

# Pulsar<sup>®</sup> III-P & III-PE Pulsar<sup>®</sup> VI-P & VI-PE Pressure Blast Cabinets O. M. 21527

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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.

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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 the setup, operation, maintenance, troubleshooting, and replacement parts for the following Pulsar® Pressure Blast Cabinets:

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

A separate owner’s 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 cabinets. 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 their 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.**

**1.3 Table of Contents**

| SUBJECT   | SECTION LOCATION |
|---|------------------|
| <b>INTRODUCTION</b> .....                         | <b>1.0</b>       |
| Scope of Manual .....                             | 1.1              |
| Safety Alerts .....                               | 1.2              |
| Table of Contents .....                           | 1.3              |
| General Description .....                         | 1.4              |
| Theory of Operation .....                         | 1.5              |
| Blast Machine and Controls .....                  | 1.6              |
| Nozzle Options .....                              | 1.7              |
| Reclaimer Options .....                           | 1.8              |
| Metering Valve Options .....                      | 1.9              |
| HEPA Filter .....                                 | 1.10             |
| Blasting Media .....                              | 1.11             |
| Compressed-Air Requirements .....                 | 1.12             |
| Electrical Requirements .....                     | 1.13             |
| <b>INSTALLATION</b> .....                         | <b>2.0</b>       |
| General Installation Notes .....                  | 2.1              |
| Connect Compressed-Air Supply Line .....          | 2.2              |
| Ground the Cabinet .....                          | 2.3              |
| Connect Electrical Service .....                  | 2.4              |
| Standard single-phase wiring.....                 | 2.4.1            |
| Optional three-phase wiring .....                 | 2.4.2            |
| Set Air-Inlet Damper .....                        | 2.5              |
| Final Assembly .....                              | 2.6              |
| <b>FIELD INSTALLED ACCESSORIES</b> .....          | <b>3.0</b>       |
| Aluminum Oxide (aggressive media) Kit .....       | 3.1              |
| Cabinet Curtains Installation .....               | 3.2              |
| Manometer .....                                   | 3.3              |
| Reclaimer Differential-Pressure Gauge .....       | 3.4              |
| Turntable with Workcar and Track .....            | 3.5              |
| Dust-Collector Differential-Pressure Gauge.....   | 3.6              |
| Armrest .....                                     | 3.7              |
| <b>OPERATION</b> .....                            | <b>4.0</b>       |
| Season Filter Cartridge .....                     | 4.1              |
| Media Loading .....                               | 4.2              |
| Media Unloading .....                             | 4.3              |
| Loading and Unloading Parts .....                 | 4.4              |
| Blasting Operation .....                          | 4.5              |
| Operation and Function of the Choke Valve .....   | 4.6              |
| Blasting Technique .....                          | 4.7              |
| Stop Blasting .....                               | 4.8              |
| Pulsing (cleaning) Dust-Collector Cartridge ..... | 4.9              |
| Shutdown .....                                    | 4.10             |
| <b>ADJUSTMENTS</b> .....                          | <b>5.0</b>       |
| Blasting Pressure (pilot regulator) .....         | 5.1              |
| Media Metering (media flow) .....                 | 5.2              |
| Reclaimer Static Pressure .....                   | 5.3              |

|  |            |  |            |
|--|------------|--|------------|
| Door Interlocks .....                                  | 5.4        | Neither media nor air comes out the nozzle .....   | 8.8        |
| Pulse Pressure .....                                   | 5.5        | Blast machine does not pressurize .....  | 8.9        |
| Cabinet Air-Inlet Damper .....                         | 5.6        | Blast machine does not depressurize or<br>depressurizes too slowly .....                             | 8.10       |
| Optional Manometer .....                               | 5.7        | Heavy media flow .....   | 8.11       |
| Foot Shelf (Ergonomic models only) .....               | 5.8        | Media buildup in cabinet hopper; media does<br>not convey to reclaimer .....                         | 8.12       |
| <b>PREVENTIVE MAINTENANCE .....</b>                    | <b>6.0</b> | Static shocks .....  | 8.13       |
| Daily Inspection and Maintenance Before Blasting ..... | 6.1        | Dust leaking from cabinet .....  | 8.14       |
| Check media level .....                                | 6.1.1      | Dust leaking from dust collector .....   | 8.15       |
| Inspect reclaimer debris screen and door gasket ..     | 6.1.2      | Dust collector does not pulse when foot pedal<br>is pressed or released .....                        | 8.16       |
| Drain compressed-air filter .....                      | 6.1.3      | A steady stream of air is heard within the dust<br>collector when the foot pedal is not pressed..... | 8.17       |
| Inspect couplings .....                                | 6.1.4      |  |            |
| Inspect dust container .....                           | 6.1.5      |  |            |
| Daily Inspection and Maintenance During Blasting ....  | 6.2        | <b>ACCESSORIES AND REPLACEMENT PARTS .....</b>   | <b>9.0</b> |
| Inspect couplings and blast hose .....                 | 6.2.1      | Optional Accessories .....   | 9.1        |
| Inspect blast machine for air leaks .....              | 6.2.2      | Foot-Pedal Assembly .....  | 9.2        |
| Inspect cabinet for dust leaks .....                   | 6.2.3      | Cabinet Replacement Parts .....  | 9.3        |
| Drain pulse reservoir .....                            | 6.2.4      | LED Light Assembly .....   | 9.4        |
| Check exhaust air for dust .....                       | 6.2.5      | 1" Diaphragm Outlet Valve .....  | 9.5        |
| Additional cartridge pulsing .....                     | 6.2.6      | View-Window Assembly .....   | 9.6        |
| Weekly Inspection and Maintenance Before Blasting ..   | 6.3        | Plumbing and Cabinet Controls .....  | 9.7        |
| Inspect view-window cover lens .....                   | 6.3.1      | Blast Machine .....  | 9.8        |
| Inspect gloves for wear .....                          | 6.3.2      | Reclaimer .....  | 9.9        |
| Inspect nozzle .....                                   | 6.3.3      | Dust Collector .....   | 9.10       |
| Inspect blast hose .....                               | 6.3.4      |  |            |
| Inspect outlet valve .....                             | 6.3.5      |  |            |
| Weekly Inspection During Blasting .....                | 6.4        |  |            |
| Inspect blast machine plumbing for leaks .....         | 6.4.1      |  |            |
| Inspect flex hoses .....                               | 6.4.2      |  |            |
| Monthly Inspection and Maintenance .....               | 6.5        |  |            |
| Pop-up valve.....                                      | 6.5.1      |  |            |
| Pop-up seal .....                                      | 6.5.2      |  |            |
| <b>SERVICE MAINTENANCE .....</b>                       | <b>7.0</b> |  |            |
| Gloves .....   | 7.1        |  |            |
| LED Light Assembly .....                               | 7.2        |  |            |
| Blast Hose and Nozzle .....                            | 7.3        |  |            |
| View-Window Cover Lens .....                           | 7.4        |  |            |
| View-Window Replacement .....                          | 7.5        |  |            |
| Window-Gasket Replacement .....                        | 7.6        |  |            |
| Window-Frame Removal .....                             | 7.7        |  |            |
| Replacing Filter Cartridge .....                       | 7.8        |  |            |
| Seasoning Filter Cartridge .....                       | 7.9        |  |            |
| Pop-Up Valve Replacement .....                         | 7.10       |  |            |
| Pop-Up Valve Seal Replacement .....                    | 7.11       |  |            |
| Replacing Reclaimer Wear Plate.....                    | 7.12       |  |            |
| Replacing or Installing Rubber Reclaimer Liners .....  | 7.13       |  |            |
| Removing or Replacing Reclaimer Inlet Baffle.....      | 7.14       |  |            |
| Sentinel Metering Valve .....                          | 7.15       |  |            |
| <b>TROUBLESHOOTING .....</b>                           | <b>8.0</b> |  |            |
| Poor visibility .....                                  | 8.1        |  |            |
| Abnormally high media consumption .....                | 8.2        |  |            |
| Reduction in blast cleaning rate .....                 | 8.3        |  |            |
| Plugged nozzle .....                                   | 8.4        |  |            |
| Media bridging .....                                   | 8.5        |  |            |
| Media surge .....                                      | 8.6        |  |            |
| Air only (no media) from nozzle.....                   | 8.7        |  |            |

## 1.4 General Description

**1.4.1** Pulsar Pressure Cabinets enclose the blasting environment to provide efficient blasting while maintaining a clean surrounding work area. Production rates are influenced by size of nozzle, compressor output, working pressure, type and size of media, and angle and distance of the nozzle from the blast surface. Refer to Figure 1 for arrangement of components. Pulsar Pressure Cabinets consist of two major components:

1. Cabinet Enclosure

2. 600 cfm Power Module

NOTE: All Pulsar® III-P and VI-P Pressure Cabinets include 600 cfm Power Modules.

**1.4.2 Cabinet enclosure:** This manual covers two Pulsar Cabinet model sizes. Each is available in a conventional (stand-up style) and ergonomic (sit-down style) representing four cabinet configurations.

**Pulsar III-P/E** Approximate work chamber dimensions:  
36" wide x 35" deep x 37" high.

**Pulsar VI-P/E** Approximate work chamber dimensions:  
50" wide x 39" deep x 43" high.

NOTE: The extended front on ergonomic style cabinets provides approximately 12-inches additional depth from the arm port and above, and is approximately 3-inches narrower than the widths shown above.

**1.4.3 Power module:** The 600 cfm power module is approximate 50" wide x 32" deep. The module is attached to the back of the cabinet and includes a 600 cfm reverse-pulse dust collector, and a 600 cfm reclaimer mounted above a 1-cuft blast machine. Pulsar VI pressure blast modules are easily converted to suction systems, using the conversion kit listed in *Section 9.1: Optional Accessories*.

**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

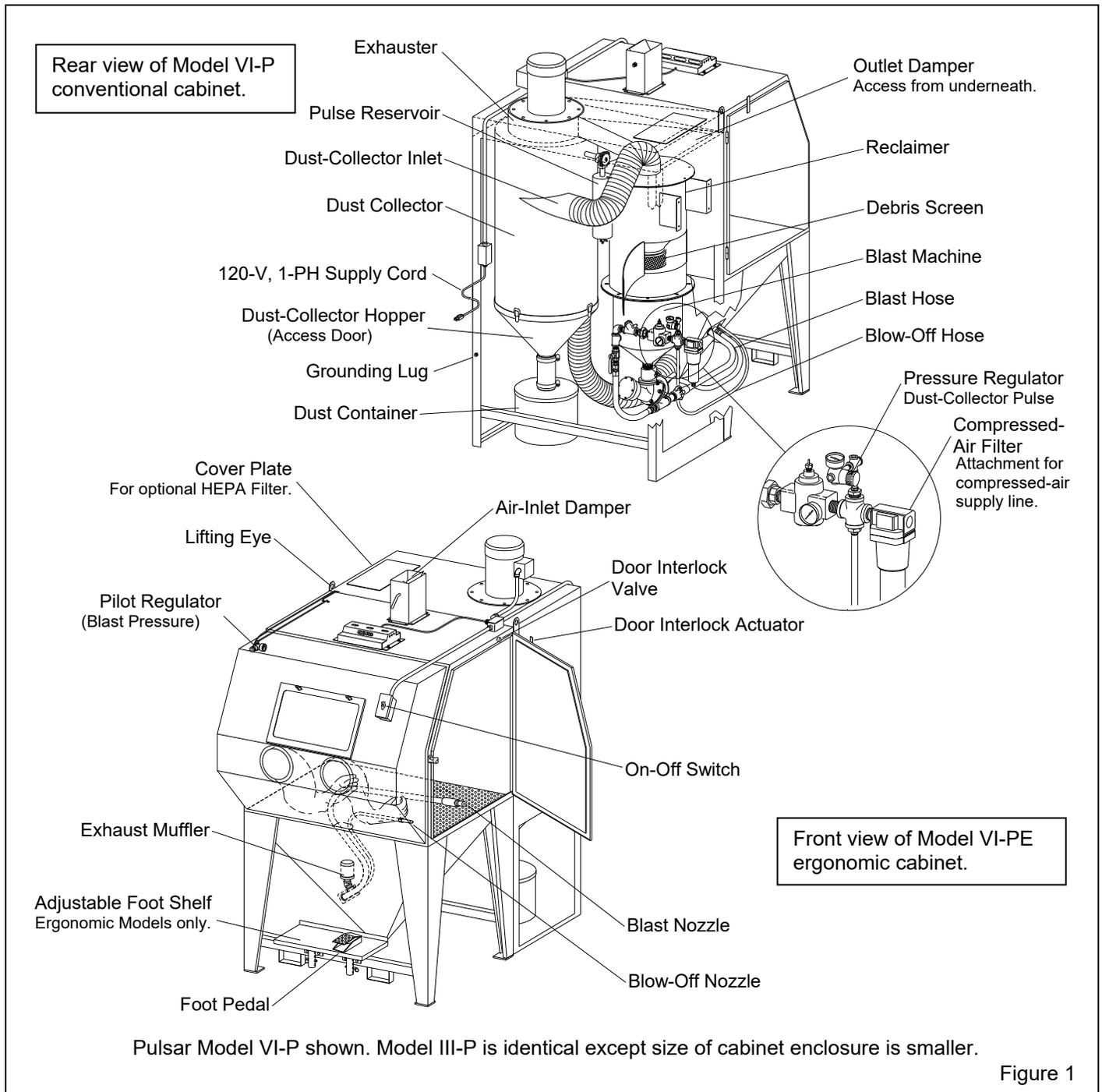


Figure 1

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

## 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.

## WARNING

**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.**

**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.

## WARNING

**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.**

**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 1.11.3. Nozzles lined with boron carbide extend nozzle wear life. Refer to *Section 9.1: Optional Accessories.*

## 1.8 Reclaimer Options

**1.8.1 Replaceable rubber reclaimer liners:** Rubber liners are available for Pulsar VI, 600 cfm reclaimers that have a removable top and that are designed to accept liners. The liners prolong service life of the reclaimer, and should be installed when using silicon carbide, aluminum oxide, or other aggressive media, as noted in Section 1.11.3. Rubber reclaimer liners are shown in *Section 9.1: Optional Accessories, Figure 40.*

## 1.9 Metering Valve Options

**1.9.1** 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.

## 1.10 HEPA (high-efficiency particulate air) Filter

**1.10.1** 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's or user's responsibility to ensure all emissions are safe to breath.**

## 1.11 Blasting Media

Always use media specifically manufactured for blasting and that are compatible with the surface being blasted. Media produced for other applications may be inconsistent in size and shape, contain particles that could jam the metering valve, or cause irregular wear. Always obtain the safety data sheet (SDS) for the blasting media 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 specifically manufactured for blasting can be used in Pulsar® cabinets. The listing of media sizes shown in this section and in Figure 2 are provided as a guideline only. The guideline is based on standard 3/16" 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 affect the reclaimer cleaning-rate include blast pressure, media-air mixture, media friability, contamination of parts being cleaned, damper setting (static pressure), and dust-collector filter loading (differential pressure across the dust filter cartridge).

When using larger nozzles, the maximum mesh size of media will be smaller than those that are normally recommended. Using 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.

**1.11.2 Sand and slag:** 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 break down and are not recyclable, making them unsuitable for cabinet use.

**1.11.3 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 equipment components exposed to them will be reduced. To avoid unscheduled downtime, periodically inspect the reclaimer wear plate, exhaustor housing and paddle wheel, blast hose, and nozzle for wear.

When using aggressive media only occasionally, install an optional aluminum oxide kit. The kit includes rubber curtains for the cabinet interior and a boron carbide lined nozzle. Nozzles lined with boron carbide extend nozzle wear life. When using these media on a regular basis, use a fully rubber lined reclaimer in addition to the oxide kit. Rubber reclaimer liners are shown in *Section 9.1: Optional Accessories, Figure 40*.

**1.11.4 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 thorough drying and breaking up of any clumps.

**1.11.5 Steel:** When the recovery hose diameter is suitably sized, as shown in Figure 2, steel grit sized between 80-mesh and 120-mesh and shot sized between S-110 and S-70 may be used with a 1/4" or smaller nozzle.

Using steel media requires a smaller-diameter conveying hose, usually reduced one size from standard. Conveying hose on cabinets using steel media should have a smooth durable lining. 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*.

This table offers a guideline to media selection based on standard 3/16" orifice nozzle and average conditions, such as air pressure, media-air mixture, visibility, contamination of parts being blasted, 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 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  | PLASTIC    |
| 600 cfm w/5" inlet | Do not use | Do not use    | No. 8 to No. 12 | 54 to 180-mesh | See 1.9.6  | See 1.9.7  |
| 600 cfm w/4" inlet | 80 to 120  | S-110 to S-70 | Do not use      | 46 to 100-mesh | Do not use | Do not use |

Figure 2

**1.11.6 Fine-mesh media:** When using media finer than 180-mesh, the reclaimer inlet baffle may need to be removed. Reclaimers with welded-on tops require grinding to remove the baffle, and once it is removed, it cannot be replaced. Refer to Section 7.14 to remove bolt-on baffle.

**1.11.7 Plastic media:** Plastic and similar media require a blast machine with a 60-degree conical bottom. Refer to Clemco's Aerolyte brand of cabinet.

**1.11.8 Bicarbonate of soda:** Bicarbonate of soda is not recommended for use in Pulsar Cabinets. Bicarb is a one-use media and 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**

Compressed Air Consumption \*(cfm)

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

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

Figure 3

**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 3 shows air consumption of nozzles when new. It does not show the recommended compressor size. As nozzles wear, they will consume 70% to 80% more air.

Consult with a compressor supplier for suggested compressor size based on the air consumption.

**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** Electrical requirements depend on the size and phase of the exhaustor motor. NOTE: Full load amps (FLA) shown below are for the motor only; the lights draw less than 1 amp. Standard cabinets are supplied with 1 HP, 120/230V, 1 PH, 60 Hz, wired 120. FLA 120/12, 208/6.6, 230/6.2.

**1.13.2** The standard motor is 120-volt, 1-phase, a power cord is supplied. If the motor is optional 230/460-volt, 3 PH, there will be a magnetic starter mounted in a control box. Power from the user's disconnect has to be wired to it. Additional wiring information is in Section 2.4.

