

Pulsar[®] III-P/E & VI-P/E Series Pressure Cabinets



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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 of 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.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

It is the responsibility of the knowledgeable, experienced users of the products mentioned in this material to familiarize themselves with the appropriate laws, regulations and safe practices that apply to these products, equipment that is connected to these products, and materials that may be used with these products.

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 the set-up, operation, maintenance, troubleshooting, and replacement parts for the following pressure blast cabinets.

- Pulsar® III-P Conventional (stand-up model)
- Pulsar® III-PE Ergonomic, (sit-down model)
- Pulsar® VI-P Conventional, (stand-up mode)
- Pulsar® VI-PE Ergonomic, (sit-down model)

A separate manual covers the Sentinel abrasive metering valve.

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.

CAUTION

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

⚠ CAUTION

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

⚠ WARNING

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

⚠ DANGER

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

1.3 General Description

1.3.1 Pulsar® pressure cabinet encloses the blasting environment to provide efficient blasting while maintaining a clean surrounding work area. Production rates are influenced by size of nozzle, compressor output, working pressure, type and size of media, and angle and distance of the nozzle from the blast surface. See Figure 1 for arrangement of components. Pulsar pressure cabinets consist of two major components:

1. Cabinet Enclosure
2. Pulsar VI Power Module
Note: Pulsar III-P/E and VI-P/E cabinets both include Pulsar VI-P Power Modules.

1.3.2 **Cabinet Enclosure:** This manual covers two Pulsar cabinet sizes. Each is available as a conventional, stand-up model and ergonomic, sit-down model; totaling four separate models.

Pulsar III-P/E Approximate work chamber dimensions:

36" wide x 35" deep x 37" high.

Pulsar VI-P/E Approximate work chamber dimensions:

50" wide x 39" deep x 43" high.

NOTE: The offset front on Ergonomic models provides approximately 12-inches additional depth from the arm-port and above, and is approximately 3-inches narrower than the widths shown above.

1.3.3 **Power Module:** Pulsar VI power module is approximate 50" wide x 32" deep. The module contains a 600 cfm reverse pulse dust collector, and 600 cfm reclaimers mounted above a 1-cubic foot blast machine. Pulsar VI pressure blast modules are easily converted to suction systems, using the conversion kit listed under Optional Accessories in Section 9.1.

1.4 Theory of Operation

1.4.1 When the air supply is on, and the cabinet doors are closed, the blast machine is ready for actuation by the foot pedal. Fully depressing the foot pedal pressurizes the blast machine, and propels blast media through the blast hose and out the nozzle. After striking the object being blasted, blast media, along with fines, dust, and by-products generated by the blasting process, fall through

the perforated worktable into the cabinet hopper. These particles are drawn into the reclaimer for separation. Dust and fines are first separated from the reusable blast media. The media is then screened to capture oversized particles, and clean media is held in the reclaimer hopper for reuse. When the foot pedal is released, the blast machine depressurizes, allowing stored media to refill the machine. Dust and fines are drawn through the reclaimer into the dust collector which traps the dust, discharging clean air.

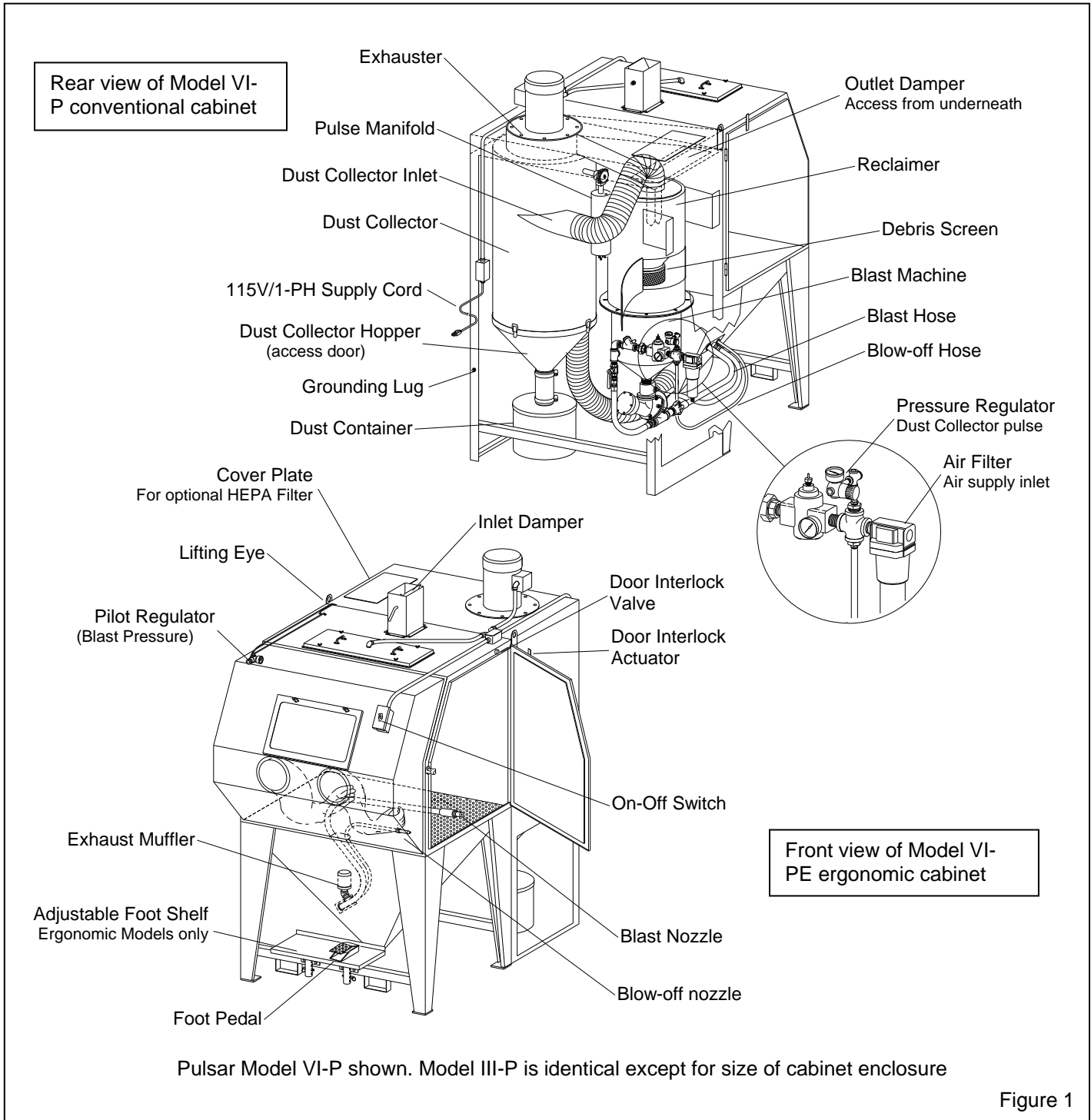


Figure 1

1.4.2 The dust collector filter cartridge is cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridge each time the foot pedal is pressed or released. The expanding air momentarily reverses airflow through the cartridge to release dust accumulated on the outer surface. The dust particles fall away from the cartridges and into the hopper for removal. An optional automatic pulse kit can be added to pulse the cartridge at timed intervals during blasting. (See Optional Accessories in Section 9.1).

1.5 Blast Machine and Remote Control

1.5.1 The blast machine pressure vessel is manufactured to American Society of Mechanical Engineers (ASME) standards, as described in Section VII, Div. 1, and carry a National Board certification. It is the owner's responsibility to maintain the integrity of the vessel as may be required by some states. This may include regular inspection and hydrostatic testing as described in National Board Inspection Code and Jurisdictional Regulations and /or Laws.

WARNING

Welding, grinding, or drilling on the blast machine could weaken the vessel. Compressed air pressure could cause a weakened vessel to rupture, resulting in death or serious injury. Welding, grinding, or drilling on the blast machine vessel, without a National Board "R" stamp voids the ASME and National Board certification.

1.5.2 All welding repairs done on the vessel must be performed by certified welders, at shops holding a National Board "R" Stamp. Welding performed by any welder not properly qualified per the ASME Code voids ASME and National Board certification of the vessel.

1.5.3 The vessel is rated for a maximum of 125 psi (pounds per square inch); do not exceed the rated pressure.

WARNING

Excessive air pressure could cause the blast machine to rupture. To prevent serious injury or death, do not exceed the rated pressure of the blast machine vessel.

1.5.4 OSHA does not require pressure relief valves on blast machines when air compressors supplying air to the blast machines are built to ASME⁽¹⁾ specifications and comply with OSHA⁽²⁾ regulations. ASME Manual section VIII, Division 1, UG-125, paragraph A90 (g)

states that pressure relief valves or protective devices **"...need not be installed directly on a pressure vessel when the source of pressure is external to the vessel and is under such positive control that the pressure in the vessel cannot exceed the maximum allowable working pressure at the operating temperature..."**. OSHA regulation 1910.169 refers to the above ASME code when describing the necessity of pressure relief valves on compressed air equipment. **DO NOT** operate blast machines with air compressors that are not equipped with properly functioning pressure relief valves.

⁽¹⁾ American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, 1989

⁽²⁾ Occupational Safety and Health Administration, 29 CFR 1910, Subpart M - Compressed Gas and Compressed Air Equipment.

1.5.5 When the air supply is on, and the cabinet doors are closed, the blast machine is ready for actuation by the foot pedal. Pressing the foot pedal opens the normally-closed main inlet regulator, and closes the normally-open outlet valve. The incoming air pressurizes the blast machine, and blasting begins. When pressure on the foot pedal is released, the blast machine depressurizes, and blasting stops.

1.6 Nozzle Options

1.6.1 Unless otherwise specified at the time of order, cabinets are shipped with a 3/16" orifice tungsten carbide nozzle. Optional 1/8", 1/4", and 5/16" orifice nozzles are also available. 5/16" nozzles should be used only when necessary in applications that require a high volume of air. When using 5/16" nozzles, media flow should be lean, or recovery from the cabinet hopper may be impaired. 5/16" orifice nozzles will substantially increase wear on blast hose. Use boron carbide nozzles when blasting with aggressive media. See Optional Accessories in Section 9.1.

1.7 HEPA Filters

1.7.1 Optional HEPA after-filters provide additional filtration, and must be used when removing lead coatings or any other toxic materials. See Section 9.1.

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.

