PULSAR® 55se
Ergonomic Suction Cabinet
O. M. 25727

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

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

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

This equipment is only one component of a cabinet blasting operation. Other products, such as air compressors, air filters and receivers, abrasives, equipment for ventilating, 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.

1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover set-up, operation, maintenance, troubleshooting, optional accessories, and replacement parts for Pulsar® 55se suction blast cabinets with 300 cfm power module.

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

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-2011, 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:
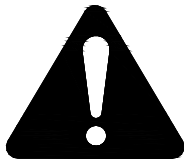
This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

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 General Description

1.3.1 Refer to Figure 1 for arrangement of components. The blast cabinet encloses the blasting environment to provide efficient blasting while maintaining a clean surrounding work area. Production rates are influenced by size of nozzle, compressor output, working pressure, type and size of media, angle and distance of the nozzle from the blast surface. Pulsar® 55se cabinets consist of two major components.

1. Cabinet Enclosure
2. Pulsar III 300 CFM Power Module is attached to the back of the cabinet enclosure and includes:
   * 300 cfm reclaimer
   * 300 cfm reverse-pulse cartridge dust collector

1.4 Theory of Operation

1.4.1 Once the cabinet is correctly setup and turned ON, the cabinet is ready for operation by actuation of the foot pedal. Fully pressing down on the foot pedal causes air to flow through the blast gun. The vacuum created by air moving through the gun draws media into the blast gun mixing chamber. The media mixes with the air and is propelled out the nozzle. After striking the object being blasted, the blast media, fines, dust, and by-products generated by blasting, fall through the mesh work table into the cabinet hopper. These particles are then drawn into the reclaimer for separation. Dust and fines are first separated from reusable media and pass into the dust collector. Next, the media is screened for oversize particles, and returned to the reclaimer hopper 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, blasting stops.

1.4.2 The dust collector filter cartridge is cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridge. The expanding air momentarily reverses air flow through the cartridge to release dust accumulated on the outer surface. The dust particles fall away from the cartridge and into the hopper for removal. The pulse occurs each time the foot pedal is pressed or released.