**2.0 INSTALLATION**

**2.1 General Installation Notes**

**2.1.1** Refer to Figure 1 for the general arrangement. Select a location where compressed air and electrical service are available. The cabinet location must comply with OSHA and local safety codes. Allow for full access to all doors and service areas and for efficient handling of large parts.

## 2.2 Connect Compressed-Air Supply Line

### **⚠ 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.

**2.2.1** Apply thread sealant to the male threads of an air fitting that is compatible with the air-supply hose fitting, as noted in Section 2.2.2, and install it onto the 1-NPT air filter located at the blast machine inlet, as shown in Figure 4. 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 type air-hose 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*.

### **⚠ WARNING**

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

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

## 2.3 Ground the Cabinet

**2.3.1** To prevent static electricity buildup, attach an external grounded wire from an earth ground to the grounding lug on the left rear of the power module.

## 2.4 Connect Electrical Service

### **⚠ WARNING**

Shorting electrical components can result in serious injury or death from electrical shock or equipment damage. Electrical power must be locked out and tagged out before performing any electrical work. All electrical work or any work done inside a control panel or junction box must be performed by a qualified electrician and comply with applicable codes.

### 2.4.1 Standard single-phase wiring

**2.4.1.1** Standard Pulsar cabinets are 120-volt single phase. Power is supplied by a U-ground plug; plug it into a 120-volt outlet. No additional wiring is needed; the wiring schematic shown in Figure 5 is for reference.

### **⚠ WARNING**

Do not use electrical adaptors that eliminate the ground prong on 120-volt plugs. Doing so can cause electric shock and equipment damage.

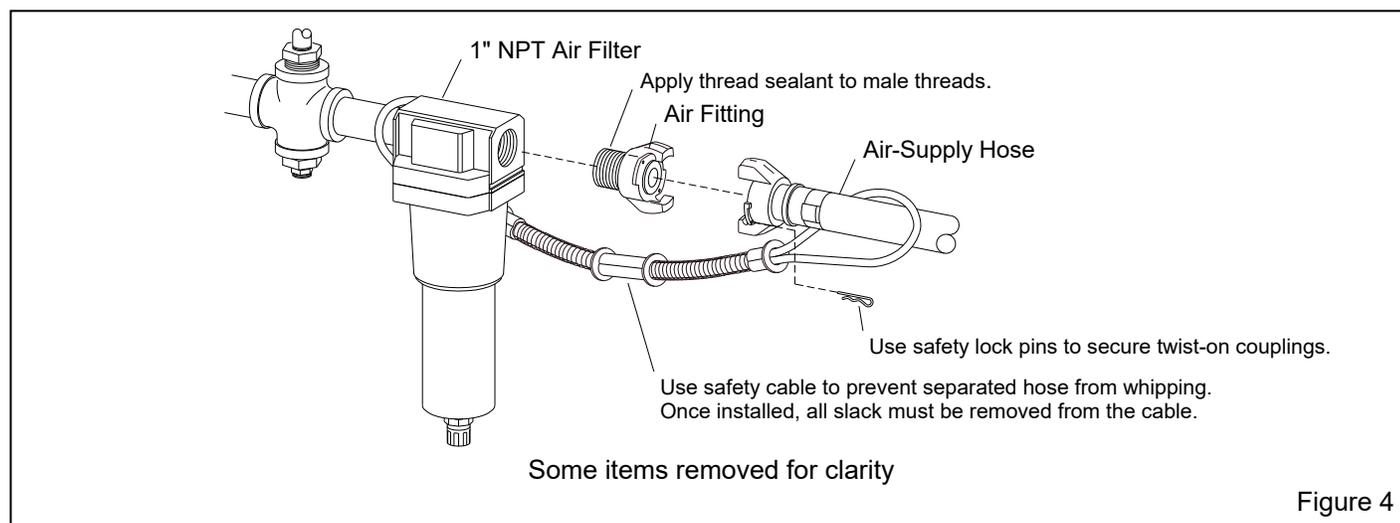


Figure 4

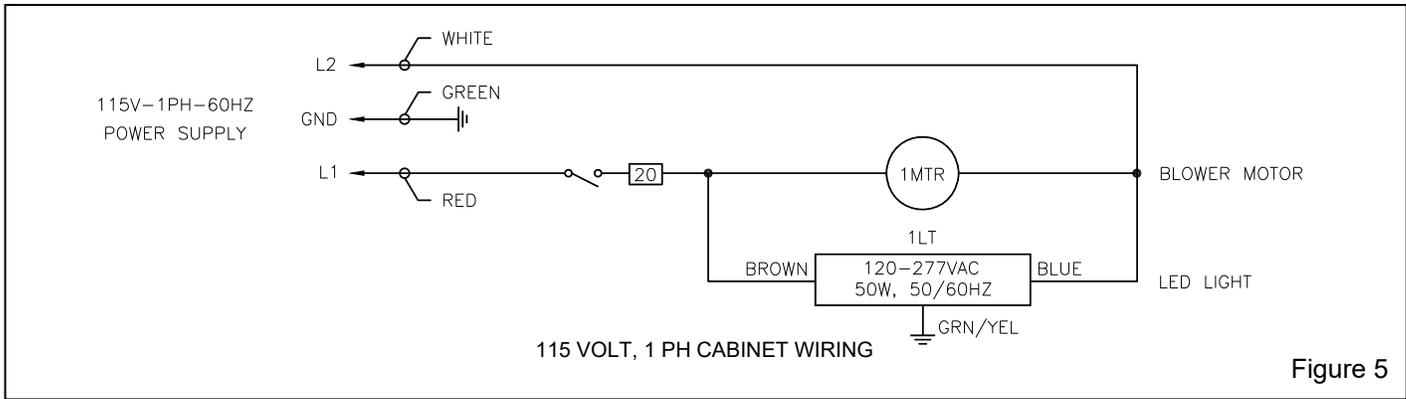


Figure 5

**WARNING**

**Do not use electrical adaptors that eliminate the ground prong on 120-volt plugs. Doing so can cause electric shock and equipment damage.**

**2.4.2 Optional three-phase wiring**

All wiring external of the cabinet is provided by the user to comply with local electrical codes.

A wiring schematic is packed inside the cabinet’s control panel. After wiring is completed, keep a copy of the schematic with the manual for future reference and for electrical replacement parts.

**2.4.2.1** If the exhauster motor is optional 3-phase, a magnetic starter is located in the electrical panel. User supplied wiring will need to be run from a disconnect to the panel. As much wiring as possible has been completed at the factory. The user needs only to provide power to the motor starter, mounted in the panel.

**2.4.2.2** After wiring is completed, observe the warning below, and check motor rotation. To check rotation, turn the On-Off switch ON and quickly turn it OFF, causing the motor to rotate slowly. Look through the slots in the fan housing on top of the motor where rotation of the fan can easily be observed. Proper rotation is indicated by the arrow on the top section (exhauster housing) of the power module. The fan should rotate clockwise when viewed from the fan end of the motor. To reverse rotation, change the wires as noted on the motor plate.

**WARNING**

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

**2.5 Set Air-Inlet Damper – Figure 6**

**2.5.1** 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. The air damper was preset prior to shipment; confirm the initial setting, as noted below.

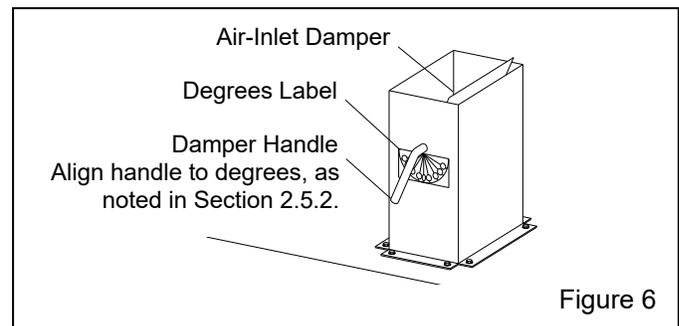


Figure 6

**2.5.2** Loosen the lock nuts and align the damper handle to the initial setting of 30 degrees. When correctly positioned, tighten the lock nuts to maintain the setting. Refer to Section 5.6 for adjustment procedure.

**2.6 Final Assembly**

**2.6.1** Insert a section of 3/8" tubing into the automatic drain at the bottom of the compressed-air filter, as shown in Figure 7, and place the other end into a pail. When the filter automatically drains, the water will drain into the pail.

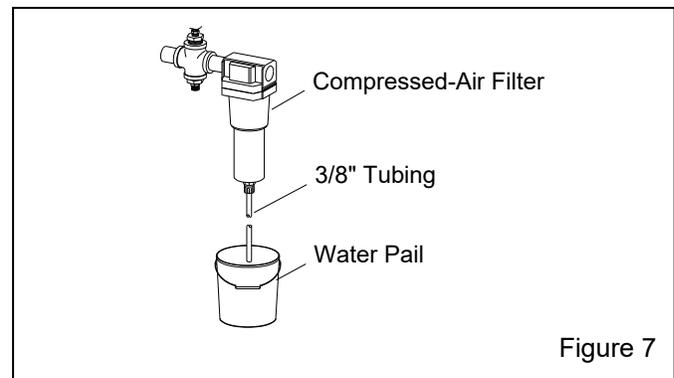


Figure 7

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

**2.6.3** A package of five cover lenses is supplied with the cabinet. To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner surface of the view window. Refer to Section 7.4. 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 kits consist of black-rubber cabinet curtains with grommets, curtain hardware, and a boron carbide nozzle.

Field-installed (or replacement factory installed) kits consist of black-rubber cabinet curtains (refer to Section 3.2 for curtain installation) a boron carbide 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

**3.2.1** Match curtains to corresponding walls and door.

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

**3.2.3 Doors:** Use protectors against the curtains and outer doors; clamp the door curtains in place. NOTE: When laying out the attachment points, the upper edges of the door curtains should be even with the outer edges of the door's 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.

**3.2.4 Ergo side extensions:** Position the curtain on the wall to be protected. Use the curtain as a template and mark the top mounting point through the grommet. Remove the curtain and drill a .187" (3/16") diameter

hole at each point marked. Install the curtains using the fasteners provided (machine screw, 11/16" OD flat washer, lock washer and nut) at each grommet. The flat washer is used between the screw head and the rubber curtain grommet on all curtains. After hanging the curtain, mark and drill the cabinet and attach the lower grommets in like manner.

### 3.3 Manometer

The optional manometer kit is listed in *Section 9.1: Optional Accessories*.

**3.3.1** Consistent static pressure is necessary for precise media separation, as the reclaimer's 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 5.7 for manometer instructions.

### 3.4 Reclaimer Differential-Pressure Gauge Monitors reclaimer static pressure – Figure 8

**3.4.1** The reclaimer differential pressure gauge continually measures reclaimer static pressure, similar to a manometer slack tube but it uses a differential pressure gauge.

**3.4.2** The gauge panel, gauge, filter, and panel fittings come fully assembled; the bushings, snubber fittings, and tubing are loose. Mount the panel at a location where it can be easily monitored. A 10-foot length of tubing is included with the kit, allowing the panel to be mounted within 10 feet of the connections. One suggestion is to mount it on an accessible side of the power module.

**3.4.3** Mounting holes are on the left and right sides of the gauge panel. After selecting the location, match drill holes and use nuts and cap screws to secure the panel.

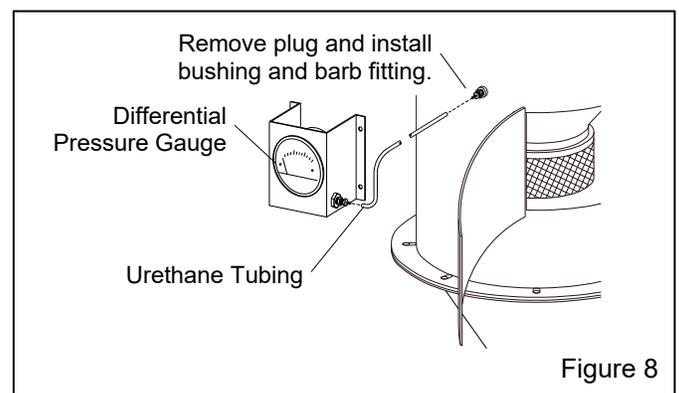


Figure 8

**3.4.4** Remove the 1/4" pipe plug from the reclaimer body and install 1/4" x 1/8" bushing and barb fitting, as shown in Figure 8.

**3.4.5** Push the tubing onto the barb fittings on the gauge and reclaimer, as shown. Cut the tubing to length.

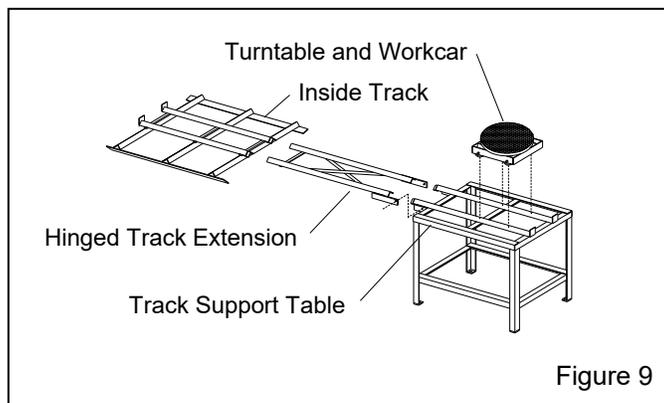
**3.4.6** Refer to the differential-pressure-gauge manual provided for operation of the gauge.

### 3.5 Turntable with Workcar and Track

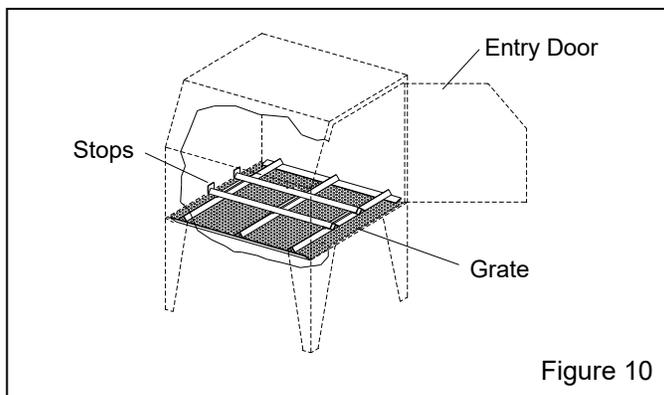
**3.5.1** Components of the turntable and track assembly are shown in Figure 9. The assembly consists of:

- Inside track assembly, placed inside the cabinet.
- Hinged track extension, attaches to the support table and swings up to clear the cabinet door.
- Track support table, placed outside the cabinet.
- Turntable and workcar assembly.

**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 10.



**3.5.2** Place the inside track in the cabinet over the existing grate, as shown in Figure 10.

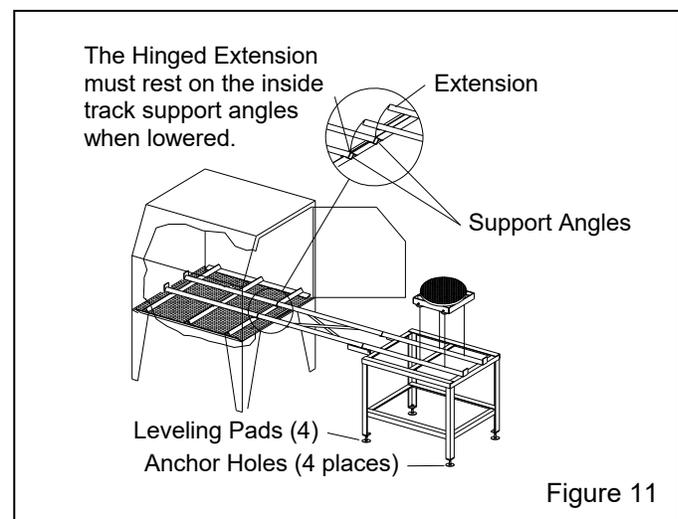


**3.5.3** Position the track support table and extension, as shown in Figure 11. When the hinged extension is lowered, the extension tracks must rest on the angled

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.

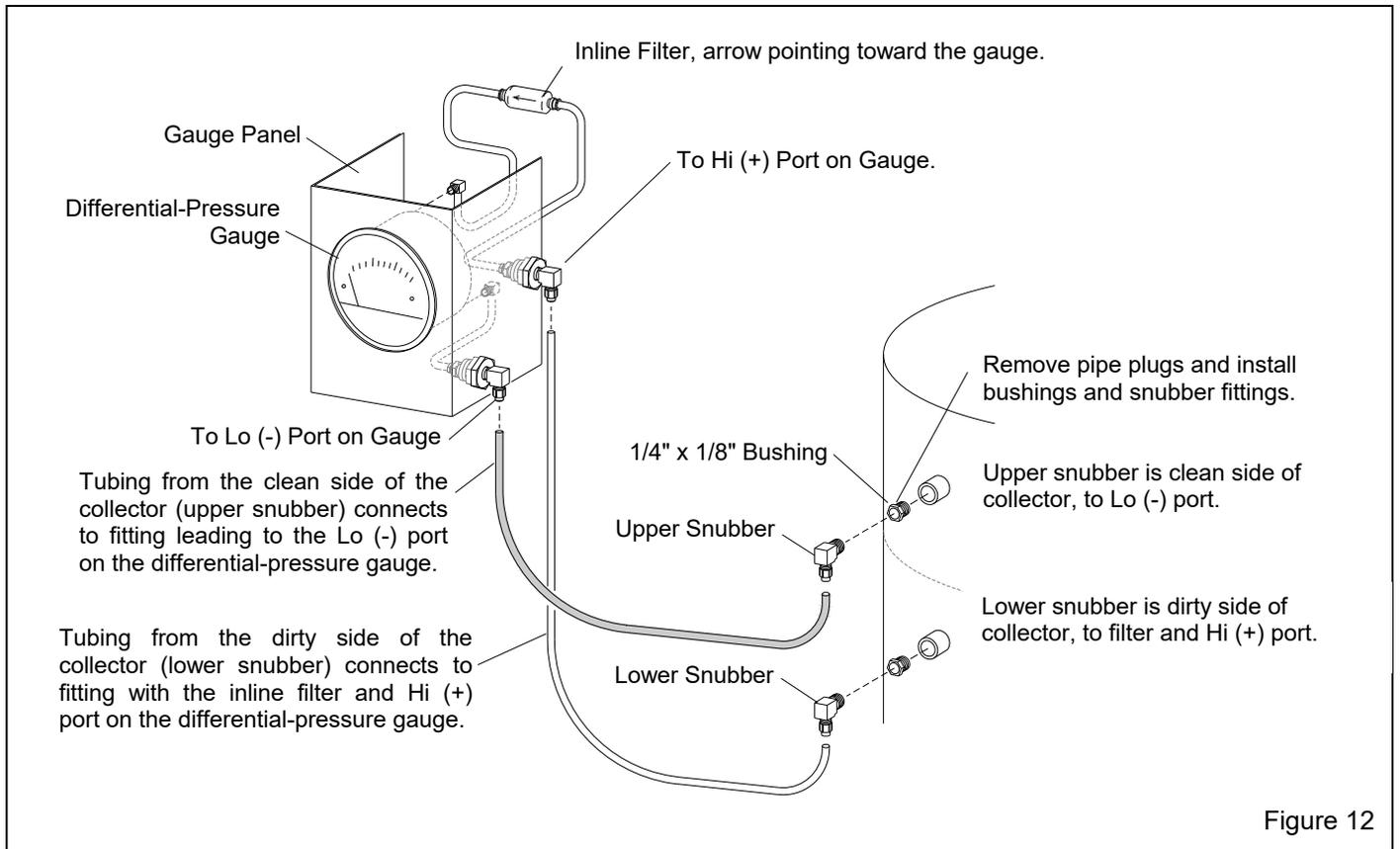


### 3.6 Dust-Collector Differential-Pressure Gauge – Figure 12. Monitors differential pressure across the filter cartridge.