1.8 Metering Valve Options

1.8.1 Unless specified at the time of order, cabinets are shipped with a fine-mesh Sentinel metering valve. The valve is for use with 50 mesh and finer media, and #10 and finer glass bead. The optional Sentinel metering valve is for use with 50-mesh and coarser media. Conversion kits easily convert the valves either way. Kits are listed under Optional Accessories in Section 9.1.

1.9 Media

1.9.1 Pulsar pressure cabinets are designed to utilize most common media, 180 mesh and coarser that is specifically intended for abrasive blasting. The usable media size and nozzle orifice size are based on typical media flow. Rich media flow or low static pressure will reduce the media size and nozzle size that may be used.

1.9.2 Glass Bead: Glass bead No. 10 and coarser may be used with the Pulsar. 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 the lumps.

1.9.3 Silicon Carbide, Aluminum Oxide, and Garnet: These are the most aggressive, high volume abrasive in the blasting industry. Aggressive media such as these may be used, but the service life will be reduced on any equipment components which come in contact with the abrasive. To avoid unscheduled down time, periodically inspect the reclaimer wear plate, hoses, and nozzle for abrasive wear. When using aggressive abrasive, use the optional aluminum oxide kit. Interior rubber curtains on the cabinet is suggested. Nozzles lined with boron carbide are recommended to extend nozzle wear life. See Optional Accessories in Section 9.1.

1.9.4 Steel: Steel grit and shot may be used, but is limited in mesh size and nozzle size. The conveying hose on cabinets using steel should be lined, and reduced one diameter size from standard. Steel grit 80 mesh and finer and S110 and finer shot may be used with a 1/4" or smaller nozzle. Under ideal conditions, 5/16" nozzles may be used with 120 mesh and finer steel grit. See the notation in Section 1.6 regarding 5/16" nozzles. Rubber curtains should be used to protect the cabinet walls from peening and rapid wear. For these applications, cabinets can be ordered with reduced size flex hose appropriately sized for steel grit, and with rubber 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.

1.9.5 Sand and Slag: Sand should never be used because of the hazards of using media containing free silica. Slags are not recommended because they rapidly break down, produce excessive concentrations of dust, and quickly load the dust collector.

1.10 Compressed Air Requirements

1.10.1 The size of the compressor required to operate the cabinet depends on the size of the nozzle and blasting pressure. Unless specified otherwise, cabinets are supplied with a 3/16" orifice nozzle. Refer to the table in Figure 2 to determine cfm requirements. The table shows air consumption of nozzles when new. It does not show the recommended compressor size. As nozzles wear, they will consume 70% to 80% more air. Consult with a compressor supplier for suggested compressor size based on the air consumption.

Nozzle size	Pressure (psi)			
	50	60	70	80
1/8"	11	13	15	17
3/16"	26	30	33	38
1/4"	47	54	61	68
5/16"	77	89	101	113

Air Consumption in cfm

Figure 2

1.10.2 The air filter at the blast machine inlet, removes condensed moisture from 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 Electrical requirements depend on the size and phase of the motor. Standard cabinets are supplied with, 1 HP, 115/230V, 1-PH, 60 HZ (wired 115).

1.11.2 If voltage is 115, 1-phase, a power cord is supplied. If voltage is optional 230/460, 3-phase, there will be a magnetic starter mounted in a control box. Power from the user's disconnect has to be wired to it. 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. The cabinet location

must comply with OSHA and local safety codes. Allow for full access to all doors and service areas and for efficient handling of large parts.

2.2 Connect Compressed Air Supply Line

2.2.1 Install an isolation valve at the compressed-air source to enable depressurization for service. Connect a 1" ID or larger air line from the air source to the air filter inlet. A smaller diameter hose may reduce blasting efficiency.

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 left rear of the power module.

2.4 Connect Electrical Service

WARNING

Shorting electrical components could result in serious electrical shocks, or equipment damage. All electrical work must be performed by a qualified electrician, and comply with applicable codes.

NOTE: 115 volt 1-phase wiring schematics are packaged with this manual, 3-phase schematics are packed in the control panel. After wiring is completed, keep the schematic with the manual for future reference and for electrical replacement parts.

2.4.1 If voltage is 115 volt, 1-phase, a power cord is supplied. No additional wiring is required. **REFER TO THE FOLLOWING IMPORTANT WARNING.**

WARNING

Do not use electrical adaptors that eliminate the ground prong on 115 volt plugs. Doing so can cause electric shock and equipment damage.

2.4.2 If voltage is optional 230 volt-3-phase, a magnetic starter is located in the control panel. User supplied wiring will need to be run from a disconnect to the control box assembly. As much wiring as possible

has been completed at the factory. The user needs only to provide power to the motor starter, mounted in the panel. A wiring diagram is supplied with the accessory.

WARNING

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

2.4.3 Check the rotation of the motor. To check, 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. 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.

2.5 Inlet Damper

2.5.1 The inlet damper must be set to match the cabinet dimensions and reclaiming size. The decal on the damper show the settings in degrees. For the initial setting, align the handle to 0 degree (full open). See Section 5.6 for adjustment procedure.

2.5.2 Loosen the lock nuts and set the damper to the starting point. When correctly positioned, tighten the lock nuts to maintain the setting.

2.6 Final Assembly

2.6.1 Position the foot pedal on the floor at the front of the cabinet or on the foot shelf on ergonomic models.

2.6.2 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.

3.0 FIELD INSTALLED ACCESSORIES

3.1 Alox (aggressive media) Kit

3.1.1 The optional aluminum oxide kit is available factory installed or may be field installed later. The factory installed Alox kit consists of four rubber curtains with eyelets, curtain hardware, and boron carbide nozzle. Refer to Section 3.2. for curtain installation. Field installed kits also include light lined flex hose, and reclaiming wear plate.

NOTE: Wear plates and lined flex hose are standard on current cabinets. If the cabinet has both items and they are in good condition, reserve the new wear plate and hose for future replacement.

3.2 Curtain Installation

3.2.1 Match curtains to corresponding walls and door.

3.2.2 **Front and rear walls:** Position the curtain on the wall to be protected. Using the curtains as templates, mark each mounting point through the grommet holes along the upper edge of the curtain. NOTE: When laying out the attachment points, the upper edge of the rear curtain should be below the bottom edge of the air duct partition. Remove the curtains, and drill a .187" (3/16") diameter hole at each point marked. Install the curtains using the fasteners provided (machine screw, 11/16" OD flat washer, lock washer and nut) at each grommet. The flat washer is used between the screw head and the rubber curtain grommet on all curtains.

3.2.3 **Doors:** Using protectors against the curtains and outer doors, clamp the door curtains in place. NOTE: When laying out the attachment points, the upper edges of the door curtains should be even with the outer edges of the door's sound proofing panel. Insert a #10 self-drilling screw with an 11/16" OD flat washer through the grommet holes. Use a screw gun with a 5/16" socket to drill and thread the screws through the door's inner wall at each grommet.

3.3 Differential Pressure Devices

3.3.1 Constant static pressure is necessary for precise media separation, as the reclaimers efficiency is accomplished by a centrifugal balance of air, particle weight and size. The air balance and static pressure are set by adjusting the outlet damper. A flexible u-tube manometer or differential pressure gauge measures static pressure. Use the instruction sheet provided with the manometer or pressure gauge for installation and operation instructions. The optional manometer and differential pressure gauge kits are listed in Section 9.1.

3.4 Turntable with Workcart and Track

3.4.1 The components of the Turntable and track assembly are shown in Figure 3. The assembly consists of:

1. The inside track assembly, which is placed inside the cabinet.
2. The hinged, track extension which is attached to the table, and swings up to clear the door.
3. The track support table.
4. Turntable and workcart assembly.

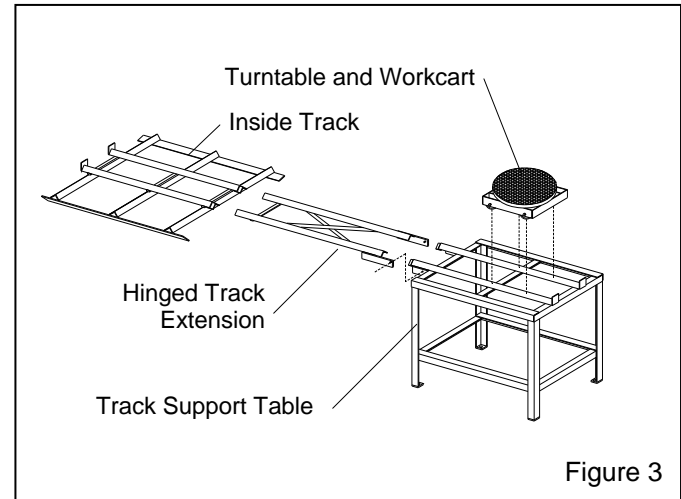


Figure 3

NOTE: The track may be placed on either side of the cabinet, allowing entry through either door. When installing the inside track, place it so the stops are opposite the entry door.

3.4.2 Place the inside track in the cabinet over the existing grate as shown in Figure 4.

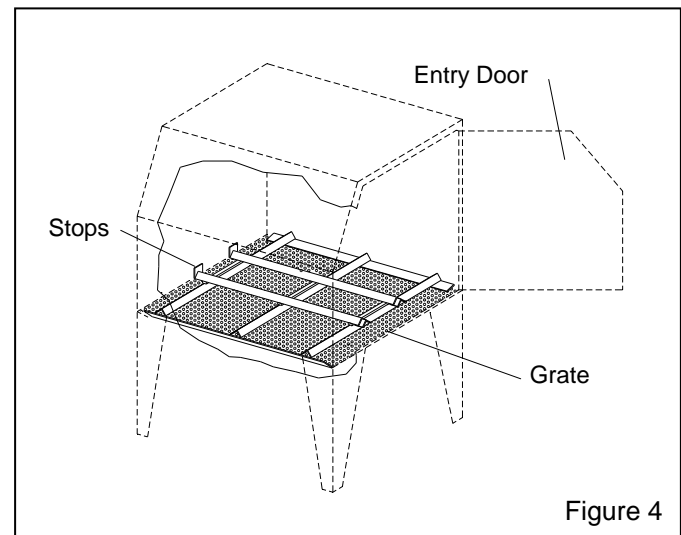
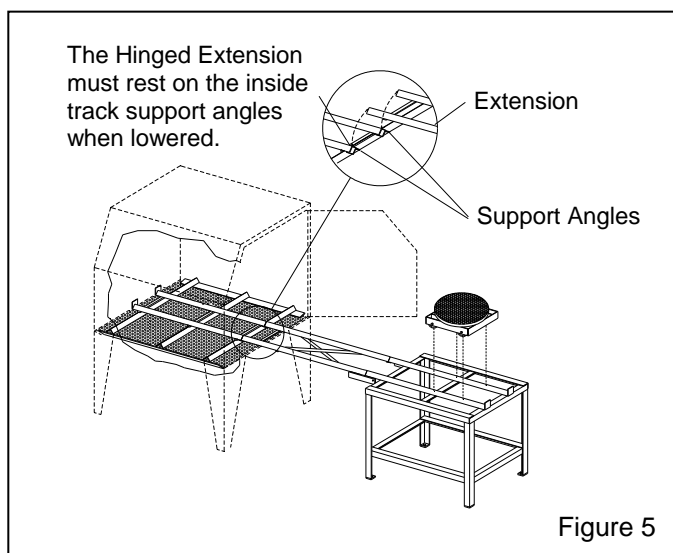


Figure 4

3.4.3 Position the track support table and extension as shown in Figure 5. When the hinged extension is lowered, the extension tracks must rest on the angled locating supports welded to the bottom of the inside tracks, and butt against the inside tracks.

