamps provided, attach electric actuator assembly to piping string as shown.
2. Attach female fitting on yellow control line to male fitting as shown.
3. Attach female fitting on black control line to male fitting as shown.
4. Plug in control wire as shown.
5. Tape control wire to blast hose every 5 feet. Attach electric SAF-STOP handle with worm gear clamps provided.
6. Connect electric supply wires to a power source of the proper voltage. (12 V.D.C. is standard; 24 V.D.C. and 120 V.A.C. are available options.)
7. Check that all fittings, hoses and piping are tight.



E. OPERATION:

Important: O.S.H.A. regulations require the use of an air-fed hood, air purifier, carbon monoxide detector or filtering device, protective clothing and a remote control system when operating blasting equipment.

1. START-UP
   a. Make sure the SAF-STOP II control handle is in the up position.
   b. Connect the blaster to an adequate compressed air supply.
2. BLASTING*
   a. Open the main air valve to the blaster. The pot is now under pressure.
   b. Depress the SAF-STOP II control handle to begin blasting.
   c. To stop blasting, release the control handle.

   Note: Never turn off the compressor before depressurizing the blaster. Condensation can occur overnight. Therefore, empty the blaster of grit at the end of each day.

   IMPORTANT WARNING: The SAF-STOP II control must never be wired or tied down in the blasting position. This could result in serious injury or death.

*Note that Grit-Mizer™ (Patent Pending) pneumatic controls now include an exclusive grit flow control as standard which allows the operator to control grit flow from the nozzle. This control is available as an option on electric remote controls. Please refer to Appendix A for instructions on the pneumatic and electric Grit-Mizer control.

F. TROUBLE SHOOTING:

1. No air or grit flows out of the nozzle when operator depresses control.

   PNEUMATIC SYSTEM

   a. Depressurize tank and check nozzle for obstruction.

   b. Make sure 1/4 pet cock is open.

   c. Remove the plug in the ¼" pipe cross under the automatic air valve. When operator's handle is depressed, air should escape (A gauge screwed into this opening should show minimum 60 PSI with 90 PSI supply).

   If no air escapes (or if pressure is less than 60 PSI) check dual lines and fittings for kinks or leaks. Trace control air through system as follows: Remove black line at handle—air should escape. Reconnect black line and remove yellow line at handle—air should escape when handle is depressed. By tracing air flow in this manner, location of obstruction or leak can be determined.

   If control air of adequate pressure is reaching automatic air valve, problem is ruptured diaphragm in this valve.

   Note: A small volume of air bleeding from the stem of the automatic air valve will be noticed when valve control line is pressurized. This bleed is a safety feature which shuts down the system if hoses should accidentally be crimped.

   ELECTRIC SYSTEM

   Check to see if leads to pilot valve are energized when control handle is depressed.

   1. If leads are not energized, check for dead battery, breaks in control cord or faulty control switch.
   2. If leads are energized when control is depressed, pilot valve is faulty.

2. Air but no grit at nozzle when operator depresses control.

   a. Tank is empty.

   b. Tee handle on Sure-Flo is closed.

   c. Check for obstruction at the nozzle or at the tank outlet or in the Sure-Flo valve.

   d. Check air line and fittings to Sure-Flo for leaks when operator depresses control handle.

   e. If all the above have been checked and it is determined that the air signal is received at the Sure-Flo, but the valve does not open, problem is ruptured diaphragm.

3. Too much grit at nozzle but not enough air.

   a. Choke valve is closed.

   b. Tee handle of Sure-Flo open too far.

   c. Leak in air line to automatic air valve.

   d. Automatic air valve is sticking or has ruptured diaphragm.

G. MAINTENANCE:

1. Dual line hose or electrical cord must be in good operating condition and tightly secured to the SAF-STOP II control and automatic air valve.
2. Check to make sure the metering tube in the grit valve is not worn. Check metering tube in the automatic Sure-Flo grit valve.