**3.6.1** The differential pressure gauge measures pressure through the filter cartridge. The gauge is the best way to monitor cleaning efficiency and dust buildup on the cartridge.

**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 at either side of the light assembly, or choose another convenient location. A 20-foot length of tubing is included with the kit, allowing the panel to be mounted within 10 feet of the dust-collector connections.

**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 10 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 12.

**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.

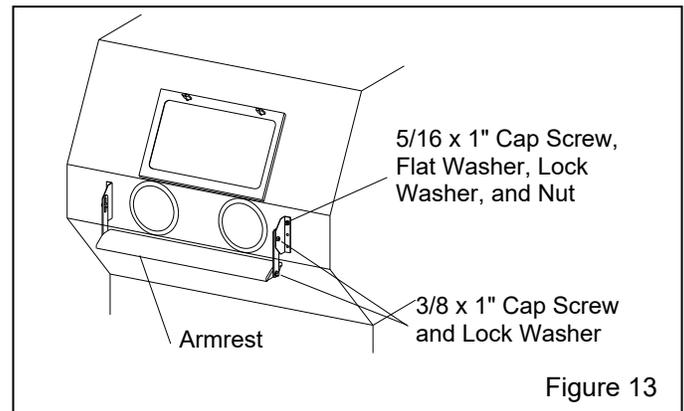
## 3.7 Armrest

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

**3.7.2** 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.

**3.7.3** 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.

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



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

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## 4.0 OPERATION

### 4.1 Season Filter Cartridge

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## NOTICE

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

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### 4.2 Media Loading

**4.2.1 Media capacity:** Media capacity of the Pulsar Pressure Cabinet is approximately 1 cuft. Full capacity is when media is at the level of the pop-up valve. Overfilling will result in media carryover to the dust collector and possibly a blockage in the conveying hose.

**4.2.2 Media loading:** With the exhauster OFF, add clean, dry media by pouring it into the reclaiming through the reclaiming fill door. **Do not pour media directly into the cabinet hopper, as overfilling or blockage may occur.** Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose. Refill only after all media has been recovered from the cabinet.

### 4.3 Media Unloading

**4.3.1** To empty the cabinet and blast machine of media, turn ON the exhauster and blow off the cabinet interior until all media is recovered from the cabinet. Reduce pressure to 40 psi. Place an empty container, such as a bucket, on the cabinet grating. Remove the nozzle and nozzle washer, close the door, close the choke valve, and press the foot pedal. Direct media flow into the container. Empty the container when full or before it is too heavy to handle, and repeat the process until the machine is empty. Clean the nozzle holder threads before reinstalling the nozzle washer and nozzle. If complete purging of media is required, use a vacuum to remove media residue in the cabinet hopper and blast machine head.

### 4.4 Loading and Unloading Parts

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

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

---

## WARNING

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

---

**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.

**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 doors.**
  - **After blasting, keep doors closed and exhauster running until the cabinet is clear of all airborne dust.**
  - **Always close cabinet, reclaiming, and dust-collector doors before blasting. Keep all doors closed during blasting.**
  - **Always wear blast gloves.**
  - **Stop blasting immediately if dust leaks are detected.**
- 

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

**4.5.2** After the filter cartridge is seasoned, per Section 7.9, refer to Section 5.5 and adjust the pulse pressure regulator to 60 psi.

**4.5.3** Turn ON lights and exhauster. The ON/OFF toggle switch performs both functions.

**4.5.4** Load parts.

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

**4.5.6** Insert hands into gloves.

**4.5.7** To blast, firmly grasp 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 the cabinet immediately if dust leaks are detected from the dust collector or cabinet. Make sure the dust-collector filter(s) 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.**

**4.5.8** 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.

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

## **NOTICE**

**To prevent rapid frosting of the view window, install a view-window cover lens, per Section 7.4, and avoid pointing the blast nozzle toward the view window**

### **4.6 Operation and Function of the Choke Valve Figure 14**

**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 14.

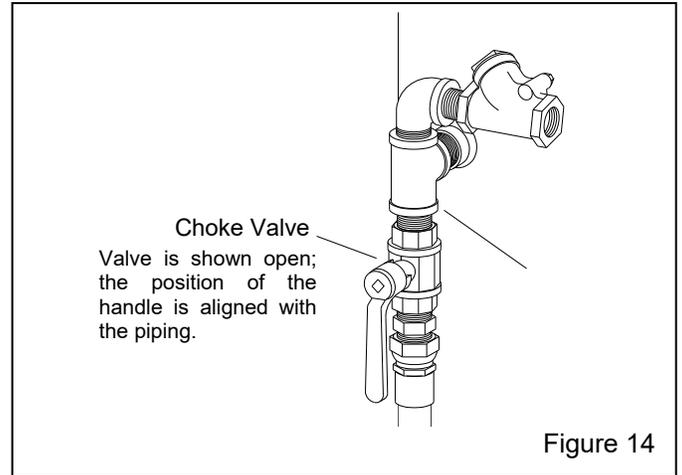


Figure 14

**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.**

### **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 and the blast machine depressurizes. Refill takes approximately 15 seconds when the machine is empty.

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

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

**4.8.5** Unload parts, shut off the air-supply valve, drain the air filter and pulse reservoir, and switch off the lights and exhauster.

**4.9 Pulsing (cleaning) Dust-Collector Cartridge**

**4.9.1** The dust-collector filter cartridge is pulsed each time the foot pedal is pressed and again when it is released. Prolonged periods of blasting or dusty conditions may require the cartridge to be pulsed during the blasting process, per Section 6.2.6, or upgrade to the automatic pulse kit. Refer to *Section 9.1: Optional Accessories*.

**4.10 Shutdown**

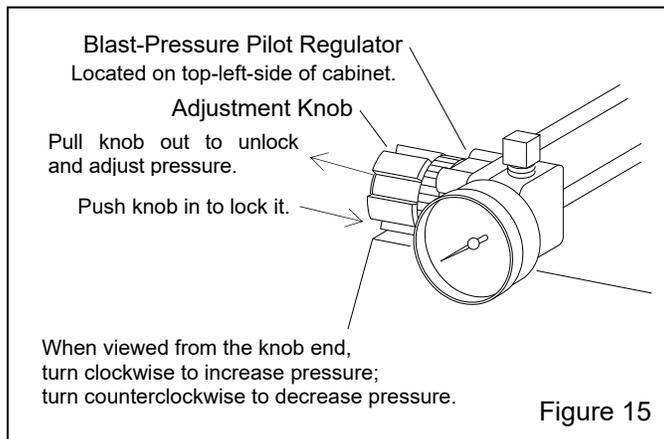
**4.10.1** Shut off the air-supply valve, bleed the air-supply line, and drain the compressed-air filter and dust-collector pulse reservoirs.

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

**5.0 ADJUSTMENTS**

**5.1 Blasting Pressure (pilot regulator) – Figure 15**

**5.1.1** The blast-pressure pilot regulator, located on the top-left side of the cabinet, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is about 80 psi. Lower pressures may be used for delicate work. Higher pressure may be required for difficult blasting jobs on durable substrates, but it will increase media break down. Optimal production can be achieved only 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.

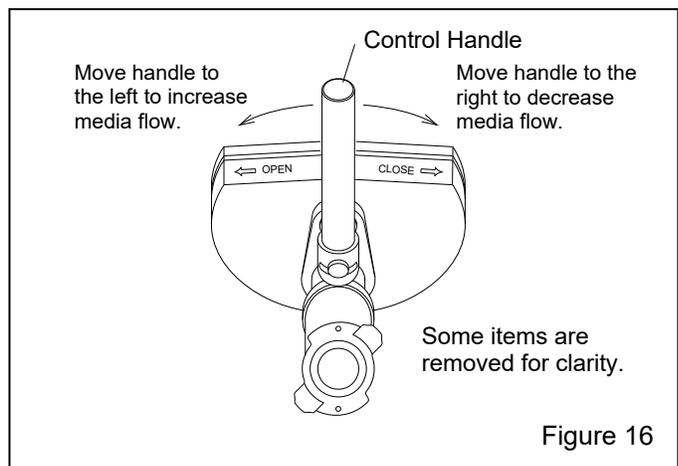
**5.1.3** Pressure registers on the gauge only while blasting. While holding the nozzle securely, adjust air pressure at the pilot regulator located on the top-left side of the cabinet.

**5.1.4** To adjust pressure, unlock the knob by pulling it out, as shown in Figure 15, and 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.

**5.2 Media Metering (media flow) – Figure 16**

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

**5.2.1** 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, media can be seen as light discoloration as it exits the nozzle.



**5.3 Reclaimer Static Pressure (outlet damper)**

**5.3.1** Correct static pressure varies with size of reclaimer and size, weight, and type of media.

**5.3.2** Adjust static pressure by opening or closing the outlet damper located above the reclaimer on the underside of the power module top; refer to Figure 17. If the damper is not opened far enough, the reclaimer will not remove fines, resulting in dusty media and poor visibility, or will not convey media, causing media buildup in the hose between the cabinet hopper and reclaimer. If the damper is opened too far, it may cause carryover (usable media carried into the dust collector) and result in excessive media consumption. Open the damper only as far as necessary to achieve a balance of maximum dust removal without media carryover.

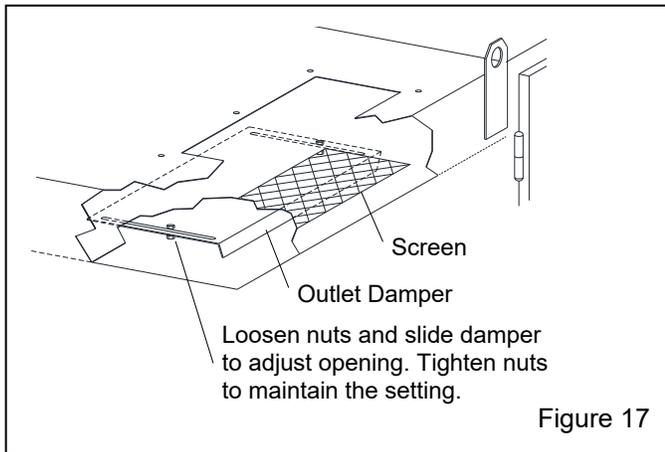


Figure 17

**5.3.3** A manometer is useful when adjusting and monitoring static pressure. The manometer kit is listed in Section 9.1: *Optional Accessories*. Refer to Section 5.7 for manometer operation. The following are static-pressure starting points for given media. Static pressure may need to be lower with finer media, higher with coarser media. Run the media through several blast cycles, allowing the reclaimer to function with these settings. Inspect the media in the reclaimer and fines in the dust collector, as noted in Paragraph 5.3.2. Continue adjusting static pressure until optimum dust and fines removal without carryover is attained.

|   |             |
|---|-------------|
| Glass Bead No. 8 to 12 .....                  | 3" – 3-1/2" |
| Aluminum Oxide 54-Mesh to 80-Mesh .....       | 4" – 5"     |
| Aluminum oxide 80-Mesh to 180-Mesh .....      | 3" – 4"     |
| * Steel Grit 80-Mesh to 120-Mesh .....        | 6" – 7"     |
| * Steel Shot S-110 to S-70 .....              | 6" – 7"     |
| * Refer to Section 1.11 for media limitations |             |

**5.3.4** As dust accumulates on the outer surface of the cartridge, static pressure drops, requiring additional pulsing of the cartridge, as described in Section 6.2.6, or an increase in pulse pressure, per Section 5.5. When

pulsing no longer maintains the necessary static pressure, readjust the damper.

**5.4 Door Interlocks – Figure 18**

**⚠ WARNING**

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

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

**5.4.2** Close cabinet doors.

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

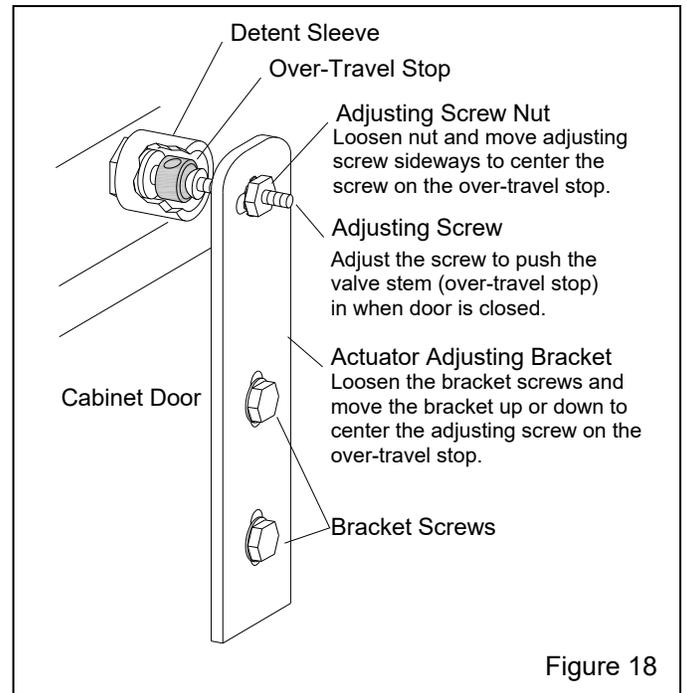


Figure 18

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

**5.4.5** Test the operation with the doors open and then closed. Negative pressure inside the cabinet may cause

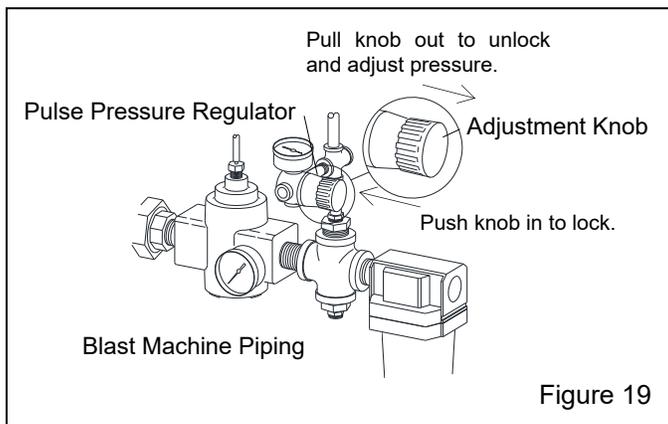
the doors to flex inward. Tests should be performed with the exhauster running. Point the nozzle away from the door during the tests and open the door only enough to disengage the interlock switch. The interlocks should stop the blasting when either door is open and permit blasting when the doors are closed.

## 5.5 Pulse Pressure – Figure 19

### NOTICE

**Do not pulse new dust collectors or replacement cartridges until the cartridge is properly seasoned. Refer to Section 7.9. Pulsing unseasoned cartridges can cause premature cartridge failure or decrease the efficiency of dust collector.**

**5.5.1** Adjust pulse pressure using the regulator mounted on the blast machine piping, as shown in Figure 19. Begin pulse at 60 psi. To adjust pressure, pull the knob to unlock it, as shown in Figure 19, and then 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.



**5.5.2** As the filter cartridge cakes with dust, it may be necessary to pulse between blasting, per Section 6.2.6.

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

**5.5.4** When the maximum pulse pressure of 90 psi is attained, and additional pulsing as described in Section 6.2.6 does not increase visibility or decrease differential pressure, replace the cartridge, per Section 7.8.

## 5.6 Cabinet Air-Inlet Damper

**5.6.1** Once the damper is initially set, per Section 2.5, it seldom requires readjustment. The initial setting produces approximately 1/2" to 3/4" of static pressure within the cabinet. **Do not confuse cabinet static pressure with reclaimer static pressure, which is controlled by the outlet damper, as noted in Section 5.3. Reclaimer pressure must be set before cabinet pressure.**

**5.6.2** Using a manometer (as noted in Section 5.7 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 inlet damper. Open the damper farther to decrease static pressure or close it farther to increase pressure.

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

## 5.7 Optional Manometer

NOTE: These instructions show several methods of taking static-pressure readings (negative pressure) on Pulsar 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. Permanent fittings should be installed when the manometer installation is permanent. 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. This 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 those taken above the reclaimer. The readings are reference points, so readings should be taken using the same method each time a reading is taken.

