

# PULSAR® IX-P

## Pressure Blast Cabinet

### O. M. 23430

**DATE OF ISSUE: 02/02**  
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#### **NOTICE TO PURCHASERS AND USERS OF OUR PRODUCTS AND THIS INFORMATIONAL MATERIAL**

Clemco proudly provides products for the abrasive blast industry and is confident that industry professionals will use their knowledge and expertise for the safe and efficient use of these products.

The products described in this material, and the information relating to these products, are intended for knowledgeable, experienced users. It is the responsibility of the employer to ensure that proper training of operators has been performed and a safe work environment is provided.

No representation is intended or made as to the suitability of the products described here for any purpose or application, or to the efficiency, production rate, or useful life of these products. All estimates regarding production rates or finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, not from information contained in this material.

It is possible that the products described in this material may be combined with other products by the user for purposes determined solely by the user. No representations are intended or made as to the suitability of, engineering balance of, or compliance with regulations or standard practice of any such combination of products or components the user may employ.

This equipment is only one component of a cabinet blasting operation. Other products, such as air compressors, air filters and receivers, abrasives, equipment for ventilating or dehumidifying, or other equipment, even if offered by Clemco, may have been manufactured or supplied by others. The information Clemco provides is intended to support the products Clemco manufactures. Users must contact each manufacturer and supplier of products used in the blast operation for warnings, information, training, and instruction relating to the proper and safe use of their equipment.

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**1.0 INTRODUCTION**

**1.1 Scope of Manual**

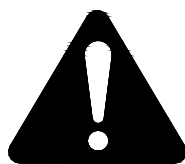
1.1.1 These instructions cover set-up, operation, adjustments, maintenance, troubleshooting, and replacement parts for Pulsar IX-P Pressure Blast Cabinet.

A separate operations manual, stock no. 20951, is provided for the Sentinel Media Metering Valve.

1.1.2 The instructions 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 Z535.4-2011, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:



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

**NOTICE**

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

**CAUTION**

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

**WARNING**

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

**⚠ DANGER**

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

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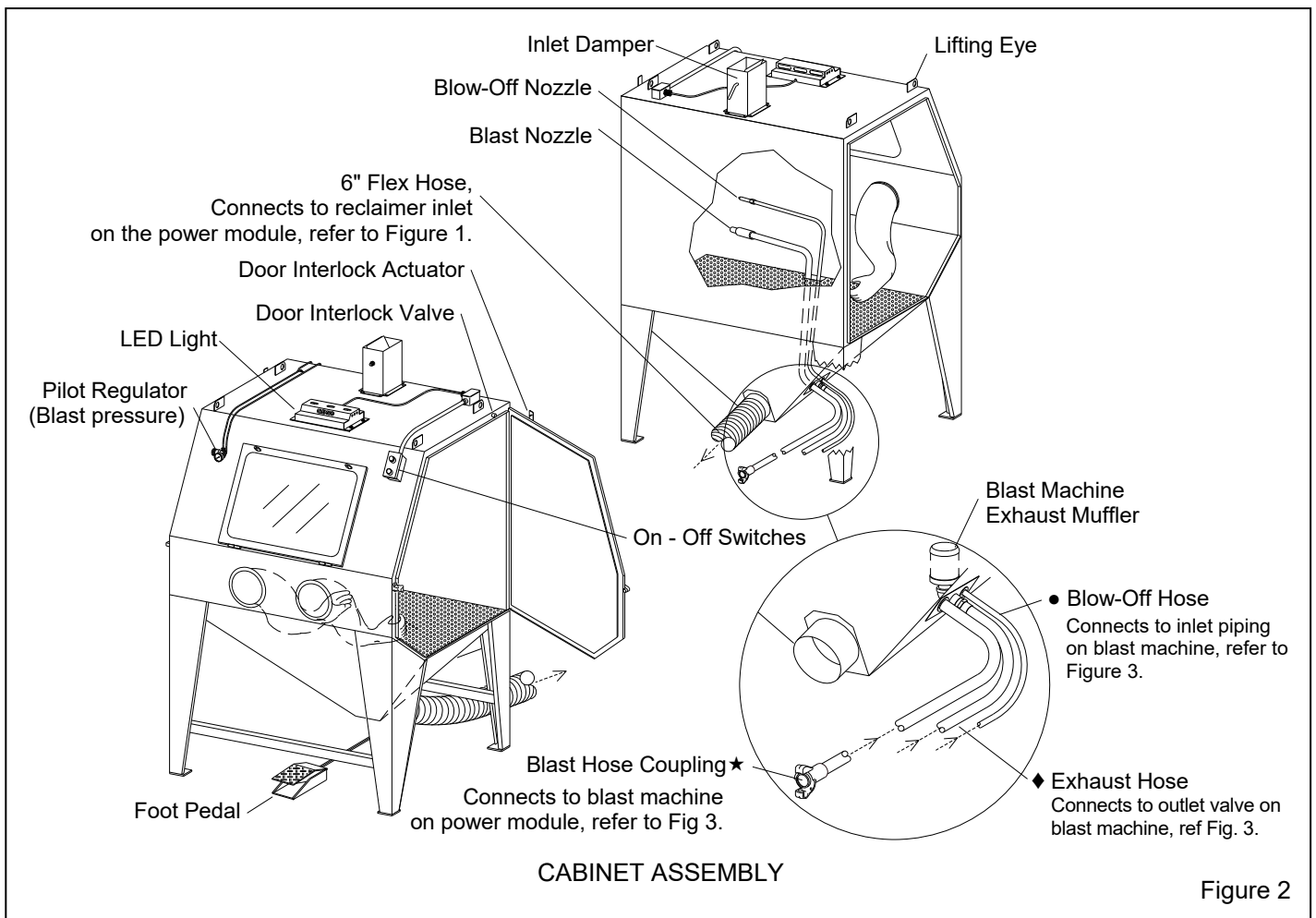
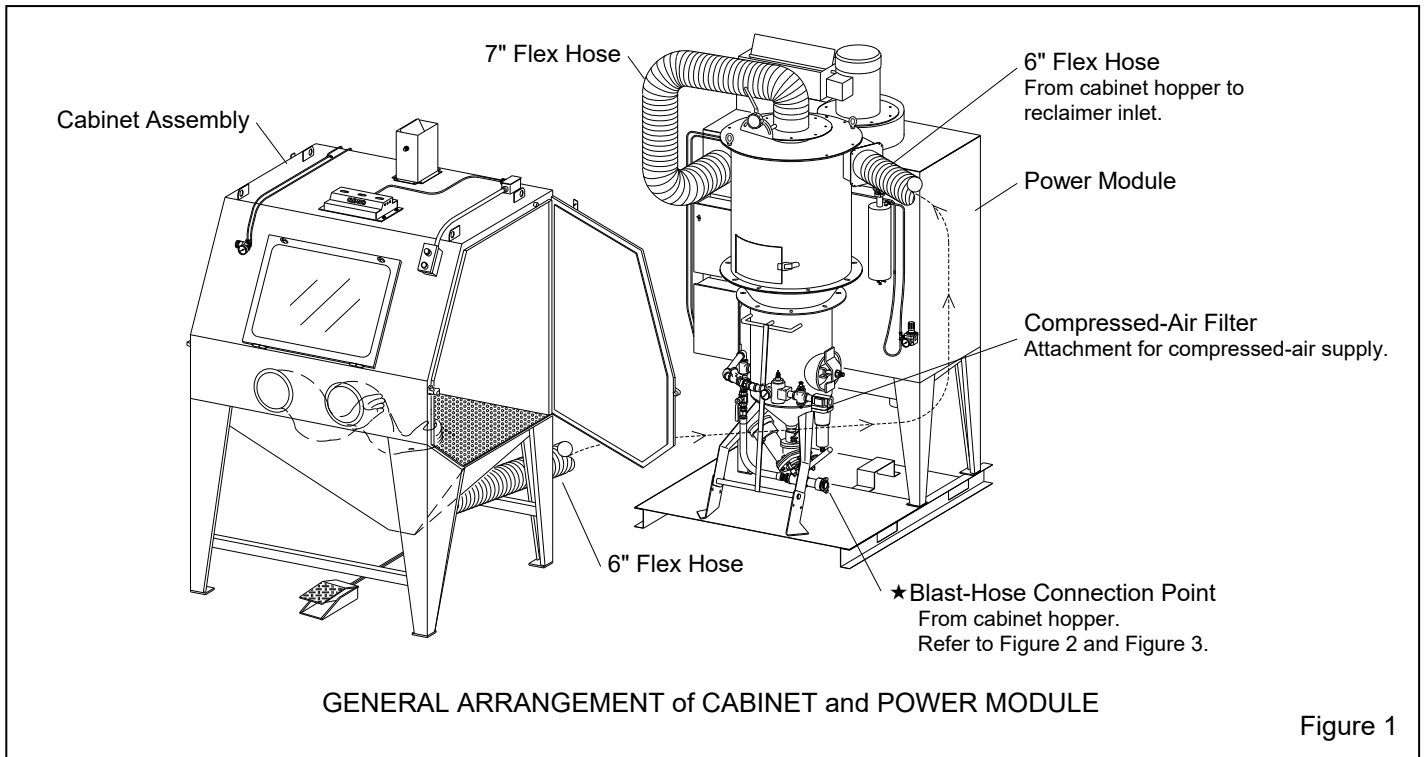
## 1.4 General Description

**1.4.1** Refer to Figure 1 for the general arrangement of the cabinet and power module. Components of the cabinet assembly are shown in Figure 2 and components of the power module are in Figure 3. The Pulsar cabinet encloses the blasting environment to provide efficient blasting 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. The Pulsar IX-P pressure cabinet consists of two major components.

1. Cabinet Enclosure
2. 900 cfm Power Module

**1.4.2 Cabinet enclosure:** Approximate work chamber dimensions at the grate are:

54" wide x 40" deep x 45" high. The extended front provides approximately 10 inches of additional depth at the arm port.



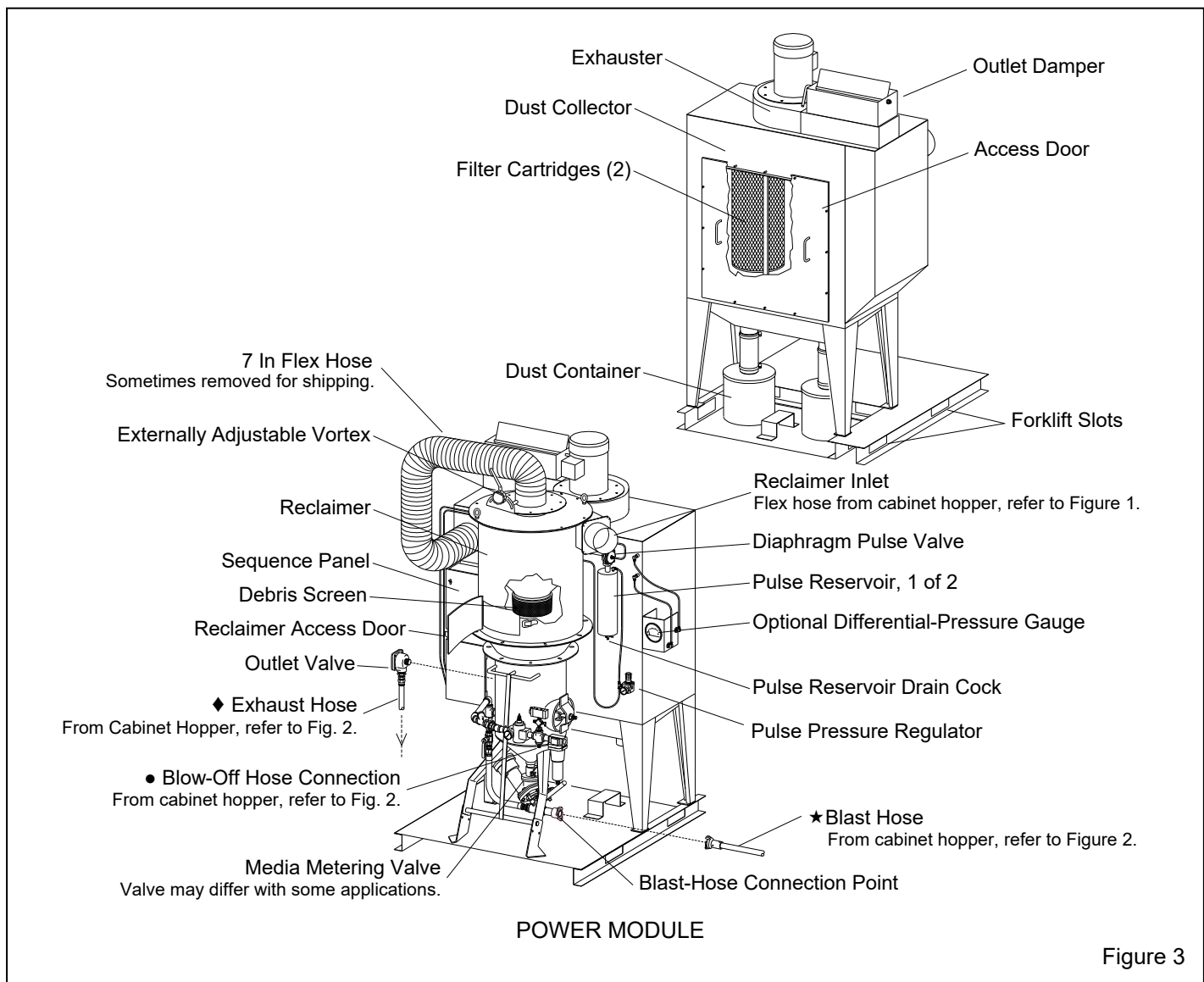


Figure 3

**1.4.3 Power module:** The freestanding Pulsar IX-P power module houses a 2-cu. ft. capacity 16" diameter blast machine, 900 cfm reclaimer, and dual-cartridge reverse-pulse dust collector.

## 1.5 Theory of Operation

**1.5.1** Once the cabinet is correctly set up and turned ON, the cabinet is ready for operation by actuation of the foot pedal. Fully depressing down on the foot pedal pressurizes the blast machine, causing media to be propelled through the blast hose and out the nozzle. After striking the object being blasted, the blast media, fines, dust, and byproducts generated by blasting fall through the grate into the cabinet hopper. These particles are then drawn into the reclaimer for separation. Dust and fines are first separated from reusable media and pulled into the dust collector. Next, reusable media

is screened for oversize particles and returned to the reclaimer for reuse. Dust and fines entering the dust collector are removed from the air stream as they pass through the filters, discharging clean air. When the foot pedal is released, the blast machine depressurizes and blasting stops. Media stored in the reclaimer automatically refill the blast machine when blast machine pressure equalizes and the pop-up valve drops

### 1.5.2 Dust Collector

**1.5.2.1** 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, and clean air is discharged through the exhauster.

**1.5.2.2** At regular, timed intervals, 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 air flow through the cartridges releasing trapped dust. The dust particles fall away from the cartridges into the hopper for removal.

**1.5.2.3** 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.

**1.5.2.4** 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.

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## **NOTICE**

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**Do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned, per Section 7.9. Pulsing unseasoned cartridges can decrease the efficiency of dust collectors and cause premature cartridge failure.**

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### **1.6 Blast Machine and Controls**

**1.6.1** Clemco certifies its blast machines (pressure vessels) to conform to the ASME (American Society of Mechanical Engineers) Boiler and Pressure Vessel Code, Section VIII, Division 1. It is the owner's responsibility to maintain the integrity of the vessel in accordance with state regulations. Regulations may include regular inspection and hydrostatic testing as described in National Board inspection code and jurisdictional regulations and/or laws.

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## **⚠ WARNING**

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**Welding, grinding, or drilling on the blast machine can weaken the vessel. Compressed-air pressure can cause a weakened blast machine to rupture, resulting in death or serious injury. Welding, grinding, or drilling on the vessel without a National Board R Stamp voids the Clemco ASME certification.**

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**1.6.2** All welding repairs to 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 the Clemco ASME certification.

**1.6.3** Do not exceed the maximum working pressure rating (PSI) of the blast machine. The maximum pressure rating is stamped into the ASME nameplate, which is welded to the side of the vessel.

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## **⚠ WARNING**

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**Excessive compressed-air pressure can cause a blast machine to rupture. To prevent serious injury or death, do not exceed the rated pressure of the blast machine.**

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**1.6.4** OSHA does not require pressure-relief valves on blast machines when air compressors supplying air to the blast machines are built to American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1 and comply with OSHA regulation 29 CFR 1910.169, which refers to the 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 with maximum pressure less than or equal to the maximum-allowable working pressure (MAWP) stamped on the vessel nameplate.

**1.6.5** When the cabinet is set up, the blast machine is ready to blast by actuating 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.

### **1.7 Nozzle Options**

**1.7.1** Unless otherwise specified at the time of purchase, the cabinet is provided with a 3/16" orifice tungsten carbide nozzle. Optional 1/8" and 1/4" orifice nozzles are also available.

**1.7.2** Nozzles with an orifice larger than those recommended could cause air leakage from the cabinet and impair recovery from the cabinet hopper.

**1.7.3** Use boron carbide nozzles when blasting with aggressive media noted in Section 1.11.4. Nozzles lined with boron carbide extend nozzle wear life. Refer to *Section 9.1: Optional Accessories*.

## 1.8 HEPA (high efficiency particulate air) Filter

**1.8.1** Optional HEPA afterfilter provides additional filtration. A HEPA filter must be used when removing lead coatings, Heavy metals, or any other toxic materials. HEPA filter is listed in *Section 9.1: Optional Accessories*.

## WARNING

**All dust is hazardous to breath. Emissions can occur from the dust collection system. Identify all materials that are to be removed by blasting; if any toxic materials such as lead dust or dust from other heavy metals and corrosives, or any other toxic materials are being removed, use a HEPA afterfilter to assist in maintaining inhalation hazards below the permissible exposure limits (PELs). Prolonged exposure to any dust can result in serious lung disease and death. Short-term ingestion of toxic materials can cause serious respiratory injury or death. Filtration may not be adequate in reducing all inhalation hazards. It remains the employer or user's responsibility to ensure all emissions are safe to breath.**

## 1.9 Optional Reclaimer Liners

**1.9.1** Replaceable rubber reclaimer-liners prolong service life of the reclaimer. They should be installed when using silicon carbide, aluminum oxide, or other aggressive media, as noted in Section 1.11.4. Rubber reclaimer liners are shown in *Section 9.1.3: Optional Accessories, Figure 43*.

## 1.10 Metering Valve Options

**1.10.1** Unless specified at the time of purchase, cabinets are supplied 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 recommended when using media coarser than 50-mesh. Conversions kits listed in Section 9.1 easily convert the valves.

## 1.11 Blasting Media

**NOTE:** Always use media specifically manufactured for blasting and that are compatible with the surface being blasted. Abrasive produced for other applications may be inconsistent in size and shape, contain particles that could jam the abrasive metering valve, or cause irregular

wear. Always obtain safety data sheet (SDS) for the blasting abrasive prior to blasting and identify material being removed by blasting, paying particular attention to worker health risks and presence of any hazardous/toxic substances.

**1.11.1** Most common reusable media (with the appropriate metering valve as noted in Paragraph 1.9) specifically manufactured for blasting can be used in ZERO Pulsar® cabinets. The listing of media sizes shown in this section and in Figure 4 are provided as a guideline only. The guideline is based on standard 3/16" orifice nozzle and average conditions with variables such as blast pressure, media-air mixture, visibility inside the cabinet, humidity, and reclaimer cleaning-rate.

Several variables that factors that affect the reclaimer cleaning-rate include reclaimer size (cfm), contamination of parts being blasted, media friability, damper setting (static pressure), and dust-collector filter loading (differential pressure across the dust filters).

As a rule, larger nozzles deliver more media, requiring higher performance from the reclaimer. When using larger nozzles, the maximum mesh size of media will be smaller than normally recommended. Using media finer than those recommended may decrease visibility and, at some point, carry over to the dust collector. Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper.

**1.11.2 Steel shot and Steel grit:** Steel shot S-170 to S-70 or steel grit 80-mesh to 120-mesh may be used in Pulsar® IX-P cabinets configured for using steel media. Using steel media requires a smaller diameter conveying hose (usually 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 reduced-size flex hose appropriately sized for steel grit, and with rubber curtains installed. They may also be field installed later. See *Section 9.1: Optional Accessories*.

**1.11.3 Sand and slag:** Sand and slag media are not suitable for cabinet use. Sand should NEVER be used for abrasive blasting because of the respiratory hazards associated with media containing free silica. Slags are not recommended because they rapidly breakdown and are not recyclable.

**1.11.4 Silicon carbide, aluminum oxide, and garnet:** These are the most aggressive of the commonly used media. Aggressive media may be used, but the service life of any components exposed to the media will be reduced. To avoid unscheduled downtime and maximize cabinet life, periodically inspect the reclaimer wear plate, blast hose, and nozzle for wear and replace parts as needed.

This guideline to media selection is based on standard 3/16" orifice nozzle and average conditions, such as, air pressure, media-air mixture, visibility, contamination of parts being cleaned, humidity, media friability, reclaimer cleaning rate, etc. As a rule, larger nozzles deliver more media, requiring higher performance from the reclaimer. Larger nozzles decrease the maximum mesh size of media from those recommended. Media that is finer than those recommended may decrease visibility and, at some point, carry over to the dust collector. Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper.

RECLAIMER SIZE	MEDIA TYPE					
	STEEL GRIT	STEEL SHOT	GLASS BEAD	ALUM. OXIDE	FINE-MESH	LIGHT WT.
900 cfm w/5" inlet	50 to 120	S-170 to S-70	No. 4 to No. 8	36 to 100-mesh	Do not use	Do not use
*900 cfm w/6" inlet	Do not use	Do not use	No. 6 to No. 12	46 to 180-mesh	See 1.10.6	See 1.10.7

\* Standard reclaimer inlets.

Figure 4

When using aggressive media only occasionally, install an optional aluminum oxide kit, which includes rubber curtains for the cabinet interior and a boron carbide-lined nozzle. When using aggressive media on a regular basis, install the aluminum oxide kit and a fully-rubber-lined reclaimer. NOTE Rubber-lined reclaimers are available as factory-installed items or field-installed liners can be installed later on reclaimers if they have removable tops and are designed to accept liners. Nozzles lined with boron carbide extend nozzle wear life. See Section 9.1 *Optional Accessories*.

**1.11.5 Glass bead:** Most beads are treated to ensure free-flow operation even in environments of moderately high humidity. Glass beads subjected to excessive moisture may be reused only after thoroughly drying and breaking up any clumps.

**1.11.6 Lightweight and fine-mesh media:** When using lightweight (such as agricultural) media or fine-mesh (180-mesh and finer) media, the reclaimer inlet baffle may need to be removed to retain media and avoid carry over. On reclaimer models with bolt-on removable topes, baffle removal and replacement is easily accomplished. Reclaimers with welded-on tops require grinding to remove the baffle and once it is removed, it cannot be replaced.

**1.11.7 Plastic media:** Plastic media requires a blast machine with a 60-degree conical bottom. Refer to Clemco's AEROLYTE cabinet brand.

**1.11.8 Bicarbonate of soda:** Bicarbonate of soda is not recommended for use in standard cabinets. Bicarb is a one-use media, which will quickly saturate the filter cartridge(s). Refer to Clemco's AEROLYTE cabinet line for cabinets that are specifically designed for use with bicarbonate of soda.

**1.12 Compressed-Air Requirements**

**1.12.1** The size of the compressor required to operate the cabinet depends on the size of the nozzle and blasting pressure. Unless otherwise specified, cabinets are supplied with a 3/16" orifice nozzle. The table in Figure 5 shows air consumption of nozzles when new. It does not show the recommended compressor size. As nozzles wear, they will consume up to 70% to 80% more air. Consult with a compressor supplier for a suggested compressor size based on the air consumption.

Compressed-Air Consumption \*(cfm)

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

\* Figures are approximate and for reference only, and may vary for different working conditions. Several variables, including media flow and nozzle wear, affect cfm consumption.

Figure 5

**1.12.2** The air filter at the blast machine inlet removes condensed water from the compressed air. The filter automatically drains when moisture fills the bowl to a certain level. Its use is especially important in areas of high humidity or when fine-mesh media are used. Moisture causes media to clump and inhibits free flow through the metering valve. If the filter does not remove enough moisture to keep media dry and flowing, it may be necessary to install an air dryer or aftercooler in the air-supply line.



### 1.13 Electrical Requirements

**1.13.1** Standard motor voltage is 230/460V, 3-PH. A 230-volt control panel is provided unless 460-volt is specified at the time the order is placed. All wiring external to the cabinet and power module is provided by the user and must comply with electrical codes. A control panel is mounted on the power module; power from the user's disconnect has to be wired to it. A 3-PH control panel schematic and 115-v operator control schematic is included and stowed in the control panel. Additional wiring information is in Section 2.10.

**1.13.2** Full load amps (FLA) shown below are for the motor only; the lights draw less than one amp. Standard cabinets are supplied as follows:

900 cfm: 2 HP, 208/230/460V, 3 PH, 60 HZ  
 Supplied with 230-volt control panel unless 460-volt is specified at the time the order is placed.  
 FLA 208/5.5, 230/5.6, 460/2.8.