Note: If a slight amount of air and grit leak out of the nozzle when the control handle is released, the tube may be worn and should be replaced. Disconnect blast hose from tank coupling. Disconnect side flexible hose assembly from grit valve. Disconnect ¼" air control hose from adapter on Sure-Flo diaphragm cover (18). Back jam nut (11), spring tensioner (12) and handle (9) assembly out from regulator spring enclosure (13) approximately 1½". It is not necessary to remove completely from the grit valve. Remove four carriage bolts holding bottom of valve to upper flange. Remove bottom of valve from top flange. Back bolt (3) off to relieve pressure on the metering tube (2). Remove old tube and install new metering tube. Reassemble bottom of regulator to top flange using four carriage bolts. Thread jam nut, spring tensioner and handle assembly back into regulator spring enclosure. Completely tighten bolt (3). Adust grit flow.

WARNING: Sure-Flo Grit Valve should not be disassembled while the blaster is under pressure.

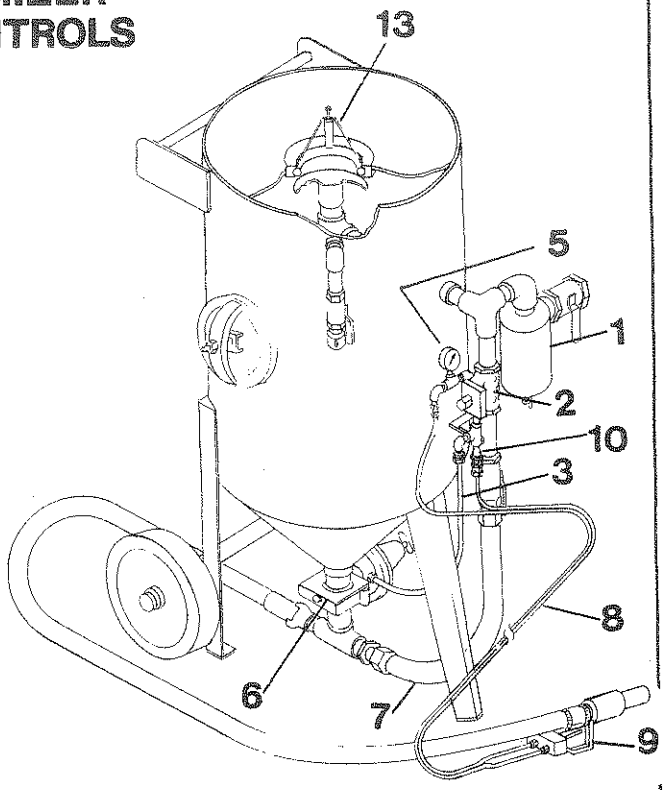
IMPORTANT: This metering tube has been designed of a specific abrasive resistant material. To insure your warranty and top blasting performance, use only EMPIRE approved replacement parts.