Figure 1 with labels: Inlet Damper, Exhauster, Outlet Damper (Access from underneath), Pulse Reservoir, Pulse-Pressure Regulator, Dust Collector, Reclaimer, Debris Screen, Hopper Bottom (access door), Metering Valve, 115V/1 PH Supply Cord, Grounding Lug, Pilot Operated Regulator, Dust Container, Cover Plate For optional HEPA Filter, Lifting Eye, Pilot Regulator (Blast pressure), Door Interlock Valve, Door Interlock Actuator, View Window, On - Off Switch, Air Filter (Compressed air inlet), Arm Ports, BNP Blast Gun, Foot Pedal, Foot Shelf, Blow-off Nozzle, Some items removed or rotated for clarity
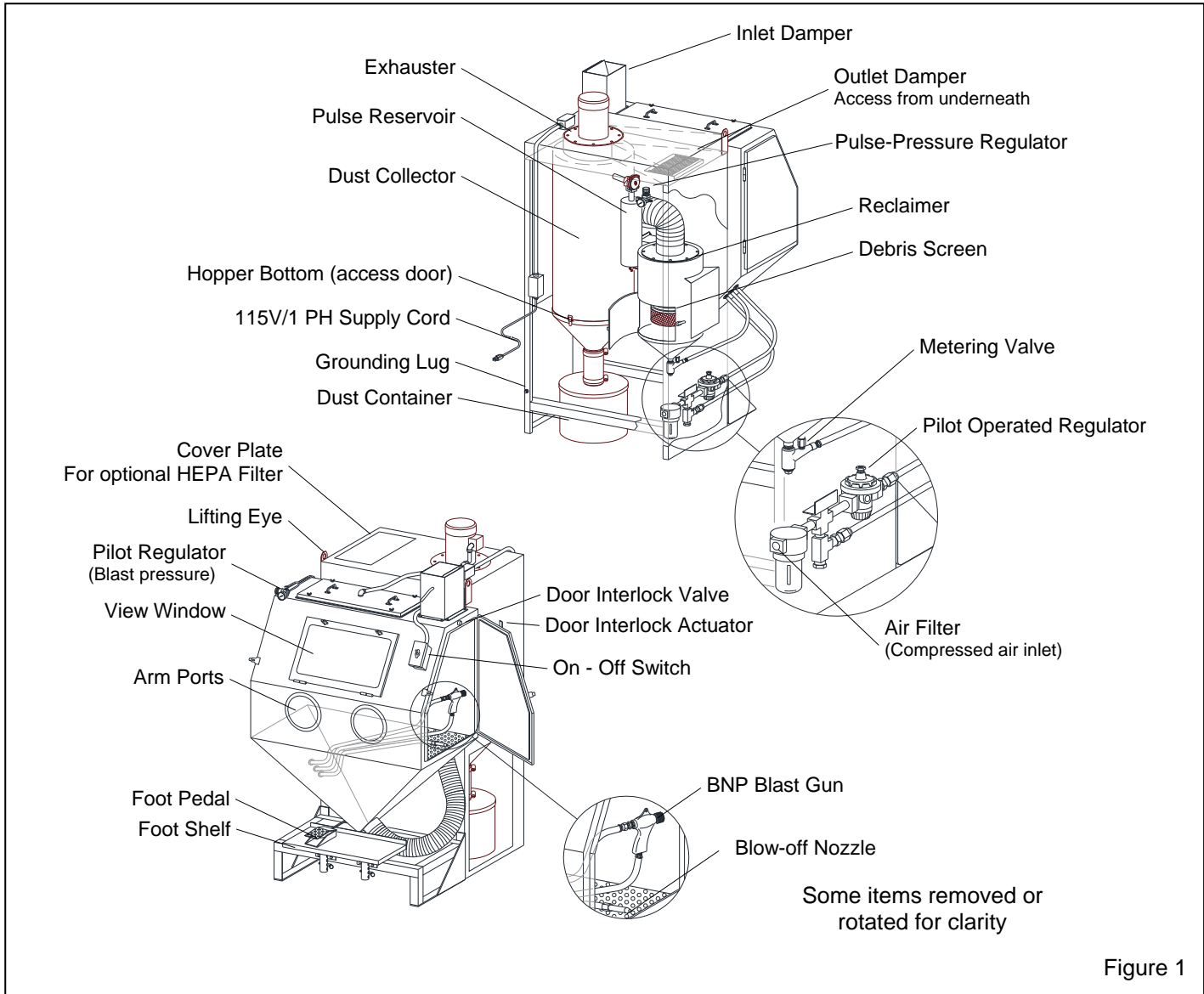
Figure 1

1.5   HEPA (high efficiency particulate air) Filter

1.5.1   Optional HEPA after-filter provides additional filtration. A HEPA filter must be used when removing lead coatings or any other toxic materials. HEPA filter is listed under Optional Accessories in Section 9.1.

1.6   Nozzle Options

1.6.1   Unless otherwise specified at the time of order, cabinets are shipped with a 5/16" orifice ceramic nozzle and No. 5 (5/32" orifice) air jet. Optional, more durable tungsten carbide and boron carbide nozzles are available and are listed under Optional Accessories in Sections 9.1 and 9.3. Use boron carbide nozzles when blasting with aggressive media, as noted in Section 1.7.4

1.7   Blasting Media

1.7.1   The Pulsar® 55se cabinet utilizes most common reusable media between 60-mesh and 180-mesh that is specifically manufactured for dry blasting. Media sizes shown are guidelines only, based on standard (5/16" orifice) nozzle (5/32" air jet) and average conditions such as blast pressure, media/air mixture visibility inside the cabinet, humidity, and reclaimer cleaning rate.

Several factors affecting the reclaimer cleaning rate include: reclaimer size (cfm), blast pressure, media/air mixture, media friability, contamination of parts being cleaned, damper setting (static pressure), type of dust collector, dust collector filter loading (differential pressure across the dust filters).

As a rule, larger air jets and nozzles deliver more media, thus requiring more performance from the reclaimer. Therefore, larger nozzles decrease the maximum mesh size of media from those normally recommended. On the other hand, leaner media flow and lighter or less dense media may increase the maximum usable media size. Media finer than those recommended may decrease visibility, and increase carryover to the dust collector. Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper.

