

# Pulsar IX Suction Blast Cabinet



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The products described in this material, and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose or application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

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It is the responsibility of the user to insure that proper training of operators has been performed and a safe work environment is provided.

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

## **OWNER'S MANUAL**

## 1.0 INTRODUCTION

### 1.1 Scope of Manual

1.1.1 These instructions cover set-up, operation, adjustments, maintenance, troubleshooting, and replacement parts, for Pulsar IX Suction Blast Cabinets.

1.1.2 These instructions also contain important information required for safe operation of the cabinet. Before using this equipment, all personnel associated with the blast cabinet operation must read this entire manual, and all accessory manuals to become familiar with the operation, parts and terminology.

### 1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, 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 the user of this equipment of potential personal injury hazards.

Obey all safety messages that follow this symbol to avoid possible injury or death.

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### CAUTION

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Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

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### CAUTION

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Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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### WARNING

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

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## DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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### 1.3 General Description

1.3.1 The Pulsar cabinet encloses the blasting environment to provide efficient blast cleaning while maintaining a clean surrounding work area. Production rates are influenced by size of air jet and nozzle, compressor output, working pressure, type and size of media, and angle and distance of the nozzle from the blast surface. Pulsar IX suction cabinets consist of two major components.

1. Cabinet Enclosure
2. Power Module
  - Includes: skid, reclaimer, and reverse pulse dust collector.

See Figure 1 for components of the cabinet enclosure, and Figure 2 for arrangement and components of the power module.

1.3.2 Pulsar suction cabinets are easily converted to pressure systems, using the conversion kit listed under Optional Accessories in Section 9.1.

### Theory of Operation

1.4.1 When the cabinet and power module are correctly set-up, the cabinet is ready for operation by actuation of the foot pedal. Fully depressing the foot pedal causes air to flow through the blast gun. Air moving through the gun draws media into the blast gun mixing chamber. The media mixes with the air and is propelled out the nozzle. After striking the object being blasted, the blast media, along with fines, dust, and by-products generated by blasting, fall through the grate into the cabinet hopper. These particles are drawn into the reclaimer for separation. Dust and fines are first separated from the reusable blast media. Next the media is screened of oversize particles, and returned to the reclaimer hopper for reuse. Dust and fines are drawn from the reclaimer into the dust collector which traps the dust, discharging clean air. When the foot pedal is released the blasting stops.

1.4.2 The dust collector filter cartridges are cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridges. The expanding air momentarily reverses the air flow, releasing trapped dust. The dust particles fall away from the cartridges and into the dust hopper for removal.

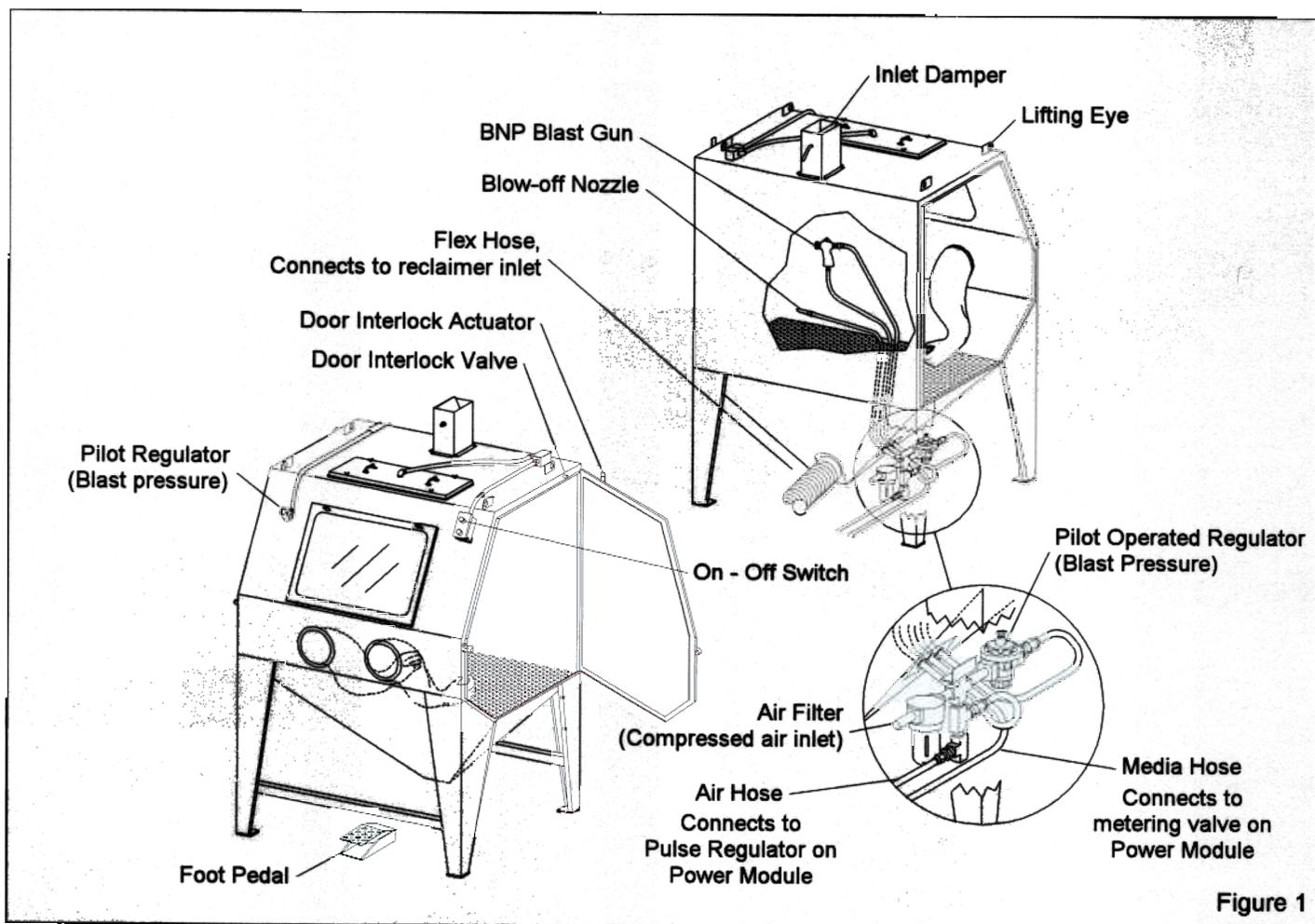


Figure 1

## 1.5 Cabinet Enclosure

**1.5.1** Abrasive blasting takes place in the cabinet enclosure. Media is conveyed through the media hose, from the metering valve located on the bottom of the reclaimer mounted on the power module.

**1.5.2** Spent media and blasting byproducts are conveyed by way of the flex hose, from the cabinet hopper to the reclaimer.

## 1.6 Power Module

**1.6.1** The vacuum for the media recovery is generated at the exhaustor, mounted on the clean-air side of the dust collector. The Pulsar power module has a two cartridge reverse pulse dust collector, and a 900 cfm reclaimer.

### 1.6.2 Reclaimer

**1.6.2.1** The reclaimer is a pull-through cyclone separator, into which air, blast media, dust, fines, and by-products generated by the blasting process are drawn through a flex hose from the cabinet enclosure. The

vacuum is created by the exhaustor assembly mounted on the clean-air side of the dust collector. An adjustable vortex outlet pipe is mounted on the top of the reclaimer, for the attachment of the flex hose, leading to the dust collector inlet.

**1.6.2.2** Dust and fines are first separated from the reusable blast media. Next, the media is screened of oversized particles, and good media is returned to the reclaimer hopper for reuse.

**1.6.2.3** Air, dust and fines are drawn through the center of the reclaimer, and into the dust collector for further separation.

**1.6.2.4** A constant static balance is necessary for efficient separation, as the reclaimer operates by a centrifugal balance of velocity, particle weight and size. The best way of ensuring a constant air balance is by setting, and monitoring static pressure with an optional manometer. See Section 9.1.

**1.6.2.5** Rubber reclaimer liners should be used with aggressive media. Rubber liners are listed under Optional Accessories in Section 9.1 and Section 9.10.

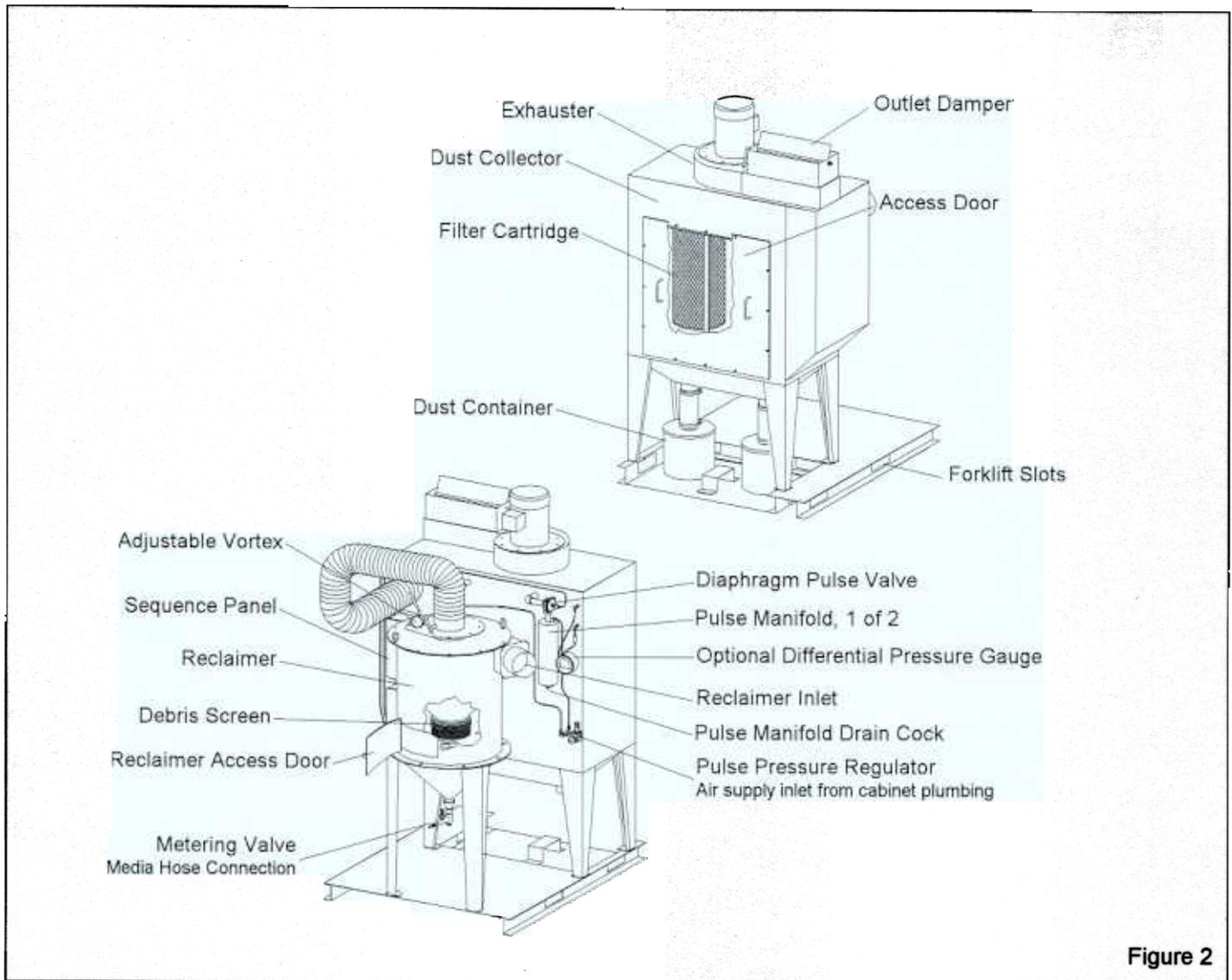


Figure 2

### 1.6.3 Dust Collector

**1.6.3.1** The final stage of the recovery, reclaiming process takes place in the dust collector. Dust and fines drawn through the reclaimer are trapped on the outer surface of the filter cartridges, discharging clean air.

**1.6.3.2** The dust collector filter cartridges are cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridges. The dust particles fall away from the cartridges and into the dust hopper for removal.

**1.6.3.3** The pulse interval is controlled by a timer located inside the sequence panel. The timer controls the "on" time (the length of time for each pulse) and "off" time (the length of time between each pulse). The "on" time should never be adjusted. The lower the setting for the "off" time, the shorter the length of time between pulses.

**1.6.3.4** A toggle switch (sequence switch) located on the sequence panel cover, enables or disables the timing sequence. If the sequence switch is kept "on", the timing sequence energizes when the exhauster is turned on, and the cartridges are automatically pulsed when the exhauster is running. If the switch is "off", the timer does not energize, and the cartridges are not pulsed.