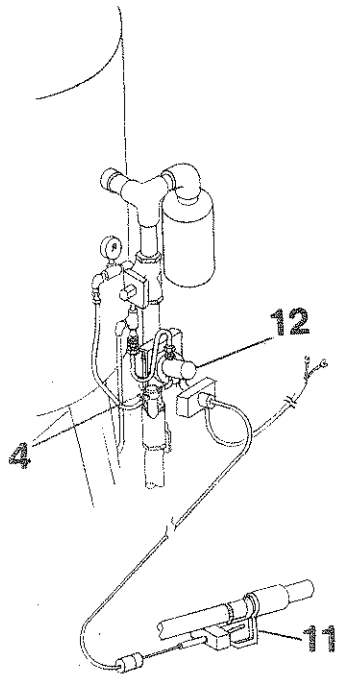
H. REPLACEMENT PARTS

	Part Number	Description
(1)	290191	DF-1 Manual Drain Separator, 1" NPT
	290192	DF-2 Manual Drain Separator, 1¼" NPT
(2)	518052	Air Valve, 1" NPT
	518062	Air Valve, 1¼" NPT
(3)	290371	Control Hose, ¼" ID w/fittings (SuperBlast 350)
	290373	Control Hose, ¼" ID w/fittings (SuperBlast 650)
	290375	Control Hose, ¼" ID w/fittings (SuperBlast 1050)
(4)	504552	Air Filter Assembly
(5)	550242	Air Gauge, ¼" NPT
(6)	290215	Automatic Sure-Flo Grit Valve
(7)	290318	Flexible Hose w/fittings (SuperBlast 350)
	290319	Flexible Hose w/fittings (SuperBlast 650)
	290333	Flexible Hose w/fittings (SuperBlast 1050)
(8)	521962	Dual Hose w/fittings (30')
	521882	Dual Hose w/fittings (50')
	521892	Dual Hose w/fittings (55')
(9)	290164	77 Saf-Stop II
(10)	520642	Air Valve, ¼" NPT
(11)	290354	Electric Saf-Stop II Handle Assembly
(12)	517092	Electric Actuator (12V.)
(13)	290367	E-Z Fill Bag/Breaker Screener

For more details, refer to "SuperBlast Operating Manual for Single Chamber Blasters"