**5.7.1** Refer to the instructions packed with the manometer for preparing and operating the manometer.

**5.7.2** 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.

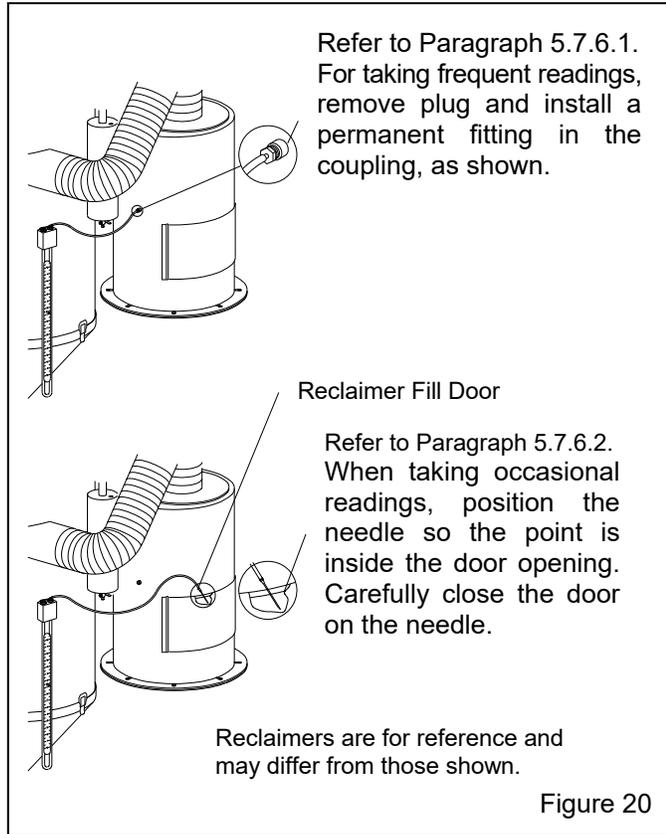
**5.7.3** Open both manometer valves (elbows), per the instructions with the manometer.

**5.7.4** Magnets on the manometer hold it in position on the reclaimer body or dust-collector body. The

manometer must be vertical so the fluid is level on both sides.

**5.7.5** Adjust the slide rule to align the zero with the fluid level. Refer to Figure 21.

**5.7.6 Needle placement:** Figure 20 shows the manometer setup for taking both periodic and frequent static-pressure readings.

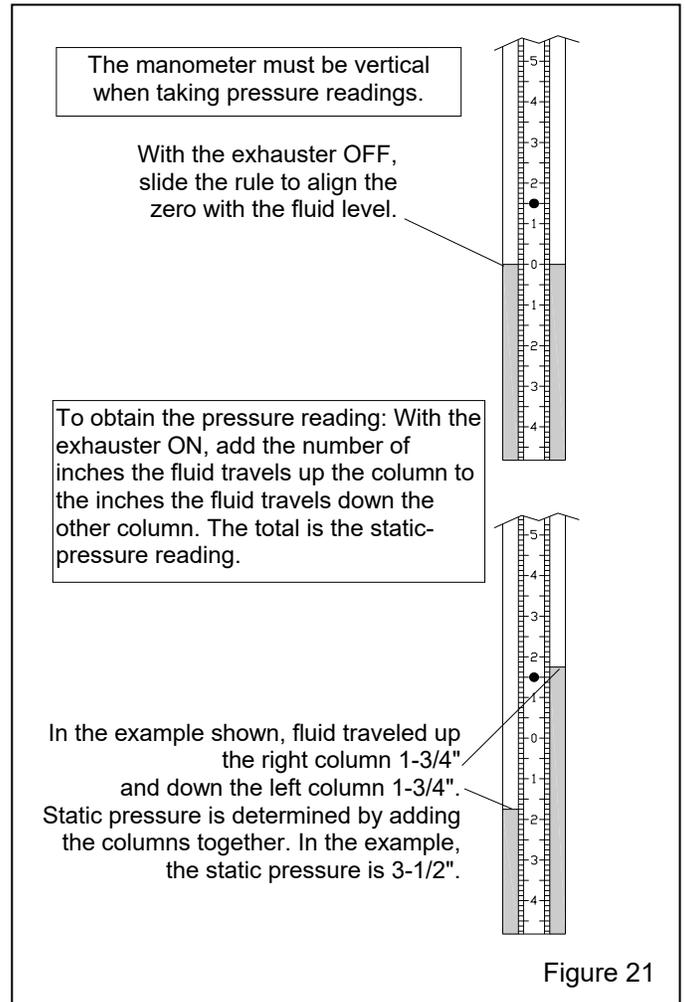


**5.7.6.1 To take frequent readings:** Permanently install the manometer for taking frequent readings. Remove the 1/4" NPT plug from the coupling on the reclaimer body and install a fitting with a 1/8" hose barb. Use thread sealer to prevent leaks. The fitting should be capable of being capped when the manometer tube is removed. Capping the fitting will prevent leaks that alter the reclaimer's separation efficiency.

**5.7.6.2 To take occasional readings:** Leave the needle protector on the needle and insert the needle into the unused end of the tubing. The ends of the tubing must fit tight on the manometer and needle; leaks will give inaccurate readings. 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 door gasket, creating an airtight seal.

**5.7.7** 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.**

**5.7.8** 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 21.



**5.7.9** 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.**

**5.8 Foot Shelf (Ergonomic models only)**

**5.8.1** Raise the shelf to remove pressure from the locating pins and remove the pins. Adjust the shelf height and insert the pins.

## 6.0 PREVENTIVE MAINTENANCE

### **⚠ WARNING**

**Failure to wear an approved respirator and personal protection when servicing dust-laden areas of the cabinet and dust collector, as well as when emptying the container, could 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 the following:

- **Usage:** Frequently used cabinet 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.
- **Friability of media:** Media that rapidly breaks down require more maintenance to the cabinet's media recovery system and dust collector.

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

**6.1.1. Check media level:** Check media level through the 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 and 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.

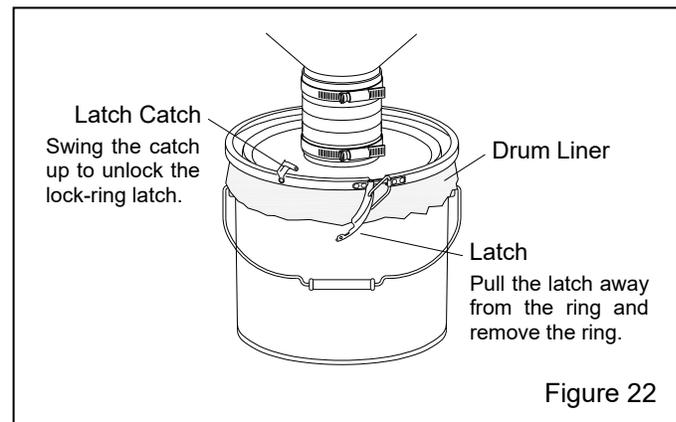
**6.1.3 Drain compressed-air filter:** Empty the drain pail at least once a day, and more often if needed. Moist air inhibits the flow of media. Drain the air line and receiver tank regularly. If the filter does not remove enough moisture to keep media dry and flowing, it may be necessary to install an air dryer or aftercooler in the compressed-air supply line.

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

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

1. Turn off the exhauster and unlatch the lid lock ring from the dust container, as shown in Figure 22.

2. Pry off the lid from the container (the lid's flexible inlet hose allows easy removal) and remove the container.



3. 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.

**NOTE: Blasting media is usually nontoxic; 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.**

4. 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.

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

**6.2.1 Inspect couplings and blast hose:** 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.**

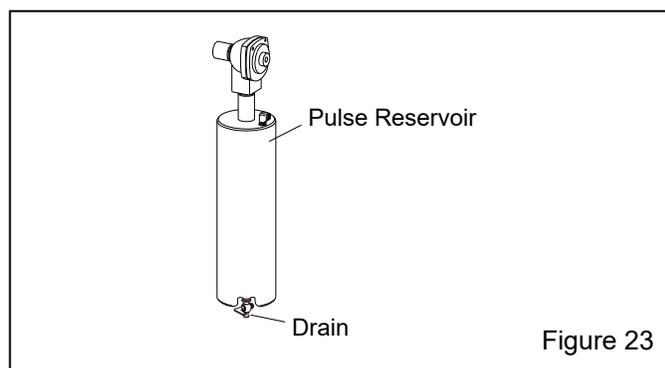
**6.2.2 Inspect blast machine for air leaks:** Check the blast machine for air leaks. If leaks are found around the pop-up valve, inspection door, or pipe fittings at the bottom of the cone, stop blasting immediately and repair or replace worn parts.

### **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 Section 6.2.6 for additional pulsing.

**6.2.4 Drain pulse reservoir:** Open the petcock to drain the pulse reservoir at the end of each shift. Refer to Figure 23.



**6.2.5 Check exhaust air for dust:** Dust discharge at the outlet indicates a leaking or damaged filter cartridge. Check immediately. Note that a small amount of dust egress is normal for a short time before a new cartridge is seasoned.

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

1. Turn OFF exhauster.
2. Hold the nozzle holder and rapidly press and release the foot pedal three times. Activating the pedal more than three times may cause dust to escape from the enclosure.
3. Start the exhauster and let it run until all airborne dust is cleared from the cabinet.
4. Repeat the process several times.

## 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 7.4.

**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 may 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.**

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### 6.3.4 Inspect blast hose

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## 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.**

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- 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.

### 6.4 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

**6.5.1 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.

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

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## 7.0 SERVICE MAINTENANCE

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## 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.**

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### 7.1 Gloves

**7.1.1** Special static-dissipating gloves have been provided for operator comfort. Gloves need to be replaced 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 that 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 LED Light Assembly – Figure 24

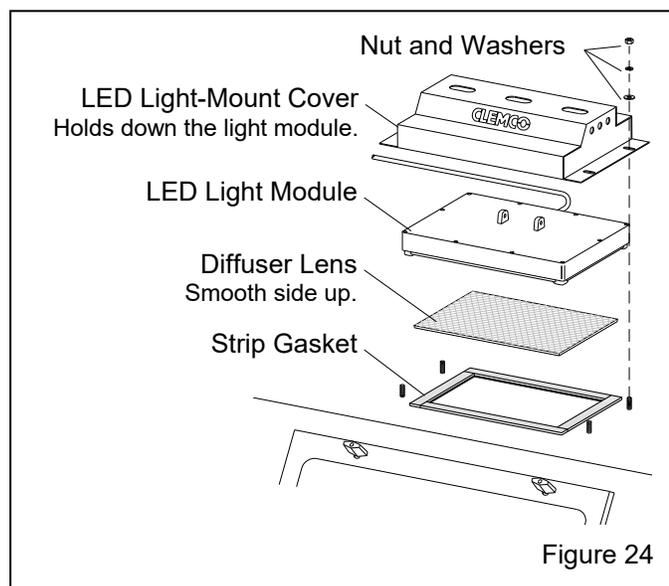
### **⚠ WARNING**

**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.**

#### 7.2.1 Remove light-mount cover

7.2.1.1 Turn OFF electrical power.

7.2.1.2 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as shown in Figure 24.



#### 7.2.2 Gasket replacement

7.2.2.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 7.2.1. Move the light module off the diffuser lens and remove the lens.

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

7.2.2.3 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 24. Press the gasket to bond. Repeat the process for each side, compressing the ends to seal.

#### 7.2.3 Diffuser lens replacement

7.2.3.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 7.2.1. Move the light module off the diffuser lens and remove the lens. Inspect the gasket and replace it, per Section 7.2.2, if it is compressed or otherwise damaged, before centering the new diffuser (smooth side up) over the gasket.

7.2.3.2 Set the light module on the diffuser and reattach the cover.

#### 7.2.4 LED light module replacement

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

7.2.4.2 Remove the light-mount cover, per Section 7.2.1.

7.2.4.3 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.

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

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

7.2.4.6 Cut the cord to length and wire as follows:

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

7.2.4.7 Apply power to test the light.

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

## 7.3 Blast Hose and Nozzle – Figure 25

7.3.1 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.

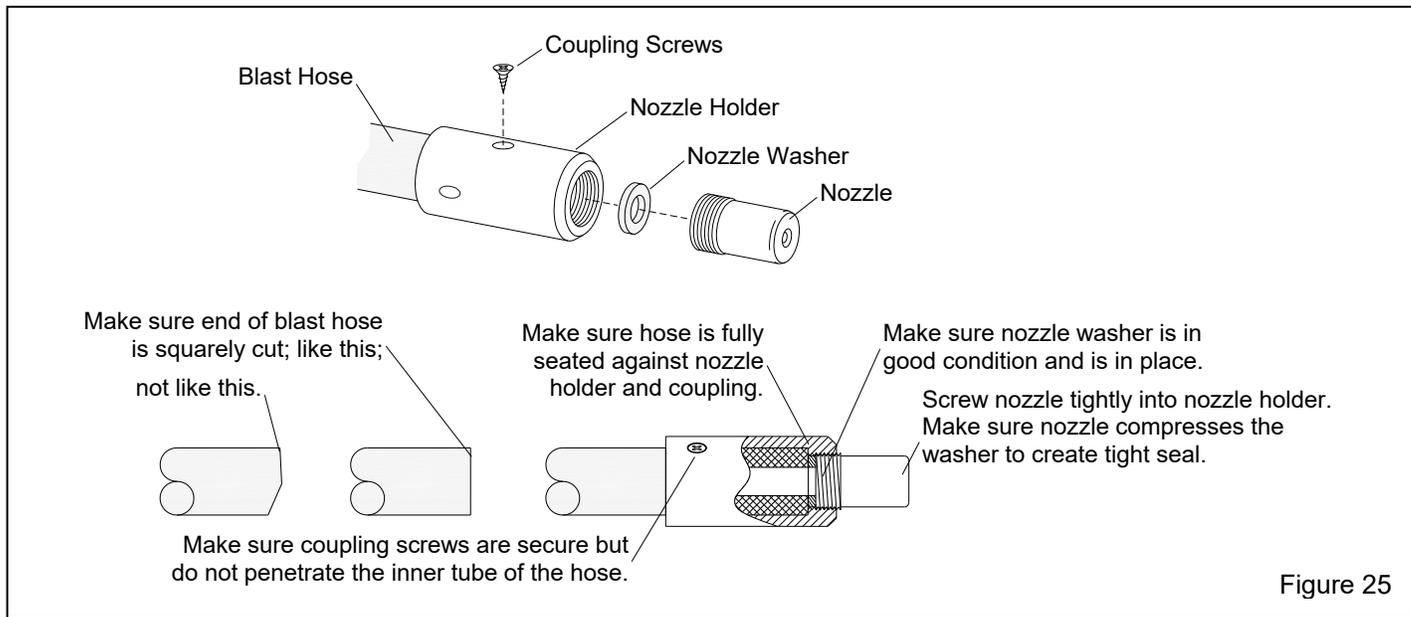


Figure 25

**7.3.2** 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 25. Make sure correctly-sized screws are used to secure the nozzle holder and blast-hose coupling. Screws should not penetrate the inside of the blast hose.

**7.3.3** Replace the nozzle when the orifice (its 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.

#### 7.4 View-Window Cover Lens

**7.4.1** 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.

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

**7.4.3** 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.

#### 7.5 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.**

**7.5.1** Remove the two window-frame nuts located on the upper edge of the window frame and swing the window frame open. **NOTE: The window frame in Ergo models is not hinged; it is held by four frame nuts.** If the frame is to remain open for cleaning or other reasons, remove it, per Section 7.7.

**7.5.2** Remove the old window.

**7.5.3** Inspect the window-frame gaskets on both the window frame and on the cabinet. If either gasket is damaged, replace it, per Section 7.6.

**7.5.4** Install a view-window cover lens, per Section 7.4.

**7.5.5** 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.

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

## 7.6 Window-Gasket Replacement – Figure 26

**7.6.1** 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.

**7.6.2** Remove the window and window frame, per Section 7.7.

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

**7.6.4** 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 26. 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.

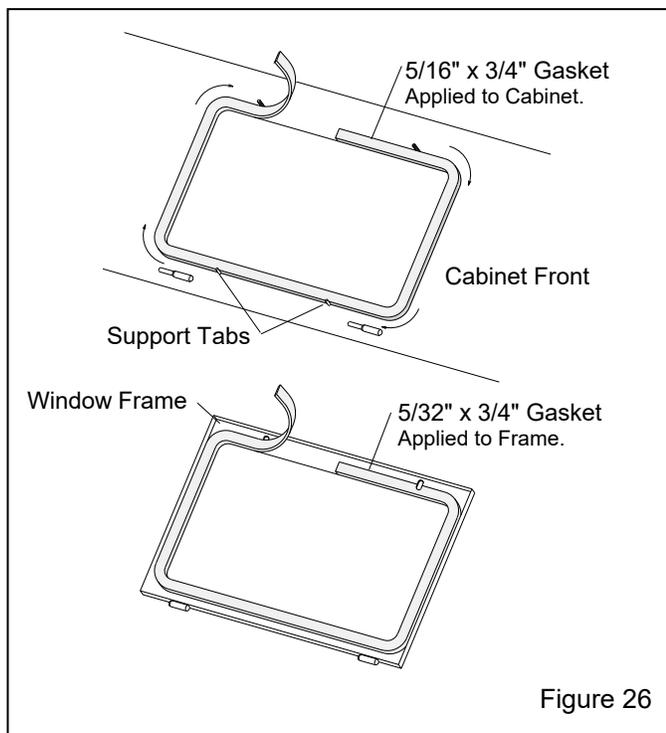


Figure 26

**7.6.5** Using 5/32"-thick strip gasket, repeat the process on the underside of the window frame.

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

## 7.7 Window-Frame Removal – Figure 27

**7.7.1** Remove the two window-frame nuts located on the upper edge of the window frame and swing the window frame open. **NOTE: The window frame in Ergo models is not hinged; it is held by four frame nuts.**

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

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

**7.7.4** Slide the frame to the right to remove it. The hinges separate, as shown in Figure 27.

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

**7.7.6** 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.

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

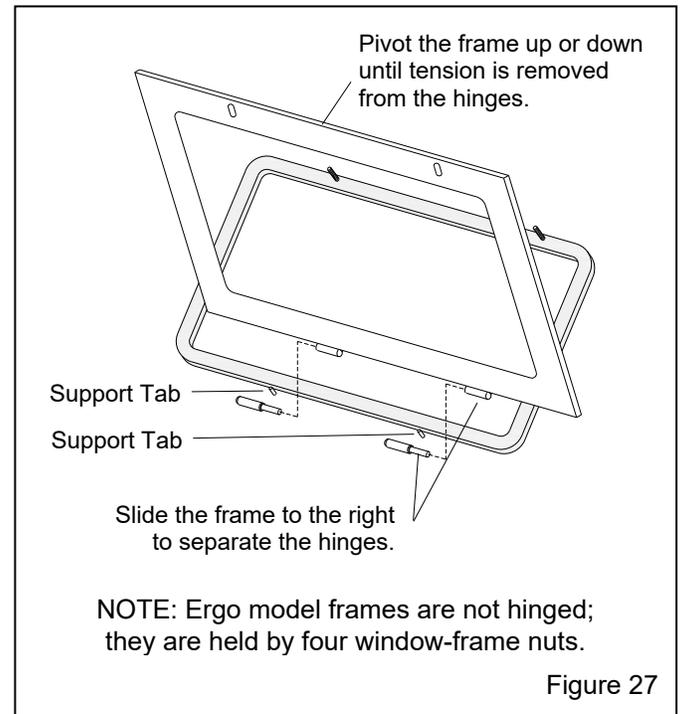


Figure 27

## 7.8 Replacing Filter Cartridge – Figures 28 and 29

### **⚠ WARNING**

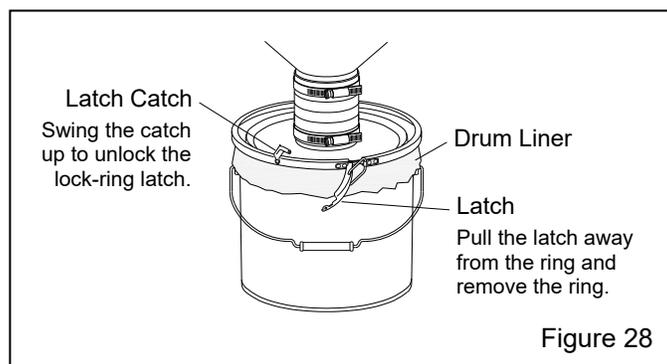
#### **NO DUST IS SAFE TO BREATHE.**

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** Close the air-supply valve and open the drain to bleed air from the pulse reservoir.