### 1.7 Nozzle Options

**1.7.1** Unless otherwise specified at the time of order, cabinets are shipped with a 5/16" orifice ceramic nozzle and No. 5 (5/32" orifice) air jet. More durable tungsten carbide and boron carbide nozzle are available and are shown under Optional Accessories in Section 9.1. Use boron carbide nozzles when blasting with aggressive media.

## 1.8 HEPA Filter

**1.8.1** Optional HEPA after-filters provide additional filtration and must be used when removing lead coatings or any other toxic materials.

### **⚠ WARNING**

Prolonged exposure to any dust could result in serious lung disease and death. Short term ingestion of toxic materials, such as lead dust or dust from other heavy metals and corrosives, could cause serious respiratory injury or death. Identify all materials that are to be removed by blasting. Use HEPA after-filters if lead coating or any other toxic materials are being removed by the blasting process.

## 1.9 Media

**1.9.1** Pulsar suction cabinets utilize most common media, 200 mesh and coarser that is specifically manufactured for dry blasting. The usable media size range depends on the nozzle orifice size, and reclaimer cleaning rate. Several factors affecting the reclaimer cleaning rate include: air pressure, media/air mixture, media friability, contamination of parts being cleaned, and humidity. Using media in the 200 mesh and finer range will usually require adjustments to the vortex cylinder. See Section 5.5. Media sizes shown under the media headings are guidelines only, based on standard 5/16" orifice nozzle and average conditions.

**1.9.2 Steel:** Steel shot S-170 and finer or steel grit 40 mesh and finer may be used. The conveying hose on cabinets using steel should be lined, and reduced one size from standard. Rubber curtains should be used to protect the cabinet walls from peening and rapid wear. For these applications cabinets can be ordered with flex hose appropriately sized for steel grit, and with curtains installed. This special requirement may be specified at the time of order, or field installed at a later date. See Optional Accessories in Section 9.1

**1.9.3 Sand and Slag:** Do not use sand because of the respiratory hazards associated with the use of media containing free silica. Slags are not recommended because they rapidly break down.

**1.9.4 Aggressive Abrasive:** Aluminum oxide, silicon carbide and garnet may be used but consideration must be given to accelerated wear on all parts of the cabinet (reclaimer, nozzle and hoses etc.) that comes in contact with the media. If aggressive media is used periodically, use an optional aluminum oxide kit. When these media are used extensively, use rubber reclaimer liners, and

boron carbide nozzles. See Optional Accessories in Section 9.1.

**1.9.5 Glass Bead:** Most beads are treated to ensure free-flow operation even under moderately high humidity conditions. Glass beads subjected to excessive moisture may be reused after thorough drying and breaking up of any clumps.

**1.9.6 Fine-mesh Media:** When using 200-mesh and finer media, the adjustable vortex cylinder will require adjustment. See Section 5.5. The inlet baffle may need to be removed, See Section 7.10. NOTE: The removable baffle is not available on rubber lined reclaimers.

## 1.10 Compressed Air Requirements

**1.10.1** The size of the compressor required to operate the cabinet depends on the size of the air jet and blasting pressure. Unless specified otherwise, cabinets are supplied with a No. 5 (5/32" orifice) jet. Refer to the table in Figure 3 to determine cfm requirements for the cabinet. Add an additional six cfm for the dust collector pulse. Consult with a compressor supplier for a suggested compressor size based on the air consumption.

BNP Gun	Jet	Nozzle	CFM	PSI
No. 4	1/8"	5/16"	21	80
No. 5	5/32"	5/16"	32	80
No. 6	3/16"	3/8"	47	80
* No. 7	7/32"	7/16"	62	80
* No. 8	1/4"	1/2"	86	80

Air Consumption in cfm

**Figure 3**

**1.10.2** The air filter at the air inlet, removes condensed water from the compressed air. Its use is especially important in areas of high humidity, or when fine-mesh media are used. Moisture causes media to clot and inhibits free flow through the feed assembly. If moisture problems persist, an air dryer may be required.

## 1.11 Electrical Requirements

**1.11.1** Standard voltage is 230/460, 3-phase. Wiring from the user's disconnect to the cabinet control panel must be provided by the user. Additional wiring information is in Section 2.4.

**2.0 INSTALLATION**

**2.1 General**

**2.1.1** Select a location where compressed air and electrical service are available. Position the cabinet to provide ample space around the operator station and to load and unload parts. Provide unobstructed space at access doors and service areas. Determine the best location for both modules, and position them before final assembly.

**2.2 Connect Compressed Air Supply Line**

**2.2.1** Install air supply fittings to the air filters located under the cabinet hopper and at the dust collector, that are compatible with the compressed-air supply lines. See 2.2.2.

**2.2.2** See the table in Figure 4 to determine the minimum ID of air supply line to the cabinet. A smaller diameter hose may reduce blasting performance. An additional air supply with the minimum ID of 3/8" is required for the dust collector.

Air Line Length	Jet Size		
	No. 4	No. 5	No. 6
25 feet	3/4"	3/4"	1"
50 feet	3/4"	3/4"	1"
75 feet	3/4"	1"	1"
100 feet	3/4"	1"	1"
Minimum compressed air line ID			

Figure 4

**⚠ WARNING**

Failure to observe the following before connecting the equipment to the compressed air source could cause serious injury or death from the sudden release of compressed air.

- Lock out and tag out the compressed air supply.
- Bleed the compressed air supply line.

**⚠ WARNING**

To avoid the risk of injury from compressed air, install an isolation valve and bleed-off valve where the air supply is tapped into the compressed air system. This enables depressurization of the compressed air circuit before performing maintenance.

**2.2.3** Install an isolation valve at the air source to enable depressurization for service, and connect air lines from the air source to the air filter inlet located under the cabinet hopper. If twist-on couplings are used, use lock-pins to safety lock the coupling together. Lock-pins are listed under optional accessories in Section 9.1.

**⚠ WARNING**

If twist-on type air hose couplings are used, they must be secured by safety lock pins or wires to prevent accidental disconnection while under pressure. Hose disconnection while under pressure could cause serious injury.

**2.3 Ground Cabinet**

**2.3.1** To prevent static electricity build up, attach an external grounded wire from an earth ground to the grounding lug on the cabinet and dust collector.

**2.4 Connect Electrical Service**

**⚠ WARNING**

Lock out and tag out the electrical supply before performing any electrical service. Shorting electrical components could result in death, serious injury from electrical shock, or equipment damage. All electrical work, or any work done inside an electrical panel, must be performed by qualified electricians, and comply with applicable codes.

NOTE: Wiring schematics are stored in the electrical panel. Use the schematic for making electrical connections. After wiring is completed, keep the schematic with the manual for future reference and for electrical replacement parts.

**2.4.1** Where possible, all wiring has been completed at the factory. The electrician only needs to provide service from the user's disconnect, to the motor starter in the electrical panel mounted on the side of the dust collector, and to connect the conduit and wiring from the junction box on the cabinet to the electrical panel.

**2.4.2** After the wiring is completed, observe the subsequent warning, and check the motor rotation. To check rotation, jog the starter (momentarily turn switch on and off). This will cause the motor to rotate slowly. Look through the slots in the fan housing on top of the motor where rotation of the fan can easily be observed.

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Proper rotation is indicated by the arrow on the exhauster housing. The fan should be rotating clockwise when viewed from the fan end of the motor.

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### WARNING

Do not look into the reclaimer exhauster outlet while the paddle wheel is turning. Injury to the eye or face could occur from objects being ejected from the exhauster.

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## 2.5 Flex Hose Connections

**2.5.1** To prevent excessive hose wear, avoid sharp bends and curves. Connect the 7" diameter flex hose between the reclaimer outlet and the dust collector inlet. Connect the 6" diameter flex hose between the cabinet hopper and reclaimer inlet. NOTE: It is easier to slip the hose over the connectors and to create a tighter seal if the first two or three inches of wire is removed from the inside of the hose. Use care not to damage the hose. The hose wire helps dissipate static electricity in the conveying hose, and also helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

**2.5.2** Clamp the flex hose securely in position with worm clamps provided.

## 2.6 Connect Media Hose

**2.6.1** Attach the clear media hose coming from the cabinet hopper, to the compatible fitting on the metering valve located at the bottom of the reclaimer.

## 2.7 Inlet Damper

**2.7.1** The inlet damper must be set to match cabinet dimensions and reclaimer size. The decal on the damper shows the settings in degrees. For the initial setting, align the handle to 0 degrees (full open). See Section 5.9 for adjustment procedure.

**2.7.2** Loosen the lock nuts and position the damper. When correctly positioned, tighten the lock nuts to maintain the setting.

## 2.8 Air Connection for Pulse Valves

**2.8.1** Connect the air hose from the piping assembly under the cabinet to the dust collector pulse pressure regulator. refer to Figures 1 and 2.

## 2.9 Final Assembly

**2.9.1** Position the foot pedal on the floor at the front of the cabinet.

**2.9.2** A package of 5 cover lenses is supplied with the cabinet. To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner surface of the view window per Section 6.5. When the cover lens becomes pitted or frosted, replace it.

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## 3.0 FIELD INSTALLED ACCESSORIES

### 3.1 Alox Kit

**3.1.1** An optional aluminum oxide kit is available factory-installed or may be field installed later. The factory-installed Alox kit consists of black rubber curtains with curtain hardware, and boron carbide nozzle.

### 3.2 Rubber Curtains

**3.2.1** Rubber curtains protect the cabinet walls and doors from rapid wear caused from abrasive overspray and rebounding media, and from peening (warping) caused by the impact of spherical media. Installation instructions are supplied with the curtains.

### 3.3 Manometer

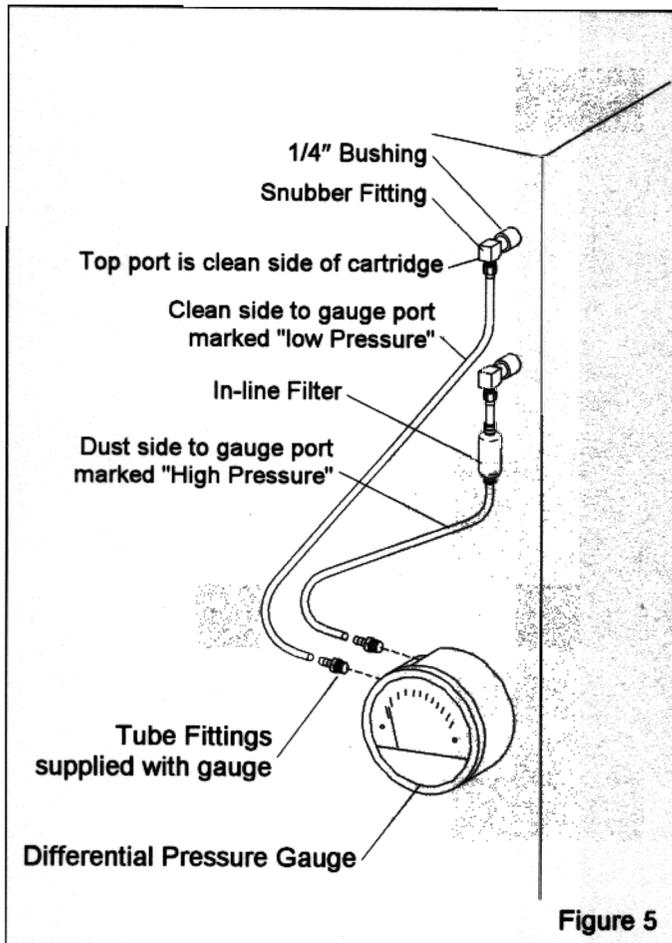
**3.3.1** A constant static pressure balance is necessary for precise separation, as the reclaimer's efficiency is accomplished by a centrifugal balance of particle weight and size. The air balance and static pressure are set by adjusting the outlet damper. The manometer measures static pressure. Use the instruction sheet provided with the manometer, for installation and operation. The optional manometer kit is listed in Section 9.1.

### 3.4 Differential Pressure Gauge

**3.4.1** The differential pressure gauge measures pressure drop across the cartridges. The gauge is the best way to monitor cleaning efficiency and dust build-up.

**3.4.2** Remove 1/4" pipe plugs from dust collector body, and install 1/4" x 1/8" bushings and snubber fittings as shown in Figure 5.

**3.4.3** Plug the rear pressure ports on the gauge, and install the tube fittings supplied, to the side pressure ports as shown.



**3.4.4** Follow the instructions packed with the gauge to mount the gauge to the side of the collector.

**3.4.5** Connect the 1/4" tubing to the snubber fittings, filter, and gauge, as shown.

## 4.0 OPERATION

### 4.1 Season Filter Cartridges

### CAUTION

Do not pulse new dust collectors and cartridges until the cartridges are seasoned. See Section 7.8. Premature pulsing decreases the efficiency of collector and cartridge life.