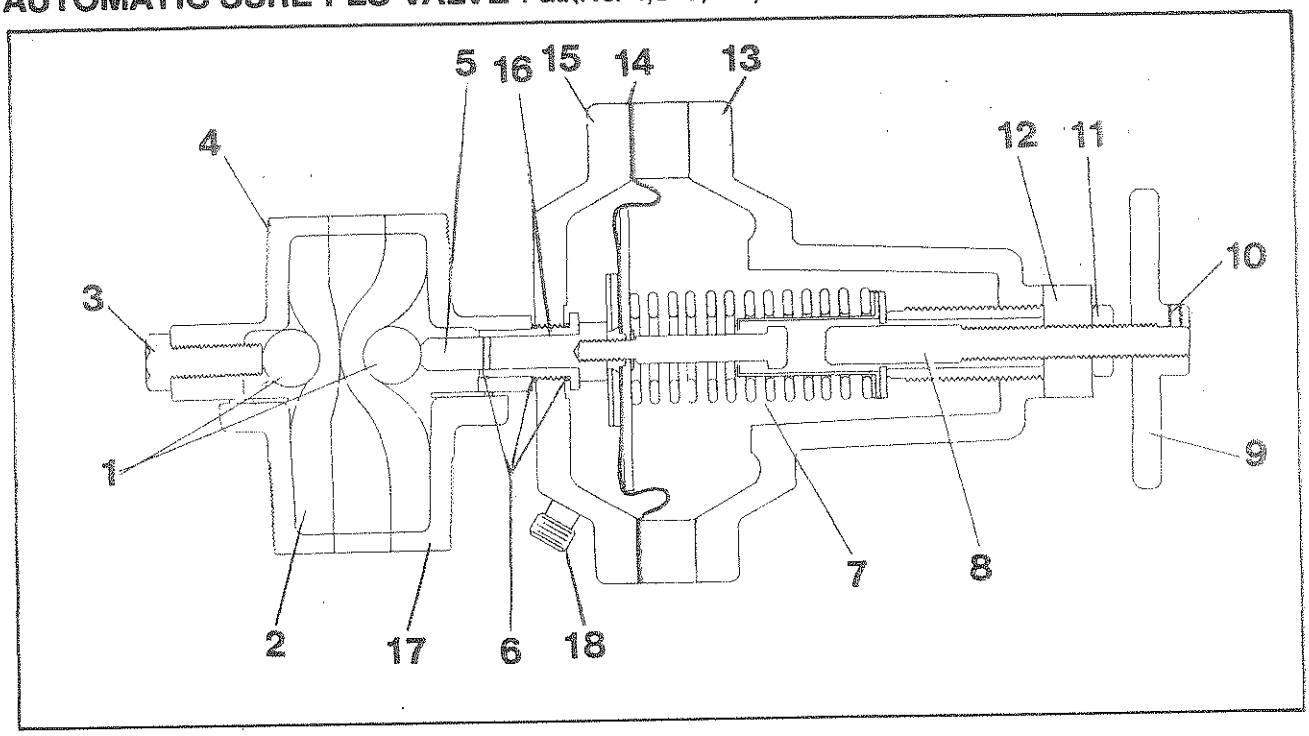
SUPERBLAST WITH GRIT-MIZER™ PNEUMATIC REMOTE CONTROLS INSTALLED





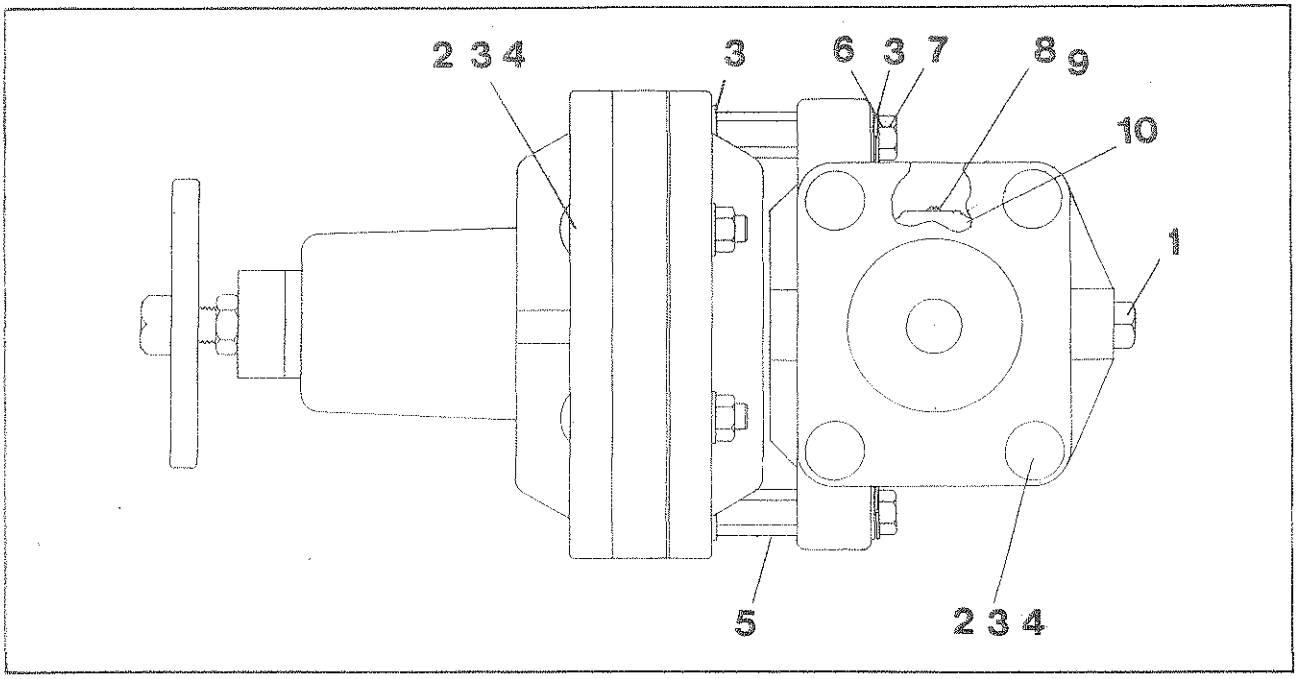
SUPERBLAST WITH 780 SERIES ELECTRIC REMOTE CONTROLS INSTALLED

AUTOMATIC SURE-FLO VALVE Pat.(No. 4,518,145)