1.7.2   Steel: Steel grit or shot should not be used with the Pulsar® 55se cabinet. The cabinet is too small to prevent peening of the cabinet weldment, and the reclaimer is too small to efficiently convey ferrous, metallic media.

1.7.3   Sand and Slag: Sand should NEVER be used because of the respiratory hazards associated with media containing free silica. Slags are not recommended because they rapidly breakdown and are not recyclable, making them unsuitable for cabinet applications.

1.7.4   Silicon Carbide, Aluminum Oxide, and Garnet: These are the most aggressive of the commonly used media. Aggressive media may be used, but the service life of any equipment components exposed to the media will be reduced. To avoid unscheduled down time, periodically inspect the reclaimer wear plate, exhauster housing and paddle wheel, blast hose, and nozzle for wear.

When using aggressive media, 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. See Optional Accessories in Section 9.1

1.7.5   Glass Bead: No. 6 to No. 12 glass bead are recommended for the Pulsar® 55se. Most beads are treated to ensure free-flow operation even under moderately high-humidity conditions. Glass beads subjected to excessive moisture may be reused after thorough drying and breaking up of any clumps.

1.7.6   Plastic Media: Plastic and similar lightweight media are generally not recommended in suction style cabinets. Plastic media blasting usually requires a blast machine with a 60-degree conical bottom. Refer to Clemco's AEROLYTE brand.

1.8   Compressed Air Requirements

1.8.1   The size of the compressor required to operate the cabinet depends on the size of the air jet and blasting

pressure. Unless otherwise specified, cabinets are supplied with a No. 5 (5/32" orifice) jet. Refer to the table in Figure 2 to determine cfm requirements. Consult with a compressor supplier for suggested compressor size based on the maximum air consumption.

Air Consumption in cfm				
BNP Gun	Jet	Nozzle	CFM	PSI
No. 4	1/8"	5/16"	21	80
No. 5	5/32"	5/16"	32	80
*No. 6	3/16"	3/8"	47	80

* Using a No.6 jet and nozzle in applications that produce excessive dust may cause poor visibility. The 300 cfm reclaimer may not recover heavy, coarse abrasive from the cabinet hopper when using a No. 6 jet and nozzle combination.

Figure 2

1.8.2   The air filter at the air inlet connection reduces condensed water from the compressed air. Its use is especially important in areas of high humidity, or when fine-mesh media are used. Moisture causes media to clump and inhibits free flow through the feed assembly. 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.

1.9   Electrical Requirements

1.9.1   Electrical requirements depend on the size and phase of the motor. Standard cabinets are supplied with 300 cfm reclaimer, using 1/2 HP, 115/230V, 1-PH, 60 HZ motors, wired for 115 volts.

1.9.2   A power cord with u-ground plug is provided.

2.0   INSTALLATION

2.1   General Installation Notes

2.1.1   Select a location where compressed air and electrical service are available. The cabinet location must comply with OSHA and local safety codes. Allow for full access to all doors and service areas and for efficient handling of parts. Make sure there is room to load media and to remove spent media. Determine the best location, and position the unit before making final connections.

2.2   Connect Compressed Air Supply Line

2.2.1   Install an air fitting that is compatible with the air supply hose fitting, to the compressed-air filter located on the inside wall of the power module, as shown in Figure 1. Refer to Paragraph 2.2.2.

2.2.2   Refer to the table in Figure 3 to determine the minimum ID of air supply line to the cabinet. A smaller diameter hose may reduce blasting efficiency.

| | Jet Size | | |
Air Line Length	1/8" No. 4	5/32" No. 5	3/16" No. 6
25 feet	3/4"	3/4"	1"
50 feet	3/4"	3/4"	1"
75 feet	3/4"	1"	1"
100 feet	3/4"	1"	1"
Minimum compressed air line ID			
			Figure 3

⚠ WARNING

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

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

⚠ WARNING

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

2.2.3   Install an isolation valve at the air source to enable depressurization for service, and connect an air line from the air source to the filter inlet located under the cabinet hopper.

⚠ WARNING

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

2.3   Ground Cabinet

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

2.4   Connect Electrical Service

2.4.1   Power is supplied by a u-ground plug; plug it into 115-volt outlet.

⚠ WARNING

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

2.5   Inlet Damper

2.5.1   The inlet damper must be set to match the cabinet dimensions and reclaimer size. The decal on the damper shows the settings in degrees. For the initial setting, align the handle to 30 degrees. Refer to Section 5.7 for adjustment procedure.