3.4.4 Holes are provided on the track table leg pads, to permit anchoring when needed.

3.4.5 Raise the track extension to allow opening and closing of the door.



4.0 OPERATION

4.1 Season Filter Cartridge

CAUTION

Do not pulse new dust collectors and cartridges until the cartridge is 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: Media capacity of the Pulsar pressure cabinet is approximately 1 cu. ft. The machine is full when media reaches the level of the pop-up valve. Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose.

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

4.2.3 Media Unloading: To empty the cabinet and blast machine of media, reduce pressure to 40 psi. Place an empty container, such as a bucket, on the cabinet grating. Remove the nozzle and nozzle washer, close the door, close the choke valve and press the foot pedal. Direct media flow into the container. Empty the container when full or before it is too heavy to handle, and repeat the process until the machine is empty. Clean the nozzle holder threads before reinstalling the nozzle washer and nozzle. If complete purging of media

is required, use a vacuum to remove media residue in the cabinet hopper and blast machine head.

4.3 Loading and Unloading Parts

4.3.1 Load and unload parts through either door.

⚠ 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.

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

4.3.3 When blasting very small parts, place an appropriately sized screen over the work table 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.

4.4 Blasting Operation

⚠ CAUTION

- **Always close cabinet, reclaimer 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 exhauster on until the cabinet is clear of all airborne dust.**
- **Stop blasting immediately if dust leaks are detected.**

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

4.4.2 Adjust the dust collector pulse pressure regulator to 60 psi. See Figure 1 for location.

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

4.4.4 Load parts.

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

4.4.6 Insert hands into gloves.

4.4.7 To blast, firmly grasp the nozzle and step on 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 long blasting operations, the operator will tire easily from resisting blast pressure. Whenever possible avoid holding small parts that will require blasting into the glove.

4.4.8 Adjust the pilot pressure regulator, located on the top, left side of the cabinet, to the required blasting pressure per Section 5.1.

4.4.9 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.

WARNING

Shut down the cabinet immediately if dust discharges from the collector. Check that the filter is correctly seated and not worn or 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.

4.5 Stop Blasting

4.5.1 To stop blasting, remove pressure on the foot pedal. The blast machine will depressurize each time the foot pedal is released.

4.5.2. The blast machine refills with media stored in the reclaiming each time the foot pedal is released. Refill takes approximately 15 seconds when the machine is empty.

4.5.3 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.

4.5.4 Unload parts, shut off the air supply valve, 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 6" from the surface of the part.

4.7 Pulsing (Cleaning) Dust Collector Cartridge

4.7.1 The dust collector filter cartridge is pulsed each time the foot pedal is pressed or released. Prolonged periods of blasting or dusty conditions may require the cartridge to be pulsed during the blasting process per Section 6.3, or upgrade to the automatic pulse kit. See Section 9.1.

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 Pressure registers on the gauge only while blasting. To adjust pressure, unlock the knob and turn it clockwise to increase pressure or counterclockwise to decrease pressure. Once operating pressure is set, lock the knob to maintain the setting.

5.2 Media Metering

These instructions are for a standard cabinet with Sentinel Metering Valve. Optional metering valves may function differently, but the process is similar.

5.2.1 Media flow is adjusted by the metering valve located at the bottom of the blast machine. The valve is closed when the handle is fully right. To adjust, begin with the valve closed, depress the foot pedal and have someone slowly move the handle to the left to increase media flow. Allow time for the flow to stabilize before further adjusting. The valve is fully open when the

handle is at the full left position. The optimum flow rate depends on the type and size of media and blasting pressure, and can best be determined by experience. Use as little media as possible to do the job while maintaining the best cleaning rate. Generally, with the correct mixture, abrasive can be seen as light discoloration as it exits the nozzle.

5.3 Static Pressure (outlet damper)

5.3.1 Static pressure requirements vary with size of reclaimer and size, weight, and type of media.

5.3.2 Adjust static pressure by opening or closing the outlet damper located above the reclaimer on the underside of the power module top (See Figure 1). 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 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.

5.3.3 A flexible u-tube manometer or differential pressure gauge is useful for adjusting and monitoring static pressure. The manometer kit and reclaimer differential pressure kit are listed under Accessories and Replacement Parts 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"

5.3.4 As the cartridge develops a cake of dust, the static pressure will drop, requiring additional pulsing of the cartridge as described in Section 6.3, or an increase in pulse pressure per Section 5.5. When pulsing no longer maintains the necessary static pressure, readjust the damper.

5.4 Door Interlocks, Figure 6

⚠ WARNING

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

5.4.1 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.

5.4.2 Close cabinet doors.

5.4.3 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.

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

5.4.5 Test the operation with the doors open and then again closed. The interlocks should prevent 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.

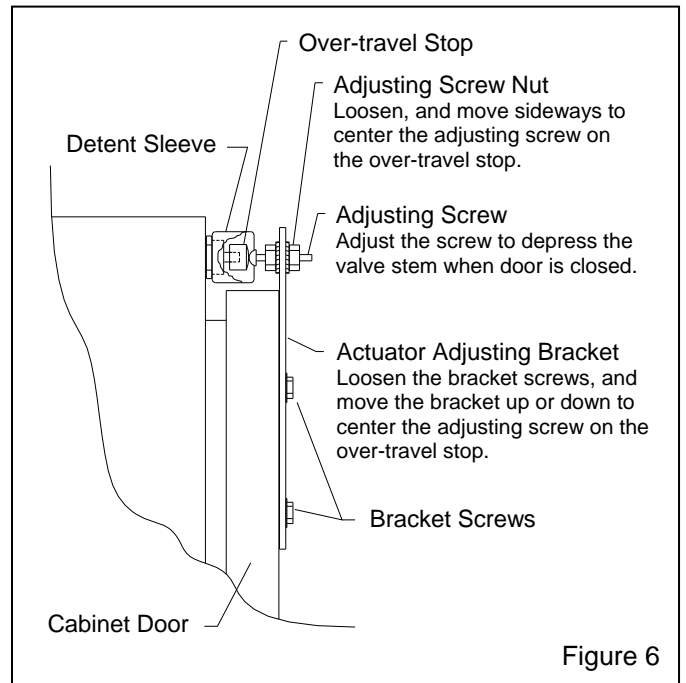


Figure 6

5.5 Pulse Pressure

5.5.1 Adjust pulse pressure using the regulator mounted on the blast machine piping (See Figure 1). Begin pulse at 60 psi.

5.5.2 As the filter cartridge cakes with dust, it may be necessary to pulse between blasting per Section 6.3.

5.5.3 When pulsing alone does not adequately clean the cartridge, increase pulse pressure in 5-psi increments. As dust cakes on the cartridge, the differential pressure increases. Using a gauge to measure the differential pressure is a good way to tell if the cartridge is heavily caked.

5.6 Inlet Damper

5.6.1 Once the inlet is initially set per Section 2.5, it seldom requires readjustment. The initial setting produces approximately 1/2" to 3/4" of static pressure in the cabinet enclosure. **Do not confuse cabinet static pressure with reclaimer static pressure as noted in section 5.3, 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.

5.6.2 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.

5.6.3 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.

5.7 Foot Shelf, Ergonomic models only

5.7.1 Raise the shelf to remove pressure from the locating pins, and remove the pins. Adjust the shelf height and insert the pins.

6.0 PREVENTIVE 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 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.

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

6.1 Dust Collector Dust Container

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

6.1.2 Turn off the exhauster and release the dust container from the cover. The cover's flexible inlet hose allows easy removal. Remove the container and dump the contents into a suitable disposal container. Replace the container being certain the cover is 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.

6.2 Pulse Manifold

6.2.1 Open the petcock to drain water from the pulse manifold before and after each use. Refer to Figure 11 for the location of the drain petcock.

6.3 Cartridge Pulsing

6.3.1 The cartridge is pulsed each time the foot pedal is pressed or released. Additional pulsing should be performed per the following instructions every eight hours, or more often under dusty conditions, to prevent clogging of the cartridge.

6.3.2 Turn off exhauster.

6.3.3 Hold the blast nozzle and rapidly press and release the foot pedal three times. Activating the pedal more than three times may cause dust to escape from the enclosure.

6.3.4 Start the exhauster and let it run until all airborne dust is cleared from the cabinet.

6.3.5 Repeat the process once or twice.

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 cause 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 an auto-drain air filter. The filter automatically drains when moisture fills the bowl to a certain level. Moist air inhibits the flow of media. Drain the air line and receiver tank regularly. If the moisture problem persists, it may be necessary to install an aftercooler or air dryer.

6.7 Blast Hose and Couplings

6.7.1 To avoid unscheduled down-time, inspect the blast hose for thin spots by pinching it every 6 to 12 inches. Check coupling gaskets and couplings for leaks and wear.

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 have been 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 diameter has increased by 1/16", or sooner if pressure diminishes noticeably. Make sure the nozzle gasket is in place before screwing nozzle into the nozzle holder.

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 optional view window cover lens per Section 6.5.