	Part Number	Description
	290215	Automatic Sure-Flo Grit Valve
(1)	753632	Pinch Roller
(2)	523592	Metering Tube
(3)	552222	Bolt, 7/16″-14 x 1¼″
(4)	753692	Valve Body
(5)	505872	Plunger w/"O" Ring
	523972	"O" Ring for Plunger
(6)	561422	Repair Kit for Sure-Flo
(7)	290296	Spring Assembly includes diaphragm, plunger and sealing plunger
(8)	505812	Handle Shaft
(9)	753622	Handle
(10)	551732	Ny-Loc Set Screw
(11)	552672	Jam Nut, 1/2″-13
(12)	505832	Spring Tensioner
(13)	753682	Spring Enclosure
(14)	525012	Diaphragm
(15)	753122	Diaphragm Cover
(16)	753462	Plunger Guide
(17)	753292	Regulator Flange
(18)	520222	Hose Adapter, 14″ NPT

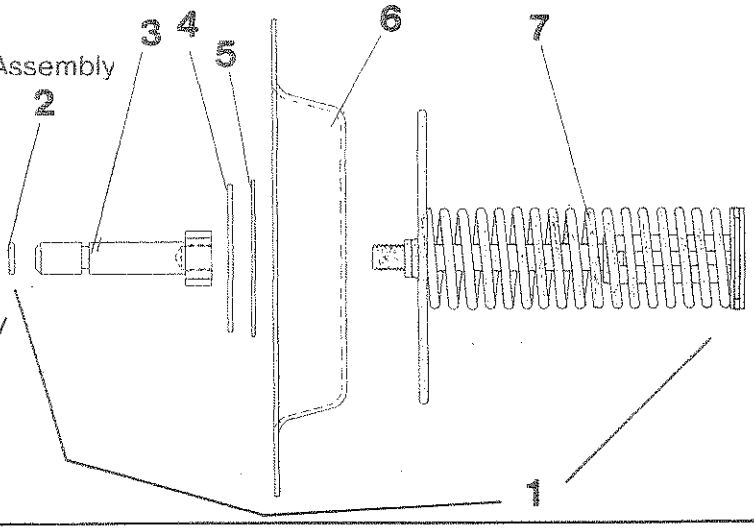
AUTOMATIC SURE-FLO HARDWARE



	Part Number	Description		Part Number	Description
(1)	55222	Bolt, 7/16"-14 x 1¼"	(6)	552892	Washer, ⅜"
(2)	552052	Carriage Bolt, ⅜"-16 x 2½"	(7)	551262	Bolt, ⅜"-16 x 2½"
(3)	552762	Lock Washer	(8)	551352	Screw, #8-32 x ½"
(4)	552542	Hex Nut, ⅜"	(9)	552862	#8 Washer
(5)	552662	Coupling Nut	(10)	753092	Roller Stop Plate

AUTOMATIC SURE-FLO SPRING & DIAPHRAGM ASSEMBLY

	Part Number	Description
(1)	290296	Spring & Diaphragm Assembly
(2)	523972	"O" Ring
(3)	505872	Plunger w/"O" Ring
(4)	552902	Washer
(5)	525032	Diaphragm Gasket
(6)	525012	Diaphragm
(7)	290120	Spring Assembly Only



APPENDIX A

OPERATING INSTRUCTIONS FOR THE GRIT-MIZER™ CONTROL SYSTEM

Empire's Grit-Mizer remote control system (patent pending) takes advantage of the unique operating characteristics of the Sure-Flo® HP Grit Valve (Pat. No. 4,518,145) to allow a blast operator to remotely control grit-air mixture at the blast nozzle, without the assistance of a pot tender and without shutting down the blaster. The operator can also shut-off the grit flow completely in order to blow the work off.

Before attempting to use the Grit-Mizer control valve, the following should be considered:

1. Empire's Grit-Mizer valve will work only with Empire's SuperBlast 350, 650 and 1050 blasters (manufactured after 5/1/84) with 780 type (pot under pressure) pneumatic or electric remote controls. It cannot be used with 680 type (blow down) controls or on Empire's SuperBlast manufactured prior to 5/1/84 and earlier blasters.
2. The Grit-Mizer valve will not work on any competitive blaster.
3. Electric controls are recommended for hose runs over 100 feet in order to prevent an time delay for start-up and shut-down. The electric Grit-Mizer control is effective with up to 300 feet of hose.