## 4.2 Media Loading and Unloading

**4.2.1 Media Capacity:** Full capacity is when media level is at the top of the reclaiming cone. Do not fill past the cone, as overfilling will occur. Overfilling results in media carryover to the dust collector and possibly blockage in the conveying hose. Not enough media will allow air to be drawn through the metering valve and feed assembly, and interfere with media flow. The minimum amount of media to charge the system is approximately 40 lbs.

**4.2.2 Media Loading:** With the exhauster off, add clean dry media, by pouring it into the reclaiming hopper through the reclaiming door. **Do not pour media directly into the cabinet hopper, as overfilling may occur.** Refill only after all media is recovered from the cabinet.

**4.2.3 Media Unloading:** To empty the reclaiming and cabinet of media, allow all media to be recovered from the cabinet, turn off the exhauster and place an empty container under the metering valve. Unscrew the plastic plug from the metering valve, permitting media to flow into container. If media doesn't flow, it has caked. Open the fill door and stir media until it starts to flow. Replace the plug when the reclaiming is empty.

## 4.3 Loading and Unloading Parts

### WARNING

Use solid fixturing to hold heavy parts in place. Do not remove lift equipment until the part is adequately supported to prevent movement. Moving heavy, unsupported parts may cause them to shift or topple, and cause severe injury. This is especially important with the use of turntables and turntables with tracks.

**4.3.1** Load and unload parts through either door.

**4.3.2** Parts must be free of oil, water, grease, or other contaminants that cause media or clump or clog filters.

**4.3.3** When blasting very small parts, place an appropriately sized screen over the grate to prevent parts from falling into the hopper.

**4.3.4** Close door. Be certain door is sealed securely, or door interlock system will prevent blasting.

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## Blasting Operation

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### CAUTION

- Always close cabinet, reclaimers and dust collector doors before blasting. Keep all doors closed during blasting.
  - Always wear blast gloves.  
Avoid pointing the blast nozzle toward the view window.
  - Use the blow-off nozzle to blow media off parts before doors are opened, or exhauster is switched off.  
After blasting, keep doors closed and blower on until the cabinet is clear of all airborne dust.  
Stop blasting immediately if dust leaks are detected.
- 

**4.4.1** Slowly turn on the air supply to the cabinet. Check for air leaks on the initial start up, and periodically thereafter.

**4.4.2** Adjust pulse regulator to 65 psi. See Figure 2 for its location on the power module.

**4.4.3** Adjust the blast pressure regulator, located on the top, left side of the cabinet, to the required blast pressure per Section 5.1.

**4.4.4** Turn on lights and exhauster. The on/off toggle switch performs both functions.

**4.4.5** Make sure the dust collector pulse sequence switch is "on". NOTE: Cartridges must be seasoned before pulsing. Leave the sequence switch turned off until cartridges are seasoned per Section 7.8.

#### Load parts.

**4.4.7** Close door. Be certain door is sealed securely, or door interlock system will prevent blasting.

**4.4.8** Insert hands into rubber gloves.

**4.4.9** To blast, hold the gun firmly and apply pressure to the foot pedal; blasting will begin almost immediately.

NOTE: When blasting small parts, use a solid back rest for the part. Without this assist, especially with longer blasting operations, the operator will tire easily from resisting blast pressure. Whenever possible avoid holding small parts that will require blasting into the glove.

**4.4.10** When blasting very small parts, place an appropriately sized screen over the grate to prevent parts from falling into the hopper. If an object should fall through the grate, stop blasting immediately and retrieve it.

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### WARNING

Shut down the cabinet immediately if dust discharges from the collector or exhauster. Check that the cartridges are correctly seated and not damaged. Prolonged breathing of any dust could result in serious lung disease or death. Short term ingestion of toxic dust such as lead, poses an immediate danger to health. Toxicity and health risk vary with type of media and dust generated by blasting. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

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#### 4.5 Stop Blasting

**4.5.1** To stop blasting, remove pressure on the foot pedal.

**4.5.2** Use the blow-off nozzle to blow media off cleaned parts. Allow the exhauster to clear the cabinet of airborne dust before opening the door.

**4.5.3** Unload parts, shut off the air supply valve, drain the air filter and pulse manifolds, and switch off the lights and exhauster.

#### 4.6 Blasting Technique

**4.6.1** Blasting technique is similar to spray painting technique. Smooth continuous strokes are usually most effective. The distance from the part affects size of blast pattern. Under normal conditions hold the gun approximately 3" to 6" from the surface of the part.

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## 5.0 ADJUSTMENTS

### 5.1 Blasting Pressure

**5.1.1** The blast pressure pilot regulator, located on the top, left side of the cabinet, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is 80 psi. Lower pressures may be used for delicate work. In all cases, highest production can be achieved only when pressure is carefully monitored.

**5.1.2** To adjust, unlock the knob, and turn it clockwise to increase pressure or counter-clockwise to decrease pressure. Pressure will usually drop from closed-line pressure when blasting starts. Once operating pressure is reached, lock the knob to maintain the setting.

**5.2 Air Jet Adjustment**

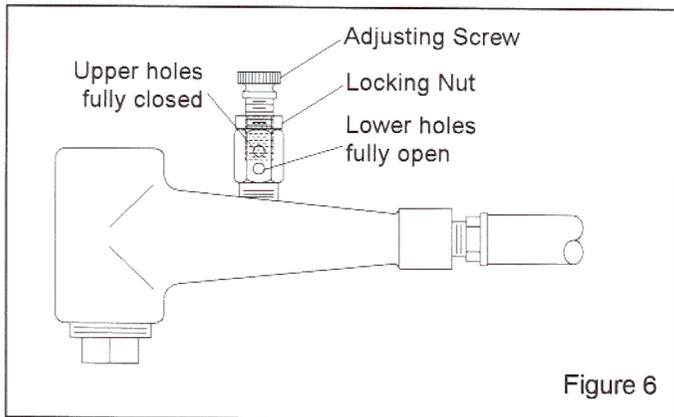
**5.2.1** The air jet should be screwed 4-1/2 to 5 full turns into the gun body. Doing so will leave 3-1/2 to 4 threads exposed past the lock nut. Tighten the lock nut to hold the jet in place. See Sections 9.1 or 9.5 for optional adjusting tool.

**5.3 Media/Air Mixture, Figure 6**

**5.3.1** Check the media stream for correct media/air mixture; media flow should be smooth and appear as a light mist coming from the nozzle.

**5.3.2** If media does not flow smoothly, loosen the locking nut, and adjust the metering screw until the upper holes in the metering stem are closed-off, and the lower holes are fully open. See Figure 6. This adjustment is a starting point.

**5.3.3** If pulsation occurs in the media hose, either media is damp and caked, or not enough air is entering the media stream. While blasting, loosen the locking nut and slowly turn the adjusting screw out (counterclockwise when viewed from the top) until the media flows smoothly. Tighten the locking nut finger-tight to maintain the setting.



**5.3.4** If media flow is too light, decrease air in the mixture by turning the metering screw in (clockwise when viewed from the top) covering more of the holes so less air enters the media hose. Tighten the locking nut finger-tight to maintain the setting.

**5.4 Static Pressure (outlet damper)**

**5.4.1** Static pressure requirements vary with size, weight and type of media.

**5.4.2** Adjust static pressure by opening or closing the outlet damper located above the dust collector (See Figure 2). If the damper is not opened far enough, the reclaimer will not remove fines, resulting in dusty media, poor visibility, or will not convey media, causing build-up in the flex hose between the cabinet hopper and reclaimer. If the damper is opened too far, it may cause carry-over (usable media carried into the dust collector) and result in excessive media consumption. Open only as far as necessary to obtain a balance of dust removal without media carryover.

**5.4.3** A manometer is useful for adjusting and monitoring static pressure. The manometer kit is listed under Optional Accessories in Section 9.1 The following are static pressure starting points for given media. Static pressure may need to be lower with finer media, higher with coarser media.

Glass Bead No. 8 to 10 .....	2-1/2 - 3"
Alox. 60 & coarser .....	4 - 5"
Alox. 80 & finer .....	2-1/2 - 3"

**5.4.4** If the damper has been adjusted and carryover or excessive dust in the media continues to be a problem, the vortex cylinder may help retain media. The vortex cylinder is usually required only when using 200 mesh and finer media, or lightweight media. See Section 5.5.

**5.4.5** As the cartridges develop a cake of dust, the static pressure will drop, requiring additional pulsing as described in Section 5.8, or an increase in pulse pressure per Section 5.7. When pulsing no longer maintains the necessary static pressure, readjust the outlet damper.

**5.5 Adjustable Vortex Cylinder**

**5.5.1** The adjusting lever for the vortex cylinder is mounted on the spacer above the reclaimer body. Start with the lever in the vertical position. Before adjusting the vortex cylinder, adjust the damper on the dust collector to increase or decrease static pressure per Section 5.4. Once the damper is adjusted, adjust the cylinder as follows.

**5.5.2 Dusty Media:** If the reclaimer is not removing sufficient quantities of dust, raise the cylinder by moving the lever left toward "COARSE", in 1/4" increments at the indicator plate. Do not adjust again until the media has gone through several cycles, to be certain further adjustment is required.

**5.5.3 Media Carryover:** If too much media is carried to the dust collector, lower the vortex cylinder by moving the lever right toward "FINE", in 1/4" increments at the indicator plate. NOTE: If the cylinder is lowered too far, the reclaimer will again begin to allow usable media to

be carried over, and cause abnormally high static pressure.

### Door Interlocks, Figure 7

## **⚠ WARNING**

**Never attempt to override the interlock system. Doing so could result in injury from unexpected blasting.**

**5.6.1** The door interlocks disable the blasting control circuit when the doors are open. To enable blasting, the door interlock switch must be engaged when the doors are closed. The interlocks are set at the factory and do not usually require field adjustment unless parts are replaced. When adjustment is required, proceed as follows.

Close cabinet doors.

**5.6.3** Loosen the actuator bracket screws and adjusting screw nut. Move the actuator adjusting bracket up or down, and the adjusting screw sideways, to center the adjusting screw on the over-travel stop. Tighten the bracket screws.

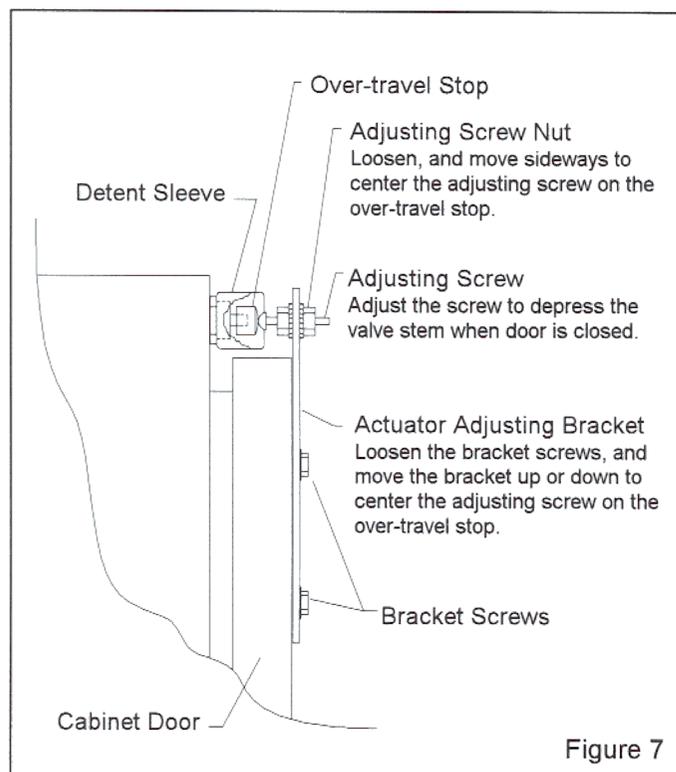


Figure 7

**5.6.4** Turn the adjusting screw in or out as required to engage the switch without applying excessive pressure on it. Tighten the adjusting screw nuts.

**5.6.5** Test the operation with the doors open and then again closed. Point the nozzle away from the door during the tests, and only open the door enough to disengage the interlock switch. The interlocks should stop blasting when the doors are open, and permit blasting when the doors are closed. **NOTE:** Negative pressure inside the cabinet may cause the doors to flex inward. Tests should be performed with the exhauster on.

### 5.7 Pulse Pressure

**5.7.1** Adjust pulse pressure using the regulator mounted on the dust collector (see Figure 2). Begin pulse at 65 psi.

**5.7.2** Do not increase pulse pressure until the pulse sequence is at maximum intervals as described in Section 5.8.

### 5.8 Pulse Sequence Control Panel and Timer

**5.8.1** The toggle switch mounted on the sequence panel cover, enables or disables the timing sequence. When the switch is "on", the pulse sequence automatically starts whenever the dust collector exhauster is started. If the switch is "off" the pulse sequence will not occur. The switch should be left "off" (no pulse) until the cartridges are seasoned. See Section 7.8.