## 2.0 INSTALLATION

### 2.1 General Installation Notes

**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. Position the cabinet and power module to allow for full access around the operator station, all doors, service areas, and for efficient handling of large parts. Ideally, the cabinet and power module are positioned so the flex (conveying) hose and blast hose are arranged with as few beds as possible. Determine the best location for both modules, and position them before final assembly.

### 2.2 Connect Conveying (Flex) Hose

#### Installation Notes:

To prevent excessive hose wear, avoid sharp bends.

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 helps ground each segment. For the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

**2.2.1** Connect the 6" diameter flex hose between the cabinet hopper and reclaimer inlet, as shown in Figure 1

**2.2.2** Connect the 7" diameter flex hose between the reclaimer outlet and the dust-collector inlet, as shown in Figure 2. This hose is sometimes removed for shipping.

**2.2.3** Clamp the flex hoses securely in position with worm clamps provided.

### 2.3 Connect Blast Hose – Figure 6

## **⚠ WARNING**

**Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins or safety wire to lock twist-on couplings together and prevent accidental separation, and also use safety cables to prevent hose from whipping should separation occur. Safety lock pins and safety cables are listed in Section 9.1: Optional Accessories.**

**2.3.1** Connect the blast hose from the cabinet hopper to the coupling at the bottom of the blast machine. Make sure coupling gaskets are in place and couplings are secured with safety lock pins.

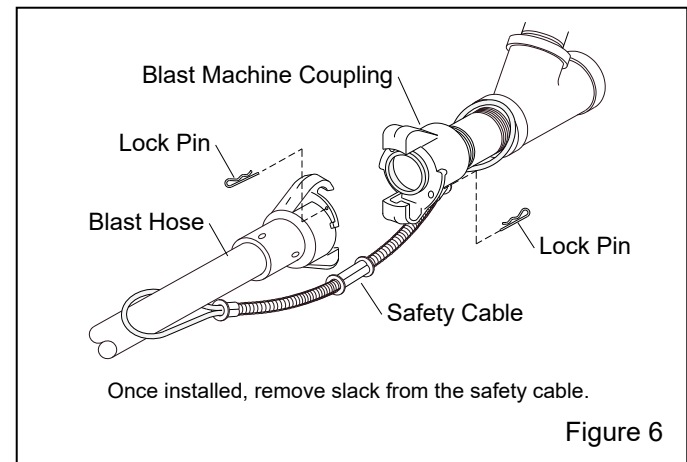


Figure 6

### 2.4 Connect Blow-Off Hose

**2.4.1** Attach the 1/2" blow-off hose, coming from the cabinet hopper, to the compatible fitting on the blast machine piping, located between the air filter and regulator. Refer to Figures 2 and 3, and schematic in Figure 7.

### 2.5 Connect Urethane Control Tubing

**2.5.1** Uncoil the 1/8" urethane control tubing from the cabinet. The end of each length of tubing is numbered. Connect the tubing to the adaptor with the corresponding number on the pressure regulator and 4-way air valve. Refer to the schematic in Figure 7 to confirm the connections.

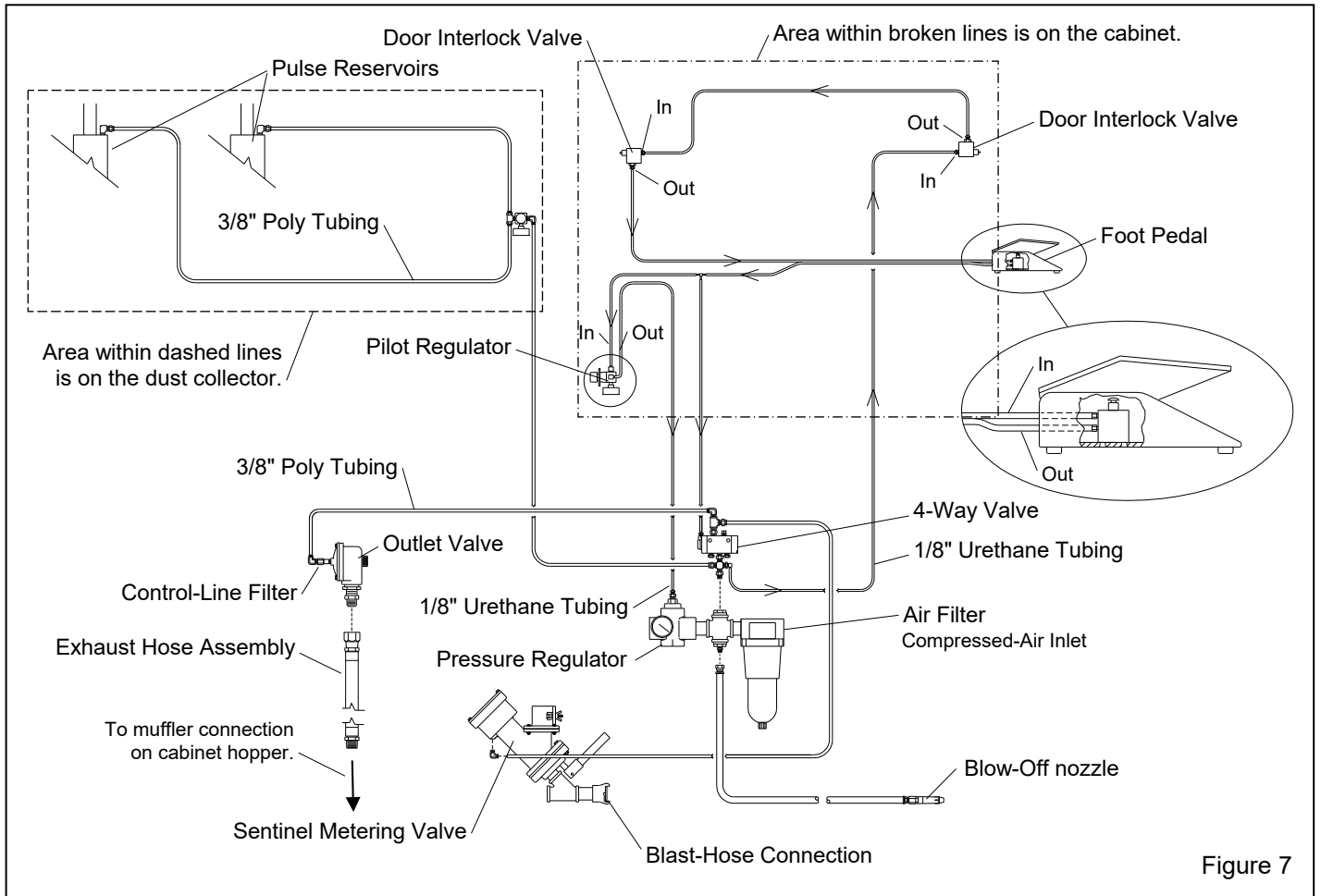


Figure 7

**2.6 Attach Blast-Machine Exhaust Hose – Figure 8**

**2.6.1** Screw the male end of the exhaust hose into the 1" coupling in the hose adaptor plate, located on the cabinet hopper, turning the hose as required. Connect the female swivel end to the male adaptor on the blast-machine outlet valve.

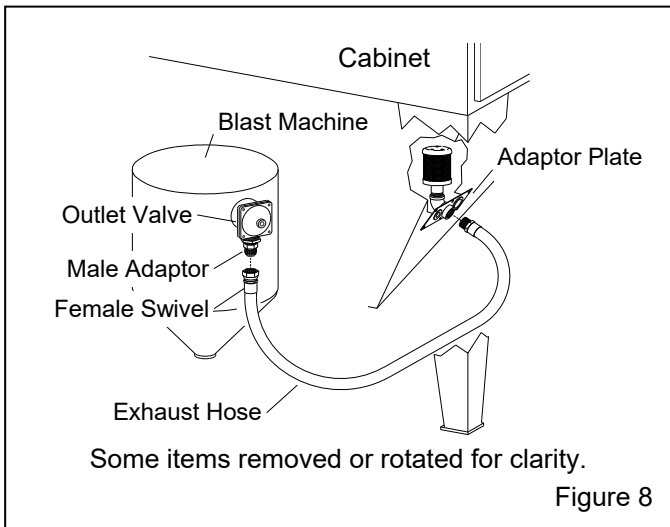


Figure 8

**2.7 Set Air-Inlet Damper – Figure 9**

**2.7.1** The inlet damper is located on the top of the cabinet and must be set to match the cabinet dimensions and reclaimer size. The label on the damper shows the settings in degrees. For the initial setting on a Pulsar IX, align the handle to 0 degrees (full open). The air damper was preset prior to shipment; confirm the initial setting, as noted below.

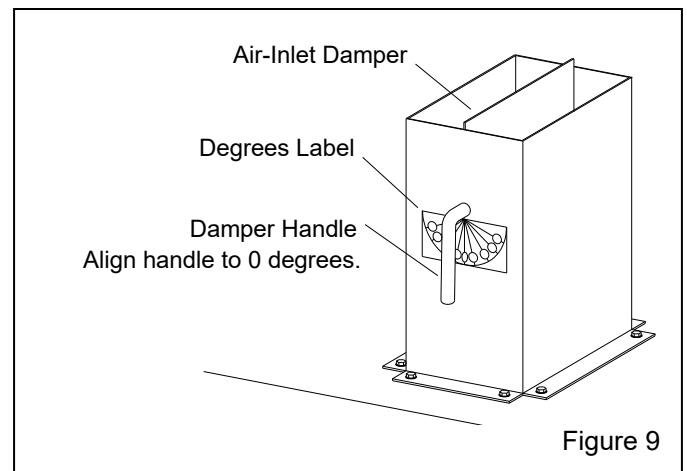


Figure 9

## 2.8 Connect Compressed-Air Supply Line

### **⚠ WARNING**

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

- Lockout and tagout the compressed-air supply.
- Bleed the compressed-air supply line.

2.8.1 Apply thread sealant to the male threads of an air fitting that is compatible with the air-supply hose fitting, as noted in Section 2.8.2, and install it onto the 1-NPT air filter located at the blast machine inlet, as shown in Figure 10. Note that the style of connection shown is for reference only.

### **⚠ WARNING**

Hose disconnection while under pressure can cause serious injury or death. Use safety lock-pins or safety wire to lock twist-on claw type couplings together and prevent accidental separation, and safety cables to prevent hose from whipping should separation occur.

2.8.2 Install an isolation valve at the air source to enable depressurization for service, and connect a 1" ID or larger air line from the air source to the air filter on the blast machine. A smaller diameter hose may reduce blasting efficiency.

### **⚠ 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. Doing so enables depressurization of the compressed-air lines before performing maintenance.

## 2.9 Ground the Cabinet and Dust Collector

2.9.1 To prevent static electricity build up, attach an external grounded wire from an earth ground to the grounding lug on the rear leg of the cabinet and a bolt on the power module.

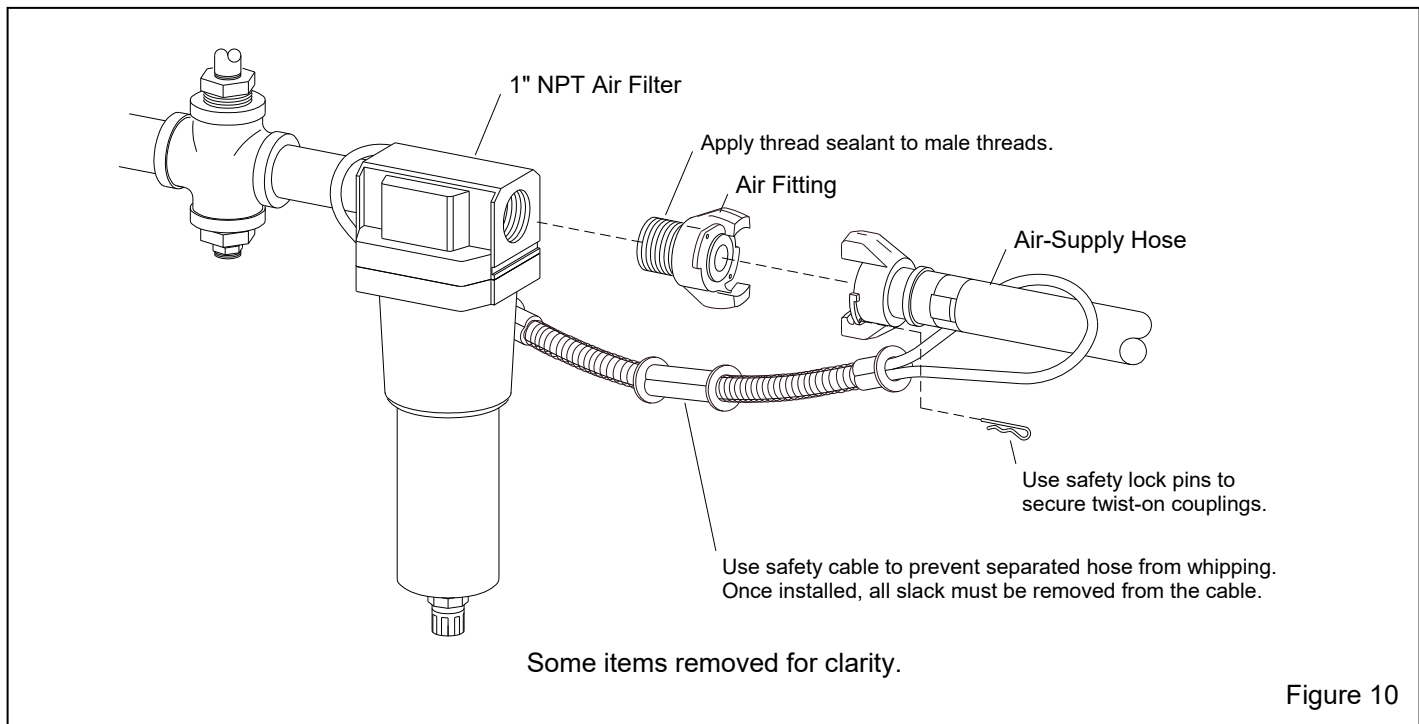


Figure 10

## 2.10 Connect Electrical Service

### **⚠ WARNING**

**Lockout and tagout the electrical supply before performing any electrical service. Shorting electrical components can cause 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. Refer to the schematic when making electrical connections. After wiring is completed, keep the schematic with the manual for future reference and for electrical replacement parts.

**2.10.1** Where possible, all wiring has been completed at the factory. An electrician needs to provide service from the user-provided 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.

**2.10.2** The choice of 230 or 460 voltage must be made at time of order, so that the control panel and wiring is supplied accordingly. Unless specified otherwise, the motor and control panel are wired for 230 volts. A wiring schematic for the cabinet and accessories is stowed in the panel.

## 2.11 Check Motor Rotation

**2.11.1** 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 the motor where rotation of the fan can be easily observed. Proper rotation is indicated by the arrow on the exhaust housing. The fan should rotate toward the exhaust outlet.

### **⚠ WARNING**

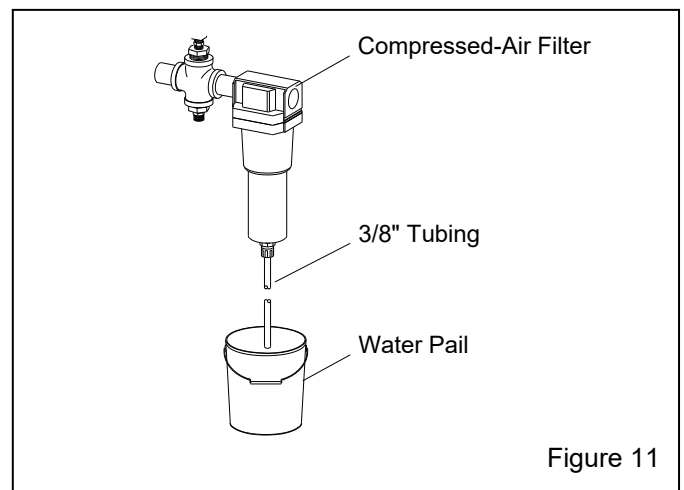
**Do not look into the reclaimer exhaust outlet while the paddle wheel is turning. Injury to the eye or face can occur from objects ejected from the exhauster.**

## 2.12 Check Amperage

**2.12.1** Check the amperage on initial start up. If the motor draws excessive amperage, gradually close the dust-collector outlet damper until the amperage is within the specifications shown on the motor plate. Refer to Section 5.3 for adjustment procedure.

## 2.13 Final Assembly

**2.13.1** Insert a short length of 3/8" tubing into the automatic drain at the bottom of the compressed-air filter, as shown in Figure 11, and place the other end into a pail. When the filter automatically drains, the water will drain into the pail.



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

**2.13.3** A package of five view-window cover lenses is supplied with the cabinet. Install a cover lens, per Section 7.2. When the cover lens becomes pitted or frosted, replace it.

## 3.0 FIELD INSTALLED ACCESSORIES

### 3.1 Aluminum Oxide (aggressive media) Kit

**3.1.1** An optional aluminum oxide kit is available factory installed or may be field installed later.

Factory installed kit consists of black-rubber cabinet curtains for doors, front and rear walls, curtain hardware, and boron carbide lined nozzle.

Field-installed (or replacement factory installed) kits consist of black-rubber cabinet curtains for doors, front

and rear walls (refer to Section 3.2 for curtain installation), a boron carbide lined nozzle, and light-lined flex hose. If the existing flex hose is in good condition, reserve the new hose for future replacement.

**3.2 Cabinet Curtains Installation – Figure 12**

**3.2.1** Match curtains to corresponding walls and doors. When overlapping curtains, make sure the overlaps are on the correct end of the curtains.

**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 edges of the curtains should be aligned with the top of the cabinet, and the front curtain should be aligned around the view window. Remove the curtains, and drill a .187" (3/16") diameter hole at each point marked. Install the curtains using the fasteners provided (machine screw, flat washer, lock washer and nut) at each grommet. The flat washer is used between the screw head and curtain grommet.

For the front walls, place the batten strip over the curtains and clamp it in position on the front slope above the break, as shown in Figure 12. Match drill .187" (3/16") diameter holes through the rubber and cabinet front at each batten hole. To install the batten, insert #10-24 x 1" round-head machine screws through the cabinet front, curtain, and batten. Install lock washers and nuts from inside the cabinet and tighten securely.

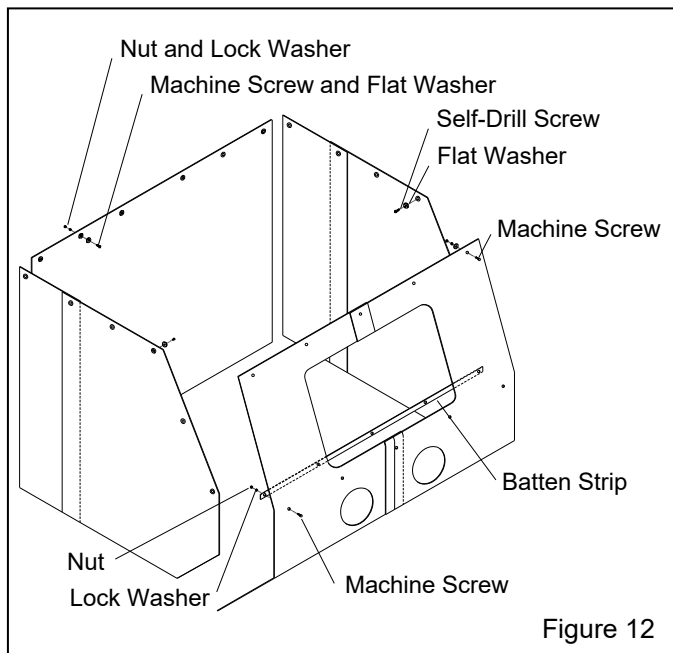


Figure 12

**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 edges of the door's soundproofing 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 Manometer**

The optional manometer kit is listed in Section 9.1.

**3.3.1** Consistent static pressure is necessary for precise media separation, as the reclaimers efficiency is achieved by a centrifugal balance of air flow, particle weight, and size. The manometer measures static pressure. Reclaimer static pressure is set by adjusting the dust-collector damper. Refer to Section 5.3 to adjust static pressure. Refer to Section 5.9 for instructions on using the manometer.

**3.4 Armrest**

**3.4.1** Assemble the armrest and mounting brackets, as shown in Figure 13.

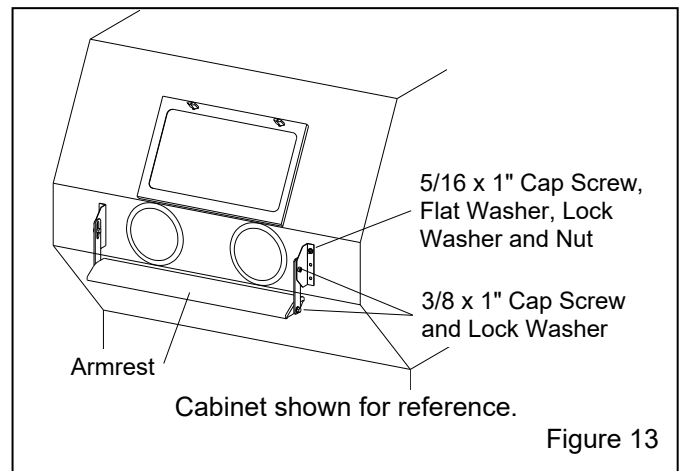


Figure 13

**3.4.2** Position the assembly so the armrest is about even with the bottom of the arm-port opening. Mark one hole location on the front of the cabinet at each mounting bracket.

**3.4.3** Drill a 3/8" hole at both locations and mount the armrest using 5/16 cap screw, washers, and nuts. Install the bolts from inside the cabinet to protect the threads from abrasion, should the armrest need to be removed later.

**3.4.4** Match drill the remaining four bracket holes and install the remaining fasteners.

**3.4.5** Loosen the fasteners on the slotted bracket and raise or lower the armrest to a comfortable position.

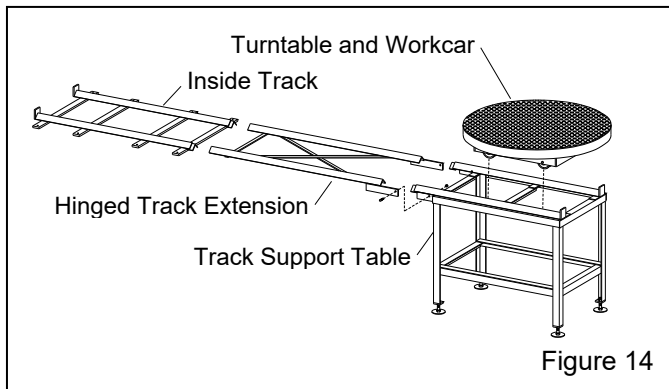
**3.5 Turntable with Workcar and Track**

**Installation note:** The track may be placed on either side of the cabinet, allowing entry through either the right side or left side door; the right side is shown in the illustrations. When installing the inside track, place it so the stops are opposite the entry door, as shown in Figure 15.

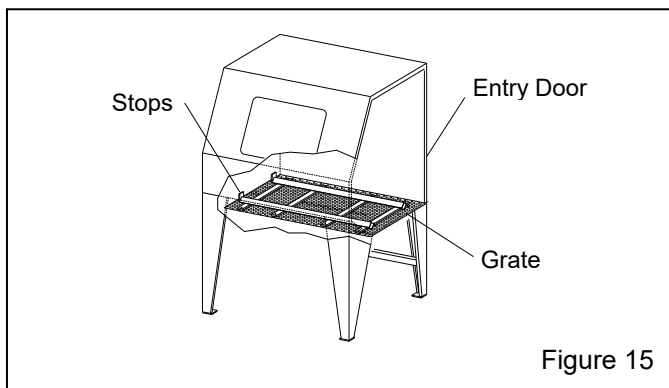
These instructions cover field installation of the 500 lb capacity track and workcar with turntable. If the track was ordered with the cabinet, it is partially assembled at the factory. Disregard the instructions that do not apply. Refer to Figure 14 for arrangement of the major components.

**3.5.1** Components of the turntable and track assembly are shown in Figure 14. The assembly consists of:

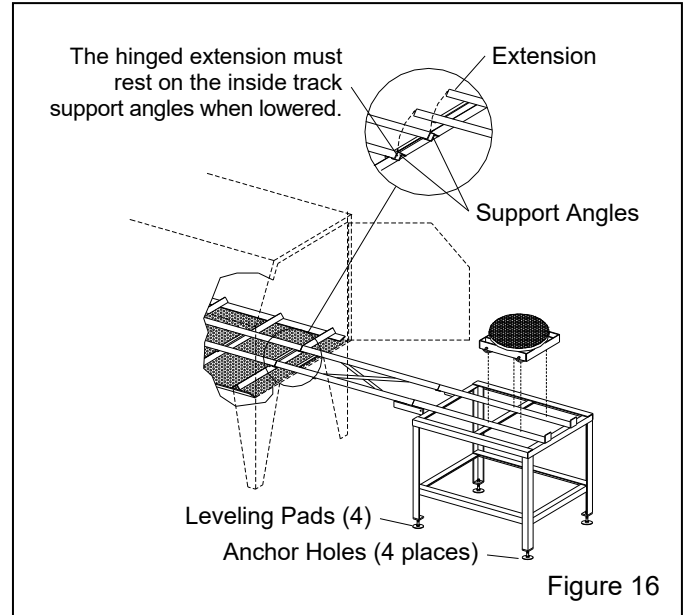
1. The inside track assembly, which is placed inside the cabinet.
2. The hinged track extension attaches to the support table and swings up to clear the door.
3. The track support table.
4. Turntable and workcar assembly.