INSTALLATION

Pneumatic Controls

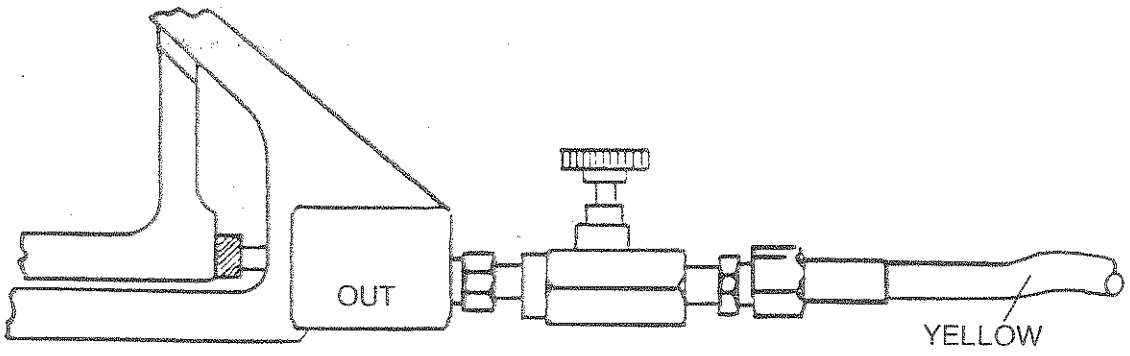
If the Grit-Mizer valve is already installed on your Saf-Stop™ handle, just mount the handle to the blast hose as you normally would. The standard fitting on your yellow dual line hose will mate with the fitting in the Grit-Mizer valve.

To install a Grit-Mizer valve on an existing pneumatic Saf-Stop, remove the brass fitting in the "out" port and install the Grit-Mizer valve as shown in the diagram below. Make sure the connection is pressure tight. Air leaks will interfere with proper operation.

Electric Controls

On electric Grit-Mizer systems a single 1/4" pneumatic control hose must be installed from the blaster to the electric remote handle. This line can be taped to the blast hose along side of the electric cord.

Installation of an electric Grit-Mizer on an existing blaster requires a new electric Saf-Stop handle which is specially modified for use with the Grit-Mizer valve.



PNEUMATIC SAF-STOP with GRIT-MIZER™ VALVE—P/N 290419

OPERATION

1. Prior to pressurizing the blaster, turn the knob on the Grit-Mizer valve counter-clockwise until resistance is felt. At this point the valve is fully open and no grit or air will flow.
2. When the operator is fully equipped and ready, pressurize the blaster.
3. When the operator initially depresses the Saf-Stop™ handle, nothing will happen. At this time he should **slowly** turn the Grit-Mizer control knob clockwise. As the knob is turned at first, air but no grit will flow. As the knob is turned further, grit will begin to flow. Adjust the knob until the proper grit flow is obtained, keeping in mind that there will be a slight time lag after the knob is turned until the grit flow stabilizes. This lag will be less than 5 seconds with 50 feet of hose and less than 10 seconds with 100 feet of hose (do not use pneumatic controls with more than 100 feet of hose). On electric remote controls this time lag applies only to the grit flow adjustment—not to the on-off control which will be essentially instantaneous.
4. To turn off grit flow while maintaining air flow for blow-off, the operator should slowly turn the knob counter-clockwise until grit flow stops and only air issues from the nozzle. After blow off is complete, the operator must readjust the control clockwise to resume normal blasting.

EMPIRE
ABRASIVE EQUIPMENT CORPORATION
2101 WEST CABOT BOULEVARD, LANGHORNE PA. 19047
• (215) 752-8800 • FAX (215) 752-9373
• TELEX 831-378 • EASY LINK 62954372

Printed in U.S.A.