**5.8.2** The timer is factory set at 40 seconds "off" and 15/100 of a second "on". Every 40 seconds the cartridges are pulsed.

**5.8.3** As the cartridges cake with dust, the differential pressure increases. A pressure increase of around 2" greater than the initial reading, or reading higher than 4", is an indication that more frequent pulse cycles are needed. When the optional differential pressure gauge shows a constant pressure difference greater than 4", adjust the "off" time setting by half. **DO NOT ADJUST "ON" TIME.** Increasing "on" time will consume more air, but will **NOT** increase cleaning efficiency.

**5.8.4** When the frequency of the pulse cycles will not lower the differential pressure to less than 4" above the initial reading or a decrease in visibility in the cabinet or media recovery is noted, increase pulse pressure in increments of 5 to 10 psi until the maximum of 100 psi is reached.

**5.8.5** When the frequency of the pulse cycles and higher pulse pressure will not lower the differential pressure, the filter cartridges should be replaced per Section 7.7.

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## 5.9 Inlet Damper

**5.9.1** Once the inlet is initially set per Section 2.7, it seldom requires readjustment. The initial setting produces approximately .5" to .75" of static pressure in the cabinet enclosure. **Do not confuse cabinet static pressure with reclaimer static pressure as noted in Section 5.4, which is controlled by the outlet damper. Reclaimer pressure must be set before cabinet pressure.** In rare circumstances, cabinet pressure may need to be slightly higher or lower than the initial setting.

**5.9.2** A manometer (listed in Section 9.1) is the most accurate method of monitoring and adjusting cabinet pressure. Following the instructions packed with the manometer, start the exhauster and insert the needle into a glove, and adjust pressure using the inlet damper. Open the damper further to decrease static pressure or close it further to decrease pressure.

**5.9.3** If a manometer is not available, use the gloves as an indicator. With the exhauster on, the gloves should be inflated, but not elevated off the grate.

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## 6.0 PREVENTIVE MAINTENANCE

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### WARNING

Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when emptying the container could result in serious eye irritation and lung disease. Toxicity and health risk vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

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**NOTE:** To avoid unscheduled downtime, establish a weekly inspection schedule. Inspect all parts subjected to media contact, including; nozzle, media hose, flex hose, and wear plate, plus all items covered in this section.

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## 6.1 BNP Gun Assembly

**6.1.1** Inspect the BNP Gun for wear. Inspection and replacement of the air jet cover before it wears through will prolong the life of the jet.

## 6.2 Dust Collector Dust Containers

**6.2.1** Empty the dust containers regularly. Start by checking the containers at least daily or when adding media, then adjust frequency based on usage, contamination and friability of the media.

**6.2.2** Turn off the exhauster and release the dust containers from the covers. The cover's flexible inlet hose allows easy removal. Remove the containers and dump the contents into a suitable disposal container. Replace the containers being certain the covers are in place.

**NOTE:** Blasting media is usually non-toxic, however, some materials being removed by the process may be toxic. Check with proper authorities for disposal restrictions.

## 6.3 Pulse Manifold

**6.3.1** Open the drain petcocks to drain water from the pulse manifolds before and after each use. See Figure 2 for the location of the drain cocks.

## 6.4 Reclaimer Debris Screen

**6.4.1** The screen is accessible through the reclaimer door. With the exhauster off, remove the screen and empty it daily or when loading abrasive. Empty the screen more often if the parts blasted causes excessive debris. Always replace the screen after cleaning.

## 6.5 View Window Cover Lens

**6.5.1** Rapid frosting of the view window can be avoided by directing ricocheting media away from the window, and by installing a cover lens on the inside surface of the window. Using cover lenses prolongs the life of the view window.

**6.5.2** The best way to install a cover lens is to remove the window from the cabinet. If, for some reason, it is not helpful to remove the window, the lens may be applied with it in place.

**6.5.3** To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner surface of the view window. When the cover lens becomes pitted or frosted, replace it.

## 6.6 Air Filter

**6.6.1** The cabinet is equipped with a manual drain air filter. Drain the filter at least once a day, or more often if water is present. Moist air inhibits the flow of media. If moisture continues to be a problem, a dryer or aftercooler may be required in the air supply.

## 6.7 Media Hose

**6.7.1** To avoid unscheduled down-time, inspect the media hose for thin spots, by pinching it every 6 to 12 inches.

## 6.8 Optional Differential Gauge Dust Filter

**6.8.1** With the exhauster turned off, check the in-line dust filter for dust accumulation weekly. The filter is located on the side of the collector. See Figure 5.

## 7.0 SERVICE MAINTENANCE

### WARNING

Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when emptying the dust bag or collector could result in serious eye irritation and lung disease or death. Toxicity and health risk vary with type of media and dust generated by blasting. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

## 7.1 Gloves

**7.1.1** Special static-dissipating gloves are provided for operator comfort. It will be necessary to change gloves periodically as they wear. The first sign of deterioration may be excessive static shocks.

**7.1.2** Gloves are held in place by metal bands on the inside of the cabinet. To replace, loosen the bands with a screwdriver, replace the gloves and tighten the bands.

## 7.2 Nozzle

**7.2.1** Replace the nozzle when its orifice diameter has increased by 1/16", or sooner if suction diminishes noticeably. To change the nozzle; unscrew the nozzle holding nut from the gun end, and pull the existing nozzle from the gun. Inspect the nozzle O-ring and

replace if worn or damaged. Insert a new nozzle, placing the tapered end toward the jet. Screw the nozzle holding nut onto gun.

## 7.3 View Window Replacement

### WARNING

Do not use plate glass for replacement view windows. Plate glass shatters on impact and could cause severe injury. Use only genuine replacement parts.

**7.3.1** Remove the two window frame nuts located on the upper edge of the window frame, and swing the window frame open. Note: If the frame is to remain open, for cleaning or other reasons, remove it per Section 7.5.

**7.3.2** Remove the old window.

**7.3.3** Inspect the window frame gaskets, both on the window frame and on the cabinet. If either gasket is damaged, replace it per section 7.4.

**7.3.4** Install view window cover lens per Section 6.5.

**7.3.5** Set the new window (cover lens down) squarely over the window opening, ensuring that all edges of the window are centered and overlapping the window gasket, and that the window is resting on the lower locators.

**7.3.6** Swing the window frame into place and tighten the frame nuts.

## 7.4 Window Gasket Replacement, Figure 8

**7.4.1** Replace the window frame gasket and cabinet window opening gasket at the first sign of media leakage around the view window, or if gaskets appear damaged. Check the gaskets when changing the view window.

**7.4.2** Remove the window and window frame per Section 7.5.

**7.4.3** Remove all the old gasket material and clean the surfaces of the cabinet and window frame.

**7.4.4** Peel a short section of adhesive backing from the 5/16" thick strip gasket, and adhere the gasket to the center of the top edge of the window opening as shown in Figure 8. Peel additional backing as needed, and work the strip around the radius of each corner, pressing it tightly to bond. Trim the gasket to fit and compress the ends to seal.

**7.4.5** Using 5/32" thick strip gasket, repeat the process on the window frame.

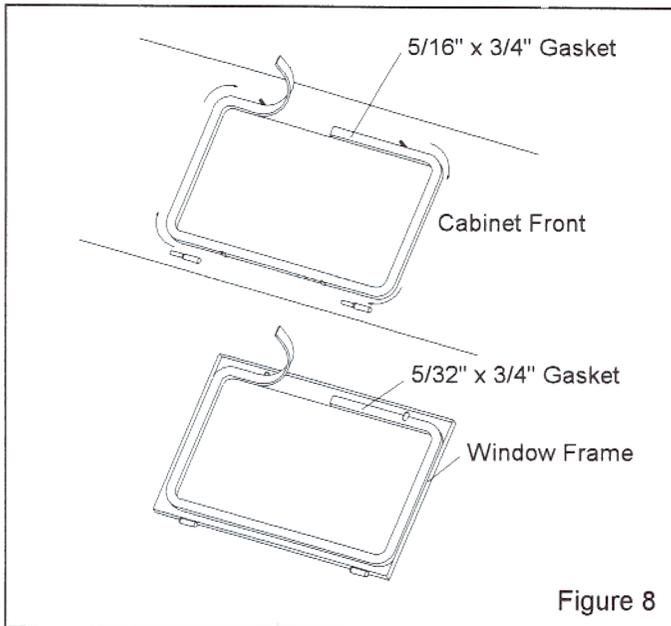


Figure 8

**7.4.6** Trim around the window frame bolts slots, as needed.

## 7.5 Window Frame Removal, Figure 9

**7.5.1** Remove the two window frame nuts located on the upper edge of the window frame, and swing the window frame open.

**7.5.2** Remove the window to prevent breakage.

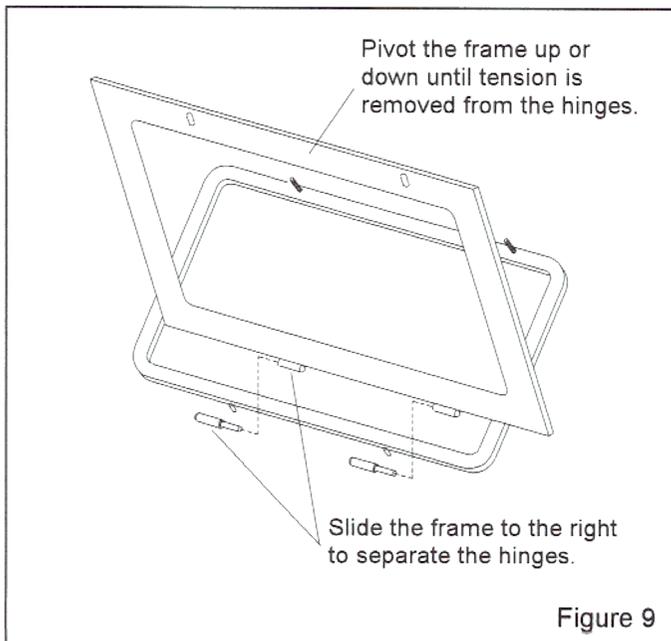


Figure 9

**7.5.3** Pivot the window frame up or down until tension is off the frame hinges.

**7.5.4** Slide the frame to the right, to remove. The hinges separate as shown in Figure 9.

**7.5.5** Replace the frame in reverse order. Align the top bolt holes with the bolts; slide the frame as necessary.

**7.5.6** Set the window squarely over the window opening, ensuring that all edges of the window are centered and overlapping the window gasket, and resting on the lower locators.

**7.5.7** Swing the window frame into place and tighten the frame nuts.

## 7.6 Light Assembly

### CAUTION

Use an approved step ladder when servicing the light assembly. Do not climb on top of the cabinet. The cabinet top will not support the weight of a person.

**7.6.1** Shut off electrical power.

### 7.6.2 Gasket Replacement

**7.6.2.1** Remove the four holding wing nuts, and use the handles to lift the fixture off the cabinet, as shown in Figure 10.

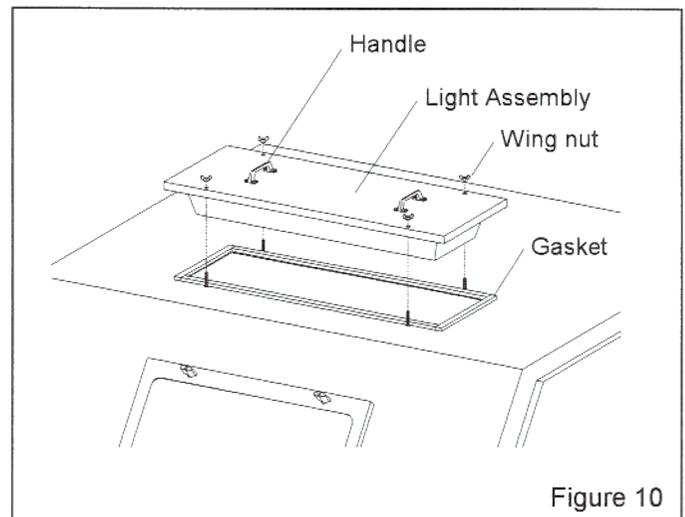


Figure 10

**7.6.2.2** Remove all the old gasket material and clean the surfaces of the cabinet.

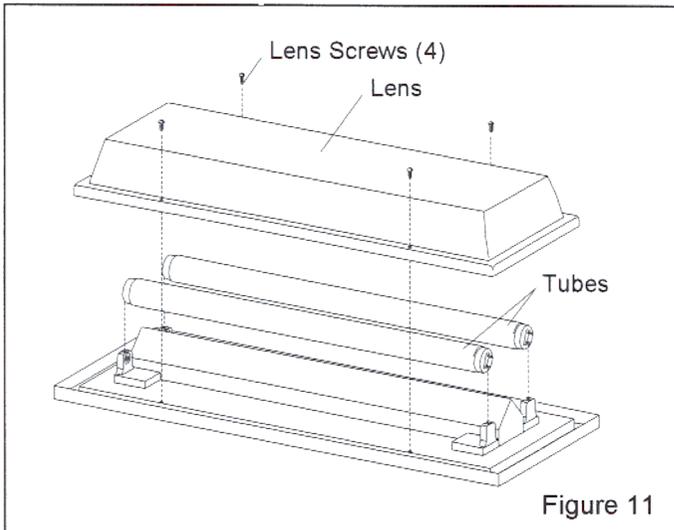
**7.6.2.3** Lay a section of strip gasket next to the opening, and cut to length, allowing 3/4" overlap on each end. Peel a short section of adhesive backing and adhere the

strip gasket to the top edge of the light opening, as shown in Figure 10. Press the gasket tightly to bond. Repeat the process for each side, compressing the ends to seal.