**3.5.2** Place the inside track in the cabinet over the existing grate as shown in Figure 11.



**3.5.3** With the door open, position the track support table and extension as shown in Figure 16. 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.



**3.5.4** Loosen the leveling-pad lock nuts and raise or lower the pads, as needed to adjust the height of the table, to make sure that the inside and outside tracks are aligned, that the hinged extension rest evenly on the support angles when the extension is lowered, and that the table is level.

**3.5.5** Raise the track extension, and then open and close the door to make sure they function correctly. When certain the table and tracks are aligned and level, and that the workcar moves smoothly on all tracks, tighten the leveling-pad lock nuts and anchor the support table to the floor through the holes in the leveling pads.

**3.6 Dust-Collector Differential-Pressure Gauge**

**3.6.1** The differential-pressure gauge measures pressure drop across the filter cartridges. The gauge reading is the best way to monitor cleaning efficiency and dust buildup on the cartridges.

**3.6.2** The gauge panel, gauge, filter, and panel fittings come fully assembled; the bushings, snubber fittings, and tubing are loose. Mount the panel on the cabinet or power module at a location where it can be easily monitored. One suggestion is to mount it on top of the cabinet to either side of the light assembly. NOTE: A 20-foot length of tubing is included with the kit, allowing the

panel to be mounted within ten feet of the dust-collector connections, as shown in Figure 17.

**3.6.3** Mounting holes are on left side and at the bottom of the gauge panel. After selecting the location, match drill holes, and use nuts and cap screws to secure the panel. NOTE: Make sure the panel is close enough to the dust collector for ten feet of tubing to reach.

**3.6.4** Remove 1/4" pipe plugs from the dust-collector body, and install 1/4" x 1/8" bushings and snubber fittings as shown in Figure 17.

**3.6.5** Connect the 1/4" tubing to the snubber fittings and gauge, as shown, by removing the fitting's compression nut, sliding it over the end of the tubing, inserting the tubing into the fitting, and tightening the nut onto the fitting.

**3.6.6** Refer to the differential-pressure gauge manual provided for operation of the gauge.

## 4.0 OPERATION

### 4.1 Season Filter Cartridges Per Section 7.9

## NOTICE

**Do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned, per Section 7.9. Pulsing unseasoned cartridges can decrease the efficiency of dust collectors and cause premature cartridge failure.**

### 4.2 Loading Media

**4.2.1 Media capacity:** Media capacity of the Pulsar IX-P pressure cabinet is approximately 2 cu. ft. Full capacity is when media is at level of the pop-up valve.

**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.** Overfilling will result in media carry over to the dust collector and possible blockage in conveying hose. Refill only after all media has been recovered from the cabinet.

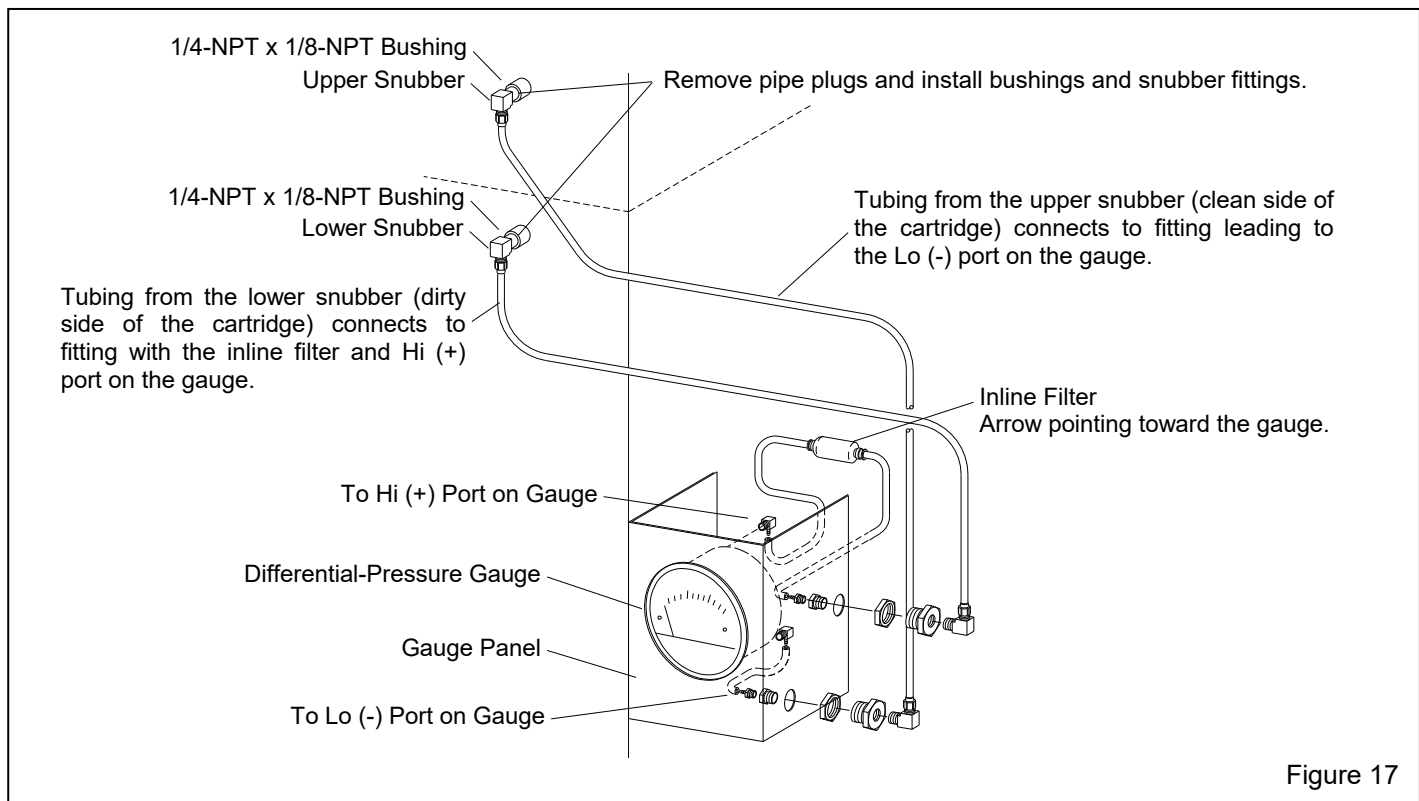


Figure 17

### 4.3 Unloading Media

**4.3.1** To empty the cabinet and blast machine of media, blow-off the cabinet interior and run the exhauster until all media is recovered from the cabinet. Turn off the exhauster, and 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 manage, 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.

### 4.4 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 can cause them to shift or topple, and cause severe injury. This is especially important with the use of turntables and turntables with tracks.**

**4.4.1** Parts must be free of oil, water, grease, or other contaminants that will clump media or clog filters. If parts are oily or greasy, degrease and dry them prior to blasting.

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

**4.4.3** When blasting small parts or objects having small pieces that could become dislodged and fall off, place an appropriately sized screen over the grate (or under the grate when frequently blasting small parts) to prevent parts from falling into the hopper. If an object should fall through the grate, stop blasting immediately and retrieve it.

**4.4.4** Close door; the door interlock system will prevent blasting if either door is open.

### 4.5 Blasting Operation

#### **WARNING**

**To avoid the inhalation of dust, which can cause respiratory illness from short-term ingestion or death from long-term ingestion:**

- **Use the blow-off nozzle to blow media off parts before opening the doors.**
- **After blasting, keep doors closed and exhauster running until the cabinet is clear of all airborne dust.**
- **Always close cabinet, reclaim, and dust-collector doors before blasting. Keep all doors closed during blasting.**
- **Always wear blast gloves.**
- **Stop blasting immediately if dust leaks are detected. Refer to troubleshooting Sections 8.14 and 8.15 and identify source of leak.**

**4.5.1** Slowly open the air valve on the air supply to the cabinet. Check for air leaks on the initial startup and periodically thereafter.

**4.5.2** After the filter cartridges are seasoned per Section 7.9, adjust the pulse pressure regulator to 60 psi. Refer to Section 5.6 for adjustment procedure.

**4.5.3** Turn ON lights and exhauster. The push-button switches, located on the cabinet front, performs both functions.

**4.5.4** Load parts. If parts are oily or greasy, degrease and dry them prior to blasting.

**4.5.5** Close door; the door interlock system will prevent blasting if either door is open.

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

**4.5.7** Insert hands into blast gloves.

**4.5.8** To blast, hold the nozzle holder or hose just behind the nozzle holder, point the nozzle toward the object to be blasted, and apply pressure to the foot pedal. Blasting will begin almost immediately.



## ⚠ WARNING

Shut down the cabinet immediately if dust leaks are detected from the dust collector or cabinet. Make sure the dust-collector filters are correctly seated and not worn or damaged. Prolonged breathing of any dust can 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 risks vary with type of media and dust generated by blasting. Identify all material being removed by blasting and obtain a safety data sheet (SDS) for the blast media.

**4.5.9** Adjust the pilot pressure regulator to the required blasting pressure, per Section 5.1. The regulator is located on the top-left side of the cabinet. **NOTE: Pressure registers on the gauge only while blasting.**

**NOTE:** When holding parts off the grate, use a solid conductive backrest to support the part. Without this assist, especially with longer blasting operations, the operator will tire easily from resisting blast pressure, and static electricity could build up in the ungrounded part and cause static shocks. Whenever possible, avoid holding small parts that require blasting into the glove.

**4.5.10** If an object should fall through the grate, stop blasting immediately and retrieve it.

### 4.6 Operation and Function of the Choke Valve Figure 18

**4.6.1** Always fully open the choke valve while blasting; open is when the handle is vertical and aligned with the piping, as shown in Figure 18.

**4.6.2** Closing the choke valve while blasting lowers pressure in the pusher line from the pressure in the vessel. Closing the valve forces media through the metering valve to clear minor blockage, such as damp media, or it is used to rapidly empty the machine to change media.

## NOTICE

Do not blast with choke valve closed or partially closed. Prolonged blasting with the choke valve partially closed will accelerate wear on the metering valve.

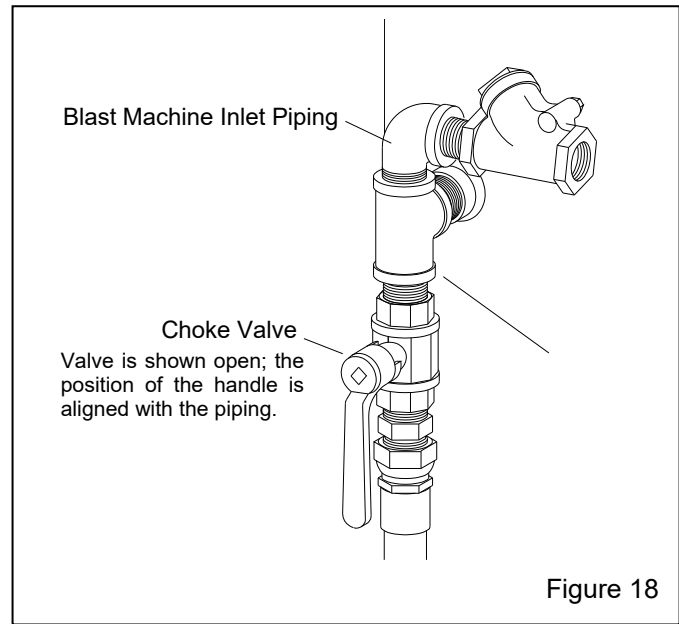


Figure 18

### 4.7 Blasting Technique

**4.7.1** 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 nozzle approximately 6" from the surface of the part.

### 4.8 Stop Blasting

**4.8.1** To stop blasting, remove pressure from the foot pedal. The blast machine will depressurize each time the foot pedal is released.

**4.8.2** The blast machine refills with media stored in the reclaimer each time the foot pedal is released. Refilling takes approximately 15 seconds.

**4.8.3** Use the blow-off nozzle to blow media off parts.

**4.8.4** Keep doors closed and exhauster running until the cabinet is clear of all airborne dust.

**4.8.5** Unload parts.

### 4.9 Shutdown

**4.9.1** Shut off the air-supply valve, bleed the air-supply line, and drain the compressed-air filter and pulse reservoirs.

**4.9.2** Switch OFF the lights and exhauster.

5.0 ADJUSTMENTS

5.1 Blasting Pressure (pilot regulator)

5.1.1 The pilot regulator, located left of the view window, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is 80 psi. Lower pressures may be required on delicate substrates and will reduce media breakdown. Higher pressure may be required for difficult blasting jobs on durable substrates, but will increase media breakdown. Optimal production can only be achieved when pressure is carefully monitored.

5.1.2 When blasting below 40 psi, first pressurize the blast machine at 40 psi and then turn the pressure to the required setting before blasting the part. If the initial pressure is below 40 psi, the pop-up valve may not seal.

5.1.3 Pressure registers on the gauge only while blasting. To adjust pressure, begin blasting and hold the nozzle securely with the right hand. Use the left hand to unlock the knob by pulling it out, as shown in Figure 19, Turn it clockwise to increase pressure or counterclockwise to decrease pressure. Once operating pressure is set, push the knob in to lock it and maintain the setting. **NOTE: The operator may find it easier to adjust pressure if the knob is unlocked before blasting and when pressure is set, stop blasting to lock the knob.**

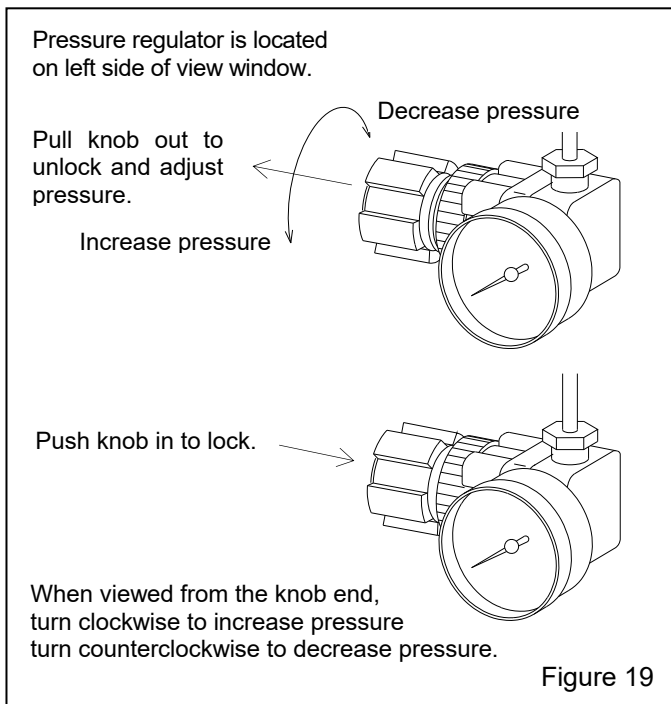


Figure 19

5.2 Media Metering (media flow) – Figure 20

These instructions and the illustration in Figure 20 are for a standard cabinet with Sentinel metering valve. Optional metering valves may function differently, but the process is similar. Refer to the metering valve operations manual for the operation of the valve provided.

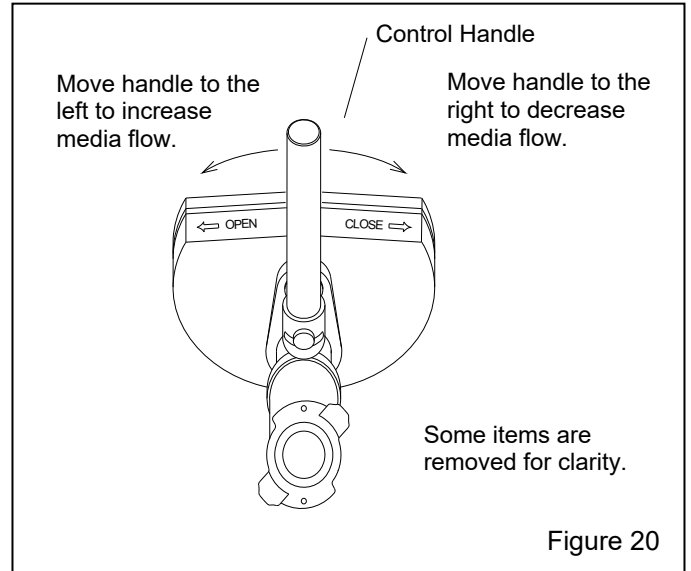


Figure 20

5.2.1 Adjust media flow using the metering valve located at the bottom of the blast machine. The valve is closed when the handle is fully to the right. To adjust, begin with the valve closed, press 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 Reclaimer Static Pressure (dust-collector outlet damper)

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

5.3.2 Adjust static pressure by opening or closing the outlet damper located above the dust collector, refer to Figure 21. 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 media 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. Run the media through several cycles and inspect media in the reclaimer and dust in the dust containers. Open the damper only as far as necessary to obtain a balance of maximum dust removal without good-media carry over.

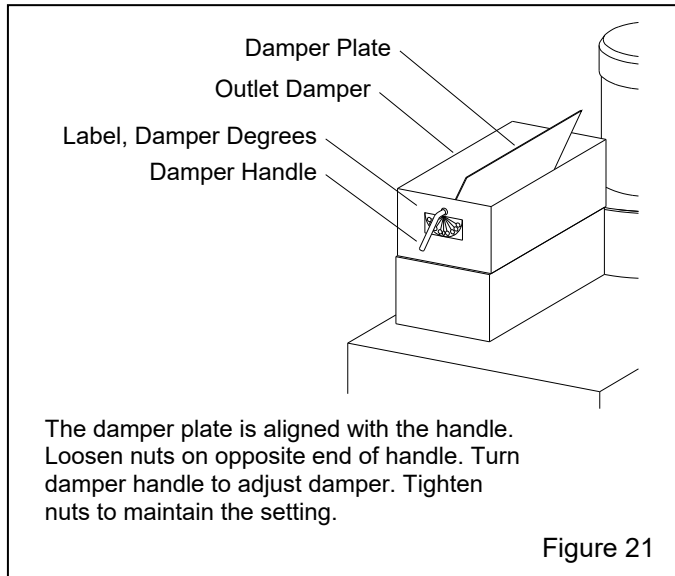


Figure 21

**5.3.3** A manometer is useful for adjusting and monitoring static pressure. The manometer kit is listed under Optional Accessories in Section 9.1. Refer to Section 5.9 for manometer operation. The following are static-pressure starting points for given media. Static pressure may need to be lower with finer media or higher with coarser media. If a manometer is not available, begin with the damper about half open (handle pointing toward 45° on the label). Run the media through several blast cycles allowing the reclaimer to function with these settings. Inspect media in the reclaimer and fines in the dust collector as noted in Sections 5.3.2. Continue adjusting static pressure until optimum media cleaning without carry over is attained.

Glass Bead No. 4 and 7 .....	3" – 3-1/2"
Glass Bead No. 8 to 12 .....	2-1/2" – 3"
Aluminum Oxide 46-Mesh to 80-Mesh .....	4" – 5"
Aluminum Oxide 80-Mesh to 180-Mesh .....	2-1/2" – 3"
*Steel Grit, 50-Mesh to 120-Mesh .....	6" – 7"
*Steel Shot S-170 to S-70 .....	6" – 7"
*Refer to Section 1.11 for media limitations.	

**5.3.4** After adjusting the damper, and carry over or excessive dust in the media continues, adjust the vortex cylinder per Section 5.4. Vortex cylinder adjustment is usually required only when using 180-mesh and finer media, or lightweight media.

**5.3.5** As dust accumulates on the outer surface of the cartridges, static pressure drops, requiring additional

pulsing of the cartridges, as described in Section 5.7, or an increase in pulse pressure, per Section 5.6. When pulsing no longer maintains the necessary static pressure, readjust the damper.

**5.4 Externally Adjustable Vortex Cylinder**

The vortex cylinder fine-tunes media separation. Before adjusting the cylinder, adjust the damper on the dust collector to increase or decrease static pressure per Section 5.3. Once the damper is adjusted, adjust the cylinder.

**5.4.1** The vortex cylinder is located atop the reclaimer where the flex hose connects. Adjustments are made by loosening the handle's tensioning knob and moving the handle to achieve the correct setting. When the correct setting is established, tighten the locking knob to prevent movement. Start with the lever slightly to the right (about 1 o'clock as shown in Figure 22) of the vertical position.

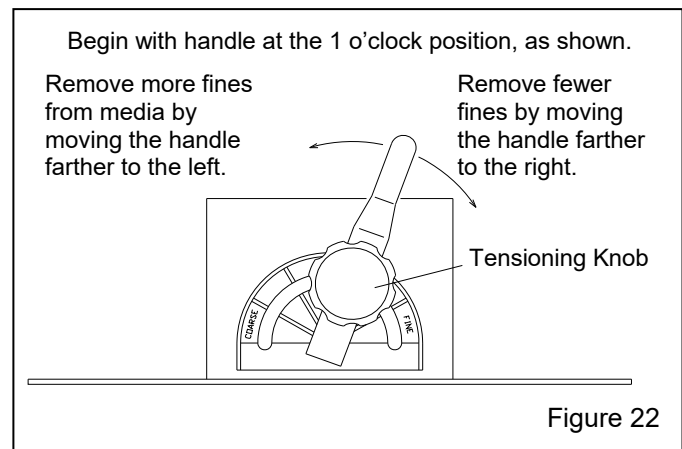


Figure 22

**5.4.2 To remove more fines:** (Too much dust in media) Raise the cylinder by moving the lever left toward "COARSE" in 1/4" increments at the indicator plate. Allow the media to go through several blast cycles before determining if further adjustment is needed.

**5.4.3 To remove fewer fines:** (Excessive usable 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.

**5.4.4** When using media finer than 180-mesh, the inlet baffle of the reclaimer may need to be removed. Refer to Section 1.11.6.

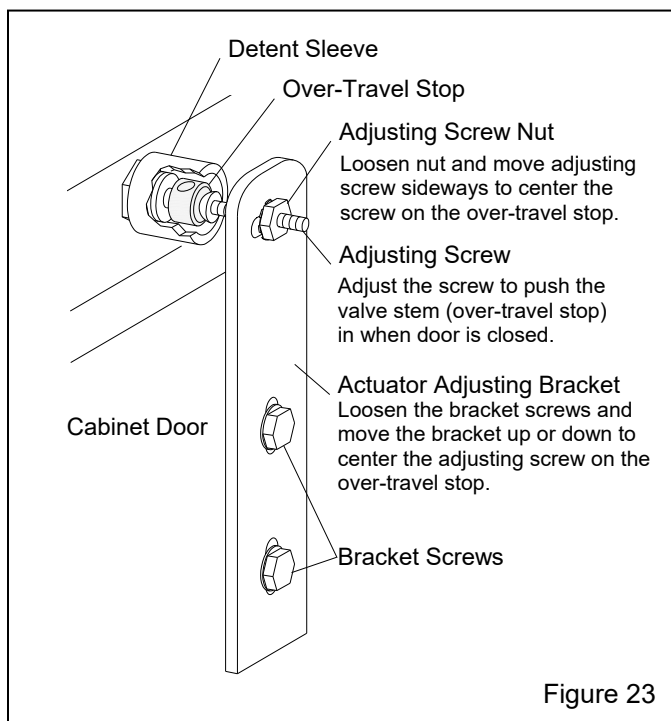
## 5.5 Door Interlocks – Figure 23

### **⚠ WARNING**

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

**5.5.1** 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.

**5.5.2** Close cabinet doors.



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

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

**5.5.5** Test the operation with the doors open and then closed. Negative pressure inside the cabinet may cause the doors to flex inward. Tests should be performed with the exhauster running. Point the nozzle away from the door during the tests and open the door only enough to

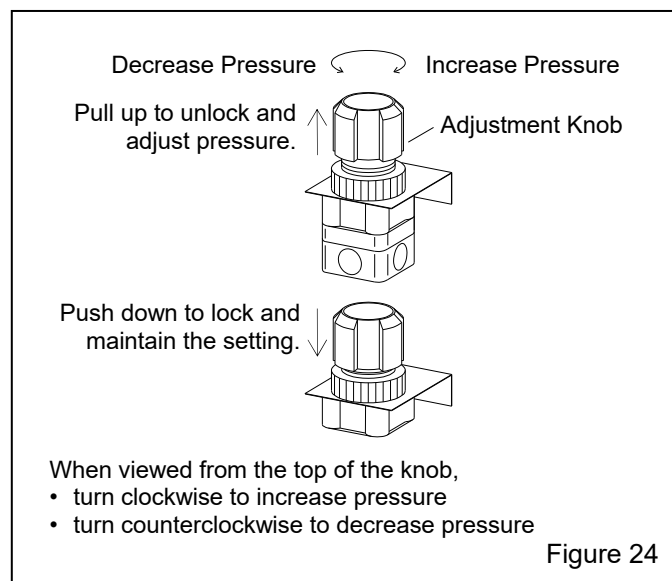
disengage the interlock switch. The interlocks should stop the blasting when either door is open and permit blasting when the doors are closed.