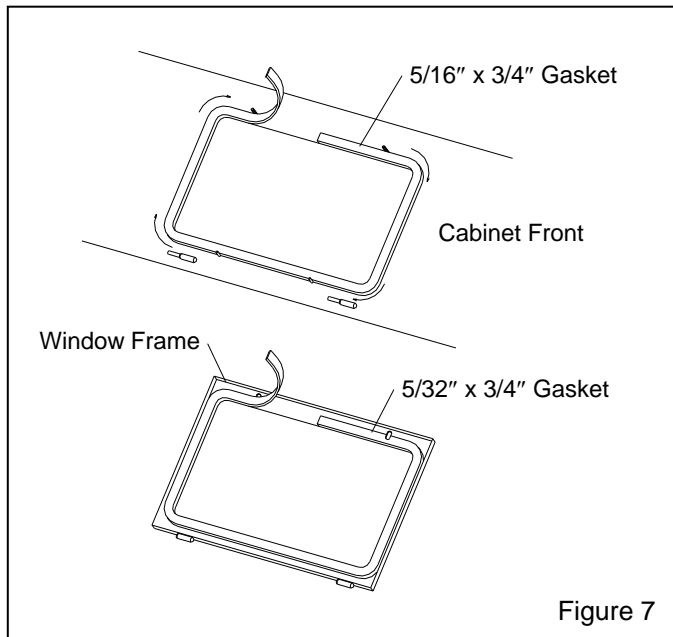
7.3.5 Set the new window (cover lens down) squarely over the window opening, ensuring that all edges of the window are centered and overlapping the window gasket, and that the window is resting on the lower locators.

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

7.4 Window Gasket Replacement, Figure 7

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 7. 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.

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

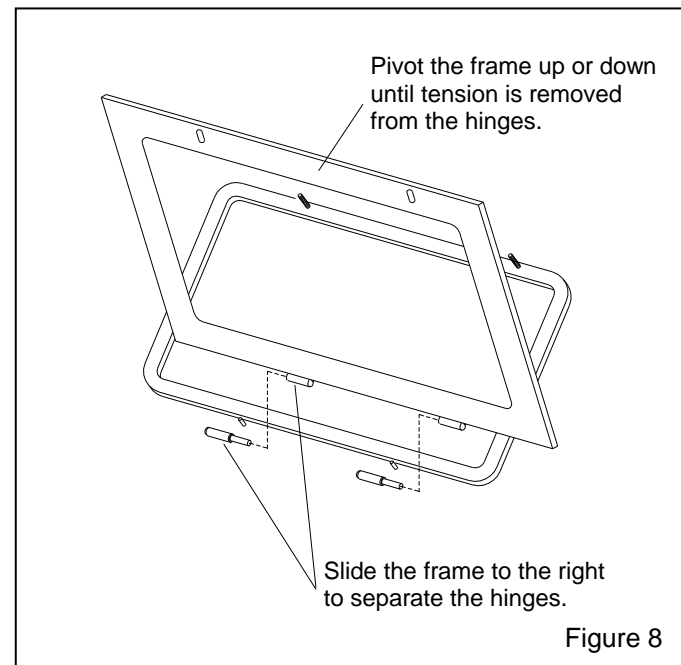
7.5 Window Frame Removal, Figure 8

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.

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

7.5.4 To remove, slide the frame to the right. The hinges separate as shown in Figure 8.



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 9.

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

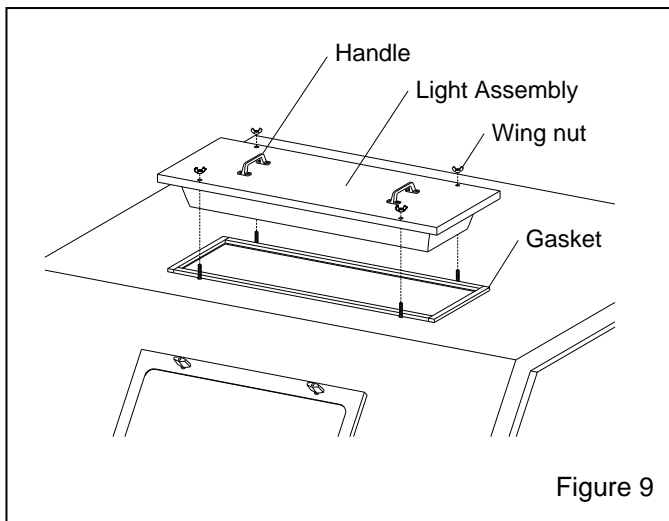


Figure 9

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 9. 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 10.

7.6.3.3 Remove the four lens screws and remove the lens.

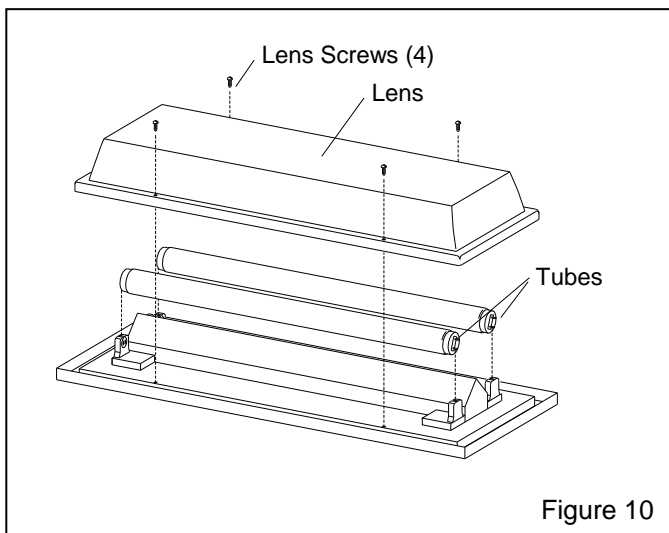


Figure 10

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 11

⚠ WARNING

Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when changing the filter cartridge 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. 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 Close the air supply valve and bleed all air from the pulse manifold.

7.7.2 Unlatch and remove the dust collector hopper bottom.

7.7.3 Remove the cartridge retaining nut, washer, and gasket.

7.7.4 Slide the cartridge straight down until it clears the holding bar. A small amount of rocking may be necessary to break the gasket seal of the cartridge.

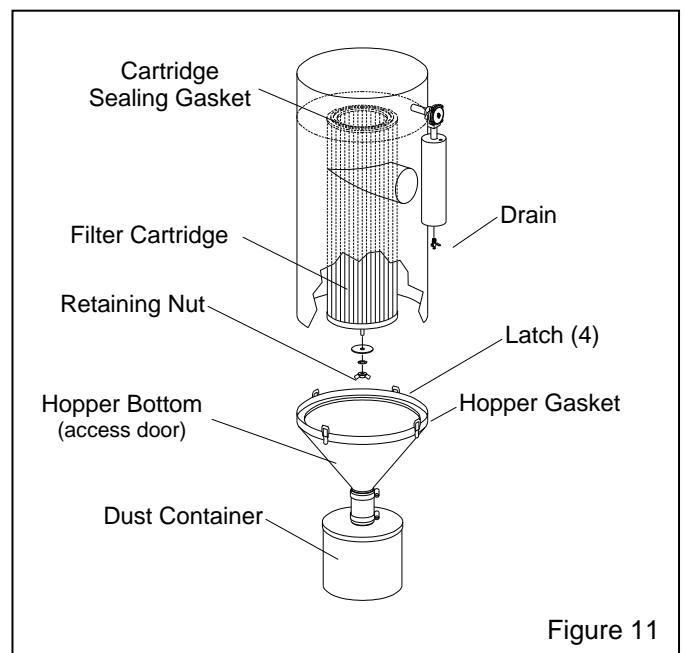


Figure 11

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

7.7.6 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.

7.7.7 Check the collector hopper gasket for any condition that will prevent the gasket from sealing. Replace the gasket if necessary.

7.7.8 Attach the hopper bottom, and latch in place.

7.7.9 Season cartridge 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 To stop the pulse, turn the pulse regulator off (to 0 psi).

7.8.3 Operate the cabinet without pulsing for about two hours, or until visibility decreases, whichever comes first. At that time, turn the pulse regulator to 60 psi, to start the pulsing cycle.

7.9 Pop-up Valve Replacement, Figure 12

7.9.1 Empty the machine of media as described in Section 4.2.3.

7.9.2 Depressurize the blast machine, and lockout and tagout the air supply.

⚠ WARNING

Failure to observe the following procedure before performing any blast machine maintenance could cause serious injury from the sudden release of compressed air:

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

7.9.3 To gain access to the pop-up valve, remove the inspection door assembly.

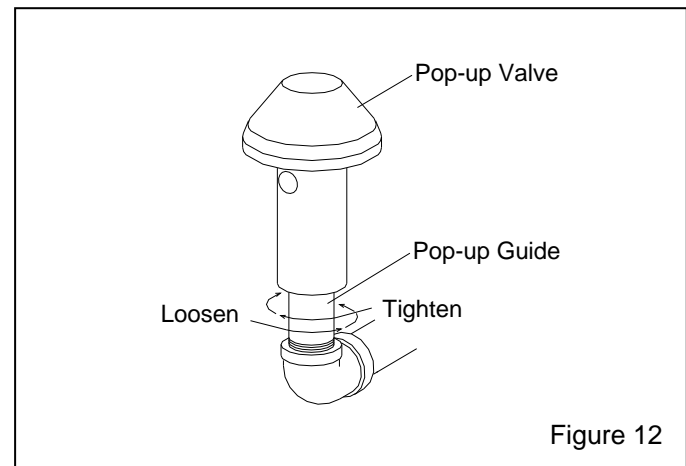


Figure 12

7.9.4 Using a small pipe wrench, unscrew the pop-up valve guide by turning it counterclockwise. Remove the pop-up valve and guide from the machine. Place the new pop-up valve in the guide, and screw the valve guide (with the pop-up valve in it) back into position inside the machine. Tighten the guide so it is snug but not wrench-tight.

7.9.5 Put a new gasket on the inspection door and bolt the door back onto the machine.

7.10 Pop-up Valve Seat Replacement

7.10.1 The easiest method to replace the seat is through the reclaimer door. If for some reason replacement cannot be made through the reclaimer, observe the warning in Section 7.9, and empty the machine and bleed the air supply line. Remove the blast machine inspection door, and work through the opening.

7.10.2 Remove the old seat by using a finger, screwdriver, or similar object.

7.10.3 Push the new rubber seat all the way through the port and then fit it into the groove. For the last few inches, push on the seat and allow it to "pop" into position.

7.11 Reclaimer Wear Plate Installation

7.11.1 Remove the reclaimer from cabinet.

7.11.2 Remove the reclaimer inlet adaptor and old wear plate. The wear plate is held in place by screws attached from the outside of the reclaimer. Angle the new wear plate into the reclaimer inlet until it is in position with the straight end at the reclaimer inlet. Using a board or similar object for leverage, pry the wear plate against the inner wall of the reclaimer and install sheet metal screws to hold in place. Caulk gaps

or voids around the wear plate to prevent rapid wear in those areas.