### 7.6.3 Lens and Tube Replacement

**7.6.3.1** Remove the four holding wing nuts, and use the handles to lift the fixture off the cabinet.

**7.6.3.2** Flip the assembly over to access the lens screws, ref. Figure 11.



**7.6.3.3** Remove the four lens screws and remove the lens.

**7.6.3.4** Replace the lens or tubes as required.

**7.6.3.5** Inspect the gasket, and replace if worn or damaged.

**7.6.3.6** Reassemble in reverse order.

### 7.7 Filter Cartridge Replacement, Figure 12

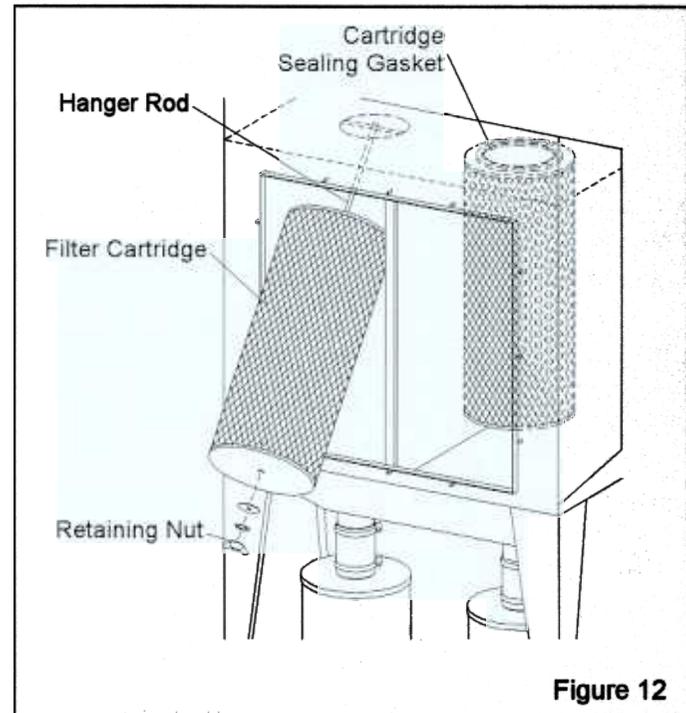
#### **⚠ WARNING**

Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when changing filter cartridges, could result in death, lung disease or serious eye irritation. Toxicity and health risk vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all material being removed by blasting, and obtain a material safety data sheet for the blast media.

**7.7.1** Shut the sequence switch "off".

**7.7.2** Close the air supply valve and bleed all air from the pulse manifold.

**7.7.3** Remove the dust collector access door.



**7.7.4** Loosen the cartridge retaining nut to the bottom of the hanger rod, and rock the cartridge to loosen it from the cartridge sheet.

**7.7.5** Swing the bottom of the cartridge out the access door, and remove the retaining nut, washer, and gasket.

**7.7.6** Slide the cartridge off the hanger rod.

**7.7.7** Clean all parts that will be reused, especially around the cartridge sealing area. Scrape off any residual gasket material from the sealing surface.

**7.7.8** Install the new cartridge and gasket. Tighten the retaining nut until the cartridge cannot be moved by hand. Tighten the nut one additional full turn.

**7.7.9** Check the access door gasket for any condition that will prevent the gasket from sealing. Replace the gasket if necessary.

**7.7.10** Attach the access door.

**7.7.11** Reset the timer "off" time to 40 seconds, and reset the pressure to 65 psi. See Section 5.7 and 5.8.

7.7.12 Season cartridges per Section 7.8.

## 7.8 Seasoning Cartridges

7.8.1 New cartridges must be seasoned. Cartridges are seasoned by letting a dust cake develop on the filter media before starting the pulsing cycles.

7.8.2 Make note of the initial differential pressure reading in the space provided below. During operation, pressure may be temporarily higher, but will fall back within the initial range after the pulse. **Check the differential pressure with the exhauster on, and sequence switch off.**

Initial reading \_\_\_\_\_

7.8.3 To stop the pulse, shut the sequence switch "off".

7.8.4 Operate the cabinet without pulsing (sequence switch turned off) until the differential pressure gauge reads 1 inch above the initial reading. At that point turn the sequence switch "on", to start the pulsing cycle.

## 7.9 Reclaimer Wear Plate Replacement

7.9.1 Remove the top plate, inlet adaptor, and old wear plate. The wear plate is held in place by screws attached from the outside of the reclaimer.

7.9.2 Position the new wear plate into the reclaimer, with the straight end at the reclaimer inlet. **NOTE:** Make sure the top of the wear plate is aligned with the top of the reclaimer. Gaps between the wear plate and top will cause premature wear.

7.9.3 Pry the wear plate against the inner wall of the reclaimer and install sheet metal screws to hold in place.

7.9.4 Caulk around the bottom and ends of the wear plate to prevent rapid wear in those areas.

7.9.5 Install the top plate, and caulk between the wear plate and top.

7.9.6 Reassemble the reclaimer.

## 7.10 Removing Reclaimer Inlet Baffle (not available with rubber lined reclaimers)

When using lightweight media such as plastic or wheat starch, the inlet baffle of the reclaimer may need to be removed.

7.10.1 Remove the reclaimer top, two bolts securing the baffle to the left side of the reclaimer inlet.

7.10.2 Remove all caulking residue, and install reclaimer top.

## 8.0 TROUBLESHOOTING

### WARNING

To avoid serious injury, observe the following when troubleshooting.

- Turn off the air, and lock-out and tag-out the air supply.
- If checking the controls requires air, always enlist the aid of another person to:
  - Hold the blast gun securely.
  - Operate the foot pedal.
- Never bypass the foot pedal or wedge it in the operating position.
- Never override the door interlock system.

### 8.1 Poor Visibility

8.1.1 Dirty filter cartridges. Empty dust containers. Cycle pulse several times. Inspect and replace the cartridges if necessary.

8.1.2 Motor rotating backwards. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, **LOCK-OUT AND TAG-OUT POWER** and switch the motor leads as shown on the motor plate. See Section 2.4.2.

8.1.3 Using friable media that rapidly breaks down, or using media that is too fine or worn out.

8.1.4 Outlet damper closed too far restricting air movement in cabinet. Adjust static pressure per Section 5.4.

8.1.5 Inlet damper requires opening. Restriction at the inlet damper reduces air movement in the cabinet. Open damper per Section 2.7 and 5.9.

8.1.6 Hole worn in flex hose between cabinet hopper and reclaimer inlet, or reclaimer outlet and dust collector inlet. Replace hose and route it with as few bends as possible to prevent wear.

8.1.7 Reclaimer fill door open.

8.1.8 Obstruction in flex hose between the cabinet hopper and reclaimer inlet.

8.1.9 Paddle wheel worn. Check wheel for wear.

### Abnormally High Media Consumption

- 8.2.1** Door on reclaimer open, or improper fit or worn door gasket. Air entering the reclaimer at this point will cause media to be carried into the dust collector.
  - 8.2.2** Outlet damper open too far. Adjust static pressure per Section 5.4.
  - 8.2.3** Media may be too fine or worn-out.
  - 8.2.4** Using friable media that rapidly breaks down.
  - 8.2.5** Nozzle pressure too high for the media, causing media to break down.
  - 8.2.6** Hole worn in reclaimer, or leak in reclaimer seams. Check entire reclaimer for negative-pressure leaks.
  - 8.2.7** Externally adjustable vortex cylinder out of adjustment. See Section 5.5.
- ### 8.3 Reduction In Blast Cleaning Rate
- 8.3.1** Low media level reducing media flow. Check and fill if low.
  - 8.3.2** Incorrect metering valve adjustment. Adjust per Section 5.3.
  - 8.3.3** Reduced air pressure. This may be caused by a malfunctioning regulator, a dirty filter element in the air filter, partially closed air valve, leaking air line, or other air tools in use.
  - 8.3.4** Blockage in media line or gun. Blockage may occur as a result of a missing debris screen, or incorrect metering valve adjustment.. See Section 5.3.
  - 8.3.5** Worn gun parts such as nozzle or air jet. Inspect and replace all worn parts.
  - 8.3.6** Worn media hose. Check hose for leaks and soft spots. Replace if worn or damaged.
  - 8.3.7** Air jet in gun out of adjustment. Check adjustment per Section 5.2.
  - 8.3.8** Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. See Section 8.5.

### Plugged Nozzle

- 8.4.1** A damaged or missing reclaimer screen will allow large particles to pass and block the nozzle. Replace or re-install as necessary.

- 8.4.2** Media mixture too rich. Adjust media/air mixture per Section 5.3.

### 8.5 Media Bridging

- 8.5.1** Frequent bridging or blockage in the media metering valve can be caused by damp media. Media becomes damp by blasting parts that are slightly oily, from moisture in the compressed air line, or from absorption.

- 8.5.2** To avoid contaminating media from the workpiece, all parts put into the cabinet should be clean and dry. If parts are oily or greasy, degrease and dry them prior to blasting.

- 8.5.3** Moist compressed air may be due to a faulty compressor that overheats, or pumps oil or moisture into the air line, too long an air line permitting moisture to condense on the inside, and from high humidity. Drain the filters and receiver tank regularly. If the problem persists, it may be necessary to change media more often, or install an aftercooler or air dryer.

- 8.5.4** Absorption. Some media tends to absorb moisture from the air, especially fine-mesh media in high humidity areas. Empty the media and store it in an airtight container when cabinet is not in use.

- 8.5.5** A vibrator mounted on a reclaimer mounting bolt may help prevent bridging of fine-mesh media.

### 8.6 Neither Media Nor Air Comes Out The Nozzle When The Foot Pedal Is Pressed.

- 8.6.1** Door interlocks not engaging. Check adjustment per Section 5.6.

- 8.6.2** Blocked or leaking control lines. Check all urethane tubing for blockage or leaks.

- 8.6.3** Foot pedal valve malfunction. Check foot pedal alignment, and inlet and outlet lines for pressure.

- 8.6.4** Check that lines are not reversed on the foot pedal or pilot regulator. See schematic in Figure 20.

- 8.6.5** Pressure regulator may be turned down or off. Check pressure on pilot regulator.

- 8.6.6** Make sure the air compressor is on and air supply valves are open.

- 8.6.7** Nozzle Plugged. See Section 8.4.

## **8.7 Blasting Does Not Stop When The Foot Pedal Is Released**

**8.7.1** Make sure the 3-way valve in the foot pedal exhausts air when the pedal is released. If it does not, check the line for blockage, and check switch for malfunction.

## **8.8 Blockage In Media Hose**

**8.8.1** Media obstructions. Usually caused when the media mixture is too rich, adjust media/air mixture per Section 5.3.

Wet or damp media. See Section 8.5.

## **8.9 Media Surge**

**8.9.1** Heavy media flow. Adjust per Section 5.3.

## **8.10 Poor Suction In Media Hose**

**8.10.1** Inadequate air supply. Check the charts in Figures 3 and 4.

**8.10.2** Air jet needs adjustment. Check adjustment per Section 5.2.

**8.10.3** Nozzle worn. Replace if worn 1/16" or more.

**8.10.4** Blockage in media hose or nozzle. See Section 8.4.

**8.10.5** Wrong size combination air jet and nozzle. See chart in Figure 3.

**8.10.6** Air jet sleeve extends past end of air jet. Cut the sleeve to align with the air jet.

### **Blow-Back Through Media Hose**

**8.11.1** Blockage in nozzle. Remove the nozzle and check for blockage.

**8.11.2** Air jet may be too large for nozzle. See table, Figure 3.

## **8.12 Static Shocks**

**8.12.1** Cabinet and/or operator not grounded. Abrasive blasting generates static electricity. The cabinet must be grounded to prevent static buildup. See Section 2.3. If shocks persist, the operator may be building up static electricity. Attach a small ground wire (such as a wrist strap), from the operator to the cabinet.

**8.12.2** Avoid holding parts off the grating. Static will build in the part if not dissipated through the metal cabinet.