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

2.6   Position the foot pedal on the foot shelf or on the floor at the front of the cabinet. The foot shelf is easily removed by removing the two release pins.

2.7   Window Cover Lens

2.7.1   A package of 5 cover lenses is supplied with the cabinet. To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner surface of the view window per Section 6.6. When the cover lens becomes pitted or frosted, replace it.

3.0   FIELD INSTALLED ACCESSORIES

3.1   Alox (aggressive media) Kit

3.1.1   The optional aluminum oxide kit is available factory installed or may be field installed later. Factory installed Alox kits consist of four rubber curtains with grommets, curtain hardware, and boron carbide nozzle. Refer to Section 3.2 for curtain installation.

NOTE: Wear plates and lined flex hose are standard on current cabinets. Inspect both items and if either requires replacement order separately, refer to:
Section 9.2, Figure 26, Item 15 for flex hose
Section 9.8, Figure 32, Item 11 for wear plate.

3.2   Curtain Installation

3.2.1   Match curtains to corresponding wall and doors.

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

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

3.3   Track and Low Profile Table, Maximum Weight Capacity 500 Lbs.

3.3.1   Components of track and table assembly are shown in Figure 4. The assembly consists of:

1. Track assembly: mounts inside the cabinet.
2. Table assembly: rollers on sliding table fit inside the track rails.
3. All necessary mounting fasteners.

NOTE: The track may be installed to permit the table to slide out through either the right side or left side door. The right side is shown in the illustrations.

3.3.2   Combine the table assembly and track by sliding the table assembly rollers into the track channels, as shown in Figure 5.

NOTE: If the weight of the table and track make it too heavy to install as an assembly, the track may be placed in the cabinet to predrill mounting holes, but the table must also be in place within the rails before fasteners are installed.
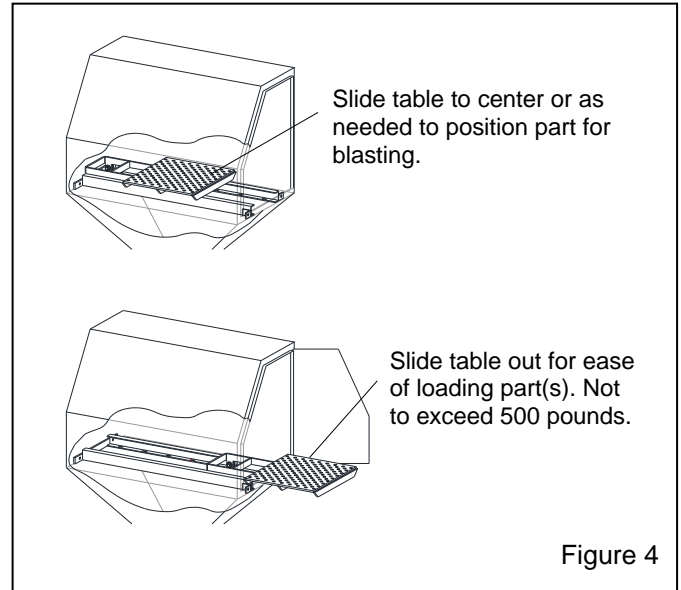

Slide table to center or as needed to position part for blasting.

Slide table out for ease of loading part(s). Not to exceed 500 pounds.

Figure 4

Table Assembly
Rollers (4)
Track Assembly
Mounting Holes
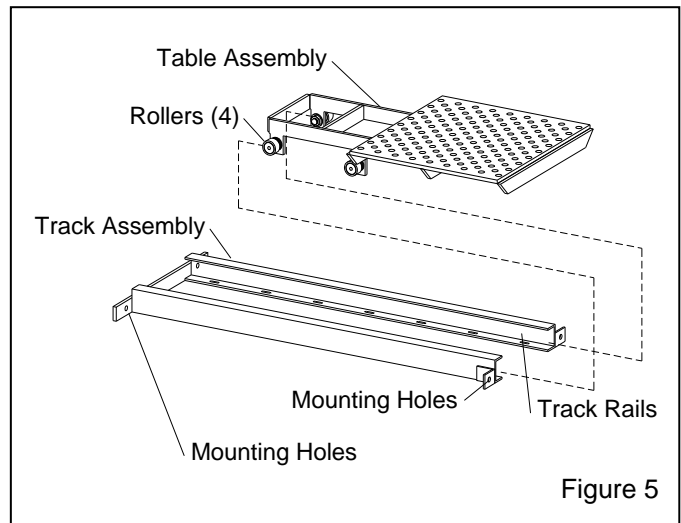Track Rails
Mounting Holes