**7.8.2** Refer to Figure 28 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.

**7.8.3** 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.



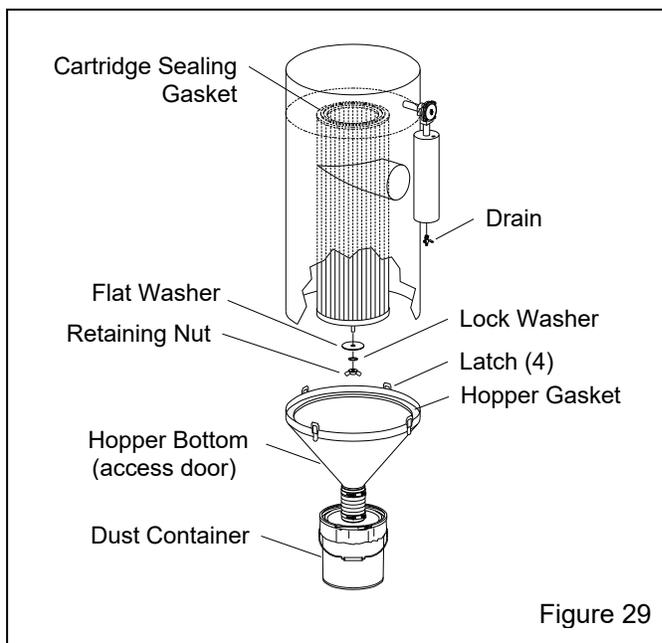
**7.8.4** Unlatch the dust-collector hopper bottom and remove it from under the collector.

**7.8.5** Remove the cartridge retaining nut, washer, and gasket from the support bracket.

**7.8.6** Slide the cartridge straight down until it clears the support bracket. A small amount of rocking may be necessary to loosen the gasket seal from the sealing surface.

**7.8.7** Clean all reusable parts, especially around the cartridge sealing area. Scrape off any residual gasket material from the sealing surface.

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



**7.8.9** Check the hopper gasket for any condition that will prevent the gasket from sealing. Replace the gasket as required.

**7.8.10** Attach the hopper bottom and latch in place.

**7.8.11** 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.

**7.8.12** Season the cartridge, per Section 7.9.

## 7.9 Seasoning Filter Cartridge

### **NOTICE**

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

**7.9.1** New cartridges must be seasoned before starting pulsing. The cartridge is 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; it is the dust cake that actually does the filtering.

**7.9.2** To prevent the cartridge from pulsing, turn the pulse regulator off (to 0 psi).

**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 to start the pulsing cycle.

## 7.10 Pop-Up Valve Replacement

**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 air supply.

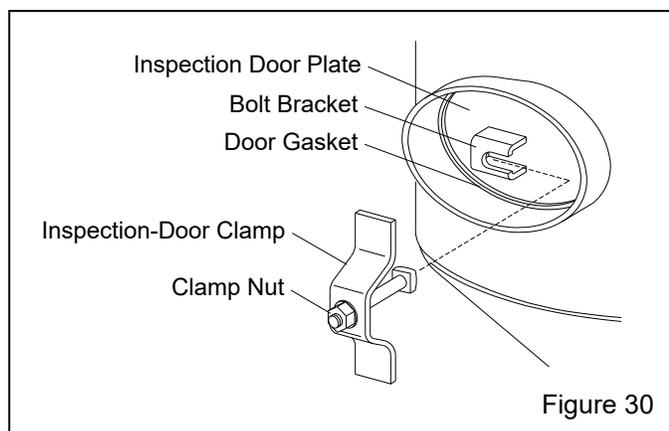
## **⚠** WARNING

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

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

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

1. Loosen the inspection-door clamp nut enough to slide the clamp bolt from behind the bracket and then remove the clamp and bolt assembly, as shown in Figure 30.



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 31. Remove the pop-up valve and guide from the machine.

**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.

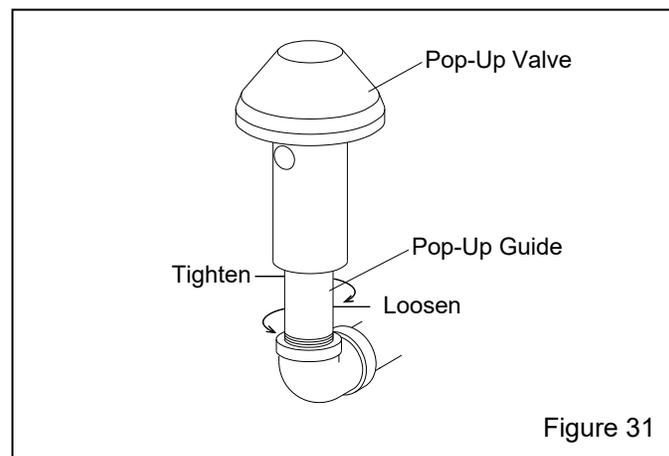


Figure 31

## 7.11 Pop-Up Valve Seal Replacement – Figure 32

**7.11.1** The easiest method to replace the rubber pop-up seal is through the reclaimer access door. If for any reason replacement cannot be made through the reclaimer, observe the warning in Section 7.10, empty media from 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 rubber seal all the way through the port and then fit it into the groove. For the last few inches, push on the seal and allow it to "pop" into position.

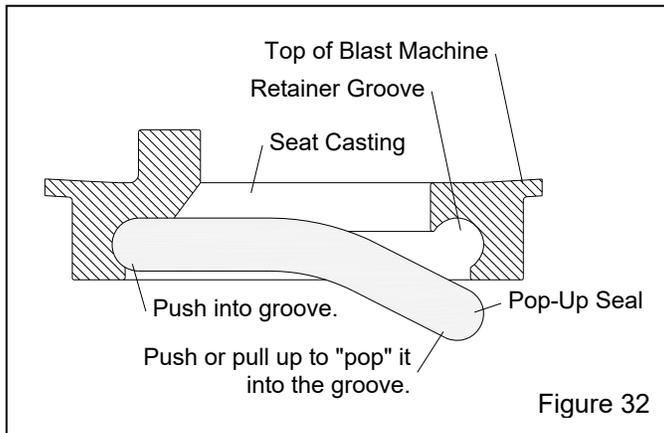


Figure 32

## 7.12 Replacing Reclaimer Wear Plate on Reclaimers with Bolt-On, Removable Top

### **⚠ WARNING**

To access wear-plate mounting screws, the reclaimer must be removed from the power module. Pulsar reclaimers weigh about 100 lbs. When removing and installing 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.

Make sure at least 12 ft of 13089 - 2" adhesive-backed gasket is available to replace compressed or damaged gaskets on the reclaimer upper and lower flanges.

**7.12.1** Remove the flex hose from the reclaimer inlet.

**7.12.2** Remove the reclaimer mounting bolts from the blast machine and remove the reclaimer from the power module.

**7.12.3** Unbolt the reclaimer top and 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.

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

**7.12.5** 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 33. 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.

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

**7.12.7** New self-drilling sheet-metal screws are provided with the wear plate; match drill through each old screw hole into the wear plate to secure. Rearrange the clamp(s) as needed to press the wear plate against the reclaimer wall when installing screws.

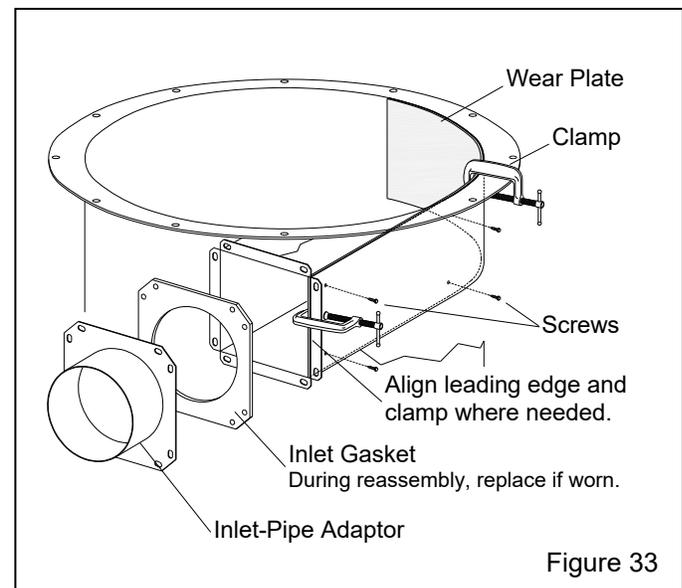


Figure 33

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

**7.12.9** To avoid rapid wear, apply RTV caulk to fill gaps at the seams on the top and bottom of the wear plate.

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

**7.12.11** Replace the lower flange gasket as needed, reattach the reclaimer to the blast machine, and connect the flex hose.

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

### 7.13 Replacing or Field Installing Optional Rubber Reclaimer Liners in a Pulsar VI Modular Reclaimer sold on or after 09/2018

The reclaimer must be designed to accept liners and have a removable top, as shown in Figure 34.

## WARNING

**To access liner mounting-screws, the reclaimer must be removed from the power module. Pulsar VI reclaimers weigh about 100 lbs. When removing and installing 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.**

#### Installation Notes:

Make sure at least 6 feet of 13089 - 2" adhesive-backed gasket is available to replace compressed or damaged gasket on the reclaimer-blast machine flange.

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.

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

**7.13.2** Remove the mounting bolts (holding the reclaimer to the blast machine) from the reclaimer lower flange.

**7.13.3** Remove the reclaimer side-mount bolts and remove the reclaimer from the power module.

**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 reclaimer is currently unlined, begin at the installation note following Paragraph 7.13.13.

**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.

**7.9.10** 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-drill/tap 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 liner and cone-ring liner are glued onto the inner cone. Pull off the liners to remove them.

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

**Installation Note:** The numbers in parentheses (-) shown in Figure 34 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 the fit and trim if necessary. Apply contact adhesive to the fabric side of the liner and install the cone liner. Smooth out the liner to eliminate air pockets.

**7.13.16** (3rd) Place the inlet-side liner (metal side toward the side wall) 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-drill/tap screws at each existing hole location. **NOTE: To field install a new, first-time wall liner, use self-drill/tap screws to**

secure it at the seam and an inch or two from the top and bottom at each quadrant.

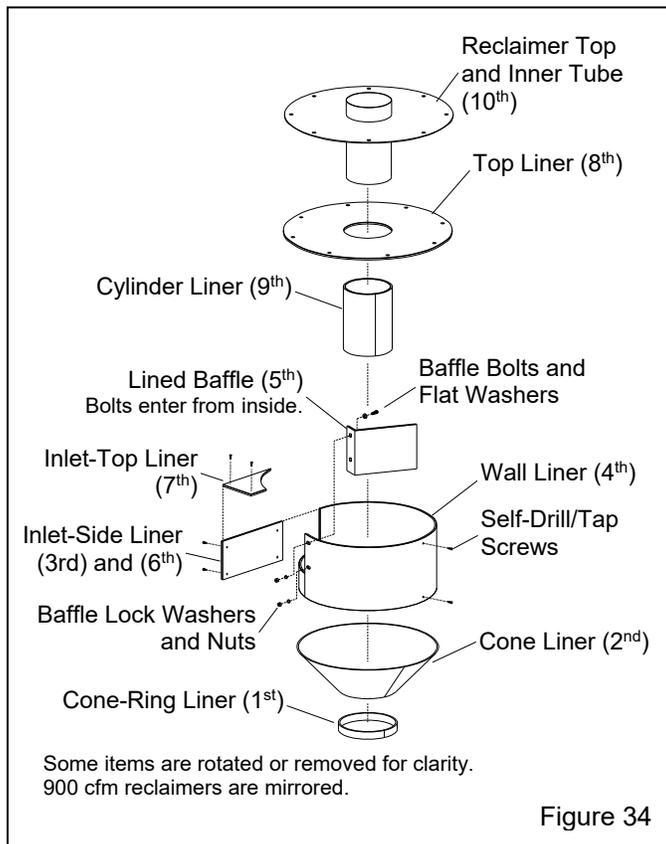
**7.13.18** (5th) Remove the temporary baffle bolts and install the inlet baffle by inserting bolts and flat washers from the inside of the reclaimers and attach lock washers and nuts from the outside, leaving the baffle slightly loose.

**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 reclaimers 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 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** (10th) 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** If the lower flange gasket is worn, compressed, or otherwise damaged, clean old gasket material from the flange and install new 2" strip gasket to the reclaimer or blast machine flange.

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

**7.13.31** Reinstall the reclaimer and connect the flex hoses.

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

### 7.14 Removing or Replacing Reclaimer Inlet Baffle in Pulsar VI Reclaimer with Bolt-On Top – Figure 35

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

carryover, the inlet baffle of the reclaimer can be removed. Review the following process before beginning to make sure all parts are available:

#### Installation Notes:

Make sure at least 6 ft of 13089 - 2" adhesive-backed gasket is available to replace compressed or damaged gasket on the reclaimer upper flange.

**7.14.1** Remove the flex hose from the reclaimer top.

**7.14.2** Remove the fasteners securing the reclaimer top and remove the top.

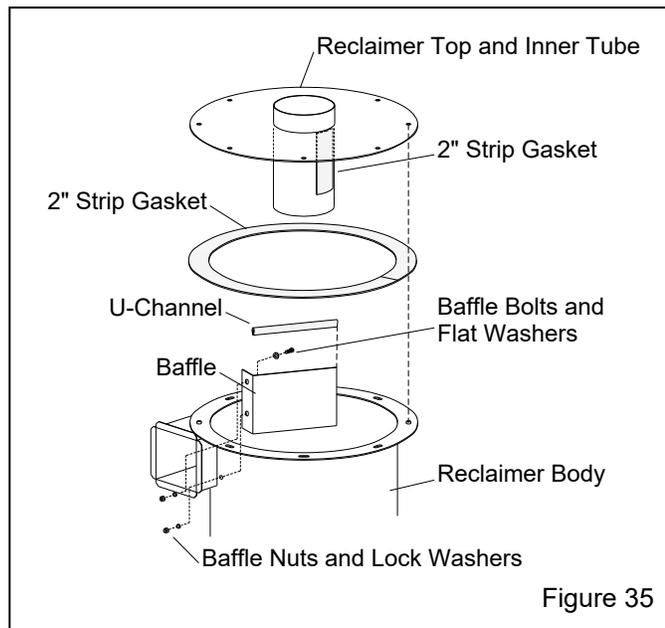


Figure 35

**7.14.3** Remove the two bolts securing the baffle to the side of the reclaimer inlet and remove the baffle through the top.

**7.14.4** Remove all caulking residue.

**7.14.5** If removing (not replacing) the baffle, remove the strip gasket from the inner tube and install the baffle bolts and reclaimer top. 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 is 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** Inspect the strip gasket on the reclaimer upper flange; replace it if damaged or compressed.

**7.14.8** Install the reclaimer top and 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 Owner's 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 cartridge. Empty the dust container. Pulse cartridge several times, per Section 6.2.6. Inspect cartridge and replace when necessary.

**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 power** and switch the motor leads, as shown on the motor plate. Refer to Section 2.4.3.

**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 2.5 and 5.6.

**8.1.7** Reclaimer fill 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. Replace hose.

**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 open or worn door gasket. Air entering the reclaimer around the door will cause media carryover 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.

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

**8.2.9** When using media finer than 180-mesh, the inlet baffle in the reclaimer (Pulsar VI only) may need to be removed. Refer to Section 7.14 to remove bolt-on baffle.

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

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

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

**8.3.3** 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.

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

**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 reinstall as necessary.

## **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, or from absorption from ambient air.

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

**8.5.3** Moist compressed air may be due to a faulty compressor that overheats or pumps oil or moisture into the air line, too long of an air line permitting moisture to condense on the inside, or from high humidity. Drain filters 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 absorbs 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 set up 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 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** 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, remove the metering-valve inspection plate, and check for foreign objects.

**8.7.5** Check the muffler on the 4-way air valve. Air should exhaust from the muffler when the foot pedal is released. If air does not exhaust, remove the muffler and try again. If air exhausts now, the muffler is blocked. If air still does not exhaust, the 4-way valve may be faulty; refer to Paragraph 8.7.6 to check the 4-way valve.

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

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

**8.7.8** 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 and check the nozzle to see if it is plugged.

**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 compressor is operating and air-supply valve is open.

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

**8.9.3** Door interlocks not engaging. Check adjustment, per Section 5.4.

**8.9.4** Inadequate air supply. Refer to the cfm-consumption table in Figure 3.

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

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

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

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

**8.9.9** Make sure lines are not reversed on the foot pedal or pilot regulator. Refer to the plumbing and control line schematic in Figure 47.