## **8.13 Dust Leaking From Dust Collector**

**8.13.1** Damaged or loose cartridge. Inspect filter cartridges.

**8.13.2** Faulty seal on the dust collector access door, or dust containers. Inspect seals and hoses, and replace if damaged.

## **8.14 Dust Collector Not Pulsing**

**8.14.1** Check the pulse-pressure gauge. If the reading is low, check the regulator adjustment, and compressed air supply, look for a closed supply valve.

**8.14.2** Check to make sure the sequence switch is turned on.

**8.14.3** Check the fuse in the sequence control panel. Replace as necessary.

## **8.15 One Cartridge Not Pulsing**

**8.15.1** Faulty solenoid. Check for electrical malfunction.

**8.15.2** Check the diaphragm valve. With the compressed air turned off, remove the four cover screws, inspect the diaphragm and clean the bleed port.

**8.15.3** Check for blockage in the tubing to the diaphragm valves.

**8.16** Pulse is a steady stream of air instead of a pulse.

**8.16.1** Check for a leak in the tubing between the diaphragm valves and solenoid.

**8.16.2** Solenoid remaining in open position. Check continuity, clean, replace.

## **8.17 Exhauster Not Running**

**8.17.1** Exhauster overload could be tripped. Reset and check for overload.

**8.17.2** Make sure that the main disconnect is "on".

**8.17.3** Motor faulty. Check motor.

**8.18 Excessive Differential Pressure (as shown on optional gauge)**

**8.18.1** Valves may not be pulsing properly. See 8.14.

**8.18.2** The differential pressure gauge lines may be plugged with dust. Check and clean.

**8.18.3** Make sure the tubing has not been inserted so far into the tube connection that it blocks the tube ends.

**8.18.4** The in-line dust filter blocked. Clean or replace.

**8.18.5** Snubber fittings blocked with dust. Clean or replace. See Figure 21.

**8.18.6** The sequence "off" time may need adjusting. See Section 5.8.

**8.18.7** Filter cartridges may need to be replaced. See Section 7.7.

Rubber liner set, for 900 reclaimer ... 23151  
See Section 9.10 for individual liners

Wide spray nozzle  
Tungsten carbide, No. 6 ..... 11947  
Boron carbide  
No. 6 ..... 11934  
No. 8 ..... 11944

NOTE: Wide spray nozzles require the following accessories:

Wide spray nozzle nut ..... 11916  
Wide spray retaining ring ..... 12038  
Wide spray nozzle guard ..... 12295

Differential pressure gauge, order the following  
1 ea. Gauge, differential pressure ..... 10188  
2 ea. Snubber fitting ..... 15786  
2 ea. Fitting, straight, 1/8" NPT x 1/4" tube ..... 11214  
5 ft. Tubing, 1/4" OD ..... 15892  
1 ea. Filter, in-line dust ..... 23415

**Optional Extension Nozzles, Figure 13**

Item	Description	Stock No.
1	3" Straight extension nozzle No. 5, 5/16" orifice ..... No. 6, 3/8" orifice ..... No. 7, 7/16" orifice .....	11921 11922 11923
2	6" Straight extension nozzle No. 5, 5/16" orifice ..... No. 6, 3/8" orifice ..... No. 7, 7/16" orifice .....	11927 11928 11929
3	9" Straight extension nozzle No. 5, 5/16" orifice ..... No. 6, 3/8" orifice ..... No. 7, 7/16" orifice .....	11924 11925 11926
4	6" Side angle extension nozzle, complete 5/16" orifice, includes item 6,7 & 8 .....	12374
5	9" Side angle extension nozzle complete, 5/16" orifice, includes item 6,7 & 8 .....	12373
6	Tip, side angle extension .....	12173
7	Snap ring, side angle extension .....	12040
8	O-Ring, side angle extension .....	08977

**ACCESSORIES and REPLACEMENT PARTS**

**Optional Accessories (field installed)**

Description	Stock No.
Time delay door interlocks	.23422
Track and turntable, 40-inch, 500 lb capacity	.23885
Conversion kit, suction to pressure Includes all accessories to convert suction (venturi) feed system to pressure system .....special order, consult local distributor	
Aluminum oxide kit, use with aggressive media Includes the following: plus mounting hardware .....	22996
No. 5, 5/16" orifice boron carbide nozzle .....	11935
Rubber curtains, black .....	22998
Boron carbide nozzle No. 5 .....	11935
No. 6 .....	11936
No. 7 .....	11937
No. 8 .....	12894
Rubber curtains, set black curtains .	.22998
white curtains .	.22999
HEPA filter assembly .....	22807
Lock-pins (pkg. of 25) for twist-on hose couplings .	11203
Adjusting tool, air jet (orifice) .....	19041
Manometer kit .....	12528
Window cover lens, 20" x 30", pkg. of 5 .....	23232

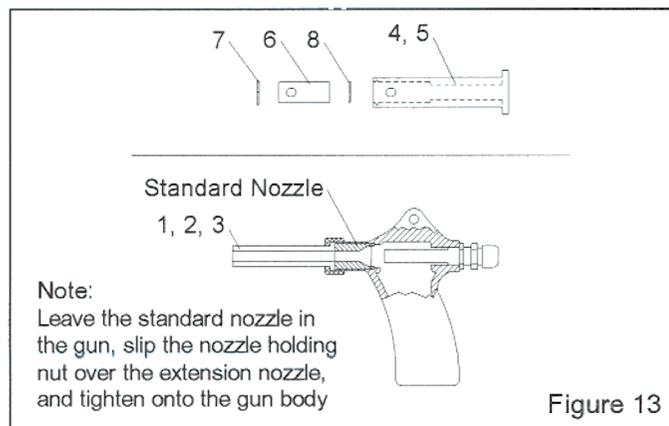
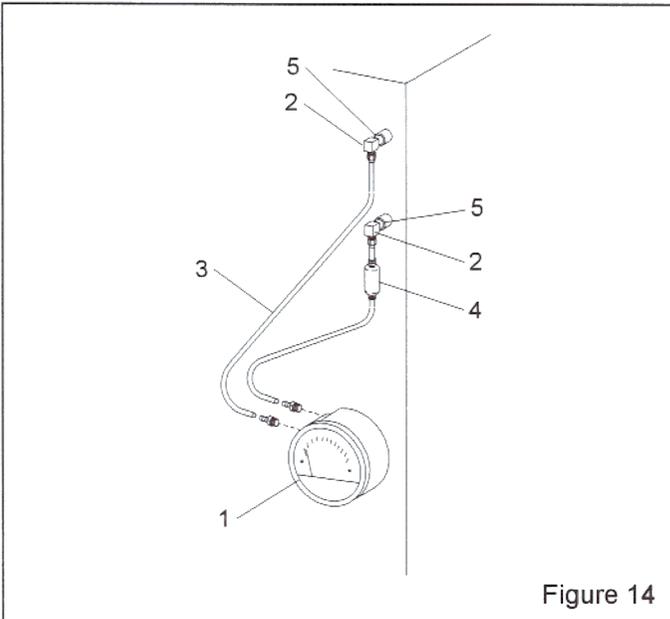


Figure 13

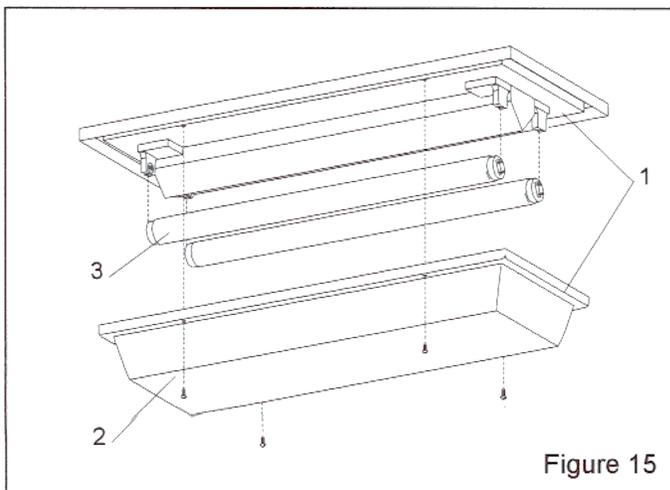
**Differential Pressure Gauge Assembly, Figure 14**

Item	Description	Stock No.
1.	Gauge, differential pressure .....	10188
2.	Snubber fitting , 2 required .....	15786
3.	Tubing, 1/4" OD, 5 ft. required ..	15892
4.	Filter, in-line dust .....	23415
5.	Bushing, 1/4" x 1/8" NPT, brass 2 required .....	02010



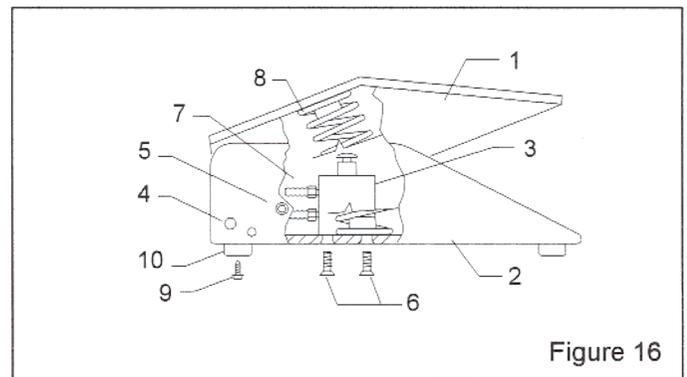
**9.2 Light Assembly, Figure 15**

Item	Description	Stock No.
(-)	Light assembly w/ cover .....	23255
1.	Light fixture (assembly less cover) .....	23251
2.	Reflector lens .....	23253
3.	Tube, fluorescent, 20w .....	23252



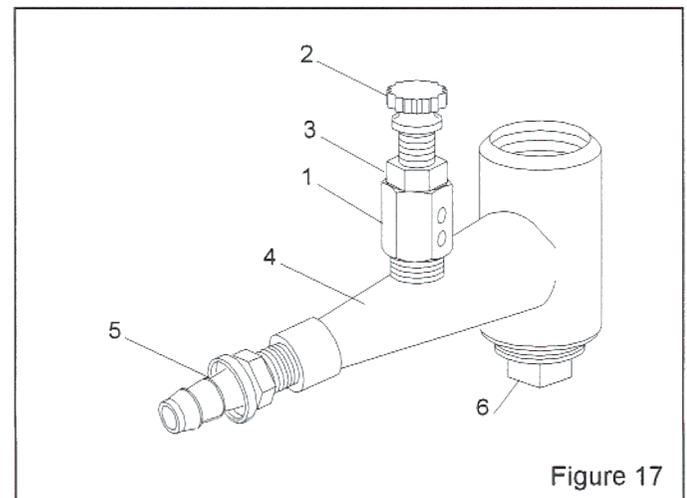
**9.3 Foot Pedal Assembly, Figure 16**

Item	Description	Stock No.
(-)	Foot pedal assembly, less tubing .....	20483
1.	Top, foot pedal .....	20017
2.	Base, foot pedal .....	19991
3.	Valve, 10-32, 3 way n/c .....	20026
4.	Drive pin, grooved .....	20109
5.	Screw, sh 1/4 NF x 3/4" .....	03086
6.	Screw, 10-32 x 1/2" fh .....	19571
7.	Adaptor, 10-32 thrd. x 1/8 barb .....	11731
8.	Spring, 1-1/4" x 3-1/2" .....	20121
9.	Screw, 8-32 x 3/8" thread cutting .....	11389
10.	Bumper, rubber (feet) .....	21522



**9.4 Metering valve assembly, Figure 17**

Item	Description	Stock No.
(-)	Metering valve assembly .....	12417
1.	Stem, metering adjusting .....	23097
2.	Screw, adjusting .....	23098
3.	Nut, adjusting stem lock .....	23099
4.	Body, metering valve .....	11532
5.	Fitting, hose, 3/8" NPT x 1/2" barb .....	06369
6.	Plug, metering valve .....	12011



9.5 BNP Gun and Feed Assembly, Figure 18

Item	Description	Stock No.
(-)	BNP Gun assemblies less nozzle, includes items 1 (brass) through 7	
	No. 4 Gun	12301
	No. 5 Gun	12302
	No. 6 Gun	12303
	No. 7 Gun	12304
	No. 8 Gun	12305
1	Nut, nozzle holding	
	Standard, knurled brass	11914
	Urethane covered	11574
2	O-Ring	08975
3	Gun body	11802
4	Lock nut, air jet	11913
5	Rubber sleeve	12097
6	Air jet assembly includes item 5	
	No. 4	12342
	No. 5	12343
	No. 6	12344
	No. 7	12345
	No. 8	12346
7	Fitting, hose, 3/8" NPT x 1/2" barb	06369
8	Hose end, 1/2" barb x 1/2" fem. swivel	15002