7.12 Sentinel Metering Valve

7.12.1 A separate manual is provided for the metering valve. Refer to the metering valve manual for servicing and replacements parts.

8.0 TROUBLESHOOTING

WARNING

To avoid serious injury, observe the following when troubleshooting.

- **Turn off the air, and lockout and tagout the air supply.**
 - **If checking the controls requires air, always enlist the aid of another person to:**
Hold the nozzle 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 Neither Media Nor Air Comes Out The Nozzle When The Foot Pedal Is Pressed

8.1.1 Depressurize the blast machine, and check the nozzle to see if it is plugged.

8.1.2 Make sure the blast machine pressurizes when the foot pedal is pressed. If it does not, see Section 8.8.

8.1.3 Make sure the media metering valve and the choke valve are open.

8.2 Air Only (no media) Comes Out The Nozzle

8.2.1 Make sure the machine contains media.

8.2.2 Verify that the metering valve is not closed.

8.2.3 Make sure the blast machine is pressurized. See Section 8.8.

8.2.4 Check for minor blockage in the media metering valve by fully opening the metering valve and closing the choke valve. Activate the foot pedal to blow out obstructions. If this procedure fails, depressurize the

machine, open the metering valve clean out cap and check for foreign objects.

8.2.5 Check the muffler on the 4-way air valve. Air should exhaust from the muffler when the foot pedal is released. If air does not exhaust, remove the muffler and try again. If air exhausts now, the muffler is blocked. If air still does not exhaust, the 4-way valve may be faulty.

8.2.6 Check the 4-way valve as follows: Depressurize the air supply line. Remove the tubing leading to either the media metering valve or diaphragm outlet valve. Pressurize the air supply line. Air should not exhaust from the tube adaptors. Press the foot pedal, air should exhaust at the tube adaptor. Release the foot pedal, air should stop exhausting from the tube adaptors. If it operates accordingly, the metering valve requires service. If it does not operate accordingly, replace the 4-way valve.

8.3 Heavy Media Flow

8.3.1 Make sure the choke valve is open.

8.3.2 Media metering valve open too far. Adjust per Section 5.2. If adjusting the media valve does not regulate media flow, empty the machine, depressurize the machine, and inspect the internal parts of the valve for wear.

8.4 Media Surge: A small amount of surge is normal at start-up.

8.4.1 Heavy media flow. Adjust media per Section 5.2.

8.4.2 Empty all media from the blast machine and depressurize the blast machine. Inspect the internal parts of the media metering valve for wear.

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 work-piece, 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 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 absorbs moisture from the air, especially fine-mesh media in high humidity areas. Store media in an airtight container when cabinet is not in use.

8.5.5 A vibrator mounted either on the blast machine leg or on a bolt on the media metering valve, may help prevent bridging of fine-mesh media.

8.6 Abnormally High Media Consumption

8.6.1 Fill door on reclaimer not in place, improper fit or worn gasket. Air entering reclaimer at this point will cause media to be carried into the dust collector. DO NOT operate system unless fill door is closed.

8.6.2 Outlet damper open too far. Adjust static pressure per Section 5.3.

8.6.3 Media may be too fine or worn-out.

8.6.4 Using friable media that rapidly breaks down.

8.6.5 Nozzle pressure too high for media, causing media to break down.

8.6.6 Hole worn in reclaimer, or leak in reclaimer seams. Check entire reclaimer for negative-pressure leaks.

8.7 Plugged Nozzle

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

8.8 Blast Machine Will Not Pressurize

8.8.1 Make sure the compressor is on and air supply valve is open.

8.8.2 Make sure the pressure regulator is not set too low; minimum pressure is 40 psi.

8.8.3 Door interlocks not engaging. Check adjustment per Section 5.4.

8.8.4 Inspect the diaphragm in outlet valve for wear.

8.8.5 Check pop-up valve and seat for wear and misalignment.

8.8.6 Blocked or leaking control lines. Check all urethane tubing for blockage or leaks.

8.8.7 Foot pedal valve malfunction. Check foot pedal alignment, and inlet and outlet lines for pressure.

8.8.8 Make sure lines are not reversed on the foot pedal or pilot regulator. See schematic in Figure 20.

8.8.9 Check the 4-way valve for jamming per Sections 8.2.5 and 8.2.6. When the foot pedal is pressed, the valve should shift, pressurizing the line to the outlet valve and media metering valve.

8.8.10 Inspect the check valve for obstruction or broken flap.

8.9 Blast Machine Will Not Depressurize Or Depressurizes Too Slowly

8.9.1 Check for blockage in the 4-way valve mufflers.

8.9.2 Check that the foot pedal valve exhausts air when pedal is released. If it does not, replace the valve.

8.9.3 Check the outlet muffler, located inside the cabinet, for blockage.

8.9.4 Check 4-way air valve for jamming per Sections 8.2.5 and 8.2.6.

8.9.5 Check for blockage in the screen of the optional abrasive trap.

8.10 Poor Visibility

8.10.1 Dirty filter cartridge. Empty the dust container. Cycle pulse several times. Inspect and replace the cartridge if necessary.

8.10.2 Motor rotating backwards. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, **Lockout and Tagout power** and switch the motor leads as shown on the motor plate. See Section 2.4.3.

8.10.3 Using friable media that rapidly breaks down, or using media that is too fine or worn out can cause poor visibility.

8.10.4 Outlet damper closed too far restricting air movement in cabinet. Adjust static pressure per Section 5.3.

8.10.5 Exhauster motor not operating. Exhauster must be in operation before blasting begins.

8.10.6 Inlet damper requires opening. A restriction at the inlet damper reduces air movement in the cabinet. Open damper per Sections 2.5 and 5.6.

8.10.7 Hole worn in flex hose between cabinet hopper and reclaimer inlet, or reclaimer outlet and dust collector.

8.10.8 Reclaimer fill door open.

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

8.11 Static Shocks

8.11.1 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. Attach a small ground wire (such as a wrist strap), from the operator to the cabinet.

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

8.12 Reduction in Blast Cleaning Rate

8.12.1 Incorrect metering valve adjustment. Adjust media flow per Section 5.2.

8.12.2 Reduced air pressure caused by a malfunctioning regulator, a dirty filter element in the air filter, ruptured or leaking air line, or demand by other air tools in use.

8.12.3 Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. See Section 8.5.

8.13 Dust Leaking From Dust Collector

8.13.1 Damaged or loose cartridge. Inspect cartridge.

8.13.2 Faulty seal on the dust collector cone. Inspect seal and replace if damaged.

9.0 ACCESSORIES AND REPLACEMENT PARTS

9.1 Optional Accessories

Turntables and Turntables with Tracks

⚠ WARNING

Turntable capacities are based on concentric loading. Use solid fixturing to hold heavy parts in place. Do not remove lift equipment until the part is adequately supported to prevent movement. Moving or rotating heavy, unsupported or off-centered parts may cause them to shift or topple, and cause severe injury.

Stationary Turntable without Bearing, 25 lb Capacity

Description	Stock No.
20" diameter, 25 lb capacity	12412

**Stationary Turntable with Bearing, 500 lb Capacity
Figure 13**

Item	Description	Stock No.
(-)	20" diameter turntable assembly	12411
(-)	30" diameter turntable assembly	14138
1.	Turntable replacement	
	20" diameter	18329
	30" diameter	21390
2.	Bearing, 1-1/2" bore	11517
3.	Protector, bearing	13479
4.	Screw, 1/2-NC x 1-1/2" cap	03454
5.	Lock-washer, 1/2"	03516
6.	Nut, 1/2-NC hex	03511

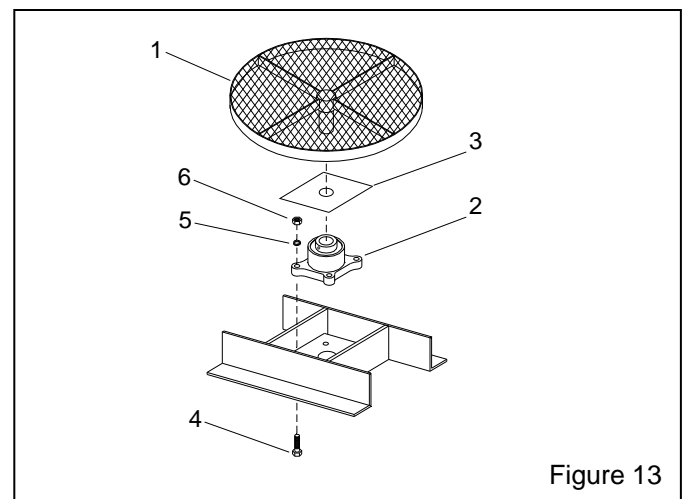


Figure 13

Turntable with Workcart and Track, 500 lb. Capacity, Figure 14

Item	Description	Stock No.
(-)	20" diameter turntable and track assembly for Pulsar III models	13530
	for Pulsar VI models	12835
(-)	30" diameter turntable and track assembly for Pulsar VI models only	24045
(-)	Turntable and workcart replacement	
	20" diameter	24205
	30" diameter	24086
1.	Turntable replacement	
	20" diameter	18329
	30" diameter	21390
2.	Bearing, 1-1/2" bore	11517
3.	Protector, bearing	13479
4.	Screw, 1/2-NC x 1-1/2" cap	03454
5.	Lock-washer, 1/2"	03516
6.	Nut, 1/2-NC hex	03511
7.	Caster, 4" V groove	11594

All other track items are special order. Contact distributor for price and availability.