## 5.6 Dust-Collector Pulse Pressure – Figure 24

### **NOTICE**

**Do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned, per Section 7.9. Pulsing unseasoned cartridges can decrease the efficiency of dust collectors and cause premature cartridge failure.**

**5.6.1** Adjust pulse pressure using the regulator mounted on the dust-collector body. Begin pulsing at 60 psi. To adjust pressure, pull the knob to unlock it, as shown in Figure 24, turn clockwise to increase pressure or counterclockwise to decrease pressure. Once operating pressure is set, push the knob to lock it and maintain the setting.



**5.6.2** When pulsing does not adequately clean the cartridges, increase pulse pressure in increments of 5 psi to 10 psi until the maximum of 90 psi is reached. As dust cakes on the cartridges, differential pressure increases. Using a gauge to measure the differential pressure is a good way to tell if the cartridges are heavily caked.

**5.6.3** When the maximum pulse pressure of 90 psi is attained, and additional pulsing as described in Section 5.7 does not decrease differential pressure or increase visibility, replace the cartridges per Section 7.8.

## 5.7 Dust-Collector Pulse-Sequence and Timer

**5.7.1** The toggle switch (sequence switch) mounted on the sequence control-panel cover, enables or disables the timing sequence. When the switch is ON, the pulse sequence automatically starts when 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 cartridges are seasoned, per Section 7.9.

**5.7.2** The timer is factory set at 40 seconds OFF and 15/100 of a second ON. Every 40 seconds the cartridges are pulsed.

**5.7.3** As the cartridges cake with dust, the pulse may not clean them well enough to bring the differential-pressure gauge below the recommended changeover of 4" WC (4 inches of water column). A constant reading higher than 4" is an indication that more frequent pulse cycles or higher pressure are needed. When differential pressure remains greater than 4", adjust the OFF time setting by half and lower pulse pressure to 70 psi. **DO NOT ADJUST ON TIME.** Increasing ON time will consume more air, but will NOT increase cleaning efficiency.

**5.7.4** When the frequency of the pulse cycle does not lower the differential pressure to less than 4", or a decrease in visibility or recovery is noted, increase pulse pressure in increments of 5 psi to 10 psi until the maximum of 90 psi is reached.

**5.7.5** When the frequency of the pulse cycles and higher pulse pressure does not lower the differential pressure below the changeover pressure of 4", the filter cartridges should be replaced per Section 7.8.

## 5.8 Cabinet Air-Inlet Damper

**5.8.1** Once the inlet damper 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, which is controlled by the outlet damper, per Section 5.3. Reclaimer pressure must be set before cabinet pressure.** In rare circumstances, cabinet pressure may need to be slightly higher or lower.

**5.8.2** A manometer (as noted in Section 5.9 and 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 cabinet's air-inlet damper. Open the damper farther to decrease static pressure or close it farther to increase pressure.

**5.8.3** 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.

## 5.9 Optional Manometer

These instructions show several methods of taking static-pressure readings (negative pressure) on reclaimers by using a flexible-tube manometer. Use the method best suited for the application. The instructions explain the processes for taking periodic readings and show how to permanently install the manometer for taking frequent readings. A fitting should be installed when the manometer installation is permanent; refer to Paragraph 5.9.6.3. Use silicone or other sealant around the fitting to prevent leaks. The fitting should be capable of being capped when the manometer tube is removed. A cap will prevent leaks that alter the reclaimer's separation efficiency. Taking readings at different locations could produce different readings. Static-pressure readings at the door are generally 0.5" to 1" lower than readings taken above the reclaimer. The readings are reference points, so readings should be taken using the same method each time the reading is taken.

**5.9.1** Refer to instructions packed with the manometer for preparation and operating the manometer.

**5.9.2** Connect one end of the 3/16" ID tubing to one of the tubing connectors (elbow) at the top of the manometer by pushing it over the barbed adaptor.

**5.9.3** Leave the needle protector on the needle and insert the needle into the other end of the tubing. The ends of the tubing must fit tight on the manometer and needle; leaks will cause inaccurate readings.

**5.9.4** Open both manometer valves (elbows), per manometer instructions.

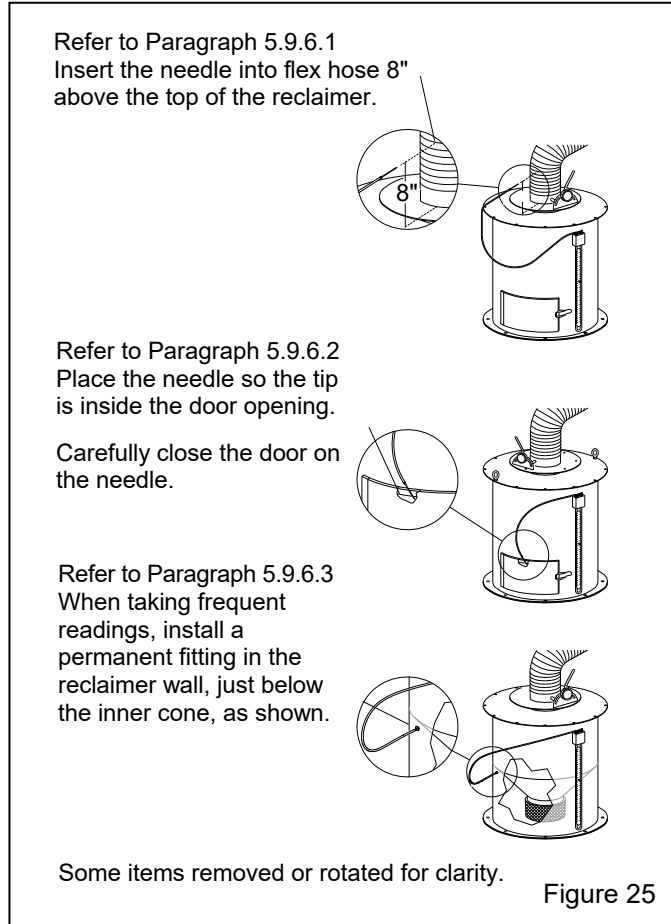
**5.9.5** Magnets on the manometer hold it in position on the reclaimer or dust-collector body. The manometer must be vertical so the fluid is level on both sides.

**5.9.6 Needle placement:** Figure 25 shows the manometer set-up for taking both periodic and frequent static-pressure readings.

**5.9.6.1 Taking readings in the flex hose:** Remove the needle protector and insert the needle into the flex hose, approximately 8" above the top of the reclaimer.

**5.9.6.2 Taking readings at the reclaimer door:** Open the reclaimer fill door, remove the needle protector and place the needle so the point is inside the door opening. Carefully close the door on the needle. The side of the

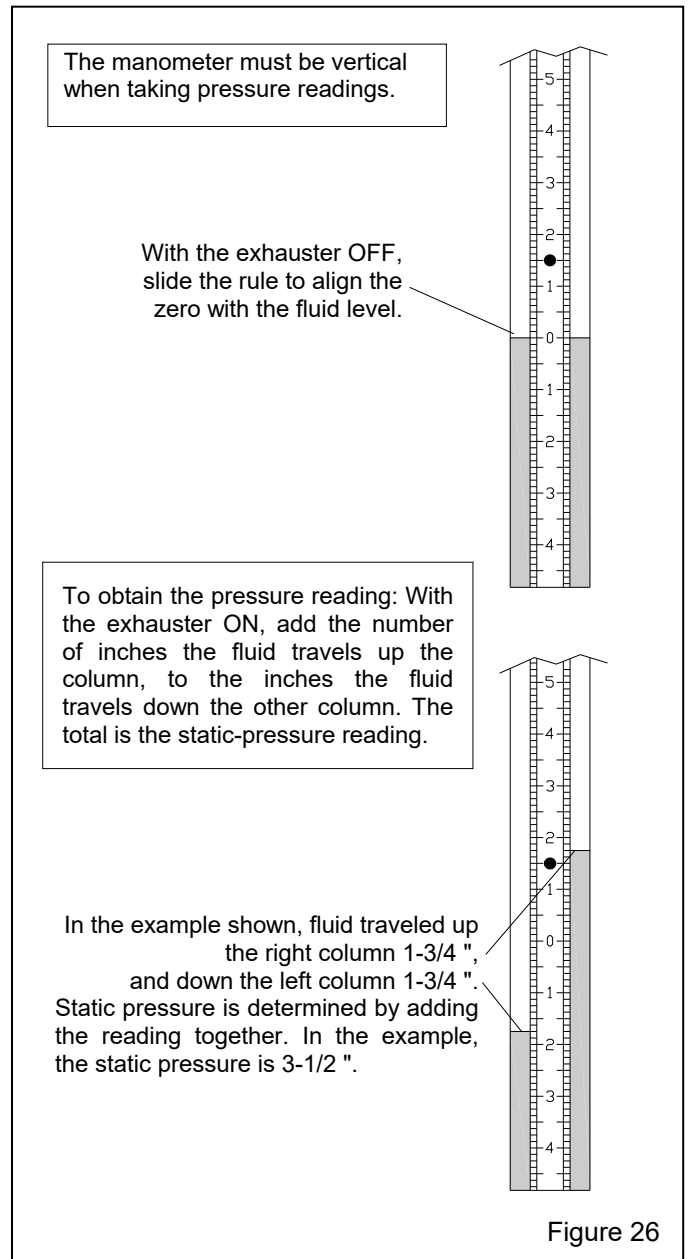
needle will embed into the rubber, creating an airtight seal.



**5.9.6.3 Taking frequent readings using a permanent fitting:** A permanent fitting may be installed in the reclaimer wall, as shown in Figure 25, for taking frequent static-pressure readings. Permanent fittings must have a barb to accommodate the 3/16" ID tubing and have a means of sealing the fitting when the manometer is not in use. Use silicone sealer or other sealant to seal around the fitting to prevent leaks. The fitting should be capable of being capped when the manometer tube is removed. Sealing the fitting will prevent leaks that alter the reclaimer's separation efficiency. Air drawn into the reclaimer will cause carry over of good media to the dust collector.

**5.9.7** Adjust the slide rule to align the zero with the fluid level. Refer to the upper part of Figure 26.

**5.9.8** Open cabinet doors and turn the exhauster ON. The negative (static) pressure will move fluid in the tube.  
**NOTE: Readings must be taken with the cabinet doors open and with the exhauster running.**



**5.9.9** To find the static pressure, add the number of inches the fluid travels up one column to the inches the fluid travels down the other column. Refer to the example in Figure 26.

**5.9.10** After taking the readings, replace the needle protector. Close the manometer valves and store the manometer in the original container in a clean area.  
**NOTE:** If the manometer installation is permanent, the manometer may remain on the reclaimer body after the valves are closed.

## 6.0 PREVENTIVE MAINTENANCE

### **⚠ WARNING**

**Failure to wear an approved respirator and personal protection when servicing dust-laden areas of the cabinet and dust collector, as well as when emptying the container, can result in lung disease, serious skin or eye irritation, or other health issues. 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 safety data sheet (SDS) for the blast media.**

To avoid unscheduled downtime and to improve safety, establish an inspection schedule. Inspect all parts subjected to media contact, including the nozzle, blast hose, flex hose, wear plate, and all items covered in this section. Adjust frequency of inspections as needed, based on:

- **Usage:** Frequently used cabinets require more maintenance and inspections than those occasionally used.
- **Type of media:** Aggressive media wears parts faster than nonaggressive media.
- **Condition of parts being blasted:** Heavily contaminated parts require more maintenance to the cabinet's media recovery system and dust collector.
- **Friable media:** Media that rapidly breaks down require more maintenance to the cabinet media recovery system and dust collector.

### 6.1 Daily Inspection and Maintenance Before Blasting with the Air OFF

**6.1.1 Check media level:** Check media level through reclaimer door and refill as necessary, per Section 4.2.

**6.1.2 Inspect reclaimer debris screen and door gasket:** Check reclaimer debris screen for debris. The screen is accessible through the reclaimer door. With the exhauster OFF, remove the screen and empty it daily or when loading media. Empty the screen more often if part blasted causes excessive debris. Do not operate the machine without the screen in place; oversized byproduct from blasting could plug the nozzle. While the door is open, inspect the door gasket for wear or damage. Replace the gasket at the first sign of wear.

**6.1.3 Drain Compressed-air filter:** Empty the drain pail at least once a day, and more often if needed. Moist

air inhibits the flow of media. Drain the air line and receiver tank regularly. If the filter does not remove enough moisture to keep media dry and flowing, it may be necessary to install an air dryer or aftercooler in the compressed-air-supply line.

**6.1.4 Inspect couplings:** Make sure couplings are secure and that lock pins and safety cables are in place.

**6.1.5 Inspect and empty dust containers**

### **NOTICE**

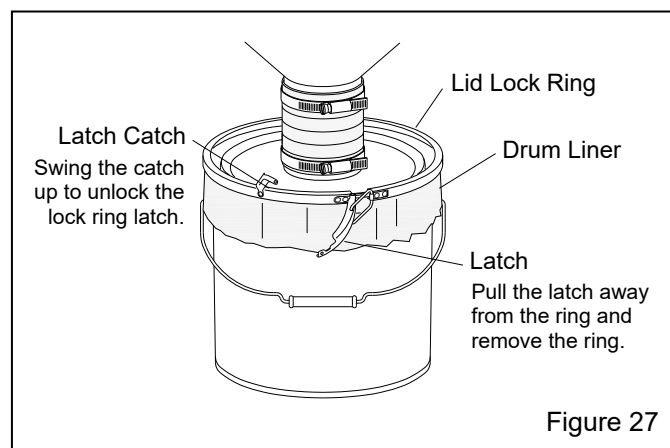
**Inspect dust level in the dust containers daily. Empty the dust containers when no more than half-full and when adding new media. Failure to monitor the dust level will overfill the collector, requiring extensive cleaning.**

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

**6.1.5.2** Turn off the exhauster and release the lid lock ring from the dust containers as shown in Figure 27.

**6.1.5.3** Pry the lid off the container (the lid's flexible inlet hose allows easy removal), and remove the container.

**6.1.5.4** Tie-off or otherwise seal the top of the liner and remove it from the container. Dispose of the sealed liner into a suitable disposal receptacle. Replacement liners are shown in Section 9.10.



**NOTE: Blasting media is usually non-toxic; however, some materials being removed by the blast process may be toxic. Obtain SDS sheets for the media and**

identify all material removed by the blast process. Check with proper authorities for disposal restrictions.

**6.1.5.5** Place a new liner inside the container and drape it over the top edge. Reattach the container to the lid and latch the lock ring, making sure the lid and clamp are secure.

## 6.2 Daily Inspection During Blasting – Have Someone Do the Following:

**6.2.1 Inspect blast hose couplings:** Inspect blast-hose couplings and coupling gaskets for air leaks.

### **⚠ WARNING**

**Air leaks around couplings and nozzle holders indicate worn or loose-fitting parts. Nozzle holders and couplings that do not fit tightly on hose, as well as nozzles that do not fit tightly in nozzle holders, can disconnect while under pressure. Impact from objects (nozzles, couplings, hoses, or media) disconnected by pressure during operation can cause severe injury.**

**6.2.2 Inspect blast machine for air leaks:** Check the blast machine for air leaks. If leaks are found around the pop-up valve, inspection door, or pipe fittings at the bottom of the cone, stop blasting immediately and repair or replace worn parts.

### **NOTICE**

**If leaks are allowed to continue, abrasive erosion can cause extensive or irreparable damage to the blast machine.**

**6.2.3 Inspect cabinet for dust leaks:** During operation, inspect cabinet door seals for media leaks. Dust leaking from the inlet damper or other places on the cabinet indicates saturated filter cartridge. Refer to troubleshooting Section 8.14.

**6.2.4 Drain pulse reservoirs:** Open the petcock to drain the pulse reservoir at the end of each shift. Refer to Figure 28.

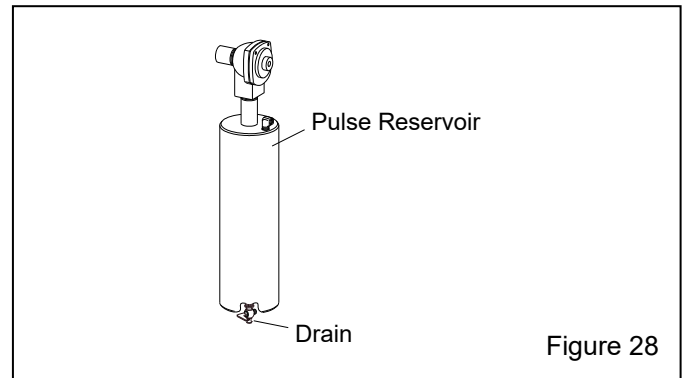


Figure 28

**6.2.5 Check exhaust air for dust:** Dust discharge at the dust-collector outlet indicates a leaking or damaged filter cartridge. Immediately shut off the dust collector and inspect the cartridges. Note that a small amount of dust egress is normal for a short time before a new cartridge is seasoned.

## 6.3 Weekly Inspection and Maintenance Before Blasting with Air OFF

**6.3.1 Inspect view-window cover lens:** Inspect view-window cover lens. Replace as needed, per Section 7.2.

**6.3.2 Inspect gloves:** Inspect gloves for wear. The first sign of deterioration may be excessive static shocks. Replace as needed, per Section 7.1.

**6.3.3 Inspect nozzle:** Remove the nozzle and inspect nozzle for wear. Replace the nozzle when the orifice diameter is worn 1/16" larger than original size. Before replacing the nozzle, inspect the nozzle washer. Make sure the nozzle washer is in good condition, not worn or otherwise damaged, and in place before reattaching the nozzle.

### **⚠ WARNING**

**The threads on the nozzle and nozzle holder must be inspected each time the nozzle is secured to the holder. A loose-fitting nozzle can eject under pressure and cause severe injury. Check the threads for wear and make sure the nozzle holder securely holds the nozzle. The nozzle washer must also be inspected for wear. When nozzle washers are worn or missing, abrasive can erode nozzle threads.**



### 6.3.4 Inspect blast hose and couplings

## WARNING

**Worn blast hose can suddenly burst while under blast pressure. Couplings and nozzle holders will not safely grip worn hose and can blow off under pressure. Compressed air and media escaping from a burst hose, or hose whipping from a disconnected coupling or nozzle holder can cause severe injury.**

- Inspect blast hose for wear and soft spots by pinching it every 12 inches. Soft spots mean the hose is worn. The first sign of wear is usually along the outside radius where the hose bends just behind the nozzle holder. Replace the hose as soon as soft spots are noted.
- Make sure coupling gaskets are in good condition.
- Make sure coupling screws are fully seated in the coupling and that none are missing.
- Make sure that safety lock pins are inserted in all couplings.
- Make sure safety cables are attached at all blast-hose and air-hose connections and that all slack is removed from the cable.

**6.3.5 Inspect outlet valve:** Inspect outlet valve diaphragm: Remove the four cap screws and inspect the diaphragm. Replace the diaphragm if worn or cracked. Continued use with a worn diaphragm will quickly wear the valve casting.

**6.3.6 Optional differential-pressure-gauge inline-filter:** With the exhauster turned OFF, check the inline dust filter for dust accumulation.

### 6.4 Weekly Inspection During Blasting – Have Someone Do the Following:

**6.4.1 Inspect blast machine plumbing for leaks:** Inspect all external piping, hoses, valves, and couplings for air leaks. If leaks are found, repair immediately.

**6.4.2 Inspect flex hoses:** Inspect flex hoses for wear and negative pressure leaks.

### 6.5 Monthly Inspection and Maintenance Before Blasting

**6.5.1 Inspect reclaimer wear plate or liners:** Remove the flex hose from the reclaimer inlet and use a light to inspect the reclaimer wear plate or optional rubber reclaimer liners for wear. If the rubber is worn

through to the backing metal, replace wear plate per Section 7.12 or rubber liners per Section 7.13.

**6.5.2 Inspect pop-up valve:** Check the pop-up valve's urethane coating for cracks and grooves. Replace the pop-up valve at the first sign of wear, per Section 7.10.

**6.5.3 Inspect pop-up seal:** Inspect the rubber pop-up seal and replace at the first sign of wear, drying, or cracking, per Section 7.11.

## 7.0 SERVICE MAINTENANCE

## WARNING

**Prior to doing any maintenance or opening the dust collector, the employer must meet required OSHA standards, including but not limited to 29 CFR 1910 for:**

- **Appropriate Respirator**
- **Protective Clothing**
- **Toxic and Hazardous Substances**
- **Lockout and Tagout**

**All dust is hazardous to breath; toxicity and health risk vary with type of dust generated by blasting. Prolonged exposure to any dust can result in serious lung disease and death. Short-term exposure to toxic materials, such as lead dust or dust from other heavy metals and corrosives, can cause serious injury or death. Identify all material that is being removed by blasting and obtain a safety data sheet (SDS) for the blast media. Waste dust in the collector can cause serious injury or death through inhalation, absorption, or ingestion. The employer shall meet all OSHA requirements, including but not limited to those for confined space, combustible dust, fall protection, hazard communication, and lockout and tagout procedure for electrical and pneumatic supply.**

### 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 Band-clamp type:** Band-clamp type gloves are held in place by metal band-clamps on the inside of the cabinet. To replace, loosen the clamps with a screwdriver, replace the gloves, and tighten the clamps.

**7.1.3 Quick-Change type, clampless installation:** Quick-change gloves are held in place using spring rings sewn into the attachment end of the glove. To install, insert the glove into the arm port, so one spring is on the inside of the port and the other is on the outside, sandwiching the arm port between both spring rings.

## 7.2 View-Window Cover Lens

**7.2.1** 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.

**7.2.2** The best way to install a cover lens is to remove the window from the cabinet, per Section 7.3. If, for any reason, it is not practical to remove the window, the lens may be applied with the window glass in place.

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

## 7.3 View-Window Replacement

### **⚠ WARNING**

**Do not use plate glass for replacement view windows. Plate glass shatters on impact and can cause severe injury. Use only genuine ZERO® laminated replacement glass.**

**7.3.1** Remove the two window frame nuts located on the upper edge of the window frame, and swing the window frame open. 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 on both the window frame and on the cabinet. If either gasket is damaged, replace it, per Section 7.4.

**7.3.4** Install a view-window cover lens, per Section 7.2.

**7.3.5** Set the new window (cover lens down) squarely over the window opening, making sure that all edges of

the window are centered and overlapping the window gasket, and that the window is resting on the window support tabs.

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

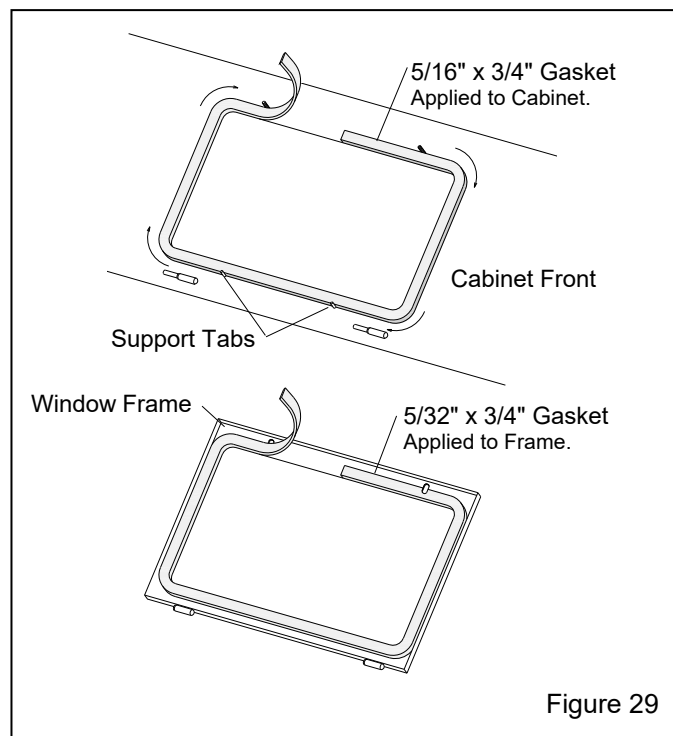
## 7.4 Window-Gasket Replacement – Figure 29

**7.4.1** Inspect the gaskets when changing the view window. Replace the window-frame gasket and cabinet window-opening gasket at the first sign of media leakage around the view window, or if gaskets are worn or otherwise damaged.

**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 29. Peel additional backing as needed and work the strip around the radius of each corner, pressing it firmly 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 underside of the window frame.