Figure 5

3.3.3   Refer to Figure 6 and center the track and table assembly inside the cabinet on top of the grate. Make sure the two angled mounting brackets are facing toward the door from which the table will slide.

Match Drill
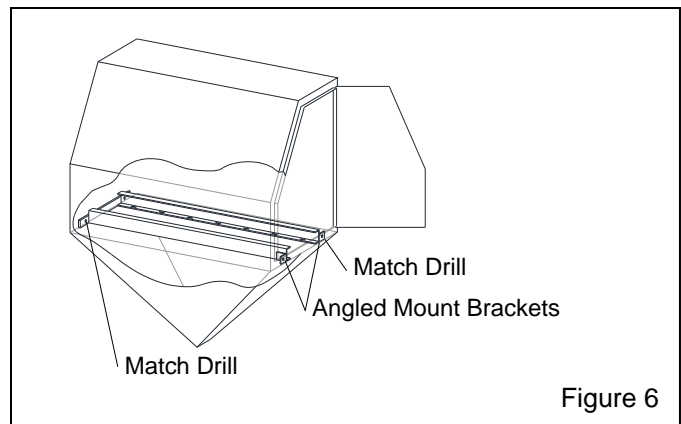Angled Mount Brackets
Match Drill

Figure 6

3.3.4 Match drill two 1/2" diameter holes on each side of the cabinet, using the holes in the mounting brackets as a template. NOTE: To prevent the track from shifting, temporarily place a 3/8-NC x 1-1/2" bolt through each hole after it is drilled.

3.3.5 After the holes are drilled and the table assembly is placed in the track rails, secure all fasteners.

3.4   **Manometer**

3.4.1 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 outlet damper; refer to Section 5.4 to adjust static pressure. Refer to Section 5.8 for manometer instructions. The optional manometer kit is listed in Section 9.1.

3.5   **Differential Pressure (Magnehelic) Gauge**

3.5.1 The differential pressure gauge measures pressure drop across the filter cartridge. The gauge is the best way to monitor cleaning efficiency and dust buildup on the cartridge.

3.5.2 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. There is not enough room on a Pulsar 55se to mount it at the front of the cabinet, choose another convenient location. Note: A 20-foot length of tubing is included with the kit, allowing the panel to be mounted within ten feet of the dust collector connections, as shown in Figure 7.

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

3.5.4 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 7.

3.5.5 Connect the 1/4" tubing to the snubber fittings and gauge as shown, by removing the fitting's compression nut; slide it over the end of the tubing, insert the tubing into the fitting, and tighten the nut onto the fitting.