9	Nozzle, ceramic	
	No. 5	11930
	No. 6	11931
	No. 7	11932
	Nozzle, boron carbide	
	No. 5	11935
	No. 6	11936
	No. 7	11937
	No. 8	12894
	Nozzle, tungsten carbide	
	No. 5	13118
	No. 7	12882
	No. 8	11942
10	Hose, 1/2" air, specify ft. required	12472
11	Hose, media, clear urethane, specify ft. required	12476
12	Wide spray nozzle	
	Tungsten carbide, No. 6	11947
	Boron carbide	
	No. 6	11934
	No. 8	11944
13	Wide spray nozzle nut	
	Knurled brass	11916
	Urethane covered	12906
14	Wide spray retaining ring	12038
15	Wide spray nozzle guard	12295
16	Orifice adjusting tool	19041

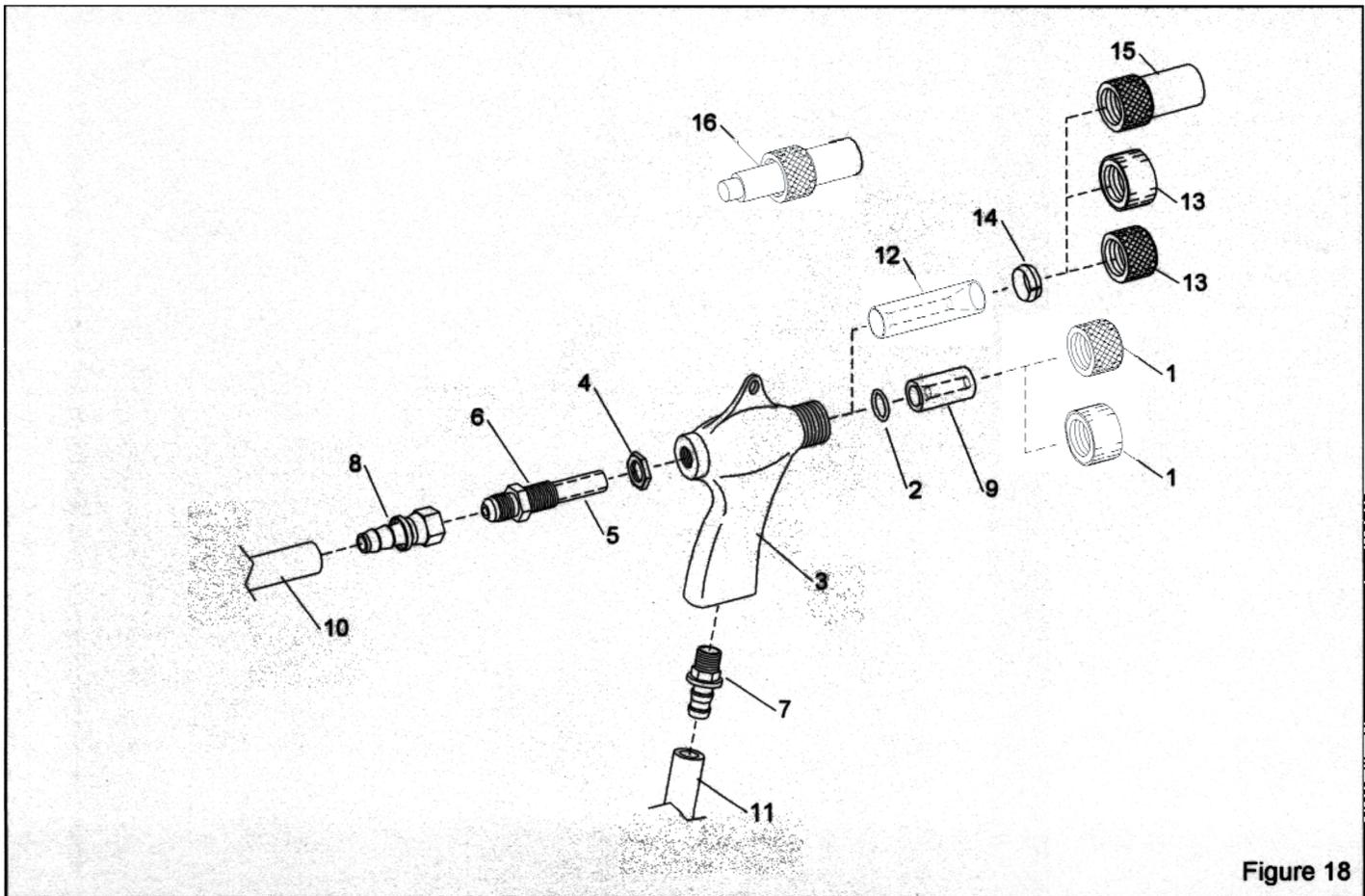


Figure 18

9.6 Cabinet Assembly, Figure 19

Item	Description	Stock No.
1.	Gasket, door, 15 ft. required per door	00187
2.	Door assembly, left (less bolt-on hrdwr.)	23204
3.	Door assembly, right (less bolt-on hrdwr.)	23205
4.	Grating, 3 required	23218
5.	Window glass, 20" x 30"	12213
6.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 9 feet required	00189
7.	Gasket, 5/32" x 3/4", applied to window frame per foot, 9 feet required	00192
8.	Cover lens, 20" x 30", pkg. of 5	23232
9.	Latch kit, door	20064
10.	Adaptor pipe, 6" universal flex	23219
11.	Gasket, 6" flex hose adaptor pipe	23233
12.	Grommet, rubber for media/air hose	11798

13.	Glove set	11215
14.	Glove, left only	12710
15.	Glove, right only	12711
16.	Clamp, glove	11576
17.	Air valve, 3 way, door interlock	12202
18.	Over-travel stop, door interlock	20004
19.	Detent sleeve, door interlock	15042
20.	Actuator, adj., door interlock	19152
21.	Plate, hopper hose	21656
22.	Clamp, 8.5"	11576
23.	Gasket, hopper plate adaptor	20247
24.	Hose, 6" light flex, per foot, 9 ft req'd.	12468
25.	Foot pedal assembly, less tubing	20483
26.	Nut, plastic, window frame, each	23035
27.	Light assembly with cover	23255
28.	Gasket, light assembly, applied to cabinet per foot, 7 feet required	00187
29.	Regulator, 1/8" NPT pilot	12715
30.	Gauge, pressure	01908

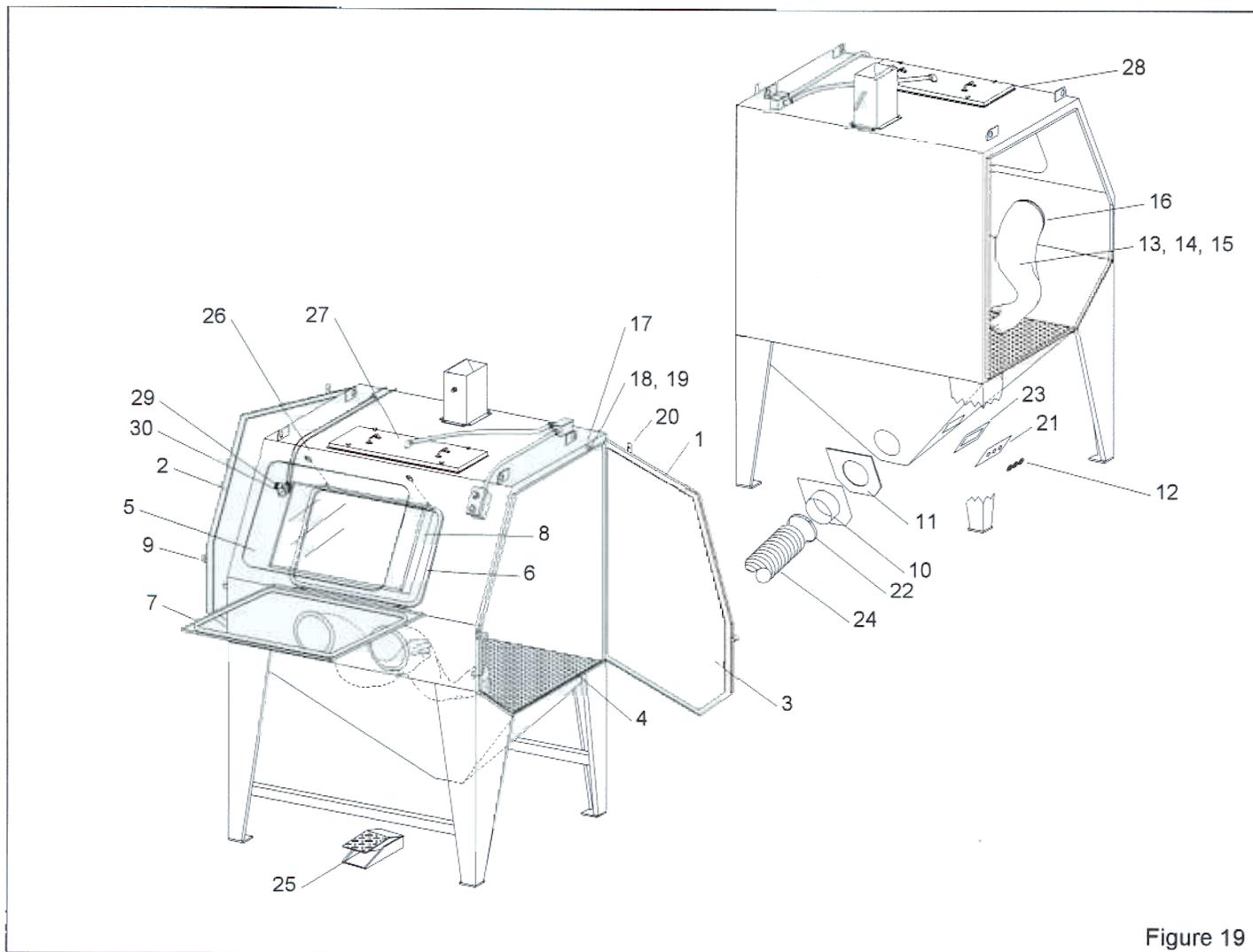


Figure 19

9.7 Cabinet Plumbing Assembly, Figure 20

Item	Description	Stock No.
1.	Valve, 3 way .....	12202
2.	Adaptor, 1/8" NPT x 1/8" barb .....	11732
3.	Tubing, 1/8" urethane, specify ft. required .....	12475
4.	Tubing, twin urethane, specify ft. required .....	19577
5.	Foot pedal assembly, less tubing .....	20483
6.	Fitting, 1/8" NPT elbow x 1/8" barb .....	11733
7.	Bushing 1/2"x 1/8" NPT .....	11350
8.	Bushing 1/4"x 1/8" NPT .....	02010
9.	Bracket, mounting .....	19231
10.	Filter, 1/2" air .....	01308

11.	Adaptor, 1/2" NPT x 1/2" flare .....	11351
12.	Hose end, 1/2" barb x 1/2" female swivel .....	15002
13.	Hose end, 1/2" barb x 3/8" male NPT .....	06369
14.	Blow-off nozzle .....	13116
15.	Air hose, 1/2", specify ft. required .....	12472
16.	Gun assembly, BNP No. 5 .....	12302
17.	Hose, clear urethane, specify ft. required .....	12476
18.	Regulator, 1/2" pilot operated .....	11345
19.	Regulator, 1/8" pilot .....	12715
20.	Gauge, pressure .....	11831
21.	Metering valve assembly .....	12417
22.	Adaptor, 1/4" male NPT x 3/8" flare .....	01019
23.	Hose end, 3/8" barb x 3/8" fem. swivel ...	01018
24.	Hose, 3/8" ID specify feet required .....	04465