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

## 7.5 Window-Frame Removal – Figure 30

**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.

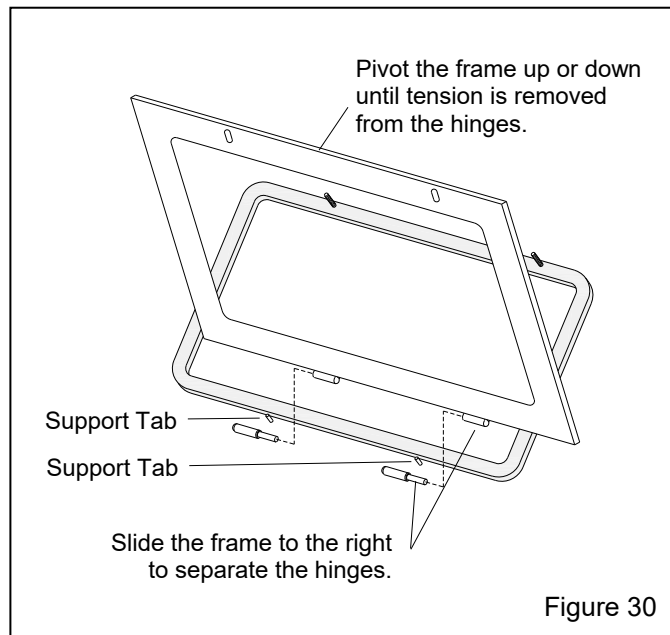
**7.5.3** Pivot the window frame up or down until tension is off the frame hinges.

**7.5.4** Slide the frame to the right to remove it. The hinges separate, as shown in Figure 30.

**7.5.5** Replace the frame in reverse order. Slide the frame as necessary to align the top bolt holes with the bolts.

**7.5.6** Set the window squarely over the window opening. Make sure that all edges of the window are centered, overlapping the window gasket, and that the window is resting on the window support tabs.

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



## 7.6 Light Assembly

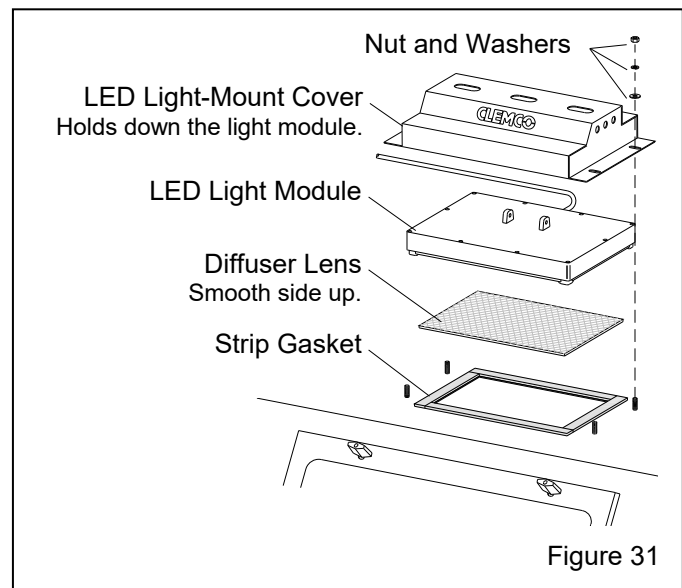
### **⚠ WARNING**

**Use an approved stepladder when servicing the light assembly. Do not climb on top of the cabinet. The cabinet top will not support the weight of a person. Failure can result in injury and property damage.**

### 7.6.1 Remove light-mount cover

**7.6.1.1** Turn OFF electrical power.

**7.6.1.2** Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as shown in Figure 31.



### 7.6.2 Gasket replacement

**7.6.2.1** Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 7.6.1. Move the light module off the diffuser lens and remove the lens.

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

**7.6.2.3** Lay a section of strip gasket along the edge of 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 31. Press the gasket to bond. Repeat the process for each side, compressing the ends to seal.

**7.6.3 Diffuser lens replacement**

**7.6.3.1** Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 7.6.1. Move the light module off the diffuser lens and remove the lens. Inspect the gasket and replace it, per Section 7.6.2, if it is compressed or otherwise damaged, before centering the new diffuser (smooth side up) over the gasket.

**7.6.3.2** Set the light module on the diffuser and reattach the cover.

**7.6.4 LED light module replacement**

**7.6.4.1** Turn OFF electrical power and perform lockout and tagout procedure to power supply.

**7.6.4.2** Remove the light-mount cover, per Section 7.6.1.

**7.6.4.3** Remove the junction-box cover and note the wire connections. Current connections are as follows:

- Brown wire .....Hot
- Blue wire .....Neutral
- Yellow w/green stripe .....Ground

If color coding is different from that shown, make note of the color code before disconnecting the wires.

**7.6.4.4** Loosen the strain-relief compression nut and remove the cord from the junction box.

**7.6.4.5** Place the new module in position on the cabinet and route the cord through the strain relief and into the junction box.

**7.6.4.6** Cut the cord to length and wire as follows:

- Brown wire .....Hot
- Blue wire .....Neutral
- Yellow w/green stripe .....Ground

**7.6.4.7** Apply power to test the light.

**7.6.4.8** Tighten the strain-relief compression nut, set the light module on the diffuser, and reattach the cover.

**7.7 Blast Hose and Nozzle – Figure 32**

**7.7.1** To remove old blast hose disconnect hose from blast machine and remove nozzle holder or coupling. Spray outside of hose with liberal amount of silicone spray or similar lubricant to reduce friction, and then pull the hose through the hopper grommet. Install new hose and couplings in reverse order.

**7.7.2** When replacing blast hose, make sure the hose is square cut and that it is fully inserted into the nozzle holder and coupling until it sets tightly against the shoulder in the holder and coupling, as shown in Figure 32. Make sure correctly-sized screws are used to secure the nozzle holder and blast-hose coupling. Screws should not penetrate through to the inside of the blast hose.

**7.7.3** Replace the nozzle when the orifice (it's smallest inside diameter) has increased by 1/16" or sooner if blast pressure noticeably diminishes. Make sure the nozzle washer is in good condition and in place before screwing the nozzle into the nozzle holder. Make sure the nozzle is screwed tightly into the nozzle holder; if nozzle is not tight against the nozzle washer, thread erosion will occur and nozzle will fuse to nozzle holder.

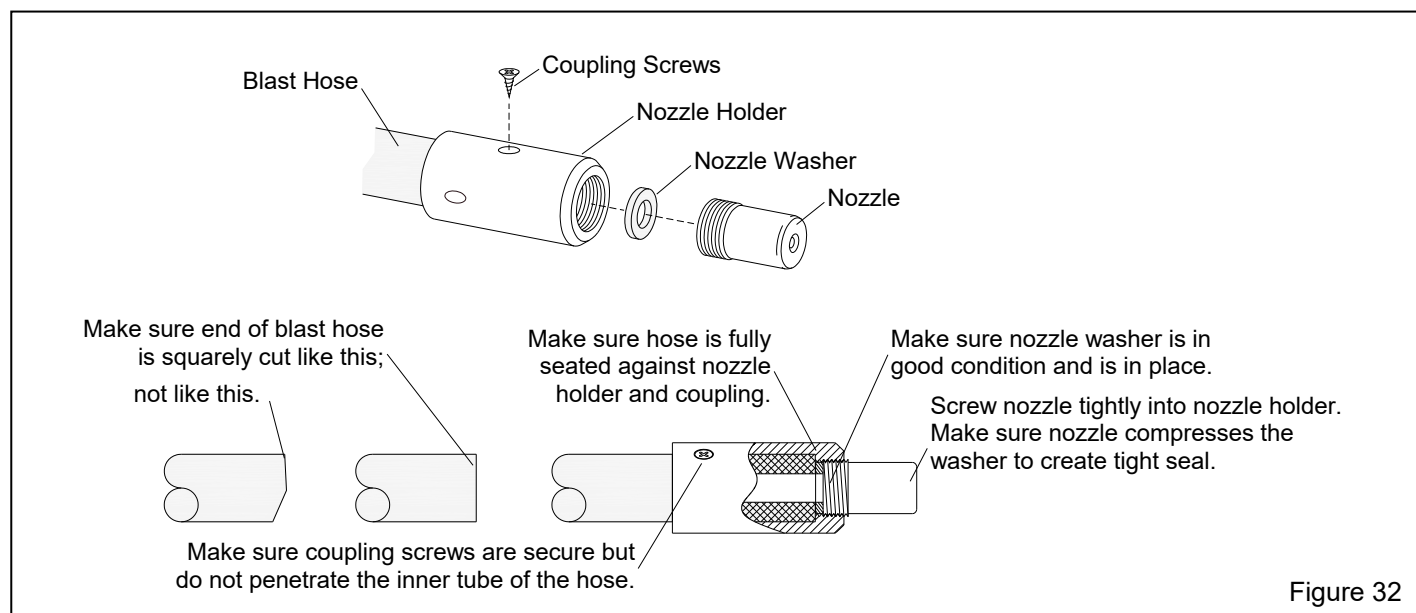


Figure 32

## 7.8 Replacing Filter Cartridges –Figures 33 and 34

### **⚠ WARNING**

#### **NO DUST IS SAFE TO BREATHE.**

The inhalation of airborne dust can lead to serious respiratory illness and death, serious skin or eye irritation, or other health issues. Always wear approved respiratory protection when servicing the dust collector, while handling filter bags and cartridges, and when emptying the dust container. 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 safety data sheet (SDS) for the blast media.

**7.8.1** Shut the sequence switch, located on the sequence-panel cover, OFF.

**7.8.2** Close the air-supply valve and bleed all air from the pulse reservoirs.

**7.8.3** Refer to Figure 33 and unlatch the dust container lid, pry off the lid from the container (the lid's flexible inlet hose allows easy removal), and remove the container.

**7.8.4** Tie off or otherwise seal the top of the liner and remove it from the container. Dispose of the sealed liner into a suitable disposal receptacle.

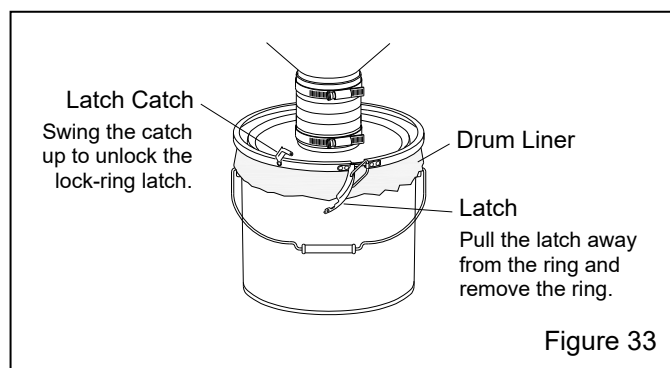


Figure 33

**7.8.5** Place a new liner inside the container and drape it over the top edge. Reattach the container to the lid and latch the lock ring, making sure the lid and clamp are secure. Replacement liners are shown in Section 9.10.

**7.8.6** Remove the dust-collector access door.

**7.8.7** Loosen the cartridge retaining-nut at the bottom of the hanger rod, as shown in Figure 34, and rock the cartridge to loosen it from the cartridge plate.

**7.8.8** Swing the bottom of the cartridge out through the access door, and remove the retaining nut, lock washer, and flat washer.

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

**7.8.10** Clean all parts that will be reused, especially on the bottom side of the cartridge plate around the cartridge sealing area. Scrape off any residual gasket material from the sealing surface.

**7.8.11** Slide new cartridge onto the hanger rod and install the washers and retaining nut.

**7.8.12** Swing each cartridge into the collector and tighten the retaining nuts until the cartridges cannot be moved by hand. Tighten each nut one additional full turn.

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

**7.8.14** Attach the access door and tighten the nuts to secure.

**7.8.15** Reset pulse pressure to 60 psi per Section 5.6 and reset the timer OFF time to 40 seconds per Section 5.7.

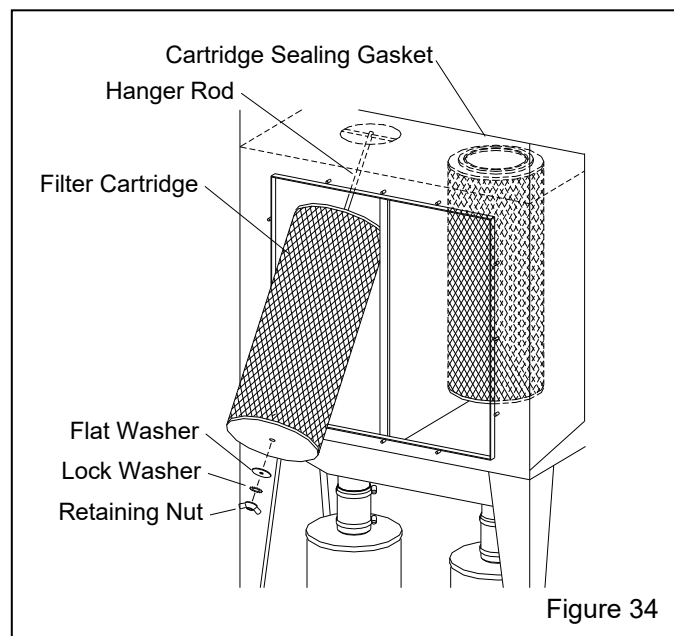


Figure 34

**7.8.16** Season cartridges per Section 7.9.

## 7.9 Seasoning Filter Cartridges

### **NOTICE**

**Do not pulse new dust collectors or replacement filter cartridges until cartridges are seasoned. Pulsing unseasoned cartridges can decrease the efficiency of dust collectors and cause premature cartridge failure.**

**7.9.1** New cartridges must be seasoned before starting pulsing. Cartridges are seasoned by letting a layer of dust (dust cake) develop on the outer surface of the filter media. The dust cake protects the filter cartridge, and enhances the filtering efficiency; the dust cake actually does the filtering.

**7.9.2** To prevent cartridge pulsing, shut the sequence switch, located on the sequence-panel cover, OFF.

**7.9.3** 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 and turn ON the sequence switch to start the pulsing cycle.

## 7.10 Pop-Up Valve Replacement – Figures 35 and 36

**7.10.1** Empty the machine of media, as described in Section 4.3.

**7.10.2** Depressurize the blast machine, and lockout and tagout the compressed-air supply.

### **WARNING**

**Failure to observe the following procedure before performing any maintenance can cause serious injury or death 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.

**7.10.3** To gain access to the pop-up valve, remove the inspection door assembly as follows:

1. Loosen the inspection-door clamp nut enough to slide the clamp bolt from behind the bracket. Then remove the clamp, bolt, and nut, as an assembly, as shown in Figure 35.

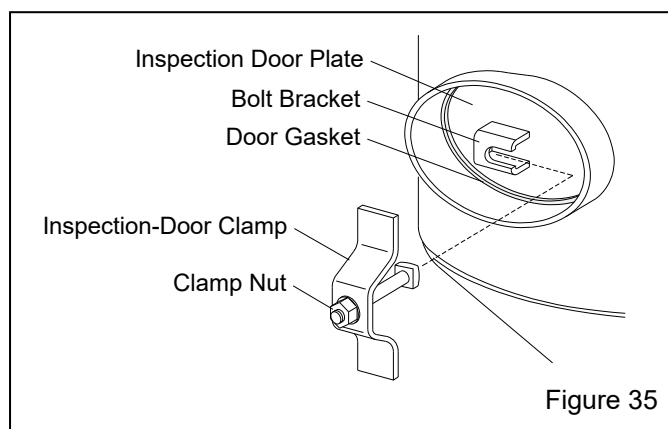


Figure 35

2. Push the inspection-door plate into the blast machine and rotate it so it can be removed through the inspection door. If the plate is stuck to the inspection-hole ring, rap the plate with a rubber mallet or similar tool to loosen it. Remove the door gasket if it is cracked, dry, or otherwise damaged.

**7.10.4** If the gasket requires replacement, use rubber-based glue to adhere it to the inspection-door plate. Allow the adhesive to cure before bolting the plate onto the machine.

**7.10.5** Use a short pipe wrench to unscrew the pop-up valve guide from the elbow by turning it counterclockwise, as shown in Figure 36. Remove the pop-up valve and guide from the machine.

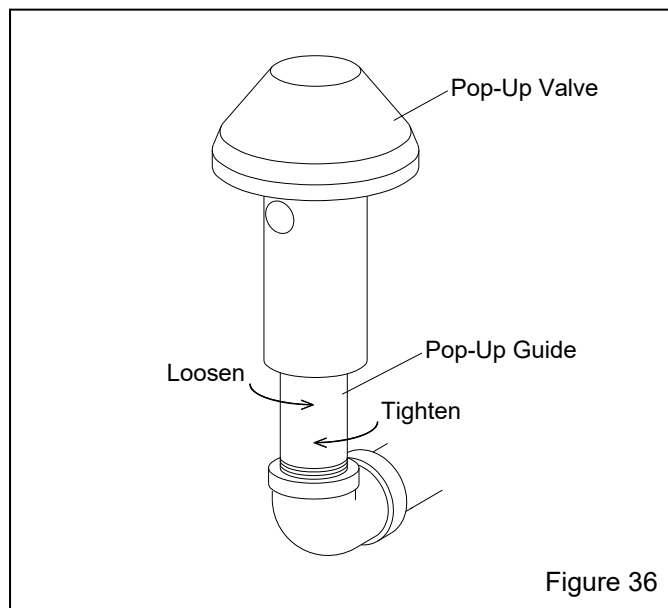


Figure 36

**7.10.6** Slide the new pop-up valve over the guide, and then screw the guide (with the pop-up valve on it) into position inside the machine. Tighten the guide wrench-snug, but not wrench-tight. Overtightening the guide will

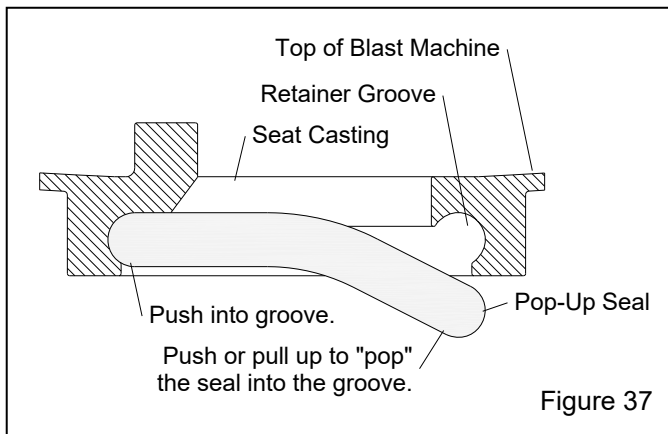
make it difficult to remove the next time the pop-up valve needs replacement.

**7.10.7** Bolt the plate onto the machine and tighten the clamp nut to approximately 55 ft lbs. Pressurize the vessel and check for air leaks. If leaks are noted, depressurize the machine and tighten the clamp nut.

### 7.11 Pop-Up Valve-Seal Replacement – Figure 37

**7.11.1** The easiest method to replace the rubber pop-up seal is through the reclaimer access door. If for some reason replacement cannot be made through the reclaimer, observe the warning in Section 7.10, and empty the machine and bleed the air-supply line. Remove the inspection-door plate, as noted in Section 7.10.3, and work through the opening.

**7.11.2** Remove the old seal by using a finger, screwdriver, or similar object to work the seal out of the retainer groove.



**7.11.3** Push the new seal all the way through the port, form it into an oval, and then fit it into the groove. For the last few inches, pull up on the seal and allow it to "pop" into position.

### 7.12 Replacing Reclaimer Wear Plate – Figure 38

Depending on conditions such as accessibility to mounting screws and tools available to install self-drilling screws, it may be easier to replace the wear plate if the reclaimer is removed from the blast machine. Make sure enough 13089 - 2" adhesive-backed gasket is available to replace compressed or damaged gaskets on the reclaimer upper flange (and lower, blast machine flange if the reclaimer is removed from the blast machine). The Pulsar IX reclaimer requires 7 ft for each flange.

## ⚠ WARNING

**Pulsar 900 reclaimer weighs approximately 150 lbs. When installing or removing the reclaimer, it must be adequately supported and secured to appropriate lift equipment. Failure to secure and use proper lift device can result in injury or death. When using a ladder to service the reclaimer, make sure it is approved for the application and that appropriate fall protection is used. Failure to use appropriate ladder and fall protection can result in injury.**

**7.12.1** Remove the flex hoses from the reclaimer inlet and outlet pipes.

**7.12.2** Place a chain, sling, or other appropriate rigging, through the lifting eyes and remove the bolts, nuts and washers securing the reclaimer body to blast machine.

**7.12.3** Raise the reclaimer off the blast machine.

## ⚠ WARNING

**Do not be under the reclaimer while it is hanging from the lifting device. Severe injury can occur if the reclaimer is released from the rigging before it is securely on the ground.**

**7.12.4** Set the reclaimer top-side-up on a clean, flat, and level surface.

**7.12.5** Remove the bolts and nuts securing the reclaimer top and then remove the top, the inlet-pipe adaptor, adaptor gasket, and old wear plate. The wear plate is held in place by screws attached from the outside of the reclaimer. Remove the screws and pull out the wear plate through the reclaimer inlet.

**7.12.6** Remove remnants of old caulk that will prevent the new wear plate from seating against the reclaimer wall or top.

**7.12.7** Angle the new wear plate into the reclaimer inlet and position it so the straight end is flush with the inlet. Use locking pliers, clamps, or other means where needed to pry the wear plate against the side of the inlet and inner wall, as shown in Figure 38. Make sure the leading edge of the wear plate is aligned with the reclaimer inlet and that the top edge is even with the top of the reclaimer.

**7.12.8** Install the front two sheet metal screws through the old screw holes to secure.

**7.12.9** New self-drilling sheet-metal screws are provided with the wear plate; match drill the screws through the front two old screw holes into the wear plate.

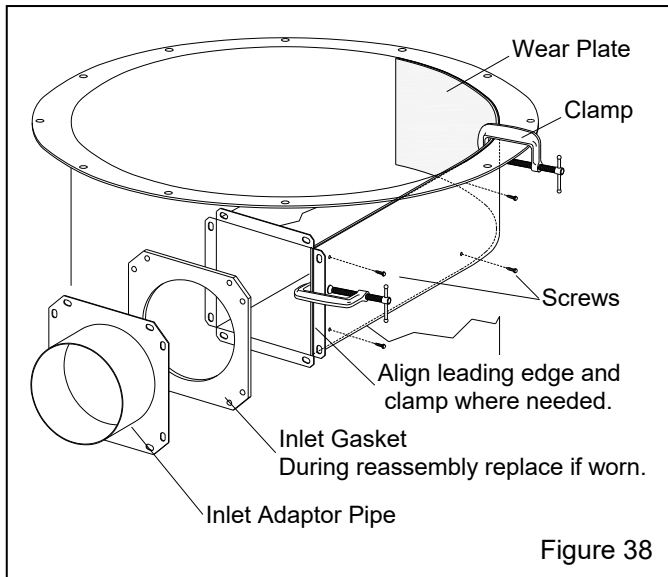


Figure 38

**7.12.10** Rearrange the clamp(s) as needed to press the wear plate against the reclaimer wall, and then match drill through each of the remaining old screw hole into the wear plate to secure.

**7.12.11** To avoid rapid wear, apply RTV caulk to fill gaps between the bottom edge of the wear plate and reclaimer.

**7.12.12** Replace the upper flange gasket as needed and reattach the reclaimer top.

**7.12.13** Work through the reclaimer inlet and apply RTV caulk to fill gaps between the top of the wear plate and reclaimer inlet and top plate.

**7.12.14** Reattach the inlet-pipe adaptor, replacing the gasket if worn, compressed, or otherwise damaged.

**7.12.15** Replace the lower flange gasket as needed, (usually installed on the blast machine flange) and reattach the reclaimer to the blast machine.

**7.12.16** Reconnect the flex hoses.

**7.12.17** Allow time for the caulking to cure before putting the reclaimer into service.

### 7.13 Replacing or Installing Rubber Reclaimer Liners – Figure 39

## **⚠ WARNING**

**Pulsar 900 reclaimer weighs approximately 150 lbs. When installing or removing the reclaimer, it must be adequately supported and secured to appropriate lift equipment. Failure to secure and use proper lift device can result in injury or death. When using a ladder to service the reclaimer make sure it is approved for the application and that appropriate fall protection is used. Failure to use appropriate ladder and fall protection can result in injury.**

### Installation Notes

Make sure enough 2" adhesive-backed gasket (stock no. 13089) is available to replace the compressed or damaged gasket on the reclaimer/blast machine flange. The Pulsar IX reclaimer requires 7 feet

The inner cone and cone ring are glued in place. Make sure a multi-purpose contact adhesive, such as 3M® no. 10 neoprene contact adhesive or equal, is available.

It is easier to replace or install liners if the reclaimer is removed from the blast machine.

**7.13.1** Remove the flex hoses from the reclaimer inlet and outlet.

**7.13.2** Place a chain, sling, or other appropriate rigging, through the lifting eyes and remove the bolts, nuts and washers securing the reclaimer body to blast machine.

**7.13.3** Raise the reclaimer off the blast machine.

## **⚠ WARNING**

**Do not be under the reclaimer while it is hanging from the lifting device. Severe injury can occur if the reclaimer is released from the rigging before it is securely on the ground.**

**7.13.4** Set the reclaimer top-side-up on a clean, flat, and level surface.

**7.13.5** Remove the reclaimer inlet-pipe adaptor.

**7.13.6** Remove the bolts and nuts securing the reclaimer top, and then remove the top (and top liner if the reclaimer is currently lined).