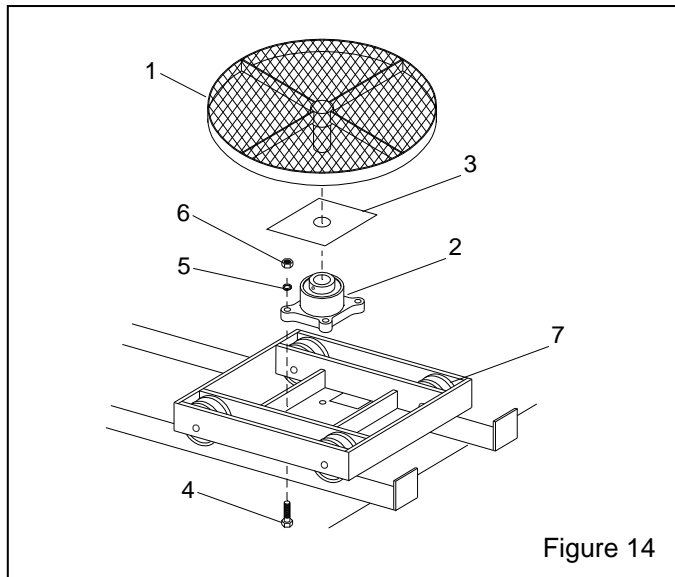


Figure 14

Description	Stock No.
Conversion kit, Includes all accessories to convert pressure feed system to suction system	21666
Conversion kits, Sentinel metering valve	
To convert from fine mesh media to coarse	22848
To convert from coarse mesh media to fine	22849
Noise reduction arm-port kit	24885
Lock pins (pkg. of 25) for twist-on couplings	11203
Safety cable, 1/2" hose	15012

Abrasive trap	02011
Window cover lens, pkg. of 5	06190
Manometer kit (flexible u-tube)	12528
HEPA Filter assembly	22807
Automatic pulse kit	21773
Time-delay door release, for both doors	24163

Differential pressure gauge assemblies	
for reclaimer static pressure	23355
for dust collector drop across cartridge	23356

Boron carbide nozzle	
CTB-2, 1/8" orifice	21090
CTB-3, 3/16" orifice	21091
CTB-4, 1/4" orifice	21092

Aluminum oxide and aggressive media applications order the following:

CTB-3, 3/16" orifice boron carbide nozzle	21091
Set of curtains	as shown below

Rubber curtain set, black	
for III-P (conventional)	23531
for III-PE (ergonomic)	25086
for VI-P (conventional)	23532
for VI-PE (ergonomic)	25087
Rubber curtain set, white	
for III-P (conventional)	23541
for III-PE (ergonomic)	25088
for VI-P (conventional)	23542
for VI-PE (ergonomic)	25089

Rubber curtains, black Individual for conventional models	
Back curtain	
for III-P	14243
for VI-P	14247
Front curtain	
for III-P	14242
for VI-P	14246
Door curtain (2 required)	
for III-P	14244
for VI-P	14245

Rubber sump liner set, black	
for III-P	
for VI-P	23499

Steel media applications: order the following as required	
4" universal cabinet hopper adaptor	23295
Gasket, hopper outlet adaptor	23258
4" reclaimer inlet adaptor	12350
Gasket, inlet adaptor	11779
4" light-lined hose	12466
III requires 6 feet	
VI requires 7 feet	
Rubber curtains	as shown above

9.2 Cabinet Assembly, Figure 15

Item	Description	Stock No.
1.	Gasket, door, per ft., specify feet req'd.	00187
	Pulsar III requires 11 feet	
	Pulsar VI requires 13 feet	
2.	Left door assembly	
	for Pulsar III	20070
	for Pulsar VI	20074
3.	Right door assembly	
	for Pulsar III	20071
	for Pulsar VI	20075
4.	Grate	
	for Pulsar III	11811
	for Pulsar VI	11810
5.	Window cover lens, pkg. of 5	06190
6.	Window glass 12.5" x 19.5"	12212
7.	Gasket, 5/16" x 3/4", applied to cabinet	
	per foot, 6 feet required	00189
8.	Gasket, 5/32" x 3/4", applied to frame	
	per foot, 6 feet required	00192
9.	Latch kit, door	20064
10.	Adaptor pipe,	
	5" universal flex (standard)	23296
	4" for Pulsar III w/steel media	23295
	4" for Pulsar VI w/ steel media	20256
11.	Gasket, flex hose adaptor pipe	
	4" for Pulsar III	23258
	5" for Pulsar VI,	23259
12.	Grommet, blow-off hose	11798

13.	Glove set	11215
14.	Glove, left only	12710
15.	Glove, right only	12711
16.	Clamp, glove	11576
17.	Motor, exhauster, 1 hp	
	115 volt 1-ph, standard	12314
	230/460, 3-ph, special	12310
18.	Paddle wheel, Pulsar VI-P	19234
19.	Plate, motor	20224
20.	Air valve, 3 way, door interlock	12202
21.	Over-travel stop, door interlock	20004
22.	Detent sleeve, door interlock	15042
23.	Actuator, adj., door interlock	19152
24.	Grommet, blast hose	00184
25.	Clamp, 5" flex hose	11578
26.	Switch, toggle	12127
27.	Hose, light lined flex	
	4" for steel media, 7 ft req'd	12466
	5" for standard use, 7 ft required.	12467
28.	Foot pedal with tubing	20194
29.	Nut, plastic, window frame, 2 required	23035
30.	Light assembly with cover	23255
31.	Gasket, light assembly, applied to cabinet	
	per foot, 7 feet required	00187
32.	Regulator, 1/8" NPT pilot	12715
33.	Gauge, pressure	01908
34.	Plate, hopper hose	21657
35.	Muffler, 1" exhaust	05068
36.	Adaptor, 1" male NPT x 1" male flare	11720
37.	Gasket, hopper plate adaptor	20247
38.	Grommet, 1/4" ID	12762

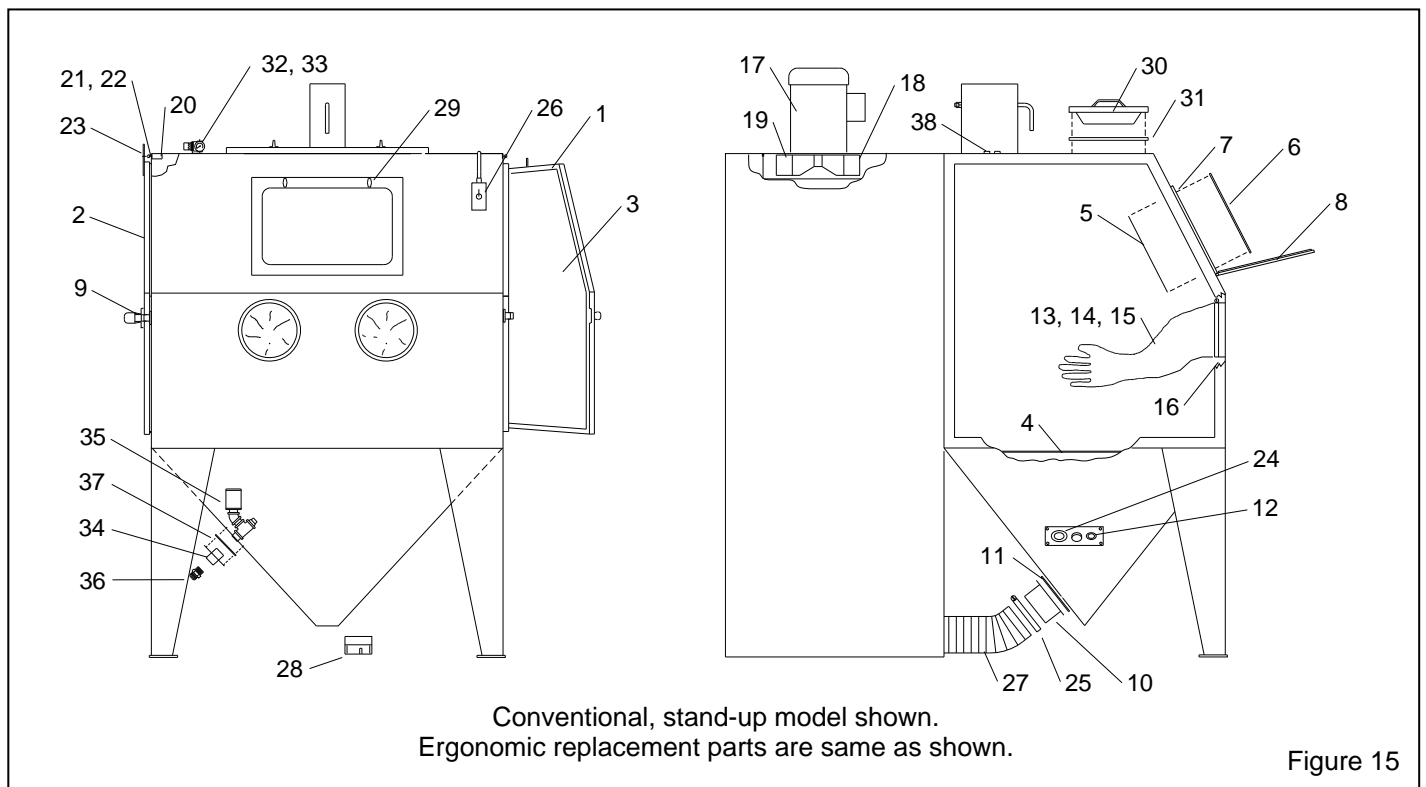


Figure 15

9.3 Light Assembly, Figure 16

Item	Description	Stock No.
(-)	Light assembly with cover	23255
1.	Light fixture (assembly less cover)	24740
2.	Reflector lens	23253
3.	Tube, fluorescent, 20w	24741

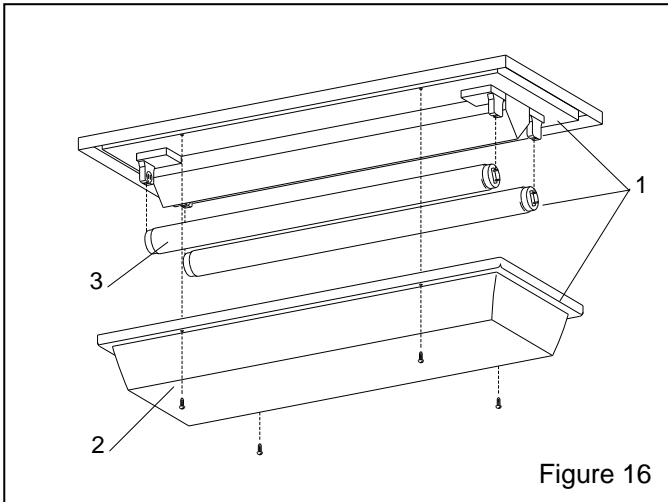


Figure 16

9.4 1" Diaphragm Outlet Valve, Figure 17

Item	Description	Stock No.
(-)	1" Diaphragm outlet valve, complete	03371
1.	Nipple, 1" x close	01701
2.	Diaphragm, outlet valve	06149
3.	Lock washer, 1/4"	03117
4.	Cap screw, 1/4" x 1"	03053
5.	Cap, diaphragm outlet	03393
6.	Body, diaphragm outlet	06135
7.	Bushing, 1-1/4" x 1"	01804