**8.9.10** Check the 4-way valve for jamming, per Sections 8.7.5 and 8.7.6. 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 48, 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.

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, located inside the cabinet, for blockage.

8.10.5 Check 4-way air valve for jamming, per Sections 8.7.5 and 8.7.6.

### 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 metering valve, 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 carryover 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 Sections 2.4 and the system's wiring schematic.

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 cartridge clogged. Refer to Section 5.5 to adjust pulse pressure; refer to Section 6.2.6 for additional cartridge pulsing.

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.

8.12.5 Reclaimer door open. DO NOT operate unless door is 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 generates static electricity. The cabinet must be grounded to prevent static buildup. See Section 2.3. If shocks persist, the operator may be building up static. Attach a small ground wire (such as a wrist strap) from the operator to the cabinet.

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

8.13.3 Avoid holding parts off the grating. 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 Cartridge not seasoned; season cartridge, per Section 7.9.

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

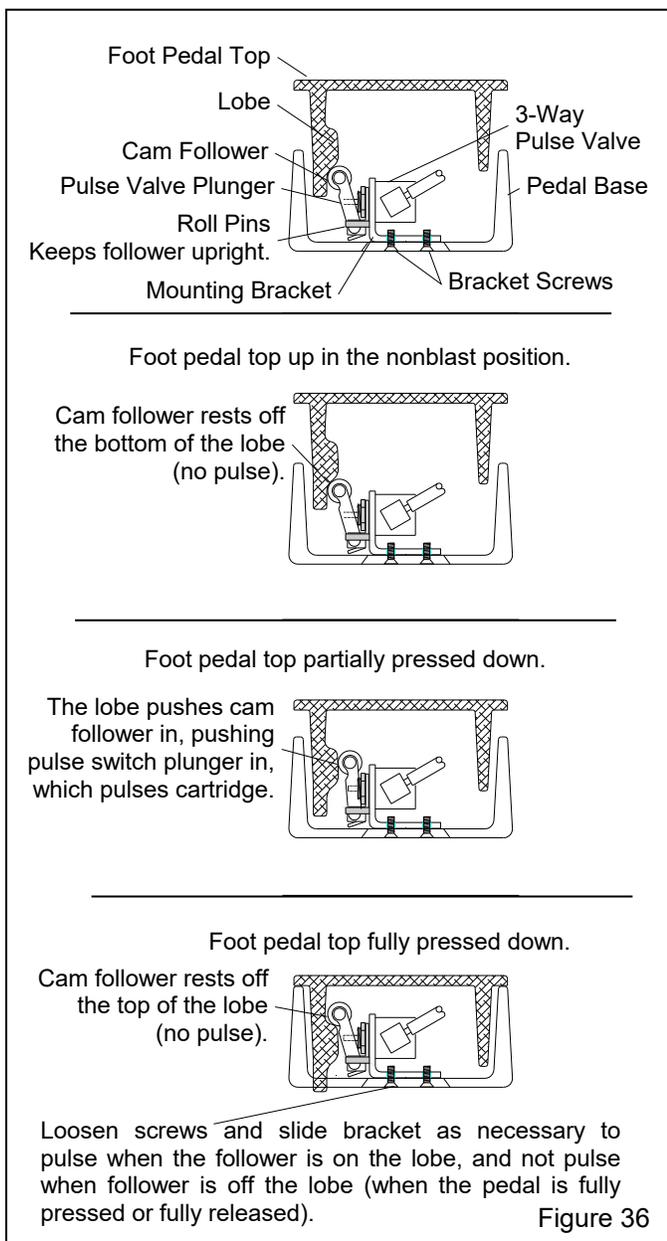
8.15.3 Faulty seal on the dust-collector cone. Inspect seal and replace if damaged.

### 8.16 Dust collector does not pulse when foot pedal is pressed or released

8.16.1 Check pressure on dust-collector pulse-pressure gauge. If low, adjust pulse pressure, per Section 5.5.

8.16.2 Refer to Figure 36 and make sure the 3-way pulse valve has not come loose from the mounting bracket. Tighten the retaining nut as needed to secure.

8.16.3 If the cam follower tilts to one side, one or both roll pins are bent or missing. Remove the two screws on the bottom of the pedal and remove the switch and cam follower assembly. Center the cam follower and replace roll pins as needed to hold the cam follower in place. Refer to Figure 36.



**8.16.4** Check alignment of pulse-valve cam follower: With the exhauster running and with blast pressure adjusted to 0 psi, hold the foot pedal in hand and fully press the pedal top. The collector should pulse as the cam follower rides over the lobe on the pedal top when the pedal is pressed, and again when the pedal is released, as shown in Figure 36. NOTE: The pedal should be rapidly pressed and released so the cam follower quickly rides over the lobe; prolonged engagement of the pulse valve will lengthen the pulse, which does not clean the cartridge and wastes compressed air.

The lobe on the pedal top should press the cam follower IN to engage the 3-way pulse valve, and disengage the switch when the pedal is fully pressed and again when

the pedal is released. If the switch is not aligned to function as described, align as follows:

- If the switch does not disengage the pulse when the cam follower rides off the lobe, the switch assembly is too close to the lobe. Loosen the two screws on the bottom of the pedal, slide the switch away from the lobe as needed, and recheck alignment.
- If the switch does not engage the pulse when the cam follower rides onto the lobe, the switch assembly is too far from the lobe. Loosen the two screws on the bottom of the pedal, slide the switch toward the lobe as needed, and recheck alignment.

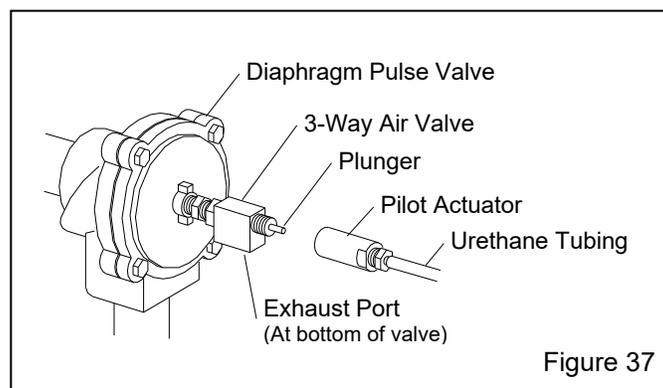
When the alignment is set correctly, tighten the screws to prevent movement.

When the pedal is operating correctly, a spurt of air should be heard as the cam follower rides off the lobe when the pedal is pressed and again when it is released. If the cam follower is working correctly, and there is no spurt of air when the pedal is pressed and released, it is likely a problem with the 3-way valve; replace the 3-way valve.

**8.16.5** Check the diaphragm pulse valve and actuator assembly. Refer to Figure 37.

**8.16.5.1** Remove the pilot actuator from the 3-way pulse valve. With the exhauster running and with blast pressure adjusted to 0 psi, press in on the 3-way valve plunger; the cartridge should pulse when the plunger is pressed and stop when it is released.

- If the cartridge does pulse, the diaphragm pulse valve and 3-way valve are functioning; proceed to Section 8.16.5.2.
- If it does not pulse, listen for a spurt of air coming from the 3-way exhaust port when the plunger is pressed.
  - If it does spurt air, the problem is likely in the diaphragm pulse valve. Inspect the diaphragm for wear or damage.
  - If it does not spurt air, the 3-way valve is not functioning. Replace the 3-way valve.



NOTE: The 3-way valve at the foot pedal and the 3-way on the diaphragm pulse valve are identical. If there is doubt as to whether either 3-way valve is functional, the valves may be tested by swapping one with the other.

**8.16.5.2** Hold the pilot actuator and press and release the foot pedal. Observe the piston through the open end of the actuator; the piston should snap to the disc toward the end of the actuator each time the pedal is pressed and return each time the pedal is released.

- If the actuator piston operates as noted, the problem is not in the foot pedal or actuator. Inspect the 3-way and diaphragm valve, per Section 8.16.5.1.
- If the actuator does not operate as noted, remove the urethane tubing from the actuator and press and release the foot pedal.
  - If air escapes from the tubing when the pedal is pressed and released, the problem is in the actuator. Replace the actuator.
  - If no air escapes from the tubing when the pedal is pressed and released, there is a blockage in the tubing or the problem is in the foot pedal. Inspect the tubing for a blockage and inspect the foot pedal, per Sections 8.16.2, 8.16.3, and 8.16.4.

**8.17 A steady stream of air is heard within the dust collector when the foot pedal is not pressed**

**8.17.1** Cam follower does not ride off the foot-pedal lobe. Inspect alignment, per Section 8.16.

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

**8.17.3** The 3-way valve on the diaphragm pulse valve is stuck in the pulse (plunger in) position; inspect 3-way valve.

**9.0 ACCESSORIES AND REPLACEMENT PARTS**

**9.1 Optional Accessories**

**Turntables and Turntables with Tracks**

**⚠ WARNING**

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

**Stationary Turntable Without Bearing, 25 lb Capacity**

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

**Fixed-Base Turntable with Bearing, 500 lb Capacity  
Figure 38**

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

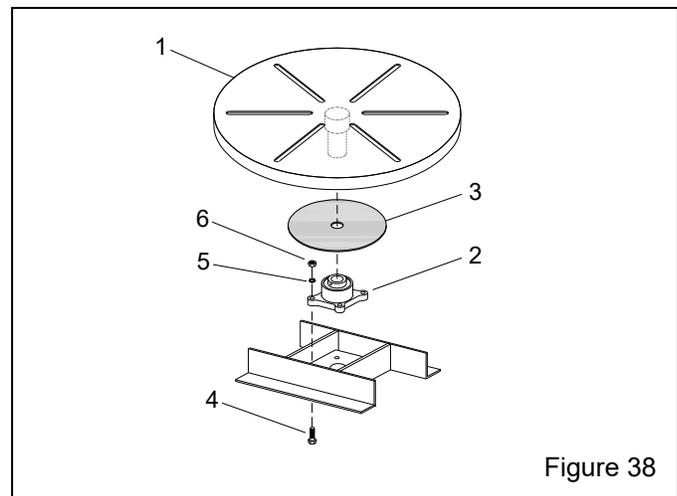


Figure 38

**Turntable with Workcar and Track, 500 lb. Capacity  
Figure 39**

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

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

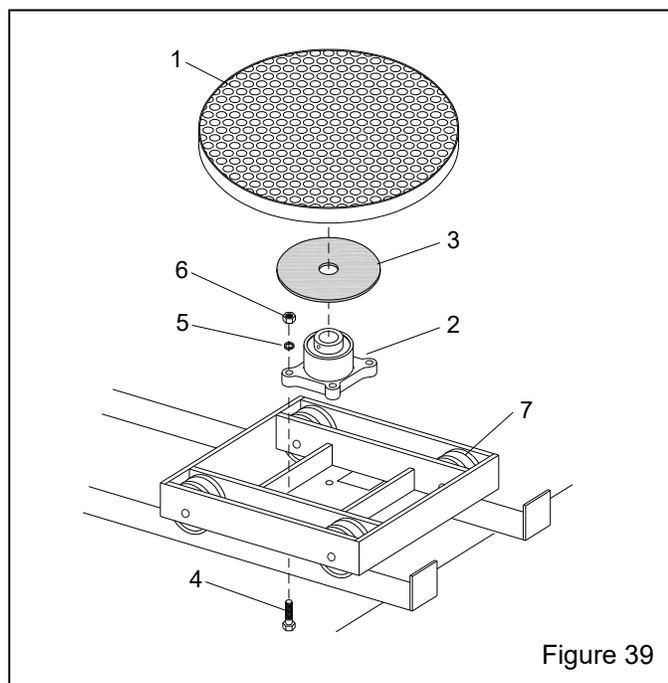


Figure 39

| Description  | Stock No. |
|--|-----------|
| Conversion kit, Pulsar® VI-P pressure blast to suction blast - Includes all accessories to convert pressure system to suction system ..... | 21666     |
| Conversion kits, Sentinel Metering Valve<br>To convert from fine-mesh media to coarse .....  | 22848     |
| To convert from coarse-mesh media to fine .....  | 22849     |
| Noise-reduction arm port covers, pair .....  | 24885     |
| Lock pins (pkg. of 25) for twist-on couplings .....  | 11203     |
| Safety cable, 1/2" to 1-1/4" OD hose .....   | 15012     |
| Window cover lens, pkg. of 5 .....   | 06190     |
| Manometer kit (flexible u-tube) .....  | 12528     |
| HEPA Filter assembly, top mount .....  | 22807     |
| Automatic pulse kit .....  | 21773     |
| Time delay door locks, for both doors .....  | 24163     |
| Armrest assembly, includes mounting hardware ..  | 24900     |
| Armrest, replacement .....   | 24899     |
| Anti-fatigue floor-mat, 2-foot x 3-foot<br>for front of cabinet .....  | 24744     |
| Pass-thru door, with 15-inch-square cut-out<br>Right door<br>for Pulsar III .....  | 23610     |
| for Pulsar VI .....  | 23612     |
| Left door<br>for Pulsar III .....  | 23611     |
| for Pulsar VI .....  | 23613     |
| Steel media kits, Pulsar VI-P conventional<br>Factory installed .....  | 21797     |
| Field Installed *included with field installed kits ..   | 21798     |
| 4" universal cabinet hopper adaptor .....  | 23295     |
| *Gasket, hopper outlet adaptor .....   | 23258     |
| 4" reclaimr inlet-pipe adaptor .....   | 12350     |
| *Gasket, inlet-pipe adaptor .....  | 11779     |
| 4" light-lined hose, 7 feet required .....   | 12466     |
| Black-rubber curtain set .....   | 23532     |
| Steel media kits, Pulsar III-P conventional<br>Factory installed .....   | 28084     |
| Field Installed *included with field installed kits ..   | 28085     |
| 4" universal cabinet hopper adaptor .....  | 23295     |
| *Gasket, hopper outlet adaptor .....   | 23258     |
| 4" reclaimr inlet-pipe adaptor .....   | 12350     |
| *Gasket, inlet-pipe adaptor .....  | 11779     |
| 4" light-lined hose, 7 feet required .....   | 12466     |
| Black-rubber curtain set .....   | 23531     |
| Differential pressure gauge assemblies<br>Reclaimr, measures static pressure .....   | 23355     |
| Dust collector, measures drop across filter .....  | 23356     |
| Boron carbide lined nozzle<br>CTB-2, 1/8" orifice .....  | 21090     |
| CTB-3, 3/16" orifice .....   | 21091     |
| CTB-4, 1/4" orifice .....  | 21092     |

Aluminum oxide kit, field-installed. Includes: light lined flex hose, CTB-3 boron-lined nozzle, black-rubber cabinet curtains with grommets and curtain hardware. Does not include rubber reclaimer liners.

|                            |       |
|----------------------------|-------|
| III-P (conventional) ..... | 13536 |
| III-PE (ergonomic) .....   | 25074 |
| VI-P (conventional) .....  | 28903 |
| VI-PE (ergonomic) .....    | 28904 |

Aluminum oxide kit, factory-installed, includes: light lined flex hose, CTB-3 boron-lined nozzle, black-rubber cabinet curtains with grommets and curtain hardware. Does not include rubber reclaimer liners.

|                            |       |
|----------------------------|-------|
| III-P (conventional) ..... | 28898 |
| III-PE (ergonomic) .....   | 25008 |
| VI-P (conventional) .....  | 22673 |
| VI-PE (ergonomic) .....    | 28906 |

Rubber curtain set, black

|                                |       |
|--------------------------------|-------|
| for III-P (conventional) ..... | 23531 |
| for III-PE (ergonomic) .....   | 25086 |
| for VI-P (conventional) .....  | 23532 |
| for VI-PE (ergonomic) .....    | 25087 |

Rubber curtain set, white

|                                |       |
|--------------------------------|-------|
| for III-P (conventional) ..... | 23541 |
| for III-PE (ergonomic) .....   | 25088 |
| for VI-P (conventional) .....  | 23542 |
| for VI-PE (ergonomic) .....    | 25089 |

Rubber curtains, black Individual for conventional models

Back curtain

|                 |       |
|-----------------|-------|
| for III-P ..... | 14243 |
| for VI-P .....  | 14247 |

Front curtain

|                 |       |
|-----------------|-------|
| for III-P ..... | 14242 |
| for VI-P .....  | 14246 |

Door curtain (2 required)

|                 |       |
|-----------------|-------|
| for III-P ..... | 14244 |
| for VI-P .....  | 14245 |

Rubber curtains, white

Rubber curtain set

|                      |       |
|----------------------|-------|
| for Pulsar III ..... | 23541 |
| for Pulsar VI .....  | 23542 |

Rubber hopper liner set, black

|               |               |
|---------------|---------------|
| for III ..... | special order |
| for VI .....  | 23498         |

**Rubber Reclaimer Liners, 600 cfm only – Figure 40**  
**For modular style reclaimers sold on or after 09/2018**

| Item | Description                              | Stock No. |
|------|--|-----------|
| (-)  | Rubber liner sets, 600 cfm .....         | 29541     |
| 1.   | Top liner .....                          | 29535     |
| 2.   | Baffle, lined .....                      | 29531     |
| 3.   | Inner cylinder .....                     | 29530     |
| 4.   | Wall liner .....                         | 29533     |
| 5.   | Inlet-side liner .....                   | 29532     |
| 6.   | Cone liner .....                         | 29707     |
| 7.   | Inlet-top liner .....                    | 29536     |
| 8.   | Screw, 10-16 x 3/4" self-drill/tap ..... | 12722     |