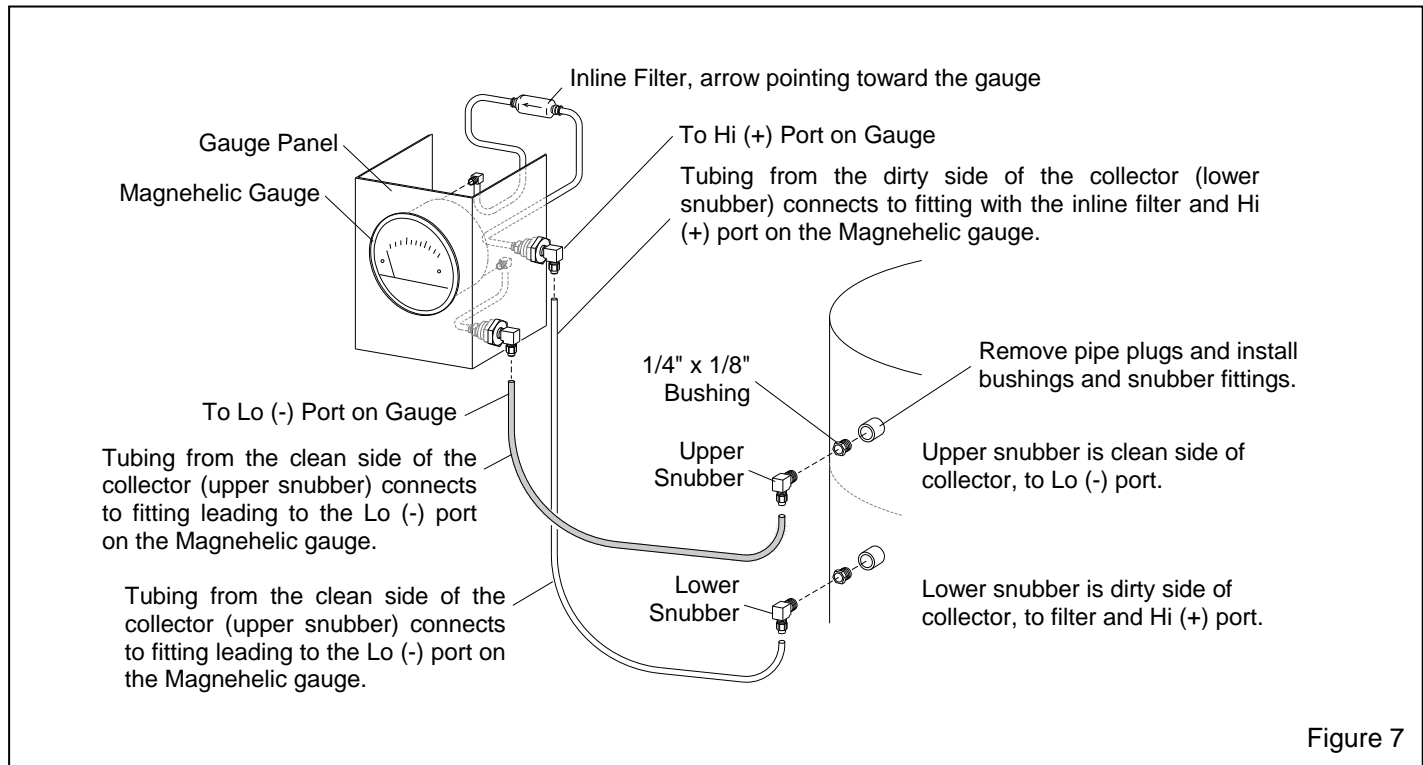**3.5.6** Refer to the Magnehelic differential pressure gauge manual provided for operation of the gauge.

Figure 7

4.0   OPERATION

4.1   Season Filter Cartridge

NOTICE

Do not pulse a new dust collector or replacement filter cartridge until the cartridge is seasoned per Section 7.8. Pulsing unseasoned cartridges decreases the efficiency of collector and life of the cartridge.

4.2   Media Loading and Unloading

4.2.1   Media Loading: With the exhauster OFF, add clean dry media by pouring it into the reclaimer hopper through the reclaimer door. Do not fill above the cone on the reclaimer. **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. Refill only after all media has been recovered from the cabinet.

The minimum amount of media to charge the system is 10 Lbs.

4.2.2   Media Unloading: To empty the cabinet and reclaimer of media, blow-off the cabinet interior and run the exhauster until all media is recovered from the cabinet. Turn OFF the exhauster, and place an empty container under the metering valve. Unscrew the plastic plug from the metering valve, permitting media to flow into the container. If media doesn't flow, it has caked. Open the fill door and stir media until it starts to flow. Replace the plug when the reclaimer is empty.

4.3   Loading and Unloading Parts

⚠ WARNING

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

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

4.3.2   Load and unload parts through either door.

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

4.4   Blasting Operation

⚠ CAUTION

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

4.4.1   Slowly open the air valve on the air supply hose to the cabinet. Check for air leaks on the initial start up and periodically thereafter.

4.4.2   After the filter cartridge is seasoned per Section 7.8, adjust the pulse pressure regulator to 60 psi. Refer to Section 5.6 for adjustment procedure.

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

4.4.4   Load parts.

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

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

4.4.7   Insert hands into rubber gloves.

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

NOTE: When holding parts off the grate, use a solid conductive back rest 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.