**7.13.7** If the reclaimers is currently unlined, proceed to the installation note preceding Paragraph 7.13.14.

**7.13.8** Remove the top liner and cylinder liner: Grind the tack welds from the bottom of the cylinder liner that secure the liner to the tube, and then slide the cylinder liner and top liner off the inner tube.

**7.13.9** Remove the nuts and washers located along the right side of the inlet and remove the inlet baffle through the top of the reclaimer.

**7.13.10** Remove the screws holding the inlet-side liner and inlet-top liner and remove both liners from the reclaimer inlet.

**7.13.11** The wall liner is held in place with self-drilling screws; from the outside of the reclaimer, remove the screws and lift the wall liner from the top of the reclaimer.

**7.13.12** Inner cone liners and cone-ring liners are glued onto the inner cone. Pull off the liners to remove them.

**7.13.13** Remove old caulking and adhesive from the weldment.

**Installation Notes:** The numbers in parentheses (-) shown in Figure 39 and in the following applicable paragraphs show the recommended order of installation. When installing the liners, make sure that seams are aligned. The final assembly must be smooth and free of protrusions, edges, and gaps. Any edges will disrupt the air flow, causing wear and affecting the reclaimer's media cleaning efficiency.

**7.13.14** (1st) Place the cone-ring liner on the inside of the cone ring, check fit and trim if needed. Refer to the instructions provided with the adhesive; some adhesives require it to be applied to both contact surfaces. Apply a multi-purpose contact adhesive, such as 3M® no. 10 neoprene contact adhesive or equal, to the fabric side of the liner and install the liner. Smooth out the liner to eliminate air pockets.

**7.13.15** (2nd) Place the cone liner in the cone with the fabric side down, and check fit and trim if necessary. Apply medium-set contact cement to the fabric side, and install the cone liner. Smooth out the liner to eliminate air pockets.

**7.13.16** (3rd) Place the inlet-side liner (rubber side out) against the side of the inlet housing; center the side liner and align the front edge of the liner with the front of the housing. Temporarily clamp the side liner in place.

**7.13.17** (4th) Align the wall-liner cutout with the reclaimer inlet housing and lower the liner into the reclaimer. Temporarily insert the baffle bolts through the

liner and reclaimer holes to position that side of the wall liner. Clamp the wall liner in place, making adjustments to make sure it is flush with the top of the reclaimer body and that the inlet-side liner is aligned with the side-liner cutout. Reposition the inlet-side liner as needed.

While pushing or clamping the liner against the weldment, secure the wall liner with self-drilling screws at each existing hole location. **NOTE: To field install a new, first-time wall liner, use self-drilling screws to secure it at the seam and an inch or two from the top and bottom at each quadrant.** Remove the clamps after the liner is secured.

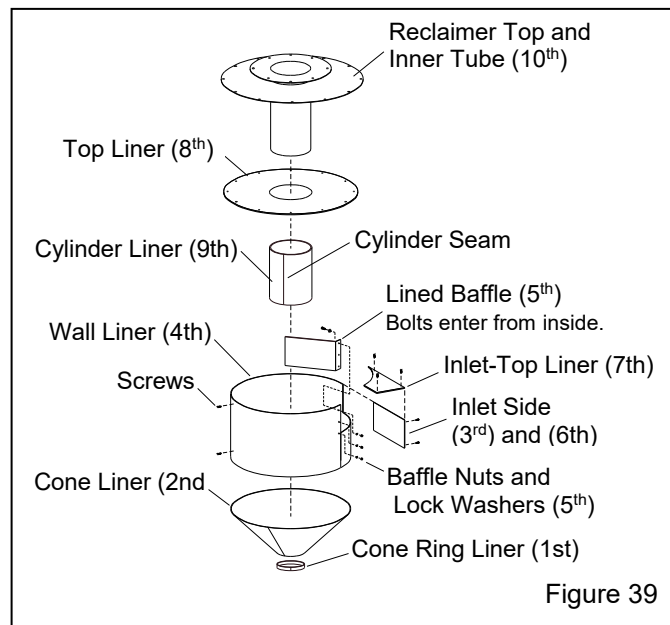


Figure 39

**7.13.18** (5th) Remove the temporary baffle bolts and install the inlet baffle by inserting bolts and flat washers from the inside of the reclaimer and attach lock washers and nuts from the outside, leaving the baffle slightly loose.

**7.13.19** Apply silicone caulking on seams between the cone ring and cone liner, to the seams on the cone ring and cone, between the cone liner and wall liner, and the seam on the wall liner. Wipe caulking to even with the liners. Voids will cause premature wear.

## NOTICE

**All seams between each liner must be sealed, and all seams between the liners and reclaimer weldment must be sealed. Voids will cause premature wear.**

**7.13.20** (6th) Use self-drilling screws to secure the inlet-side liner to the side of the inlet housing. **NOTE: To field install new, first-time inlet-side liners, use self-drilling screws at each liner corner to secure.** Remove the clamps after the liner is secured.

**7.13.21** (7th) Align the front edge of the inlet-top liner to the front of the inlet housing and use self-drilling screws to secure. NOTE: To field install new, first-time inlet-top liners, after clamping the liners, use self-drilling screws at each liner corner to secure. Remove the clamps after the liner is secured.

**7.13.22** (8th) Slide the top liner onto the top's inner-tube and align the holes in the liner with those in the top. Note that the holes around the inlet are spaced differently from the others. Temporarily install a couple of bolts to keep it in alignment.

**7.13.23** (9th) Place the cylinder liner over the inner tube. Make sure the liner is tight against the top liner and use worm clamps to temporarily clamp the liner to the tube. Tack weld the bottom of the cylinder liner to the inner tube in three or four places. Remove the clamps when the cylinder liner is secured.

**7.13.24** Apply caulking to the seam on the cylinder liner and between the cylinder liner and top liner.

**7.13.25** Apply caulking around the top edge of the wall liner and top-inner edge on the inlet housing.

**7.13.26** (10<sup>th</sup>) Align the reclaimer top assembly over the top of the reclaimer and lower it into place to match the mating holes in the flange, being careful not to smear the caulking. Secure the top bolts and inlet baffle bolts.

**7.13.27** Working through the reclaimer inlet, wipe the caulking seal smooth. Re-caulk any voids.

**7.13.28** Working through the reclaimer inlet, apply silicone caulking to seal seams around the inlet-side liner, inlet-top liner, and reclaimer weldment. Wipe the caulking smooth.

**7.13.29** Attach the inlet-pipe adaptor, replacing the gasket if worn, compressed, or otherwise damaged.

**7.13.30** If the lower flange gasket (usually installed on the blast machine flange) is worn, compressed, or otherwise damaged, clean old gasket material from the flange and install new 2" strip.

**7.13.31** Reattach the reclaimer to the blast machine.

**7.13.32** Install flex hoses.

**7.13.33** Allow time for the caulking to cure before putting the reclaimer in service.

## 7.14 Removing Reclaimer Inlet Baffle – Figure 40

When using lightweight media such as agricultural media or very fine media (180 and finer), as noted in Paragraph 1.11.6, good media may be carried over to the dust collector. To prevent lightweight-media carry over, the reclaimer inlet baffle can be removed. Review the following process before beginning to make sure all parts are available

### Installation Notes

Depending on conditions such as height and accessibility, it may be easier to replace the inlet baffle if the reclaimer is removed from the blast machine, as noted in Sections 7.12 and 7.13.

Make sure enough 13089 - 2" adhesive-backed gasket is available to replace compressed or damaged gaskets on the reclaimer upper flange (and lower flange if the reclaimer is removed from the blast machine).

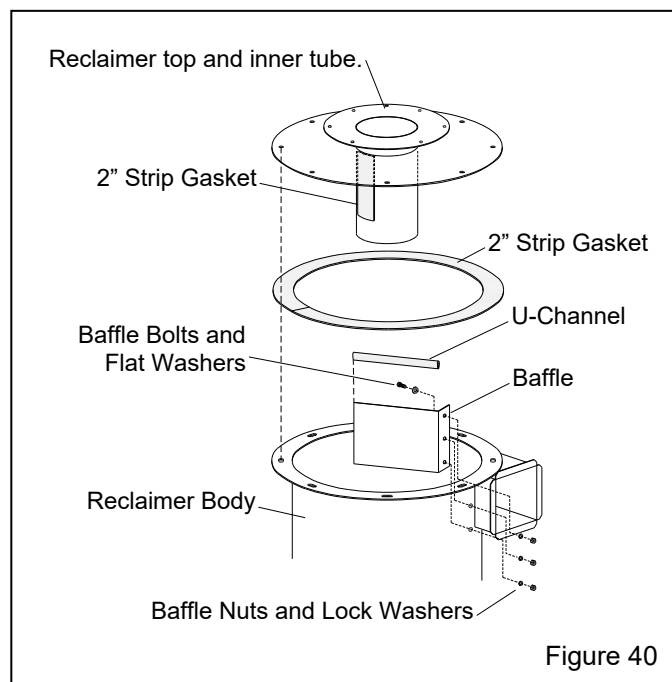
- 600 cfm requires 6 ft for each flange.
- 900 cfm requires 7 ft for each flange.

**7.14.1** Remove the reclaimer top.

**7.14.2** Remove the three bolts securing the baffle to the side of the reclaimer inlet and remove the baffle.

**7.14.3** Remove all caulking residue.

**7.14.4** Inspect the strip gasket on the reclaimer upper flange; replace it if damaged or compressed.



**7.14.5** If removing (not replacing) the baffle, remove the strip gasket from the inner tube and reinstall the baffle bolts in the reclaimer holes. If replacing the baffle, skip to Paragraph 7.14.6.

**7.14.5** If removing (not replacing) the baffle, remove the strip gasket from the inner tube and reinstall the baffle bolts in the reclaimer holes. If replacing the baffle, skip to Paragraph 7.14.6.

**7.14.6** When replacing the baffle, make sure the strip gasket on the inner tube and the U-channel are in good condition and install the new baffle in reverse order. Apply silicone caulk to the seam (opposite side of the mounting bolts) between the baffle and reclaimer body. Wipe the caulk smooth.

**7.14.7** Install the reclaimer top.

**7.14.8** If the reclaimer was removed from the blast machine, inspect the 2" flange gasket (usually installed on the blast machine flange) if worn, compressed or otherwise damaged, clean old gasket material from the flange and install new 2" strip gasket.

**7.14.9** Reattach the reclaimer to the blast machine.

**7.14.10** If the baffle was replaced, allow the caulking to cure before putting the reclaimer into service.

## 7.15 Sentinel Metering Valve

**7.15.1** Refer to the Sentinel Media Metering Valve Operation Manual, No. 20951 for service and replacement parts.

## 8.0 TROUBLESHOOTING

### WARNING

To avoid serious injury, observe the following when troubleshooting.

- Turn OFF the compressed-air supply, bleed the supply line, and lockout and tagout the air supply.
- If checking the controls requires air, always enlist the aid of another person to:
  - Hold the nozzle holder securely.
  - Operate the foot pedal.
- Never bypass the foot pedal or wedge it in the operating position.
- Never bypass the door interlock system.
- Follow all OSHA regulations, including lockout and tagout procedures.

### 8.1 Poor visibility

**8.1.1** Dirty filter cartridges. Empty the dust containers. Run the exhauster and pulse cycle for several minutes. Adjust pulse pressure and/or pulse sequence per Sections 5.6 and 5.7. When pulse pressure and pulse duration are at maximum, replace cartridges.

**8.1.2** Exhauster motor not operating. Check voltage to motor and motor wiring.

**8.1.3** Check rotation of exhauster motor; the motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, **lockout and tagout electrical power** and switch motor leads as shown on the motor plate. See Section 2.11.

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

**8.1.5** Outlet damper closed too far restricting air movement through the cabinet. Adjust static pressure per Section 5.3.

**8.1.6** Inlet damper closed too far restricting air movement into the cabinet. Adjust damper per Sections 2.7 and 5.8.

**8.1.7** Reclaimer door open. Check door.

**8.1.8** Hole worn in flex hose between cabinet hopper and reclaimer inlet, or reclaimer outlet and dust-collector inlet. Inspect hoses and replace as needed, routing it with as few bends as possible to prevent wear.

**8.1.9** Obstruction in flex hose between the cabinet hopper and reclaimer inlet. Inspect hose for blockage.

**8.1.10** Nozzle worn. Replace the nozzle when its orifice diameter has increased by 1/16".

**8.1.11** Paddle wheel worn. Check wheel for wear.

## **8.2 Abnormally high media consumption**

**8.2.1** Door on reclaimer is open or door gasket is worn. Air entering the reclaimer around the door will cause media carry over to the dust collector. Inspect door gasket. DO NOT operate unless all doors are closed.

**8.2.2** Outlet damper open too far. Adjust static pressure, per Section 5.3.

**8.2.3** Media may be too fine or worn out. Check condition of media.

**8.2.4** Using friable media that rapidly breaks down. Check condition of media.

**8.2.5** Blast pressure too high for media, causing media to break down. Check blast pressure and adjust as needed or change media.

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

**8.2.7** Outlet valve not sealing. Inspect diaphragm and valve body for wear.

**8.2.8** Metering valve requires adjustment. Adjust media flow per Section 5.2.

**8.2.9** Externally adjustable vortex needs adjustment, refer to Section 5.4.

**8.2.10** If using media finer than 180-mesh, the inlet baffle of the reclaimer may need to be removed. Refer to Section 7.14.

## **8.3 Reduction in blast cleaning rate**

**8.3.1** Low media level reducing media flow. Check media level and add media or replace media as needed, per Section 4.2.

**8.3.2** Blockage or partial blockage in nozzle. Blockage may occur because of a damaged or missing reclaimer debris screen. Inspect reclaimer screen.

**8.3.3** Media-air mixture out of adjustment. Adjust metering valve, per Section 5.2.

**8.3.4** Reduced air pressure. This may be caused by the pressure regulator set too low, a malfunctioning regulator, a dirty filter element in the air filter, partially closed air valve, leaking air line, or other air tools in use. Inspect all items.

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

**8.3.6** Air leaking through the outlet valve, reducing blast pressure and control pressure to media metering valve. Inspect diaphragm and outlet valve body.

## **8.4 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 too large for nozzle. Change media size.

## **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 from blasting parts that are slightly oily, from moist compressed-air line, or from absorption from ambient air.

**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 of an air line permitting moisture to condense on the inside, or from high humidity. Drain the air filter and receiver tank regularly. Ongoing problems with moist air may require the installation of an air dryer or aftercooler in the air-supply line.

**8.5.4** Absorption. Some media absorb moisture from the air, especially fine-mesh media in areas of high humidity. 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 to prevent bridging of fine-mesh media. NOTE: To avoid the possibility of compressing media, a vibrator should

be setup to start when the foot pedal is pressed and stop when the pedal is released.

**8.6 Media surge:** A small amount of surge is normal at start-up.

**8.6.1** Heavy media flow. Adjust media flow, per Section 5.2.

**8.6.2** Empty the blast machine, depressurize the blast machine, and inspect the internal parts of the metering valve for wear. Refer to the Sentinel Media Metering Valve Manual number 20951.

**8.7 Air only (no media) comes out the nozzle**

**8.7.1** Make sure the machine contains media.

**8.7.2** Make sure the media metering valve is open and media flow is adjusted per Section 5.2.

**8.7.3** Make sure the blast machine is pressurized. See Section 8.9.

**8.7.4** Make sure the media metering valve opens when foot pedal is pressed. Refer to the metering valve operations manual.

**8.7.5** 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 inspection plate and check for foreign objects.

**8.7.6** Check the muffler on the 4-way air valve. Air should exhaust from the muffler when the foot pedal is pressed. 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, refer to Paragraph 8.7.7 to check the 4-way valve.

**8.7.7** 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. No air should exhaust from the tube adaptor. Press the foot pedal, air should start exhausting at the adaptor, and stop when pressure on the pedal is released. If it does not operate accordingly, replace the 4-way.

**8.7.8** Outlet valve not sealing. Inspect diaphragm.

**8.7.9** Metering valve requires service. Refer to the media metering valve manual.

**8.8 Neither media nor air comes out the nozzle when the foot pedal is pressed**

**8.8.1** Depressurize the blast machine, after the pop-up valve has dropped, remove the nozzle to see if it is plugged. Refer to Section 8.4.

**8.8.2** Make sure the blast machine pressurizes when the foot pedal is pressed. If it does not pressurize, refer to Section 8.9.

**8.8.3** Make sure the media metering valve and the choke valve are open.

**8.9 Blast machine does not pressurize**

**8.9.1** Make sure the air compressor is operating and air-supply valves are open.

**8.9.2** Make sure the pressure regulator is not set too low or is OFF. Minimum pressure is 40 psi. Refer to Section 5.1.

**8.9.3** Door interlocks not engaging. Check door interlock adjustment, per Section 5.5.

**8.9.4** Inadequate air supply. Refer to the cfm (air-consumption) table in Figure 5.

**8.9.5** Inspect diaphragm in the outlet valve for wear.

**8.9.6** Inspect pop-up valve and seal for wear and misalignment.

**8.9.7** Blocked or leaking control line. Check all fittings and urethane tubing for blockage or leaks.

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

**8.9.9** Make sure the lines are not reversed on the foot pedal or pilot regulator. Refer to the plumbing and control schematic in Figure 7.

**8.9.10** Check the 4-way valve for jamming, per Sections 8.7.6 and 8.7.7. When the foot pedal is pressed, the valve should shift, pressurizing the line to the outlet valve and media metering valve.

**8.9.11** Inspect the check valve (Figure 52 item 18) for obstruction or broken flap.

### 8.10 Blast machine does not depressurize or depressurizes too slowly

**8.10.1** Check for blockage in the 4-way valve mufflers, per Paragraph 8.7.6.

**8.10.2** Make sure the 3-way valve in the foot pedal exhausts air when the pedal is released. If it does not exhaust, check the inbound air line for blockage, if no blockage, replace the valve.

**8.10.3** Inspect brass control-line filter attached to diaphragm outlet valve for media blockage. If media is present, inspect outlet valve diaphragm for damage.

**8.10.4** Check the outlet muffler that is located inside the cabinet, for blockage.

**8.10.5** Check 4-way air valve for jamming per Paragraphs 8.7.6 and 8.7.7.

### 8.11 Heavy media flow

**8.11.1** Make sure the choke valve is open.

**8.11.2** 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.

### 8.12 Media buildup in cabinet hopper, does not convey to reclaimer

**NOTE: Do not pour media directly into the cabinet hopper, as overfilling may occur.** Overfilling will result in media carry over to the dust collector and possible blockage in the conveying hose.

**8.12.1** Exhauster motor rotating backward. The motor should rotate as indicated by the arrow on the exhauster housing. If it does not rotate in the proper direction, **lockout** and **tagout** electrical power and switch the motor leads, as shown on the motor plate. Refer to the Section 2.11 and the system's wiring schematic stowed in the electrical panel.

**8.12.2** Dust-collector damper closed too far restricting air movement through cabinet. Adjust static pressure per Section 5.3.

**8.12.3** Dust-collector filter cartridges clogged. Refer to Section 5.6 to adjust pulse pressure and Section 5.7 to adjust pulse timing.

**8.12.4** Hole worn in flex hose between cabinet hopper and reclaimer inlet or between the reclaimer outlet and dust-collector inlet. Inspect hoses and replace them as

needed, routing them with as few bends as possible to prevent wear.

**8.12.5** Reclaimer door open. DO NOT operate unless all doors are closed.

**8.12.6** Obstruction in flex hose. Remove hoses and check for blockage.

### 8.13 Static shocks

**8.13.1** Cabinet and/or operator not grounded. Abrasive blasting creates static electricity. The cabinet must be grounded to prevent static build-up. See Sections 2.9 and installation note in section 2.2. 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.

**8.13.2** Gloves wearing thin. Inspect gloves and replace them as needed.

**8.13.3** Avoid holding parts off the grate. Static will build in the part if not dissipated through the metal cabinet. If blasting parts off the grate cannot be avoided, attach a ground wire between the cabinet and the part.

### 8.14 Dust leaking from cabinet

**8.14.1** Refer to Section 8.12.

### 8.15 Dust leaking from dust collector

**8.15.1** Cartridges not seasoned; season cartridges per Section 7.9.

**8.15.2** Damaged or loose cartridge. Inspect cartridges and tighten or replace them as needed.

**8.15.3** Faulty seal on collector access door, dust container seal, or dust container hose. Inspect seals during pulsing. Replace if leak is noted.

### 8.16 Dust collector does not pulse

**8.16.1** Check the pulse-pressure gauge. If the reading is low, adjust pulse pressure per Section 5.6. If pressure does not increase after adjusting the regulator, check the compressed-air supply; look for a closed supply valve.

**8.16.2** Make sure the sequence toggle switch is ON.

**8.16.3** Have a qualified electrician check for electrical malfunction: check the supply voltage to the pulse sequence board. Check outlet voltage to solenoids.

**8.17 One cartridge not pulsing**

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

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

**8.17.3** Check for blockage in the tubing between the diaphragm valve and solenoid.

**8.18 Steady stream of air is heard within collector**

**8.18.1** Check for a leak in the tubing between the diaphragm valves and solenoids.

**8.18.2** Solenoid remaining in open position. Have qualified electrician check power to the solenoid. Solenoid should open only for a fraction of a second when the solenoid ON time is activated.

**8.18.3** Diaphragm in the diaphragm pulse valve may be ruptured. Inspect the diaphragm.

**8.19 Exhauster motor not running**

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

**8.19.2** Make sure that the main disconnect is ON.

**8.19.3** Motor faulty. Check motor.

**8.20 Excessive differential pressure (as shown on optional gauge)**

**8.20.1** Valves may not be pulsing properly. Refer to section 8.16 and 8.17.

**8.20.2** Differential-pressure gauge lines may be plugged with dust. Check and clean.

**8.20.3** In-line dust filter blocked. Clean or replace.

**8.20.4** Snubber fittings blocked with dust. Clean or replace. Refer to Figure 44, Item 2.

**8.20.5** Pulse pressure or sequence OFF time may need adjusting. Refer to Sections 5.6 and 5.7.

**8.20.6** Filter cartridges may need to be replaced. Refer to Section 7.8.

**9.0 ACCESSORIES and REPLACEMENT PARTS**

**9.1 Optional Accessories**

**9.1.1 Miscellaneous accessories**

<b>Description</b>	<b>Stock No.</b>
Aluminum oxide kits. Use with aggressive media. The kit does not include reclaimer liners, order separately if needed.	
Factory-installed .....	28905
Includes the following:	
CTB-3, 3/16" orifice boron lined nozzle .....	21091
Black-rubber cabinet curtains w/hardware ...	22998
Field-Installed .....	22997
Includes the following:	
CTB-3, 3/16" orifice boron lined nozzle .....	21091
Black-rubber cabinet curtains w/hardware ...	22998
Hose, 6" light-lined flex, 8.3 ft. ....	12468
Metallic media kit, required when using steel grit and steel shot.	
Factory-installed, includes 5" ID light-lined flex hose, adaptors, and black-rubber curtains .....	25160
Field-installed, Includes the following plus	
mounting hardware .....	25252
Adaptor pipe, cabinet hopper, 5" .....	23220
Gasket, 5" adaptor pipe .....	23242
Inlet pipe adaptor, reclaimer, 5" .....	14411
Gasket, 5" inlet adaptor .....	11759
Hose, 5" light-lined, 8.3 ft. ....	12467
Clamp, 5" hose (Qty 2) .....	11578
Curtains, black set .....	22998
Conversion kits, Sentinel metering valve	
To convert from fine-mesh media to coarse .....	22848
To convert from coarse-mesh media to fine .....	22849
Boron carbide lined nozzles	
CTB-2, 1/8" diameter orifice .....	21090
CTB-3, 3/16" diameter orifice .....	21091
CTB-4, 1/4" diameter orifice .....	21092
Time-delay door locks .....	24163
HEPA filter assembly .....	22807
Lock-pins (pkg. of 25) for twist-on hose couplings .	11203
Safety cable, 1/2" OD to 1-1/4" OD hose .....	15012
Manometer kit .....	12528
Noise-reduction arm port covers, pair .....	29456
Anti-fatigue floor-mat, 2 ft x 3 ft .....	24744
Rubber curtains set with mounting hardware	
black curtains .....	22998
white curtains .....	22999

9.1.2 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 can cause them to shift or topple, and cause severe injury.