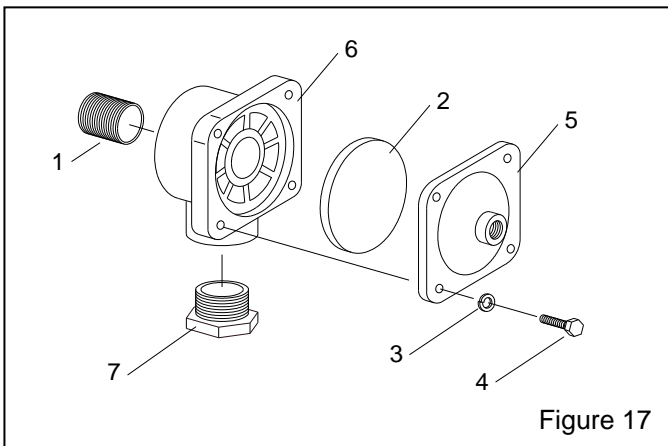


Figure 17

9.5 Foot Pedal Assembly, Figure 18

Item	Description	Stock No.
(-)	Foot pedal with tubing	20194
1.	Pedal top	20017
2.	Pedal bottom	19991
3.	Air valve, 3-way, NC, (blast valve)	20026
4.	Valve, 3-way (pulse valve)	12202
5.	Drive pin, grooved	20109
6.	Cam follower	19576
7.	Screw, socket head, 1/4-NF x 3/4"	03086
8.	Screw, fh, 10-32 x 1/2"	19571
9.	Fitting, tube, 10-32 pipe x 1/8" barb	11731
10.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
11.	Spring, 1-1/4" OD x 3-1/2"	20121
12.	Spacer	19258
13.	Tubing, 1/8" ID twin (per foot, 12 ft. req.) ..	19577
14.	Roll pin, 1/8"	20479
15.	Screw, 8-32- 3/8" self tapping	11389
16.	Bumper, neoprene	21522
17.	Tie, nylon wire	12139
18.	Bracket, valve mount	22858

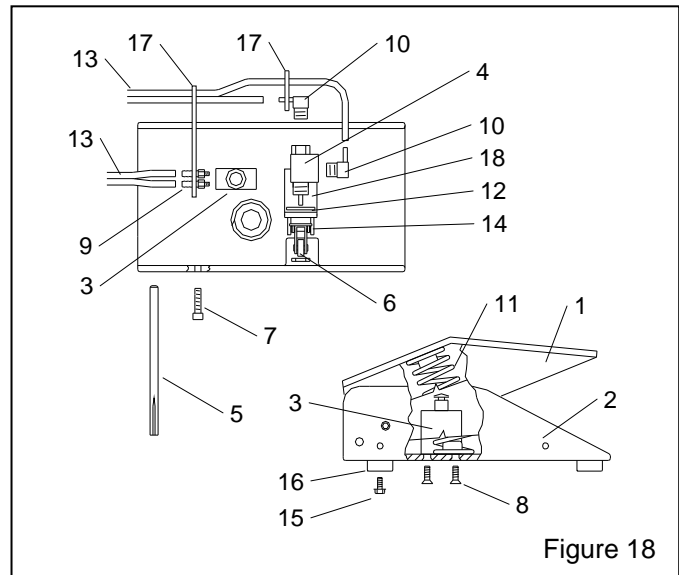


Figure 18

9.6 Plumbing and Control Line Assembly, Figure 19

Item	Description	Stock No.
1.	Valve, 3 way	12202
2.	Adaptor, 1/8" NPT x 1/8" barb	11732
3.	Tubing, 1/8" ID urethane, (specify ft. required)	12475
4.	Tubing, 1/8" ID twin urethane (specify ft. required)	19577
5.	Adaptor, straight 1/4" male NPT x 3/8 tube	11736
6.	Tubing, 3/8" OD poly, (specify ft. required)	12478
7.	Tee, 1/8" tube barb	11734
8.	Filter, 1" auto drain	22425
9.	Regulator with gauge, 1/4"	12050
10.	Valve, 4-way air	12203
11.	Adaptor, elbow, 1/4" male NPT x 3/8 tube	11685
12.	Outlet valve, 1" diaphragm	03371
13.	Nipple, 1/4" brass hex	02808
14.	Elbow, 1/4" brass st.	02027
15.	Bushing 1/4" x 1/8" NPT	02010
16.	Hose assembly, 1" x 42" exhaust	23916
17.	Muffler, 1/4" bronze	03988
18.	Adaptor, 1/2" NPT x 1/2" male flare	11351
19.	Hose end, 1/2" barb x 1/2" female swivel	15002
20.	Hose end, 1/2" barb x 3/8" male NPT	06369
21.	Blow-off nozzle	13116
22.	Hose, 1/2" ID air, (specify ft. required)	12472
23.	Regulator, 1/8" NPT pilot	12715
24.	Gauge, pressure	11831
25.	Adaptor, 1/8" NPT elbow x 1/8" barb	11733
26.	Tee, 1/4" brass	02025
27.	Foot pedal with tubing	20194
28.	Metering valve, Sentinel for 50 mesh and finer media, standard	21439
	for 50 mesh and coarser media	20608
29.	Regulator, 1" pilot operated, w/ gauge	12052
30.	Nipple, 1/8" NPT hex	01962
31.	Actuator, air pilot	19123
32.	Valve, diaphragm pulse	19578

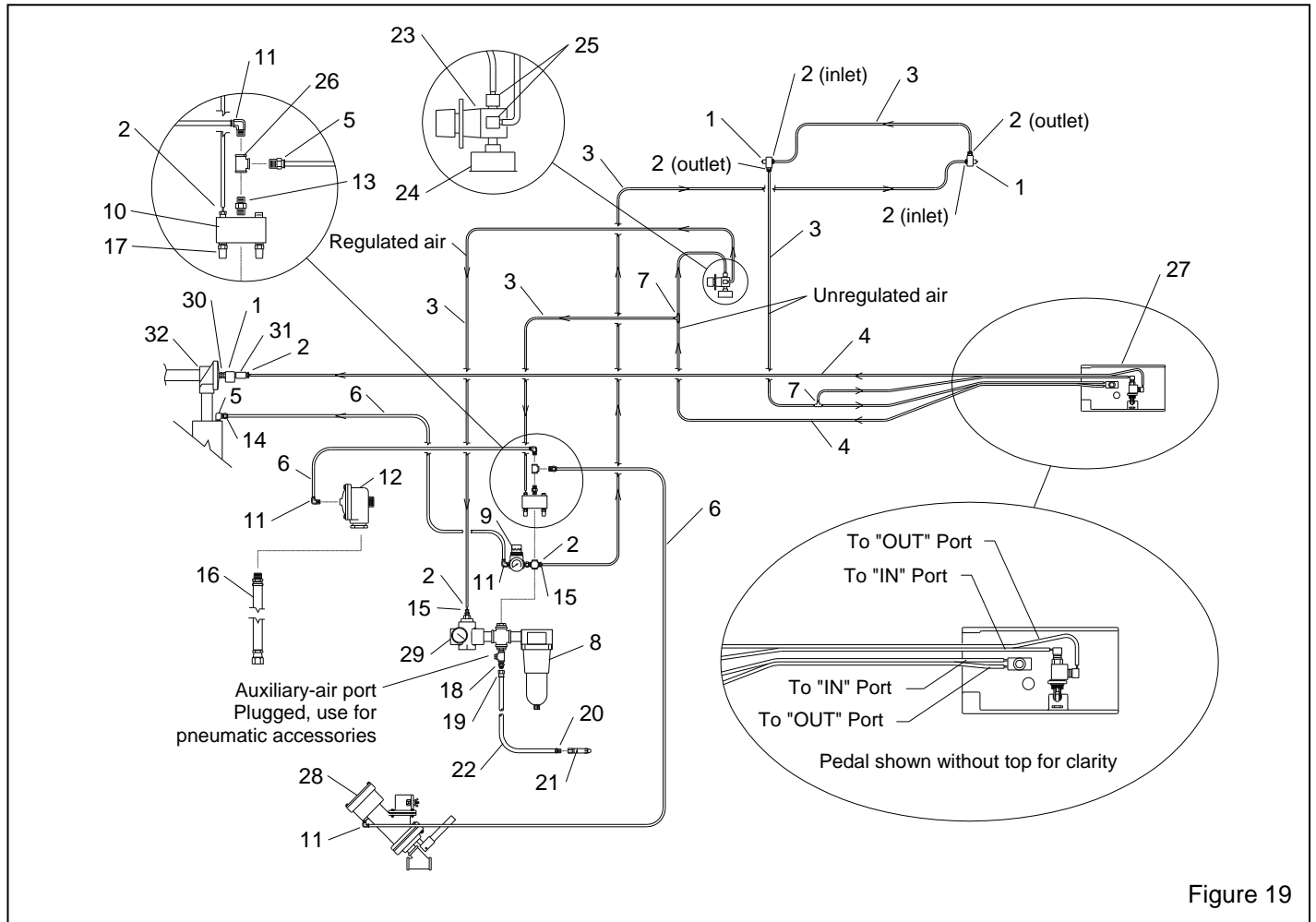


Figure 19

9.7 Blast Machine, Figure 20

Item	Description	Stock No.
(-)	Blast machine assembly, complete	21658
1.	Ball valve, 1" with handle (choke valve)	02396
2.	Handle, 1" ball valve	22531
3.	Regulator with gauge, 1/4"	12050
4.	Adaptor, 1/8" NPT x 1/8" barb	11732
5.	Adaptor, 1" male NPT x 1" male flare	11720
6.	Valve, 4-way air	12203
7.	CF coupling 1-1/4"	00551
8.	Metering valve, Sentinel for 50 mesh and finer media, standard	21439
	for 50 mesh and coarser media	20608
9.	Inspection door assembly, 6" x 8"	02377
10.	Gasket, 6" x 8" inspection door	02369
11.	Pop-up valve, 4"	03699
12.	Guide, pop-up, 1-1/4" x 5" toe nipple	01752
13.	Seat, pop-up valve	02325
14.	Outlet valve, 1" diaphragm	03371

15.	Regulator, 1" pilot operated with gauge	12052
16.	Gauge, 1/4" cbm	11830
17.	Filter, 1" auto drain	22425
18.	Check valve, 1" swing	12187
19.	Muffler, 1/4" bronze	03988
20.	Coupling, 1/2" blast hose, CQA-1/2	00599
21.	Gasket, coupling, CQG, pkg. of 10	00850
22.	Nozzle holder, CHE-1/2	00577
23.	Blast hose, 1/2" x 25 ft. (Cut in half to make 2 lengths)	04261
24.	Nozzle, tungsten carbide CT-2, 1/8" orifice	01351
	CT-3, 3/16" orifice, standard	01352
	CT-4, 1/4" orifice	01353
25.	Hose assembly, 1" x 42" exhaust	23916
26.	Bushing 1/4" x 1/8" NPT	02010
27.	Hose assembly, cpld. 1" pusher line	22508
28.	Adaptor, el. 1/4" male NPT x 3/8" tube	11685
29.	Adaptor, str. 1/4" male NPT x 3/8" tube	11736
30.	Nozzle washer, pkg. of 10	21580
31.	Muffler, 1" exhaust	05068