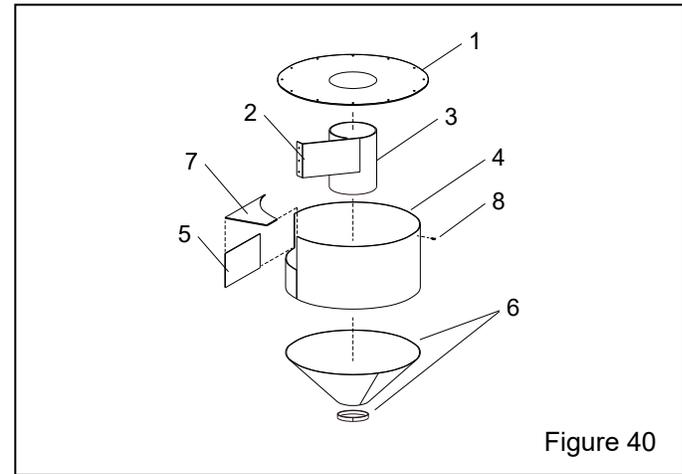


Figure 40

**Foot-Shelf Assembly – Figure 41**  
**Used on ergonomic models only**

| Item | Description                           | Stock No. |
|------|---------------------------------------|-----------|
| (-)  | Shelf assembly .....                  | 24835     |
| 1.   | Shelf, foot .....                     | 27599     |
| 2.   | Pin, quick release, 1/2" x 2" .....   | 24838     |
| 3.   | Screw, 1/4-NC x 3" hex head cap ..... | 24434     |
| 4.   | Nut, 1/4-NC Hex .....                 | 03111     |
| 5.   | Washer, 1/4 lock .....                | 03117     |
| 6.   | Washer, 1/4 flat .....                | 03116     |
| 7.   | Bracket, foot-shelf mount, each ..... | 27600     |

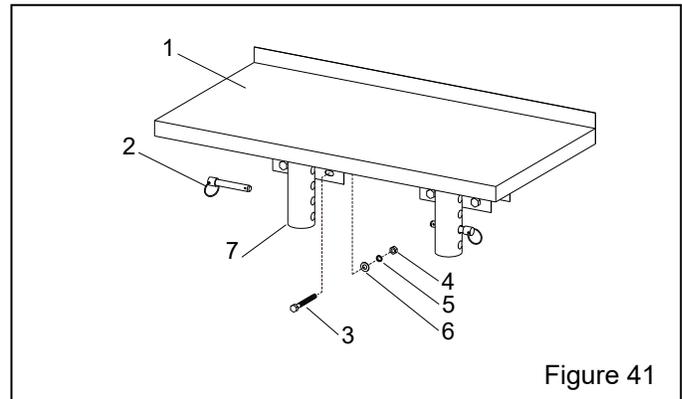


Figure 41

9.2 Foot-Pedal Assembly – Figure 42

| Item | Description                          | Stock No. |
|------|--------------------------------------|-----------|
| (-)  | Foot pedal with tubing               | 20194     |
| 1.   | Foot pedal casting set, top and base | 28379     |
| 2.   | Air valve, 3-way, n/c (blast valve)  | 20026     |
| 3.   | Drive pin, grooved                   | 20109     |
| 4.   | Screw, socket head, 1/4 nf x 3/4"    | 03086     |
| 5.   | Spring, 1-1/4" OD x 3-1/2"           | 20121     |
| 6.   | Adaptor, 10-32 thread x 1/8" barb    | 11731     |
| 7.   | Screw, fh, 10-32 x 1/2"              | 19571     |

|     |  |       |
|-----|--|-------|
| 8.  | Tubing, 1/8" ID twin, per foot,<br>14 ft required at each location | 19577 |
| 9.  | Screw, 8-32 x 3/8"   | 11389 |
| 10. | Bumper, neoprene   | 21522 |
| 11. | Cam follower   | 19576 |
| 12. | Spacer   | 19258 |
| 13. | Valve, 3-way (pulse valve)   | 12202 |
| 14. | Roll pin, 1/8"   | 20479 |
| 15. | Bracket, valve mount   | 22858 |
| 16. | Fitting, 1/8" NPT elbow x 1/8" barb                                | 11733 |
| 17. | Tie, nylon wire  | 12139 |

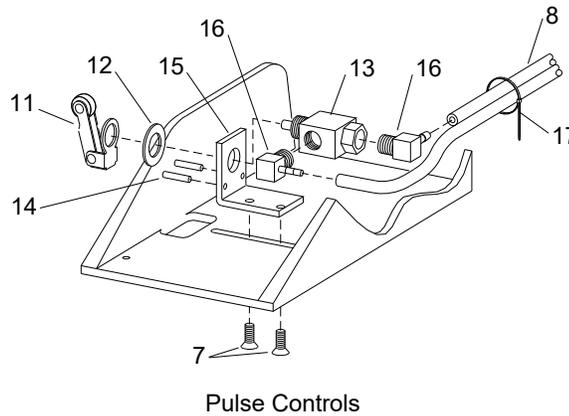
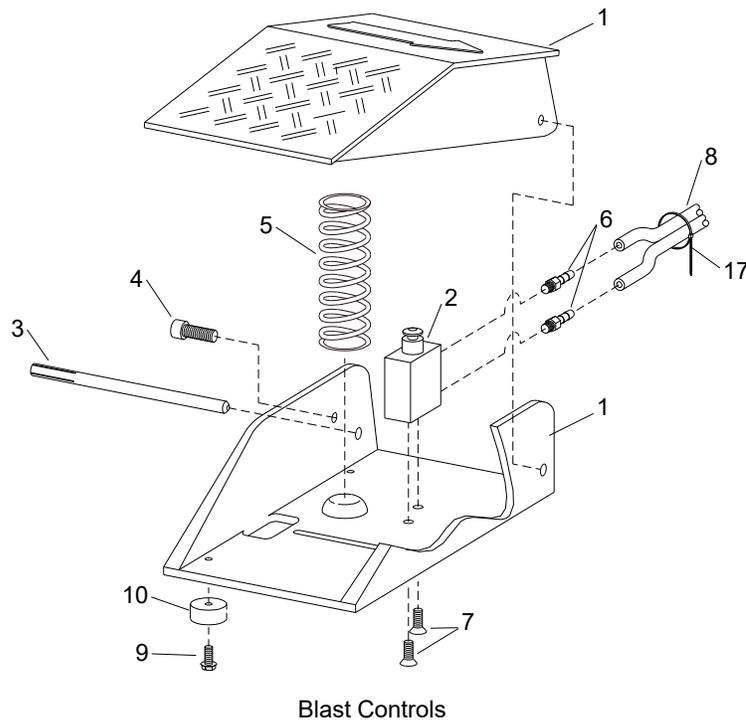


Figure 42

9.3 Cabinet Replacement Parts – Figure 43

| Item | Description  | Stock No. |
|------|--|-----------|
| 1.   | Gasket, 5/16" x 1", adhesive-backed, per foot, specify feet required |           |
|      | Door, Pulsar III - 11 ft per door                                    | 00187     |
|      | Door, Pulsar VI - 13 ft per door                                     | 00187     |
|      | Air-inlet damper, 3 ft required                                      | 00187     |
|      | Motor plate, 4 ft required   | 00187     |
|      | Pulsar III Ergo front, 13 ft required                                | 00187     |
|      | Pulsar VI Ergo front, 16 ft required                                 | 00187     |
| 2.   | Left door assembly   |           |
|      | for Pulsar III   | 20070     |
|      | for Pulsar VI  | 20074     |
| 3.   | Right door assembly  |           |
|      | for Pulsar III   | 20071     |
|      | for Pulsar VI  | 20075     |
| 4.   | Grate  |           |
|      | for Pulsar III   | 11811     |
|      | for Pulsar VI  | 11810     |
| 5.   | Adaptor pipe, flex hose  |           |
|      | 4" for Pulsar w/ steel media   | 23295     |
|      | 5" for Pulsar VI   | 23296     |
| 6.   | Gasket, flex hose adaptor pipe                                       |           |
|      | 4" for Pulsar w/ steel media   | 23258     |
|      | 5" for Pulsar VI   | 23259     |
| 7.   | Glove set  |           |
|      | Band-clamp attachment  | 11215     |
|      | Quick-Change (clampless) attachment                                  | 28820     |
| 8.   | Glove, left hand only  |           |
|      | Band-clamp attachment  | 12710     |
|      | Quick-Change (clampless) attachment                                  | 28638     |
| 9.   | Glove, right hand only   |           |
|      | Band-clamp attachment  | 12711     |
|      | Quick-Change (clampless) attachment                                  | 28639     |
| 10.  | Clamp, for clamp-attached glove                                      | 11576     |
| 11.  | Grommet, blow-off hose, 3/4" ID                                      | 11798     |
| 12.  | Door latch assembly  | 20064     |
| 13.  | Grommet, 1/4" ID x 1/2" OD   | 12762     |
| 14.  | Motor, exhauster   |           |
|      | 1 hp, 1 ph, standard   | 12314     |
|      | 1 hp, 3 ph, optional   | 12310     |
| 15.  | Paddle wheel, Pulsar VI  | 19234     |
| 16.  | Motor plate, Pulsar VI   | 20224     |
| 17.  | Air valve, 3 way, door interlock                                     | 12202     |
| 18.  | Over-travel stop, door interlock                                     | 20004     |
| 19.  | Detent sleeve, door interlock  | 15042     |
| 20.  | Bracket, door interlock actuator                                     | 19152     |
| 21.  | Clamp, flex hose   |           |
|      | 4" for steel media   | 11577     |
|      | 5" for Pulsar VI   | 11578     |
| 22.  | Hose, light-lined flex, specify feet required                        |           |
|      | 4" ID, for steel media, 7 ft. required                               | 12466     |
|      | 5" ID, for standard use, 7 ft. required                              | 12467     |
| 23.  | Switch, toggle   | 12127     |
| 24.  | Gasket, hopper plate   | 20247     |
| 25.  | Plate, hopper hose   | 21657     |
| 26.  | Gasket, HEPA cover plate   | 22808     |
| 27.  | Regulator, 1/8" NPT pilot pressure                                   | 12715     |
| 28.  | Gauge, pressure, 1/8" cbm pressure                                   | 01908     |
| 29.  | Fitting, 1/8" NPT elbow x 1/8" barb                                  | 11733     |
| 30.  | Grommet, blast hose  | 00184     |
| 31.  | Muffler, 1" exhaust  | 05068     |
| 32.  | Gasket, 5/32" x 3/4", 3 ft required                                  | 00192     |

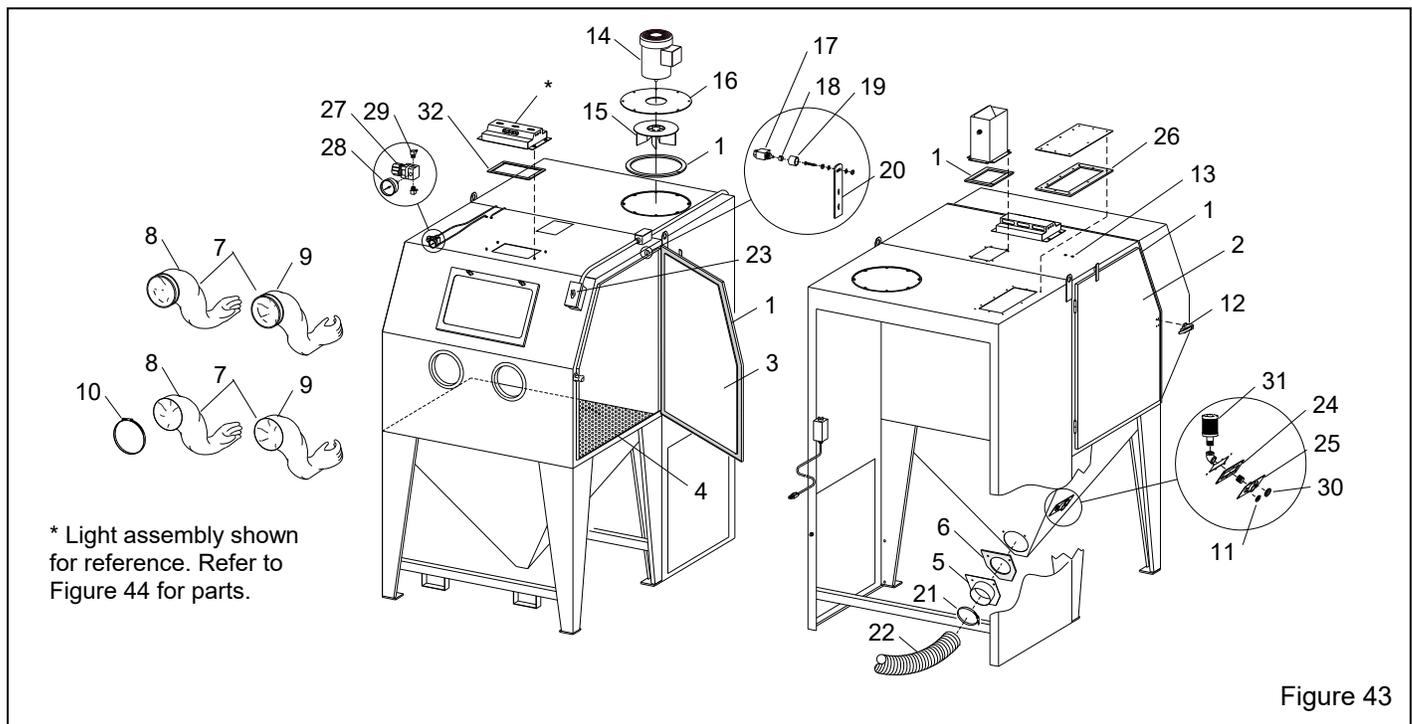


Figure 43

**9.4 LED Light Assembly – Figure 44**

| 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.   | Nut, 1/2" conduit .....                  | 12713     |
| 7.   | Nut, 1/4-20 hex .....                    | 03111     |
| 8.   | Washer, 1/4 lock .....                   | 03117     |
| 9.   | Washer, 1/4 flat .....                   | 03116     |

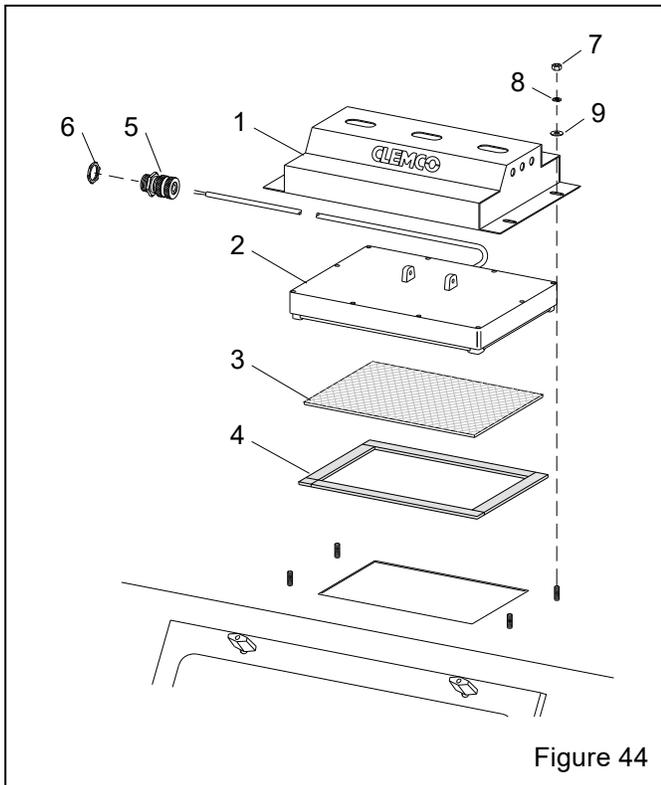


Figure 44

**9.5 1" Diaphragm Outlet Valve – Figure 45**

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

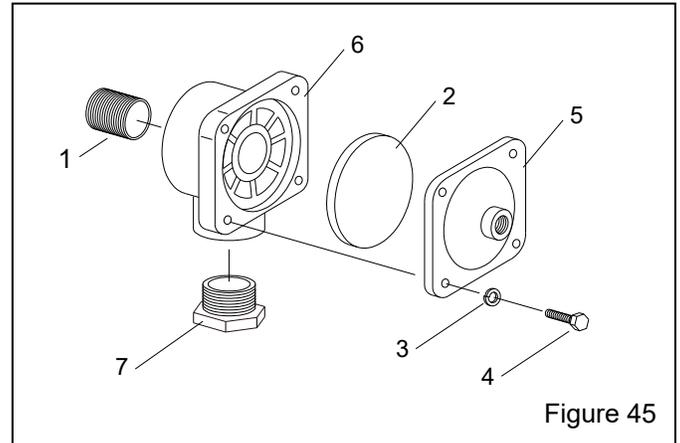


Figure 45

**9.6 View-Window Assembly – Figure 46**

| Item | Description  | Stock No. |
|------|--|-----------|
| 1.   | Window glass, 12.5" x 19.5" laminated .....                                      | 12212     |
| 2.   | Gasket, 5/16" x 3/4", applied to cabinet<br>per foot, 6-feet required .....      | 00189     |
| 3.   | Gasket, 5/32" x 3/4", applied to window frame<br>per foot, 6-feet required ..... | 00192     |
| 4.   | Cover lens, pkg. of 5 .....  | 06190     |
| 5.   | Nut, plastic, window frame,<br>2 required on conventional, 4 on ergo ....        | 23035     |
| 6.   | Window frame, quick change<br>for conventional model cabinet .....               | 22826     |
|      | for ergo model cabinet .....   | 25429     |