**Fixed-Base Turntable with Bearing, 500 lb. Capacity  
Figure 41**

Item	Description	Stock No.
(-)	30" dia., assembly 500 lb. capacity .....	14138
(-)	40" dia., assembly 500 lb. capacity .....	24042
1.	Turntable replacement	
	30" diameter .....	21390
	40" diameter .....	23879
2.	Bearing, 1-1/2" bore .....	11517
3.	Protector, bearing .....	13479
4.	Screw, 1/2-NC x 2" cap .....	03456
5.	Lock-washer, 1/2" .....	03516
6.	Nut, 1/2-NC hex .....	03511

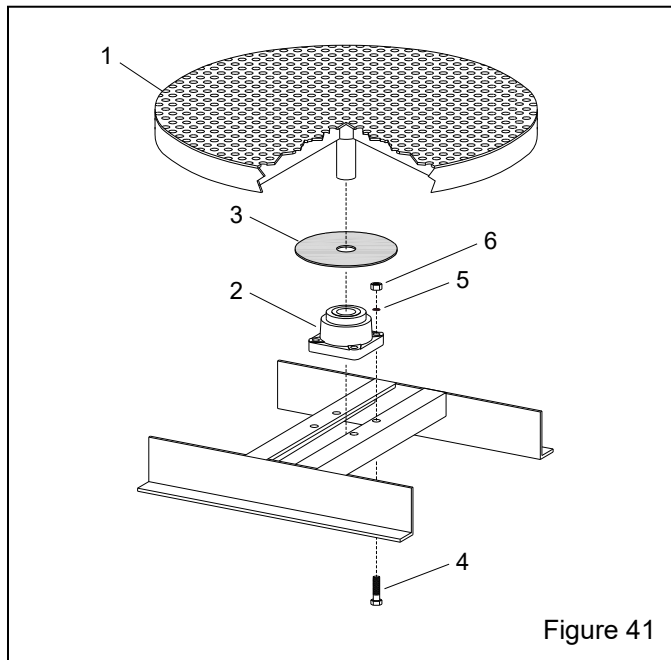


Figure 41

**Turntable with Workcar and Track, 500 lb. Capacity  
Figure 42**

Item	Description	Stock No.
(-)	40" dia. turntable and track assembly .....	23885
1.	Turntable replacement, 40" diameter .....	23879
2.	Bearing, 1-1/2" bore .....	11517
3.	Protector, bearing .....	13479
4.	Screw, 1/2-NC x 1-3/4" cap .....	03455
5.	Lock-washer, 1/2" .....	03516
6.	Nut, 1/2-NC hex .....	03511
7.	Caster, 4" V groove .....	11594
8.	Screw, 3/8-NC x 3-1/2" cap .....	03261
9.	Lock-washer, 3/8" .....	03318
10.	Nut, 3/8-NC hex .....	03311
11.	Pin, quick release .....	25540

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

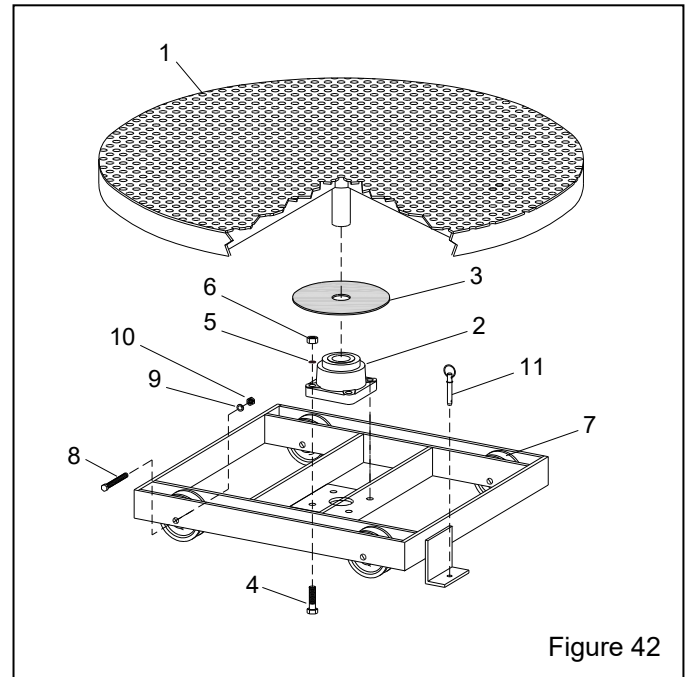


Figure 42



**9.1.3 Rubber Reclaimer Liners – Figure 43**

The reclaimer must have a removable top and designed to accept liners.

Item	Description	Stock No.
(-)	Rubber liner set, for 900 reclaimer .....	23151
1.	Top liner, 900 cfm .....	23059
2.	Baffle, lined, 900 cfm .....	13694
3.	Inner cylinder liner, 900 cfm .....	24203
4.	Body (wall) liner, 900 cfm.....	17008
5.	Inlet side liner, 900 cfm .....	12830
6.	Cone liner, inner cone, (2-piece).....	16070
7.	Inlet top, 900 cfm .....	22827
8.	Screw, self-drilling, 10-16 x 3/4" .....	12722

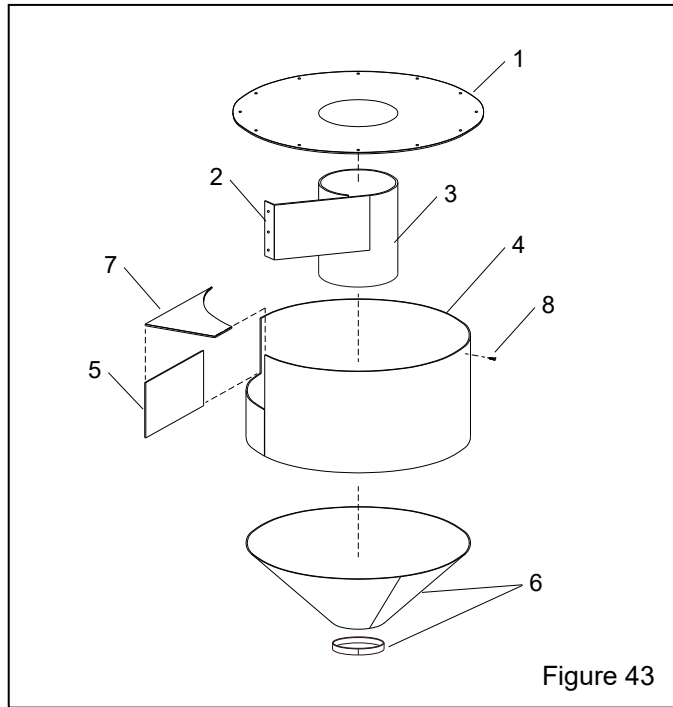


Figure 43

**9.1.4 Differential-Pressure Gauge Assembly, Dust Collector – Figure 44**

Item	Description	Stock No.
(-)	Differential-pressure gauge assembly .....	23356
1.	Gauge, differential-pressure .....	10188
2.	Snubber fitting .....	15786
3.	Tubing, 1/4" OD, specify ft required .....	15892
4.	Filter, in-line dust .....	23415
5.	Bushing, 1/4" x 1/8" NPT, brass .....	02010
6.	Elbow, 1/4 NPT x 1/4" tube .....	03428
7.	Fitting, 1/4 NPT bulkhead .....	05605
8.	Fitting, straight 1/8" NPT x 1/8" barb .....	11732
9.	Fitting, elbow 1/8" NPT x 1/8" barb .....	11733
10.	Tubing, 1/8" urethane, 1 foot minimum .....	12475

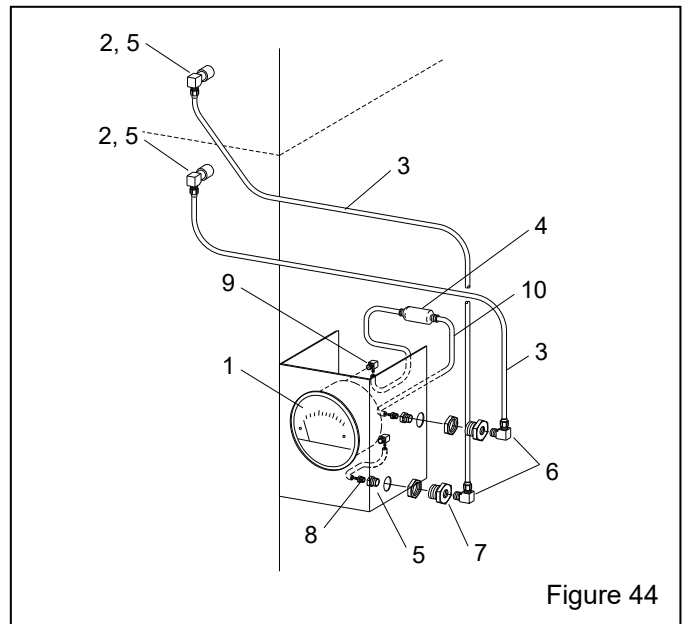
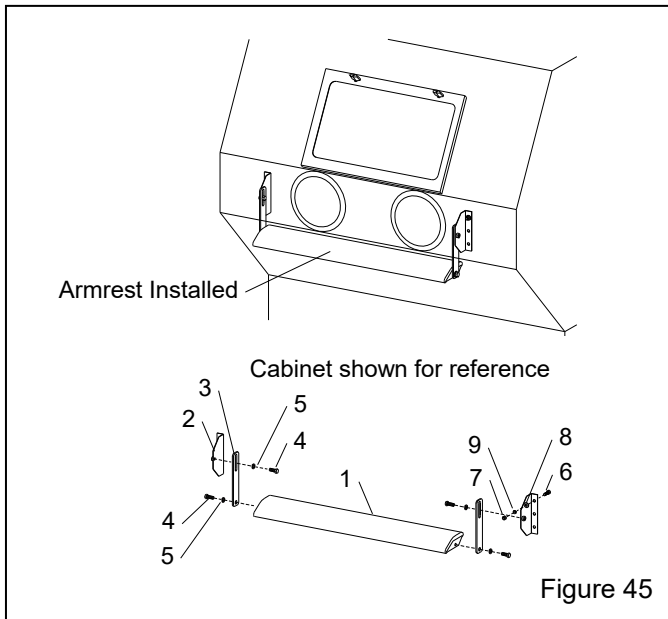


Figure 44

9.1.5 Armrest, Figure 45

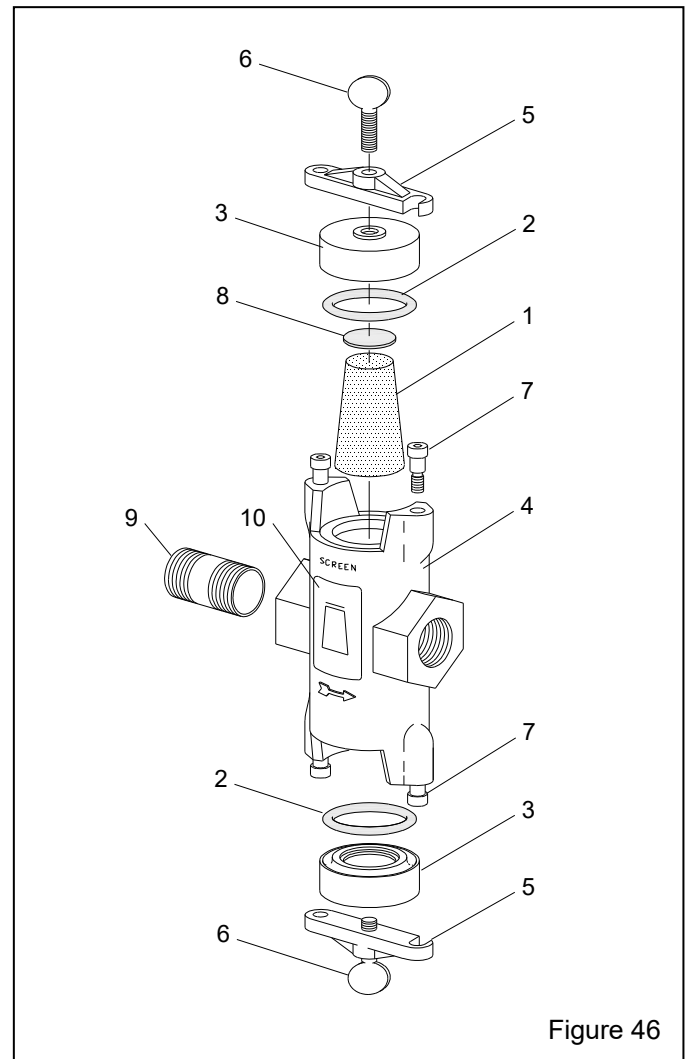
Item	Description	Stock No.
(-)	Armrest assembly .....	24900
1.	Armrest, replacement .....	24899
2.	Bracket, armrest cabinet, each .....	24896
3.	Support bar, adjustable, each .....	24895
4.	Cap screw, 3/8-NC x 1" .....	03252
5.	Washer, 3/8 lock .....	03318
6.	Cap screw, 5/16-NC x 1" .....	03152
7.	Nut, 5/16-NC hex .....	03211
8.	Washer, 5/16 flat .....	03216
9.	Washer, 5/16 lock .....	03217



9.1.6 Abrasive Trap, Optional – Figure 46

Recommended when using 40 mesh and coarser media. Installs between the blast machine and diaphragm outlet valve.

Item	Description	Stock No.
(-)	Abrasive trap, complete .....	02011
1.*	Screen (3) .....	02012
2.*	O-ring (2) .....	02013
3.	Cap .....	02014
4.	Body .....	02015
5.	Lock bar .....	02016
6.	Screw, 3/8-NC x 1" thumb .....	03289
7.	Shoulder screw, 3/8-NC x 3/8" .....	03291
8.*	Gasket, screen (1) .....	02434
9.	Nipple, 1" x 3" .....	01703
10.*	Label, clean screen (1) .....	02129
(-)	Service items included marked *, Quantities are shown in ( ) .....	01925



9.2 Cabinet Assembly – Figure 47

Item	Description	Stock No.
1.	Gasket, 5/16" x 1" adhesive-backed, per foot, specify ft required Door, 15 ft. per door .....	00187
	Air-inlet damper, 3 ft. required .....	00187
2.	Door, left (without gasket or latch) .....	23204
3.	Door, right (without gasket or latch) .....	23203
4.	Grating, 3 required .....	23218
5.	Latch kit, door .....	20064
6.	Glove set Band-clamp attachment .....	11215
	Quick-change (clampless) attachment .....	28820
7.	Glove, left hand only Band-clamp attachment .....	12710
	Quick-change (clampless) attachment .....	28638
8.	Glove, right hand only Band-clamp attachment .....	12711
	Quick-change (clampless) attachment .....	28639
9.	Clamp, 8.5", for clamp-attached glove .....	11576
10.	Grommet, blow-off hose .....	11798
11.	Gasket, hopper plate adaptor .....	20247
12.	Plate, hopper hose .....	21657
13.	Air valve, 3-way, door interlock .....	12202
14.	Over-travel stop, door interlock .....	20004

15.	Detent sleeve, door interlock .....	15042
16.	Bracket, door interlock actuator .....	19152
17.	Gasket, universal adaptor pipe 6" for 6" adaptor for standard use .....	23233
	5" for 5" adaptor for use steel media .....	23242
18.	Adaptor pipe, universal flex 6", for standard use .....	23219
	5", for use with steel media .....	23220
19.	Clamp, flex hose 8.5", for standard use 6" hose .....	11576
	5", for 5" hose for use w/steel media .....	11578
20.	Hose, light-lined flex per foot, 9 ft. required 6" ID for standard use .....	12468
	5" for use with steel media .....	12467
21.	Foot pedal assembly less tubing .....	20483
	with tubing, 14 ft .....	20195
22.	Gasket, 5/32" x 3/4", 3 ft required .....	00192
23.	Regulator, 1/8" NPT pilot .....	12715
24.	Gauge, pressure, 1/8-NPT .....	01908
25.	Fitting, elbow, 1/8" NPT x 1/8" barb .....	11733
26.	Fitting, straight, 1/8" NPT x 1/8" barb .....	11732
27.	Grommet, 1/4 ID .....	12762
28.	Muffler, 1" exhaust .....	05068
29.	Grommet, blast hose .....	00184

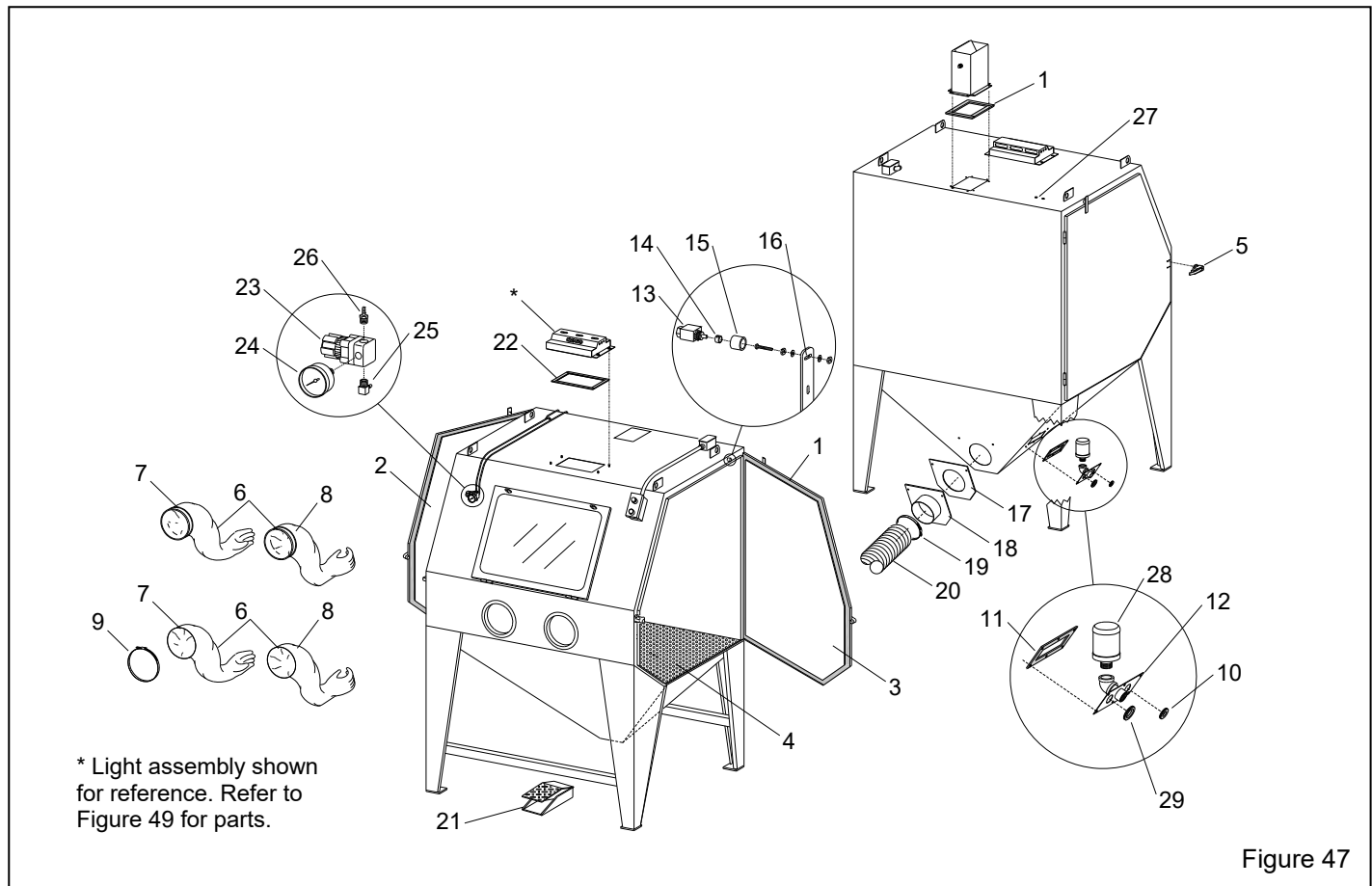


Figure 47

9.3 Foot Pedal Assembly – Figure 48

Item	Description	Stock No.
(-)	Foot pedal assembly, less tubing, includes items 1 thru 9	20483
	with tubing, 14 ft, Item 10	20195
1.	Foot pedal casting set, top and base	28379
2.	Valve, 10-32, 3-way n/c	20026
3.	Drive pin, grooved	20109
4.	Screw, sh 1/4 NF x 3/4"	03086
5.	Screw, 10-32 x 1/2" fh	19571
6.	Adaptor, 10-32 thrd. x 1/8 barb	11731
7.	Spring, 1-1/4" x 3-1/2"	20121
8.	Screw, 8-32 x 3/8" thread cutting	11389
9.	Bumper, rubber (feet)	21522
10.	Tubing, 1/8" ID twin, specify ft required	19577
11.	Tie, nylon wire	12139

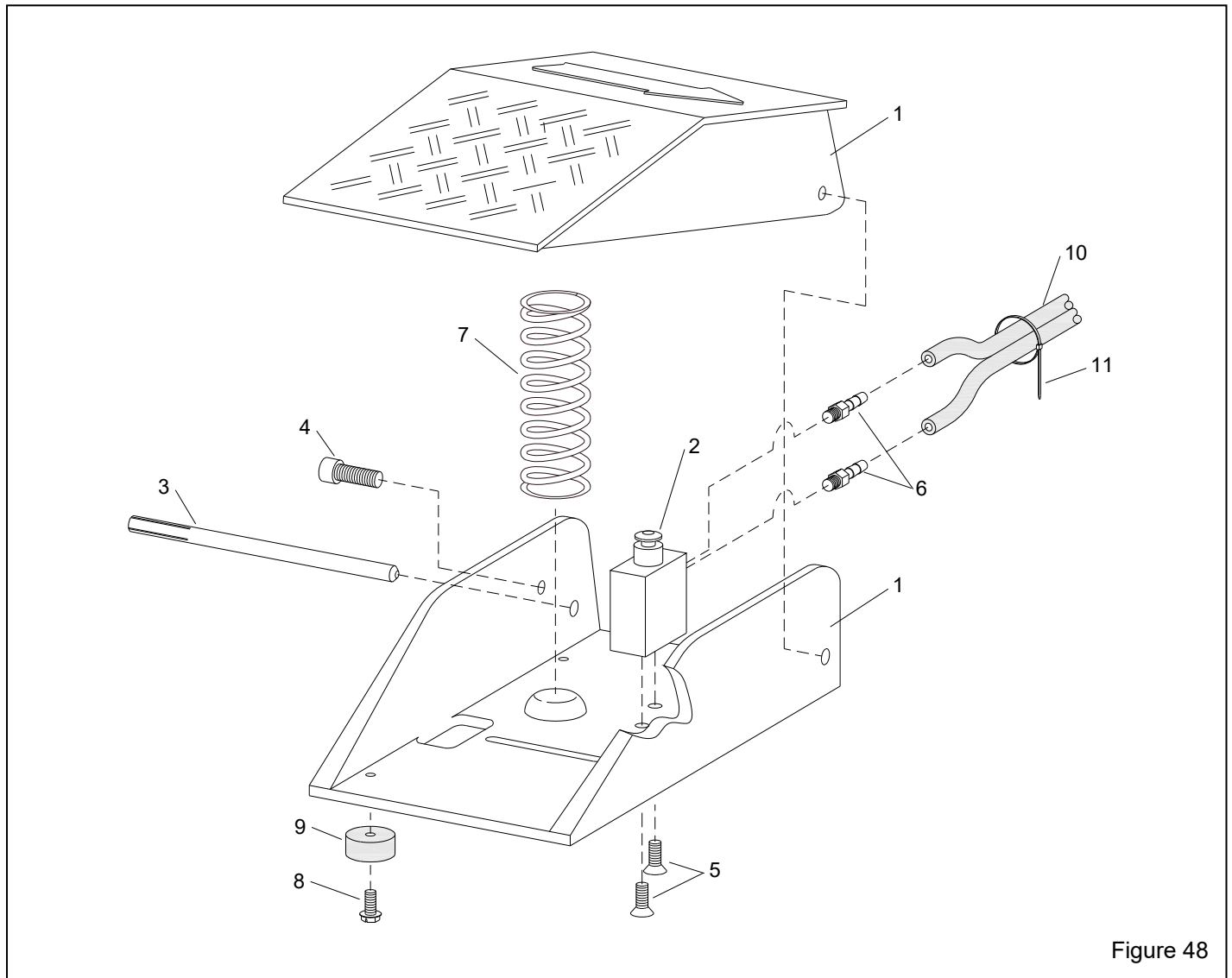


Figure 48

9.4 LED Light Assembly – Figure 49

Item	Description	Stock No.
1.	Cover, LED light mount .....	29712
2.	LED light module, 50w .....	29711
3.	Diffuser lens .....	29713
4.	Gasket, 5/32" x 3/4", 3 ft required .....	00192
5.	Strain relief connector .....	11631
6.	Locknut, 1/2" conduit .....	12713
7.	Nut, 1/4-20 hex .....	03111
8.	Washer, 1/4 lock .....	03117
9.	Washer, 1/4 flat .....	03116