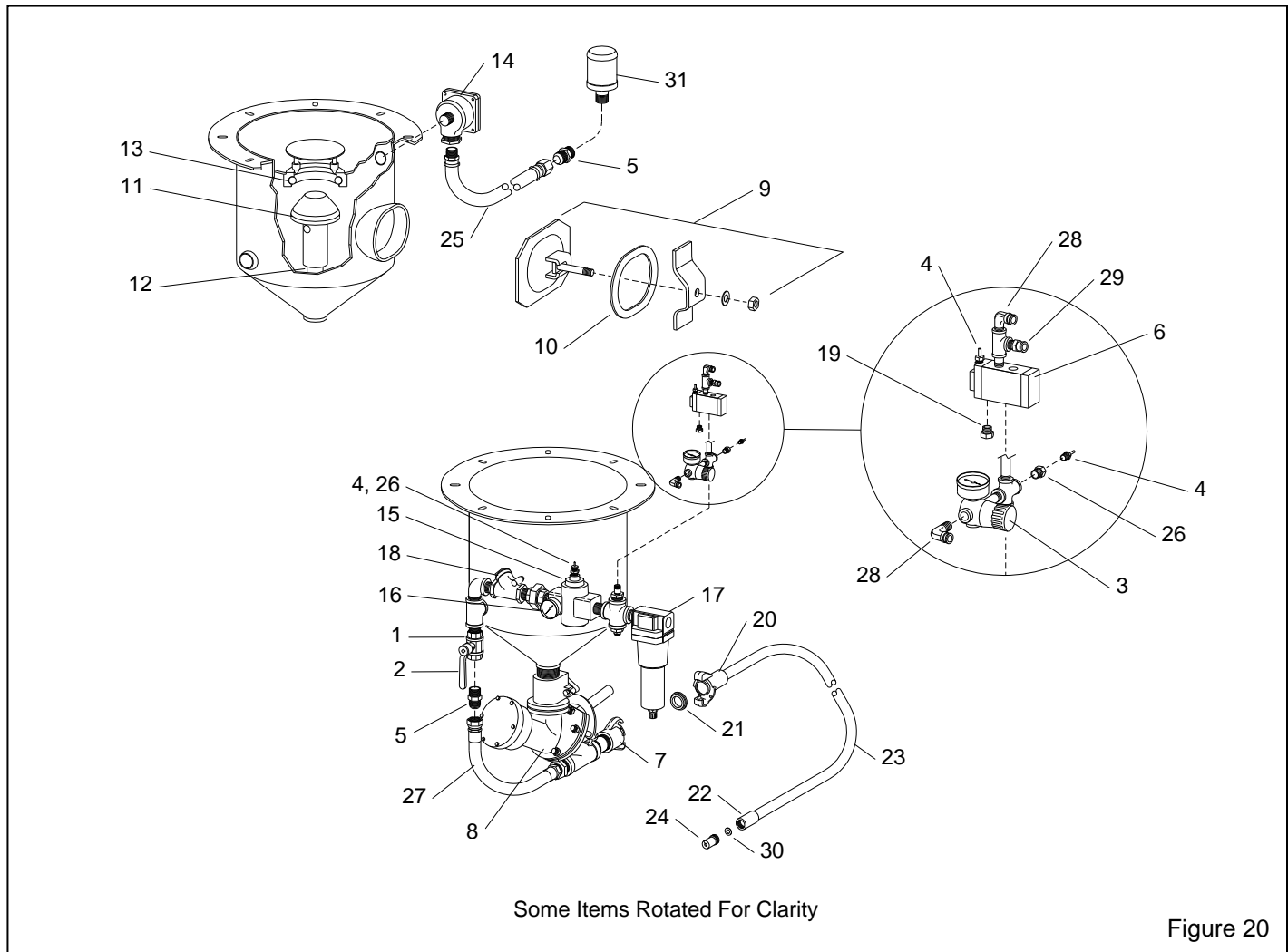


Figure 20

9.8 Reclaimer, Figure 21

Item	Description	Stock No.
(-)	Reclaimer, VI-P, includes items 1 through 8	21801
1.	Inlet adaptor for 5" hose, standard use	12361
	for 4" hose, steel media	12350
2.	Gasket, inlet adaptor	11779
3.	Outlet adaptor	20344
4.	Gasket, door	11745
5.	Debris screen	21265
6.	Door assembly, access	14271
7.	Latch assembly, door	12263
8.	Wear plate	13011
9.	Hose, 5" light lined flex, (7 ft. required)	12467
10.	Clamp, 5" hose	11578
11.	Gasket, 5/16" x 1" adhesive backed, (4 ft. required)	00187
12.	Clamp, 6" hose	00750
13.	Hose, 6" flex, (4 ft. required)	12452
14.	Gasket, adhesive-backed 1/8" x 2" (5 ft. required)	13089

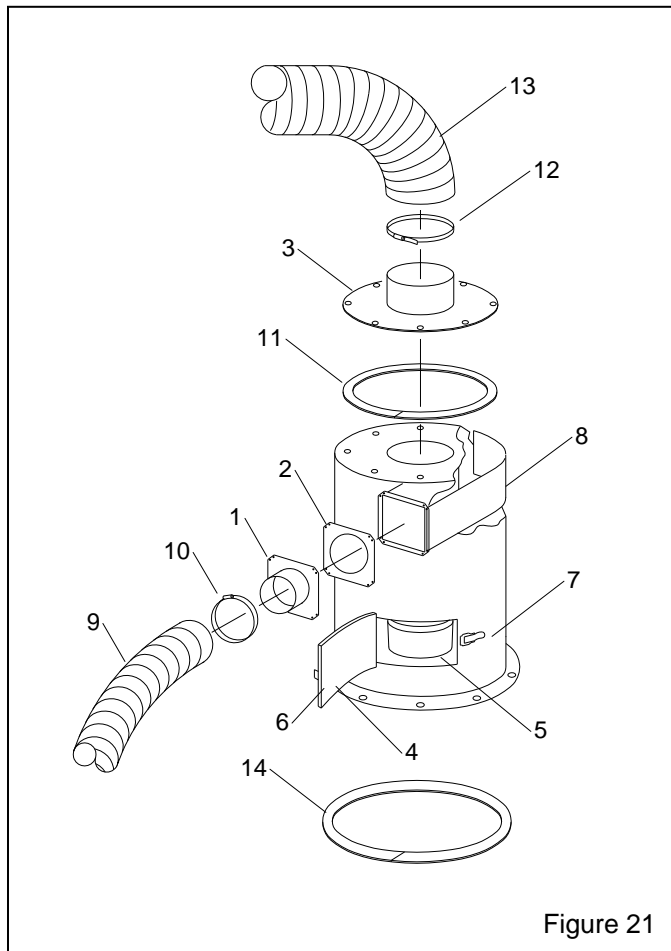


Figure 21

9.9 Dust Collector, Figure 22

Item	Description	Stock No.
(-)	Repair kit, diaphragm pulse valve	21600
1.	Valve, 1" diaphragm pulse	19578
2.	Valve, 3 way	12202
3.	Fitting, 1/8" NPT x 1/8" barb	11732
4.	Nipple, 1/8" NPT hex	01962
5.	Actuator, air pilot	19123
6.	Fitting, 1/4" NPT x 3/8" tube	11736
7.	Petcock	01993
8.	Filter cartridge, 12" x 30"	19121
9.	Hopper assembly, includes items 10 & 11	24029
10.	Gasket, 5/16" x 1" adhesive backed, Pulsar VI, requires 7 feet	00187
11.	Latch assembly	11876
12.	Hose, 4" flex, (1 ft. minimum order)	12447
13.	Clamp, 4" hose	11577
14.	Dust container assembly includes items 12 & 13	23411
15.	Washer, 1/2" ID x 1-1/16" OD	03515
16.	Elbow, 1/4" brass st.	02027
17.	Washer, 1/2" lock	21699
18.	Nut, 1/2"-NC wing	20108

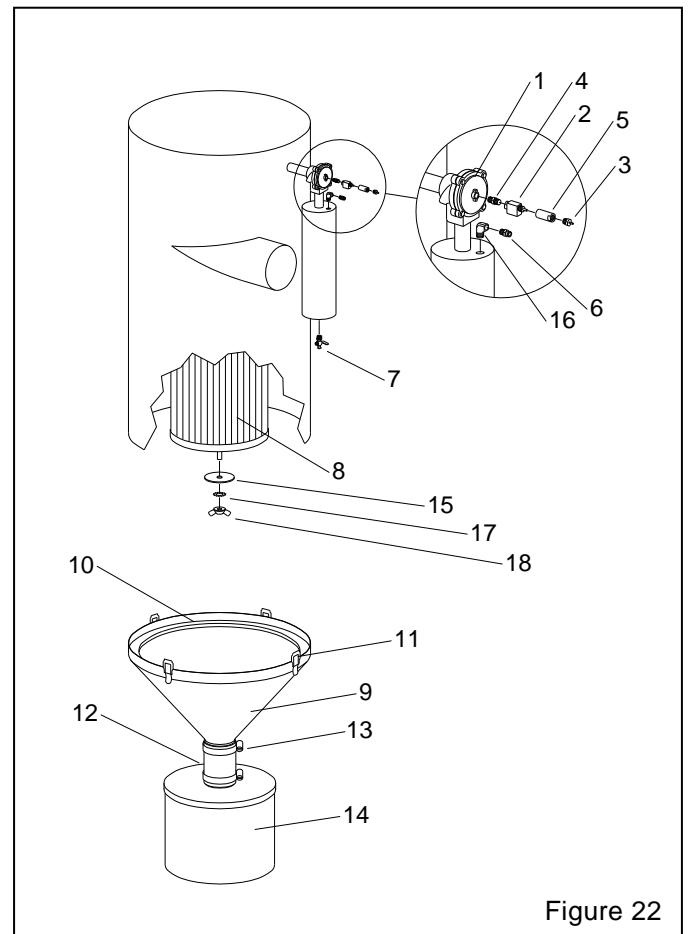


Figure 22