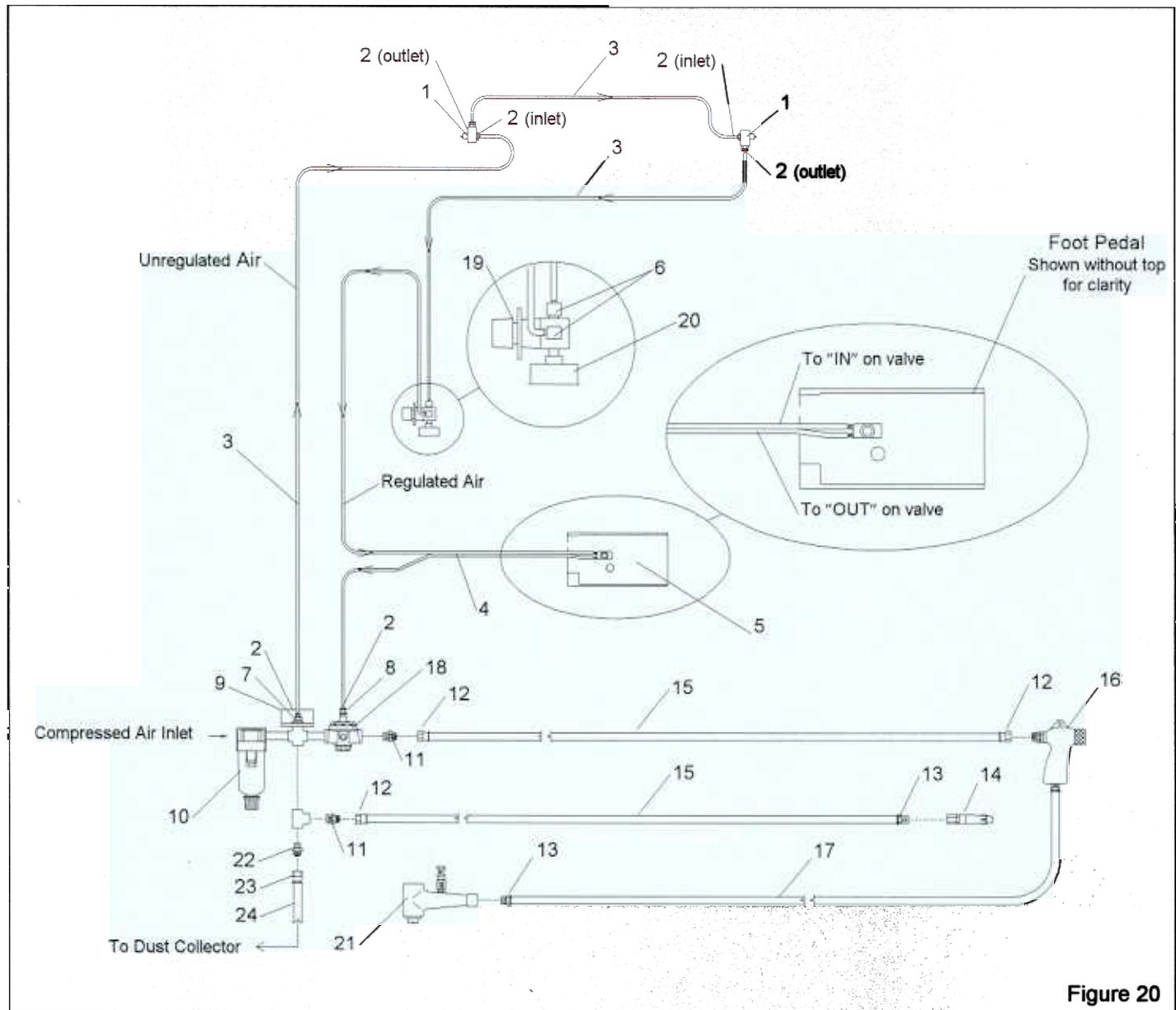


Figure 20

9.8 Dust Collector, Figure 21

Item	Description	Stock No.
(-)	Repair kit, diaphragm pulse valve ....	21600
1.	Valve, 1" diaphragm pulse .....	19578
2.	Pressure regulator with gauge, 1/4" ..	12050
3.	Petcock .....	01993
4.	Filter cartridge, 12" x 30" .....	19121
5.	Gasket, 5/16" x 1" adhesive backed, Specify feet required .....	00187
6.	Dust container assembly .....	23411
7.	Elbow, 1/4" brass st. ....	02027
8.	Motor, exhauster, 2 HP, 3-PH .....	12309
9.	Plate, motor mount 900 cfm .....	12005
10.	Paddle wheel, 900 cfm .....	12335
11.	Gasket, 3/16" x 1" adhesive backed, Specify feet required .....	00186

12.	Sequence control panel assembly .....	15788
13.	Sequence control board .....	10261
14.	Solenoid .....	10262
15.	Switch, toggle .....	12127
16.	Boot, toggle switch .....	14228
17.	Hose, 7" flex, light lined per foot, 5-ft. required .....	12469
18.	Clamp, hose .....	11576
19.	Gauge, differential pressure, optional ..	10188
20.	Snubber fitting, optional .....	15786
21.	Fitting, straight, 1/8" NPT x 1/4" tube ..	11214
22.	Tubing, 1/4" OD, specify feet required ..	15892
23.	Fitting, elbow, 1/4" NPT x 1/4" tube ....	03428
24.	Fitting, straight, 1/4" NPT x 1/4" tube ..	11737
25.	Adaptor, 1/4" male NPT x 3/8" flare ....	01019
26.	Hose end, 3/8" barb x 3/8" fem. swivel ..	01018
27.	Hose, 3/8" ID specify feet required .....	04465

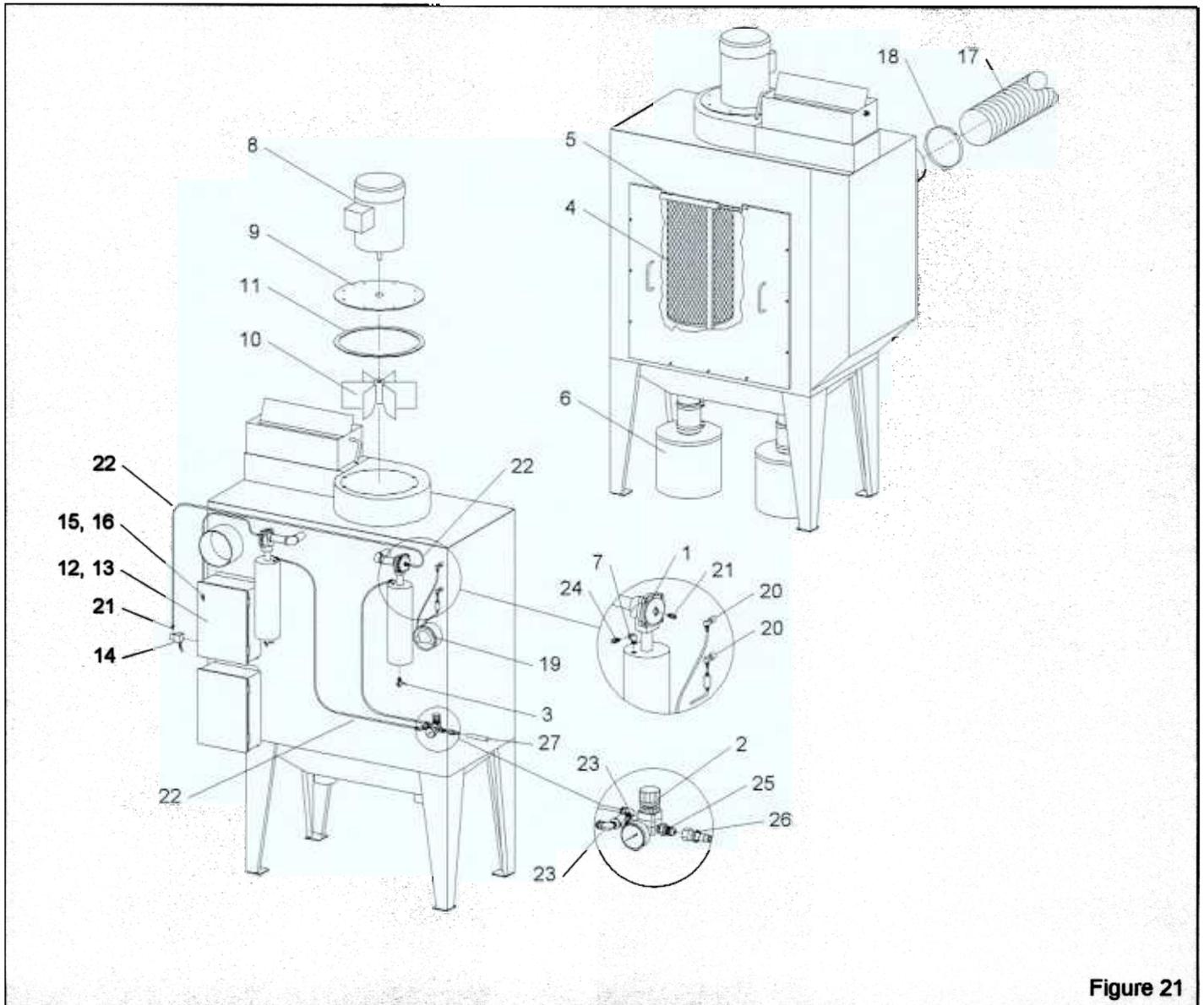


Figure 21

9.9 Reclaimer, Figure 22

Item	Description	Stock No.
1.	Gasket, 5/16" x 1" adhesive backed, 4 ft. required .....	00187
2.	Inlet pipe adaptor, 900 cfm, 6" standard .....	12363
	900 cfm, 5" for steel media .....	14411
3.	Gasket, inlet adaptor, 900 cfm .....	11759
4.	Wear plate, 900 cfm .....	14055
5.	Screen assembly .....	21265
6.	Gasket, door .....	11745
7.	Spring latch assembly .....	12263
8.	Gasket, 2" adhesive backed, specify ft. required .....	13089
9.	Vortex cylinder assembly, adjustable, 900 cfm .....	23046
10.	Hose support inlet, optional 6", for standard use with 6" hose .....	16887
	5", for use with steel media, w/5" hose ....	22324
11.	Hose, light lined flex, specify feet required 6" ID .....	12468
12.	Clamp, hose 6-1/2" .....	00750
13.	Hopper cone .....	23073
14.	Metering valve .....	12417

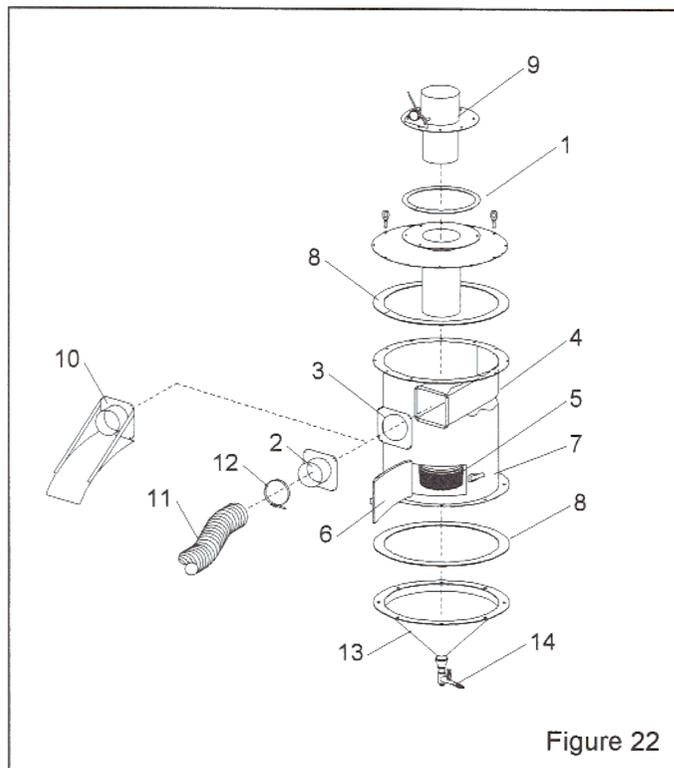


Figure 22

9.10 Rubber Liners Option, Figure 23

Item	Description	Stock No.
(-)	Rubber liner set, for 900 reclaimer .....	23151
1.	Top liner, 900 cfm .....	23059
2.	Inlet baffle, 900 cfm .....	23416
3.	Side liner, 900 cfm .....	17008
4.	Inlet side liner, 900 cfm .....	12830
5.	Sump liner, inner cone, 900 cfm .....	16070
6.	Inlet top, 900 cfm .....	22827
7.	Screw, self drilling, 10-16 x 3/4" .....	12722

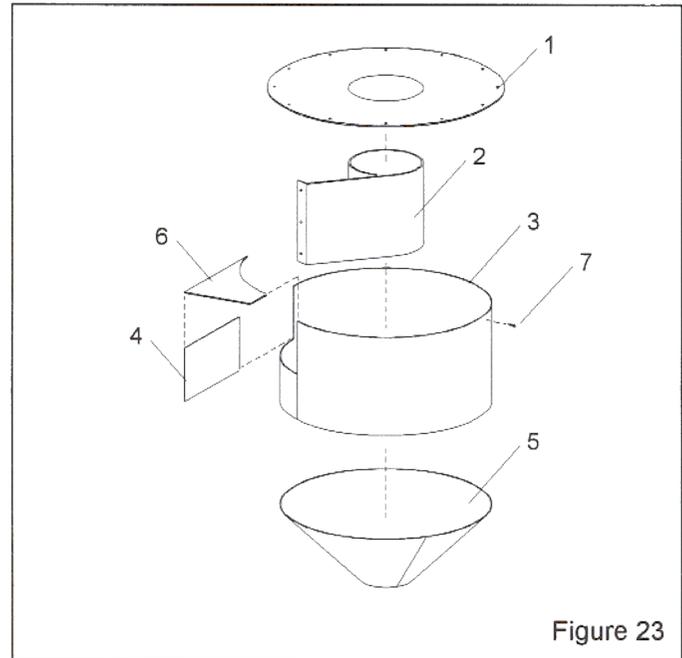


Figure 23