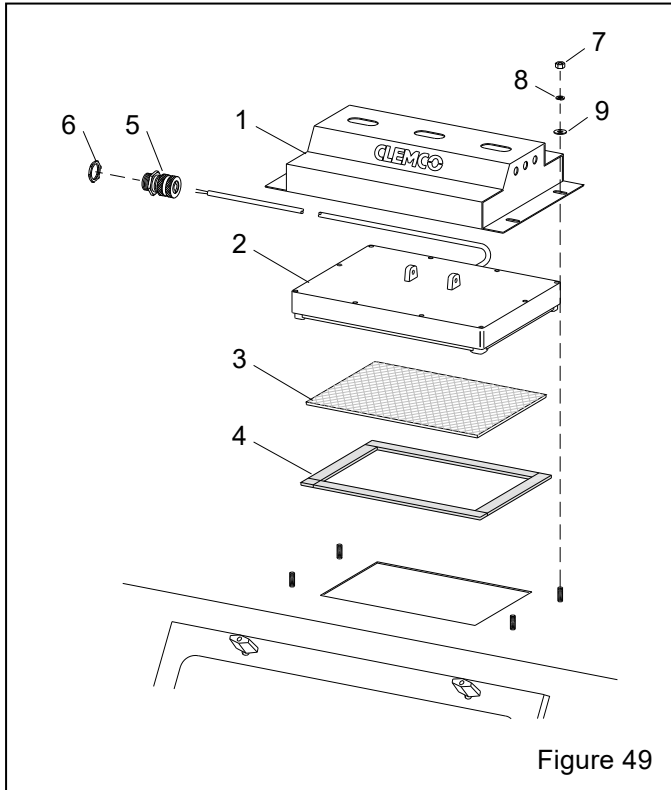


Figure 49

9.5 View Window Assembly – Figure 50

Item	Description	Stock No.
1.	Window glass, 20" x 30" laminated .....	12213
2.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 9 ft required .....	00189
3.	Gasket, 5/32" x 3/4", applied to window Frame, per foot, 9 ft required .....	00192
4.	Cover lens, 20" x 30", pkg. of 5 .....	23232
5.	Nut, plastic, window frame, 2 required .....	23035
6.	Window frame, 20" x 30" quick change .....	23245

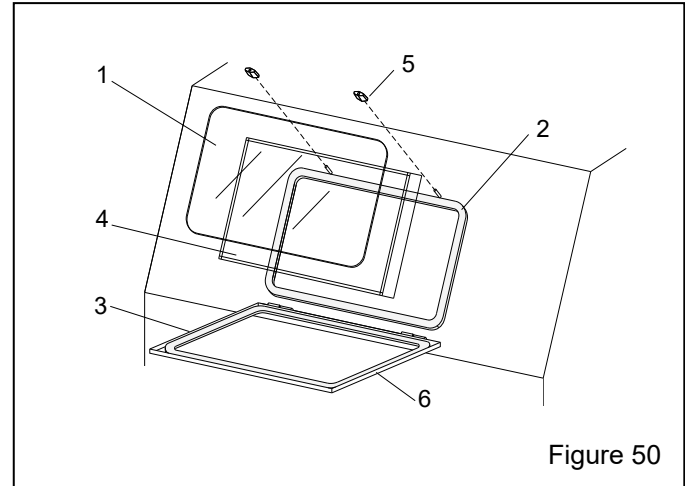


Figure 50

9.6 1" Diaphragm Outlet Valve – Figure 51

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

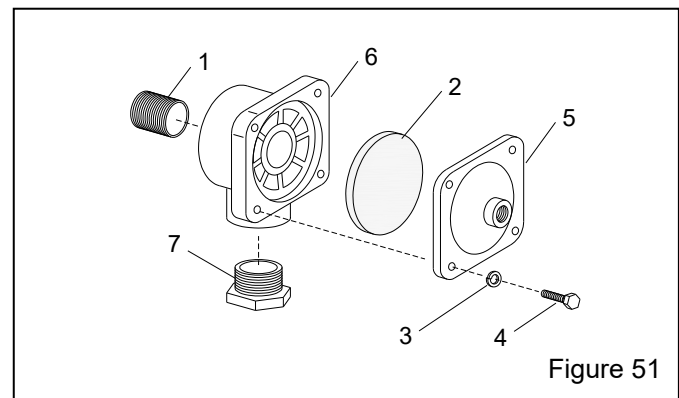
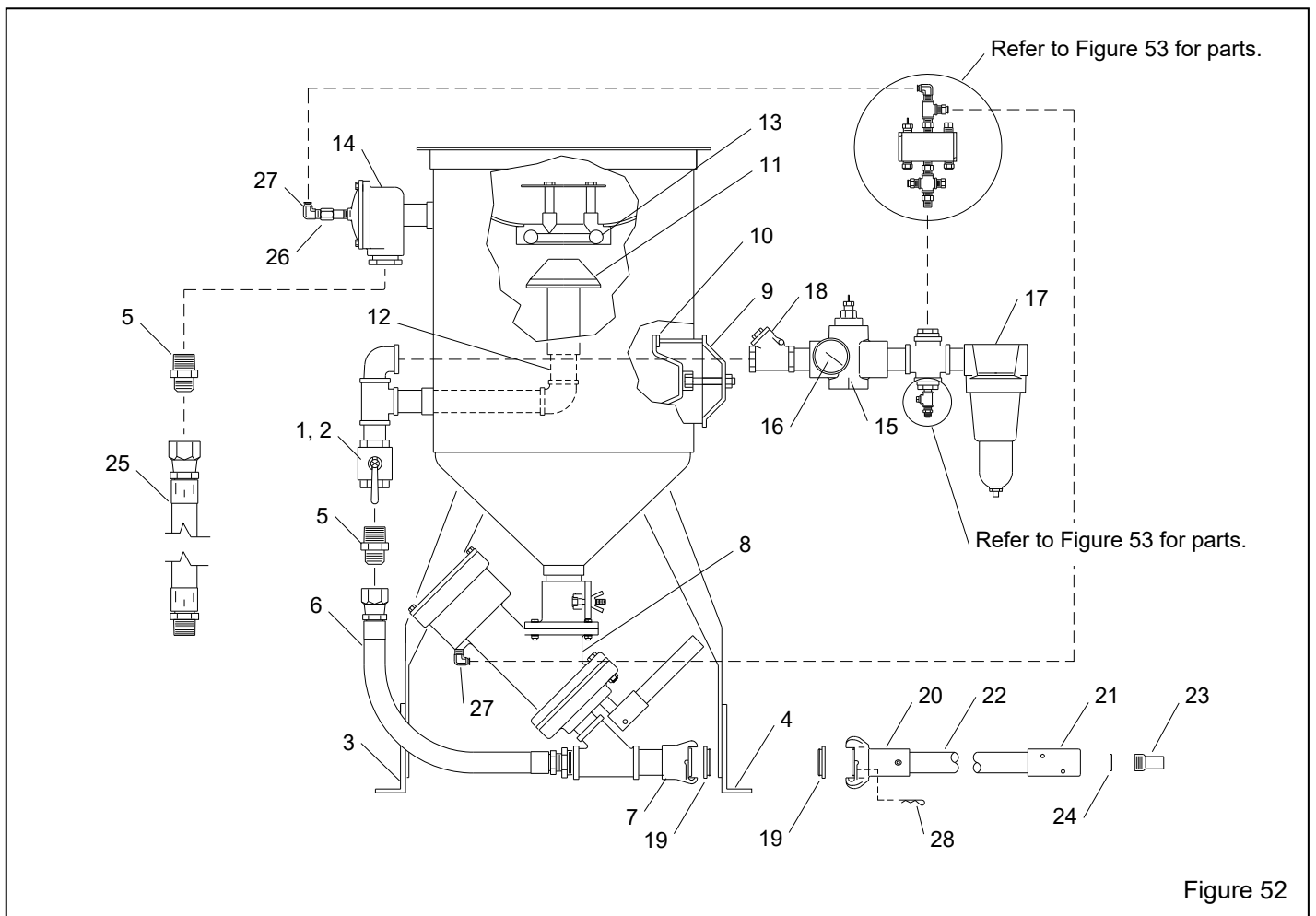


Figure 51

9.7 Blast Machine – Figure 52

Item	Description	Stock No.
(-)	Blast machine assembly, 16" diameter 2 cu. ft. capacity, does not include items with an asterisk (*)	23182
1.	Ball valve, 1" with handle (choke valve)	02396
2.	Handle, 1" ball valve	22531
3.	Leg pad, right for 1642	20735
4.	Leg pad, left for 1642	20736
5.	Adaptor, 1" male NPT x 1" male flare	11720
6.	Hose assembly, 1" x 21" pusher line	22508
7.	CF Coupling 1-1/4" NPT	00551
8.	Metering valve, Sentinel for 50-mesh and finer media, standard * for 50-mesh and coarser media	21439 20608
9.	Inspection door assembly, 6" x 8"	02377
10.	Gasket, 6" x 8" inspection door	02369
11.	Pop-up valve with external sleeve	03699
12.	Guide 1-1/4" x 6" toe	01753

13.	Seal, pop-up valve	02325
14.	Valve, 1" diaphragm outlet	03371
15.	Regulator, 1" pilot-operated with gauge	12052
16.	Gauge, 1/4" NPT cbm	11830
17.	Air filter, 1" with auto drain	22425
18.	Check valve, 1" swing	12187
19.	Gasket, CQG, pkg. of 10	00850
20.	Coupling, 1/2" ID hose, CQA-1/2	00599
21.	Nozzle holder, CHE-1/2	00577
22.	Blast hose, 1/2" ID x 16 ft. coupled, includes items 20 & 21	01251
23.	Nozzle, tungsten carbide *CT-2, 1/8" orifice CT-3, 3/16" orifice, standard *CT-4, 1/4" orifice	01351 01352 01353
24.	*Nozzle washer, NW-1, pkg. of 10	21580
25.	Hose assembly, 1" x 10' exhaust	23915
26.	Filter, 1/4" NPT male/female inline	27618
27.	Fitting, elbow 1/4" male NPT x 3/8" tube	11685
28.	Lock pin, coupling (package of 25)	11203



9.8 Plumbing and Cabinet Controls – Figure 53

Item	Description	Stock No.
1.	Valve, 3-way .....	12202
2.	Fitting, straight, 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.	Fitting, straight 1/4" NPT x 3/8" tube .....	11736
6.	Tubing, 3/8" OD poly, specify ft. required ..	12478
7.	Tee, 1/8" tube barb .....	11734
8.	Metering valve, Sentinel for media 50-mesh and finer, standard ..	21439
	for media coarser than 50-mesh .....	20608
9.	Tubing, 1/4" OD, specify ft required .....	15892
10.	Valve, 4-way air .....	12203
11.	Fitting, elbow 1/4" NPT x 3/8" tube .....	11685
12.	Valve, 1" diaphragm outlet .....	03371
13.	Elbow, 1/4" brass st. ....	02027
14.	Fitting, straight, 1/4" NPT x 1/4" tube .....	11737
15.	Bushing 1/4" x 1/8" NPT. ....	02010
16.	Hose assembly, 1" x 10' exhaust .....	23915

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, bulk, specify ft required .....	12472
23.	Regulator, 1/8" NPT pilot (blast pres.).....	12715
24.	Gauge, pressure, 1/8"-NPT, cbm .....	01908
25.	Adaptor, 1/8" NPT elbow x 1/8" barb .....	11733
26.	Foot pedal assembly less tubing .....	20483
	with tubing, 14 ft, item 4 .....	20195
27.	Regulator, 1" pilot-operated w/gauge .....	12052
28.	Filter, 1/4" NPT male/female inline .....	27618
29.	Nipple, 1/4" Hex .....	02808
30.	Air filter, 1" w/ auto drain .....	22425
31.	Regulator with gauge, 1/4" (pulse pres.) ....	12050
32.	Gauge, 1/4" NPT cbm .....	11830
33.	Tee, 1/4" NPT x (2) 1/4" tube .....	11739
34.	Plug, 1/4"-NPT .....	01950
35.	Adaptor, 1" male NPT x 1" male flare .....	11720
36.	Tee, 1/4"-NPT brass .....	02025
37.	Cross, 1/4"-NPT brass .....	02193

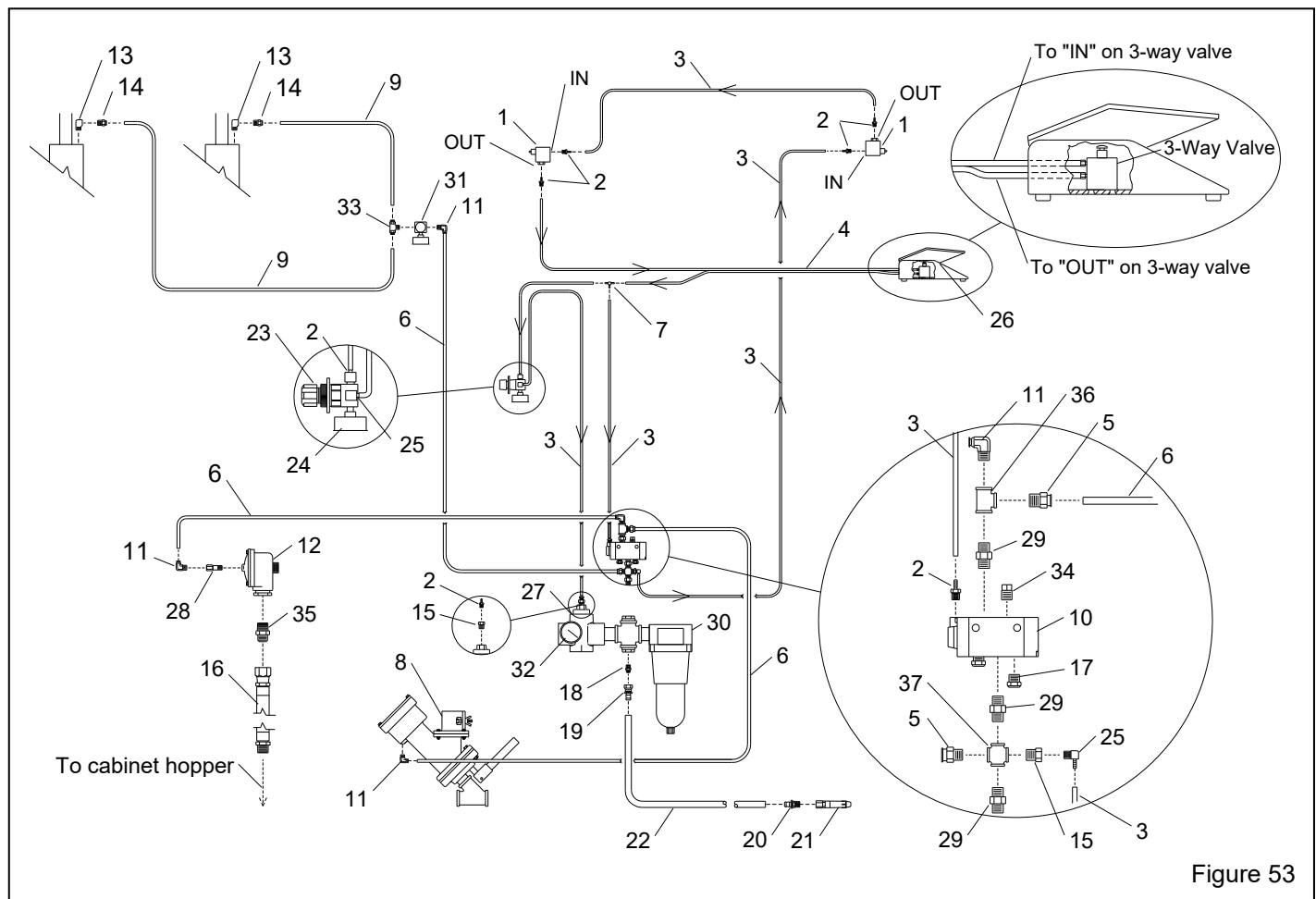


Figure 53

9.9 Reclaimer – Figure 54

Item	Description	Stock No.
(-)	Reclaimer assembly, 900 cfm w/vortex with 6" inlet for standard use .....	21293
	with 5" inlet for use with steel media .....	28581
1.	Gasket, 5/16" x 1" adhesive-backed, per foot, 5 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 w/mntg screws .....	25071
5.	Screen assembly, 8-mesh .....	21265
6.	Gasket, reclaimer door .....	11745
7.	Latch assembly, door .....	12263
8.	Door assembly, w/gasket and latch .....	14271
9.	Gasket, 2" adhesive-backed, per foot, specify ft required .....	13089

10.	Vortex cylinder assembly, adjustable, 900 cfm .....	23046
11.	Top assembly .....	23040
12.	Eye bolt, 3/8-NC .....	00430
13.	Hopper, 900 cfm 16" dia. blast machine .....	23043
14.	U-channel, 3/8, 1-foot required .....	04076
15.	Baffle, 900 modular .....	23051
16.	Gasket, 1/8" x 2" adhesive-backed, per foot, 1 foot required at this location .....	13089
17.	Body section with door, wear plate, and baffle .....	27465
18.	Body section with door, rubber liners, and item 9 bolt on top .....	27466
19.	Hose, light-lined flex, specify ft required 6" ID for standard use .....	12468
	5" ID for use with steel media .....	12467
20.	Clamp, hose 6-1/2" .....	00750
21.	Hose support inlet, optional 6", for standard use with 6" hose .....	16887
	5", for use with steel media, w/5" hose .....	22324

\* Items marked with an asterisk (\*) are not included with replacement reclaimers. If those items are needed, they must be ordered separately.

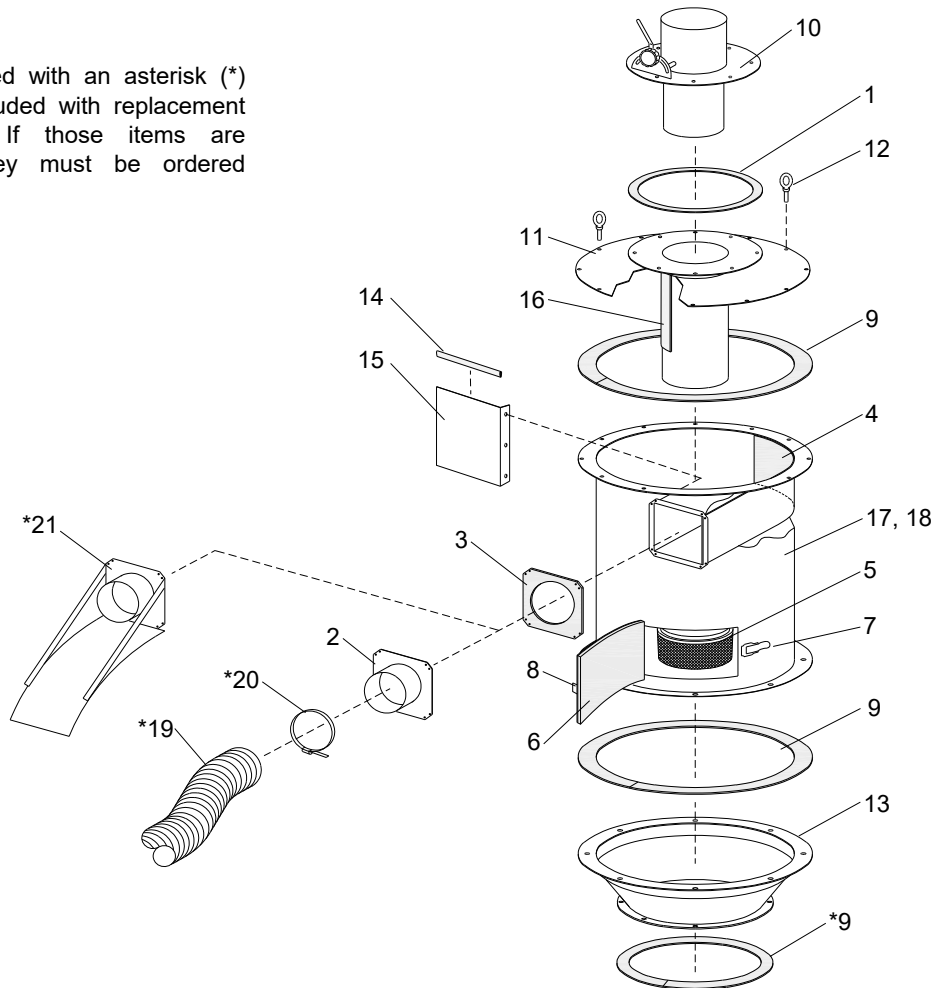


Figure 54



9.10 Dust Collector – Figure 55

Item	Description	Stock No.
(-)	Repair kit, diaphragm pulse valve .....	21600
1.	Valve, 1" diaphragm pulse .....	19578
2.	Pressure regulator, 1/4-NPT with gauge....	12050
3.	Petcock .....	01993
4.	Filter cartridge, 12" x 30" .....	19121
5.	Gasket, 5/16" x 1" adhesive-backed, per foot, specify feet required .....	00187
6.	Dust container assembly, includes items 26 - 29, does not include item 11 .....	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, per foot, specify feet required .....	00186
12.	Sequence control panel assembly .....	15788

13.	Sequence control board .....	10261
14.	Solenoid .....	23869
15.	Switch, toggle .....	12127
16.	Boot, toggle switch .....	14228
17.	Hose, 7" flex, light-lined per foot, 5-ft. required .....	12469
18.	Clamp, 8.5" .....	11576
19.	Fitting, straight, 1/8" NPT x 1/4" tube .....	11214
20.	Tubing, 1/4" OD, specify ft required .....	15892
21.	Gasket, outlet damper .....	22808
22.	Fitting, straight, 1/4" NPT x 1/4" tube .....	11737
23.	Gauge, pressure, 1/4" NPT .....	11826
24.	Tee, 1/4" NPT x (2) 1/4" tube .....	11739
25.	Liners, dust container, pack of 5 .....	28621
26.	Hose, 4" ID flex, per foot, 1-ft minimum .....	12447
27.	Clamp, 4" .....	11577
28.	Lid and lock ring, dust container .....	23419
29.	Drum, 3.5-gallon dust .....	23417
30.	Fitting, elbow 1/4" NPT x 3/8" tube .....	11685

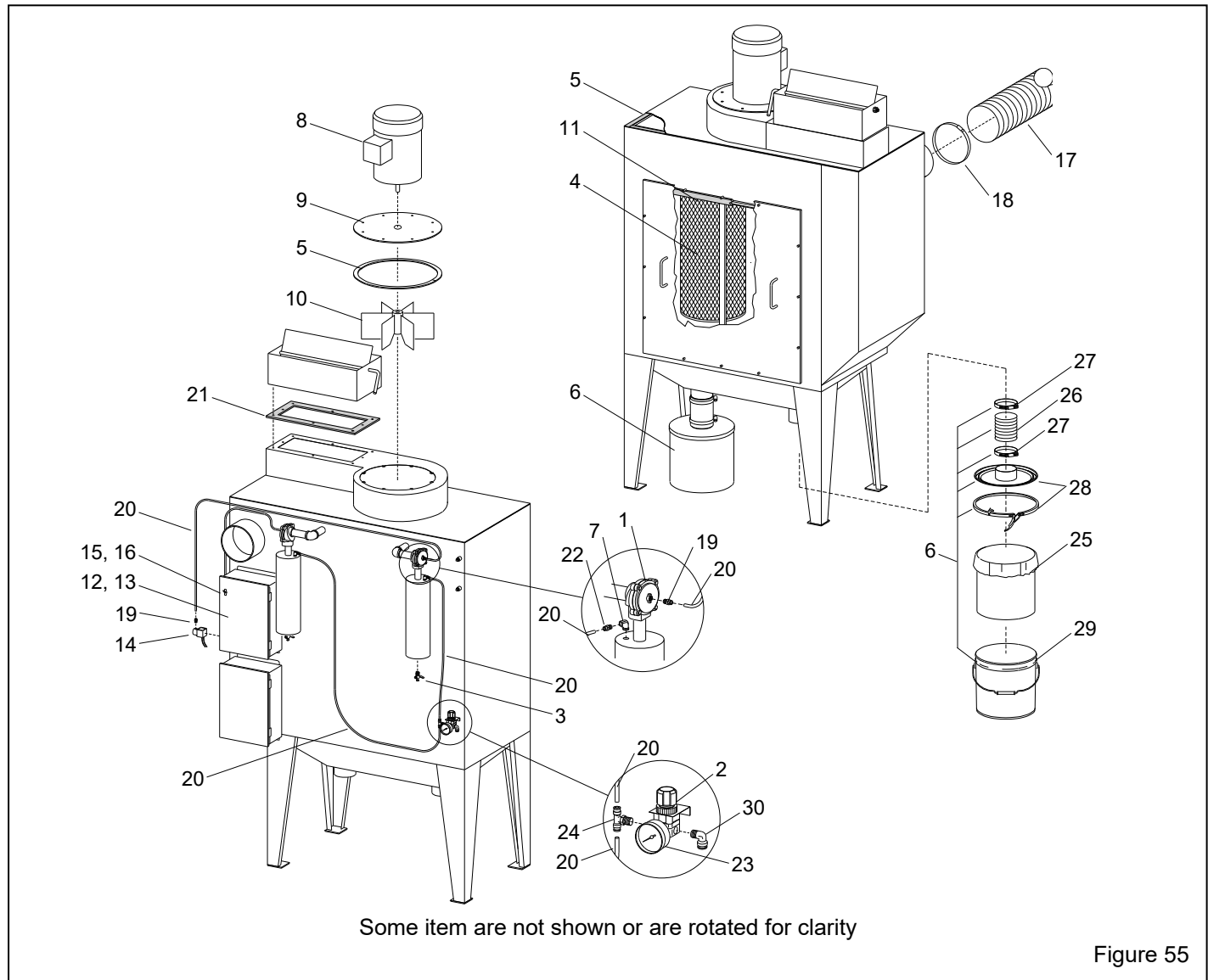


Figure 55