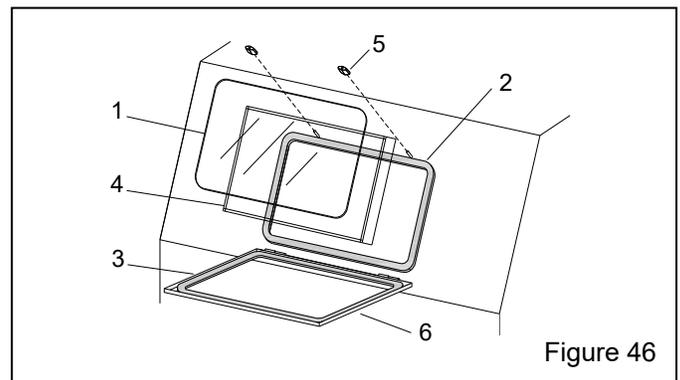


Figure 46

9.7 Plumbing and Cabinet Controls – Figure 47

| 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,<br>specify feet required     | 12475     |
| 4.   | Tubing, 1/8" ID twin urethane<br>specify feet required | 19577     |
| 5.   | Adaptor, straight<br>1/4" male NPT x 3/8 tube          | 11736     |
| 6.   | Tubing, 3/8" OD poly, specify ft. required             | 12478     |
| 7.   | Tee, 1/8" tube barb                                    | 11734     |
| 8.   | Filter, 1" auto-drain                                  | 22425     |
| 9.   | Regulator with gauge, 1/4"                             | 12050     |
| 10.  | Valve, 4-way air                                       | 12203     |
| 11.  | Adaptor, elbow, 1/4" male NPT x 3/8 tube               | 11685     |
| 12.  | Outlet valve, 1" diaphragm                             | 03371     |
| 13.  | Nipple, 1/4" brass hex                                 | 02808     |
| 14.  | Elbow, 1/4" brass st.                                  | 02027     |
| 15.  | Bushing 1/4" x 1/8" NPT                                | 02010     |

|     |   |       |
|-----|---|-------|
| 16. | Hose assembly, 1" x 42" exhaust                                   | 23916 |
| 17. | Muffler, 1/4" bronze  | 03988 |
| 18. | Adaptor, 1/2" NPT x 1/2" male flare                               | 11351 |
| 19. | Hose end, 1/2" barb x 1/2" female swivel                          | 15002 |
| 20. | Hose end, 1/2" barb x 3/8" male NPT                               | 06369 |
| 21. | Blow-off nozzle   | 13116 |
| 22. | Hose, 1/2" ID air, (specify ft. required)                         | 12472 |
| 23. | Regulator, 1/8" NPT pilot pressure                                | 12715 |
| 24. | Gauge, 1/8" cbm pressure  | 01908 |
| 25. | Fitting, 1/8" NPT elbow x 1/8" barb                               | 11733 |
| 26. | Tee, 1/4" brass   | 02025 |
| 27. | Foot pedal with tubing  | 20194 |
| 28. | Metering valve, Sentinel<br>for 50-mesh and finer media, standard | 21439 |
|     | for media coarser than 50-mesh                                    | 20608 |
| 29. | Regulator, 1" pilot operated, w/ gauge                            | 12052 |
| 30. | Nipple, 1/8" NPT hex  | 01962 |
| 31. | Actuator, air pilot   | 19123 |
| 32. | Valve, diaphragm pulse  | 19578 |
| 33. | Filter, 1/4" NPT male/female inline                               | 27618 |
| 34. | Fitting, 1/8" barb bulkhead                                       | 19570 |
| 35. | Adaptor, 1" male NPT x 1" male flare                              | 11720 |

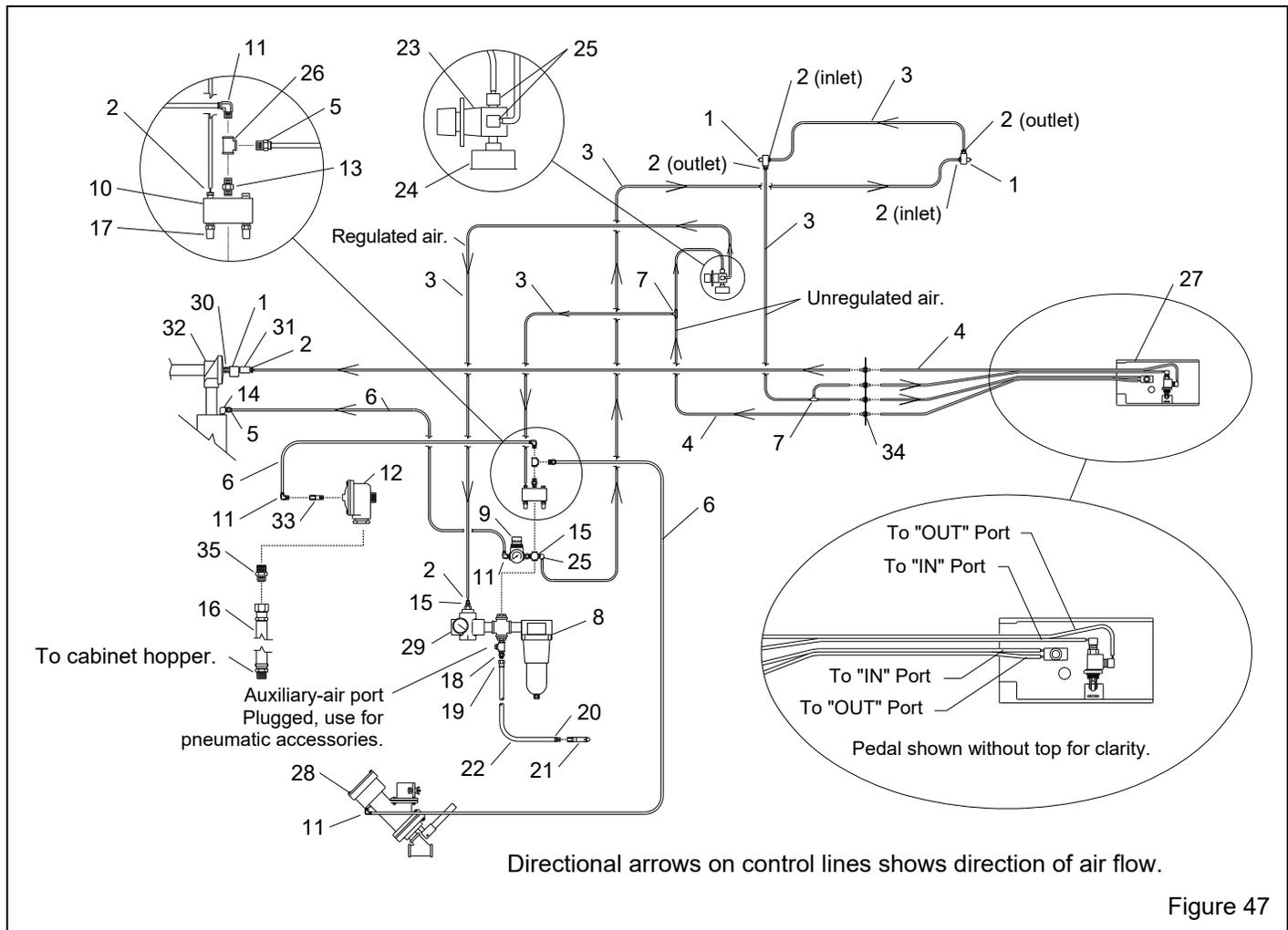
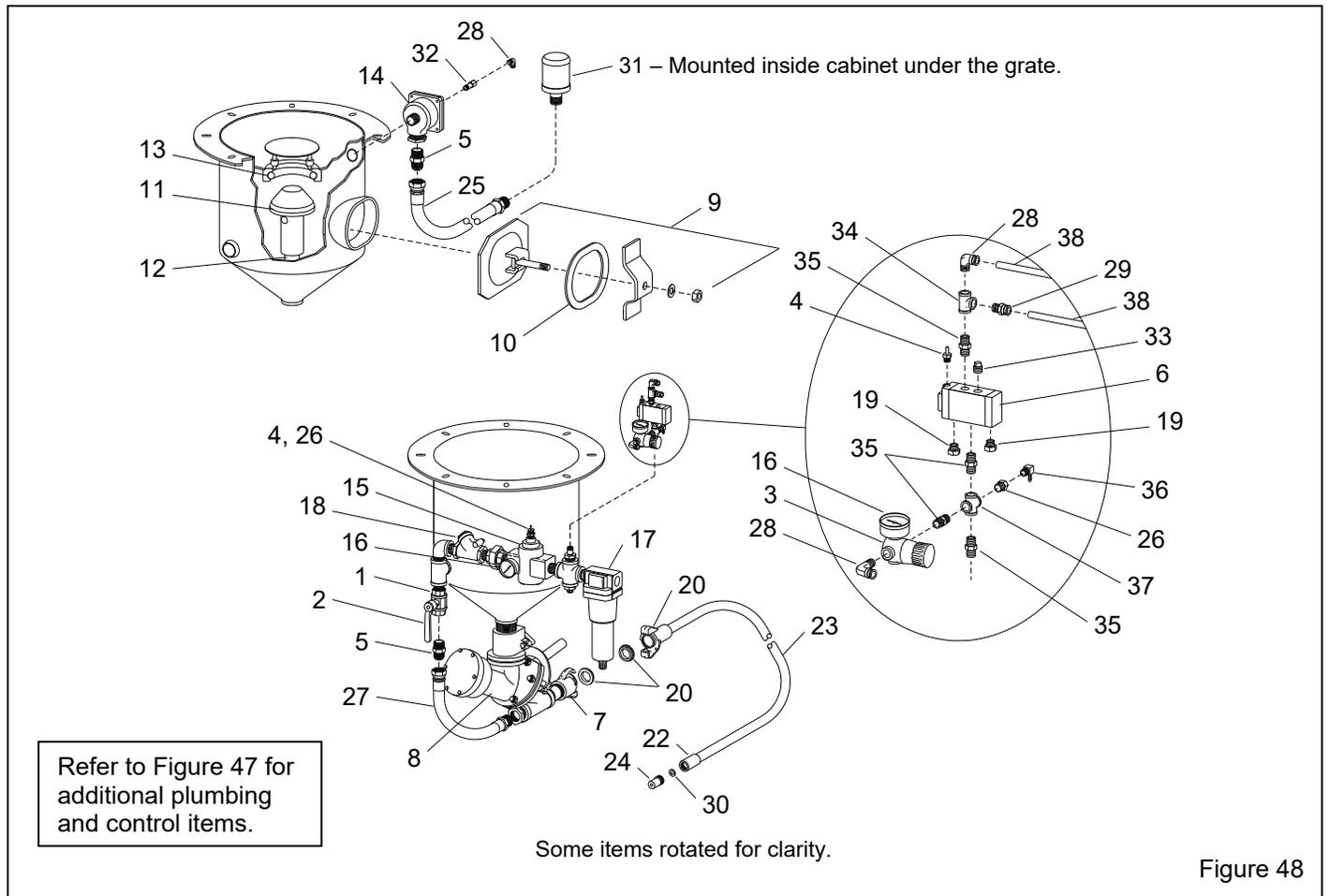


Figure 47

9.8 Blast Machine – Figure 48

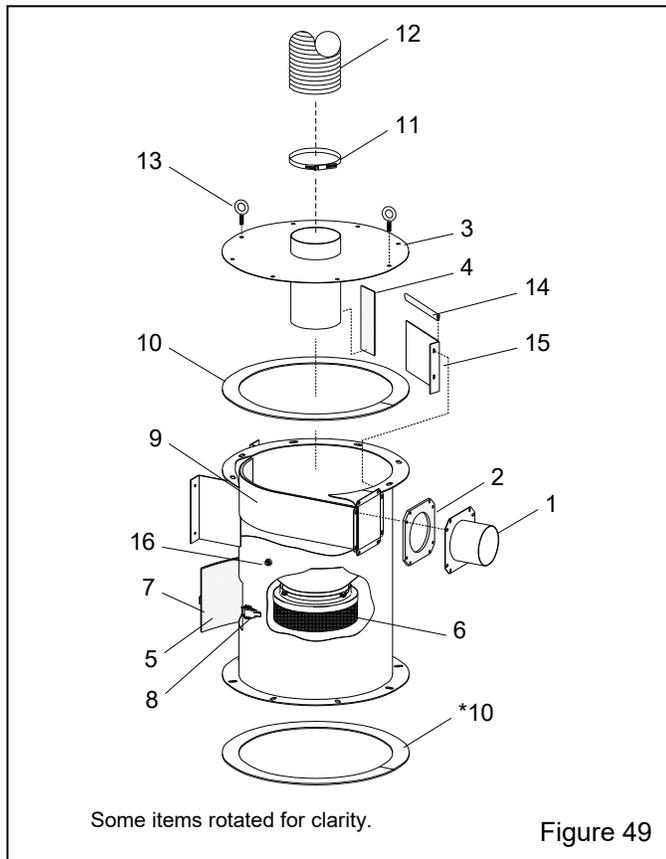
| Item | Description   | Stock No. |
|------|---|-----------|
| (-)  | Blast machine assembly, does not include items with an asterisk (*) | 21658     |
| 1.   | Ball valve, 1" with handle (choke valve)                            | 02396     |
| 2.   | Handle, 1" ball valve   | 22531     |
| 3.   | Regulator with gauge, 1/4"  | 12050     |
| 4.   | Fitting, straight, 1/8" NPT x 1/8" barb                             | 11732     |
| 5.   | Adaptor, 1" male NPT x 1" male flare                                | 11720     |
| 6.   | Valve, 4-way air  | 12203     |
| 7.   | CF coupling 1-1/4"  | 00551     |
| 8.   | Metering valve, Sentinel<br>for 50-mesh and finer media, standard   | 21439     |
|      | *for 50-mesh and coarser media                                      | 20608     |
| 9.   | Inspection door assembly, 6" x 8"                                   | 02377     |
| 10.  | Gasket, 6" x 8" inspection door                                     | 02369     |
| 11.  | Pop-up valve, 4"  | 03699     |
| 12.  | Guide, pop-up, 1-1/4" x 4-1/2" toe nipple                           | 21694     |
| 13.  | Seal, pop-up valve  | 02325     |
| 14.  | Outlet valve, 1" diaphragm  | 03371     |
| 15.  | Regulator, 1" pilot operated with gauge                             | 12052     |
| 16.  | Gauge, 1/4" cbm pressure  | 11830     |
| 17.  | Filter, 1" auto-drain   | 22425     |
| 18.  | Check valve, 1" swing   | 12187     |

|     |  |       |
|-----|--|-------|
| 19. | Muffler, 1/4" bronze                                       | 03988 |
| 20. | Coupling, 1/2" blast hose, CQA-1/2                         | 00599 |
| 21. | Gasket, coupling, CQG, pkg. of 10                          | 00850 |
| 22. | Nozzle holder, CHE-1/2                                     | 00577 |
| 23. | Blast hose, 1/2" x 25 ft.<br>Cut in half to make 2 lengths | 23750 |
| 24. | Nozzle, tungsten carbide<br>*CT-2, 1/8" orifice            | 01351 |
|     | CT-3, 3/16" orifice, standard                              | 01352 |
|     | *CT-4, 1/4" orifice  | 01353 |
| 25. | Hose assembly, 1" x 42" exhaust                            | 23916 |
| 26. | Bushing 1/4" x 1/8" NPT                                    | 02010 |
| 27. | Hose assembly, 1" x 21" pusher line                        | 22508 |
| 28. | Adaptor, el. 1/4" male NPT x 3/8" tube                     | 11685 |
| 29. | Adaptor, str. 1/4" male NPT x 3/8" tube                    | 11736 |
| 30. | *Nozzle washer, NW-1, pkg. of 10                           | 21580 |
| 31. | Muffler, 1" exhaust  | 05068 |
| 32. | Filter, 1/4" NPT male/female inline                        | 27618 |
| 33. | Plug, 1/4"-NPT pipe  | 01950 |
| 34. | Tee, 1/4" brass  | 02025 |
| 35. | Nipple, 1/4" brass hex                                     | 02808 |
| 36. | Fitting, 1/8" NPT elbow x 1/8" barb                        | 11733 |
| 37. | Cross, 1/4" brass  | 02193 |
| 38. | Tubing, 3/8" OD poly, specify ft. required                 | 12478 |



9.9 Reclaimer – Figure 49

| Item | Description   | Stock No. |
|------|---|-----------|
| (-)  | Reclaimer, VI-P, includes all items in Figure 49 except those marked with an asterisk (*) | 29502     |
| 1.   | Inlet-pipe adaptor for 5" hose, standard use  | 12361     |
|      | *for 4" hose, steel media   | 12350     |
| 2.   | Gasket, inlet-pipe adaptor 5", standard, all modular models                               | 11779     |
|      | *5" for rubber-lined prior to 09/2018   | 29631     |
| 3.   | Top plate, 600 cfm modular w/6" pipe  | 29538     |
| 4.   | Gasket, adhesive-backed 1/8" x 2," per foot   |           |
|      | 1 foot required at this location  | 13089     |
| 5.   | Gasket, door  | 11745     |
| 6.   | Debris screen, 8-mesh   | 21265     |
| 7.   | Door assembly, w/gasket and latch   | 14271     |
| 8.   | Latch assembly, door  | 12263     |
| 9.   | Wear plate, rubber-lined w/mntg screws  | 29542     |
| 10.  | Gasket, adhesive-backed 1/8" x 2," per foot   |           |
|      | 6 feet required at each location  | 13089     |
| 11.  | Clamp, 6" hose  | 00750     |
| 12.  | Hose, 6" unlined flex, 4 feet required  | 12452     |
| 13.  | Eyebolt 3/8-NC  | 00430     |
| 14.  | U-channel, 3/8, 1-foot required   | 04076     |
| 15.  | Baffle, 600 modular   | 29524     |
| 16.  | Plug, 1/4-NPT pipe  | 01950     |



9.10 Dust Collector – Figure 50

| Item | Description                               | Stock No. |
|------|---|-----------|
| (-)  | Repair kit, diaphragm pulse valve         | 21600     |
| 1.   | Valve, 1" diaphragm pulse                 | 19578     |
| 2.   | Valve, 3 way                              | 12202     |
| 3.   | Fitting, 1/8" NPT straight x 1/8" barb    | 11732     |
| 4.   | Nipple, 1/8" NPT hex                      | 01962     |
| 5.   | Actuator, air pilot                       | 19123     |
| 6.   | Fitting, 1/4" NPT straight x 3/8" tube    | 11736     |
| 7.   | Petcock                                   | 01993     |
| 8.   | Filter cartridge, 13" x 30"               | 19121     |
| 9.   | Hopper assembly, incl. items 10 & 11      | 24029     |
| 10.  | Gasket, 5/16" x 1" adhesive-backed,       |           |
|      | per foot, 7-feet required                 | 00187     |
| 11.  | Latch assembly                            | 11876     |
| 12.  | Hose, 4" unlined flex, (1 ft. min. order) | 12447     |
| 13.  | Clamp, 4" hose                            | 11577     |
| 14.  | Dust container, includes 12, 13, 15, & 16 | 23411     |
| 15.  | Pail, 3.5 gallon                          | 23417     |
| 16.  | Lid and lock ring, dust container         | 23419     |
| 17.  | Elbow, 1/4" brass st.                     | 02027     |
| 18.  | Washer, 1/2" ID x 1-1/16" OD              | 03515     |
| 19.  | Washer, 1/2" lock                         | 03516     |
| 20.  | Nut, 1/2"-NC wing                         | 20108     |
| 21.  | Liners, dust container, pack of 5         | 28621     |
| 22.  | Plug, 1/4-NPT pipe                        | 01950     |