4.4.9   When blasting small parts, place an appropriately-sized screen over the grate to prevent parts

from falling into the hopper. If an object should fall through the grate, stop blasting immediately and retrieve it.

⚠ WARNING

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

4.5   Stop Blasting

4.5.1   To stop blasting, remove pressure from the foot pedal.

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

4.5.3   Unload parts. Shut off the air supply valve, drain the air filter and pulse reservoir, and switch OFF the lights and exhauster.

4.6   Blasting Technique

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

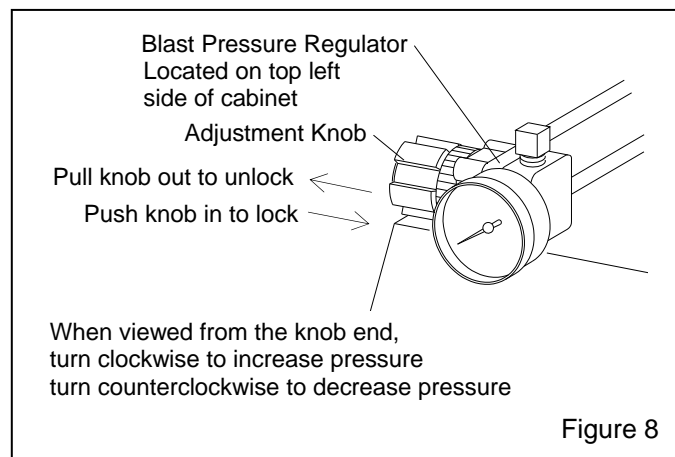### 4.7   Pulsing (Cleaning) Dust Collector Cartridge

4.7.1   The dust collector filter cartridge is pulsed each time the foot pedal is pressed or released. Prolonged periods of blasting or dusty conditions may require the cartridge to be pulsed during the blasting process per Section 6.4.

5.0   ADJUSTMENTS

### 5.1   Blasting Pressure, refer to Figure 8

5.1.1   The pilot regulator, located on the top, left side of the cabinet, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is 80 psi. Lower pressures may be required on delicate substrates, and will reduce media breakdown. Higher pressure may be required for difficult blasting jobs on durable substrates, but will increase media break down. If pressure is too high, suction in media hose will decrease, and if high enough cause blow-back in the hose. In all cases, optimal production can only be achieved when pressure is carefully monitored.

5.1.2   To adjust pressure, pull the knob to unlock it, then turn it clockwise to increase pressure or counter-clockwise to decrease pressure. Pressure may drop from closed-line pressure when blasting is started. Once operating pressure is set, push the knob in to lock it and maintain the setting.

Blast Pressure Regulator Located on top left side of cabinet

Adjustment Knob

Pull knob out to unlock
Push knob in to lock

When viewed from the knob end, turn clockwise to increase pressure turn counterclockwise to decrease pressure

Figure 8

### 5.2   Air Jet Adjustment, Figure 9

5.2.1   The air jet should be screwed 4-1/2 to 5 full turns into the gun body. Doing so will leave 3-1/2 to 4 threads exposed past the lock nut. Tighten the lock nut to hold the jet in place. Refer to Section 9.3 for optional adjusting tool, which correctly positions the jet.

3-1/2 to 4 threads between lock nut and air jet hex

Air Jet
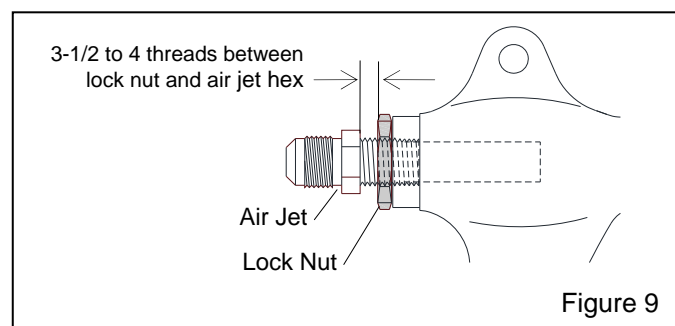
Lock Nut

Figure 9

5.3   Media/Air Mixture, Figure 10

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

Adjusting Screw
Lock Nut
Upper holes fully closed
Lower holes fully open
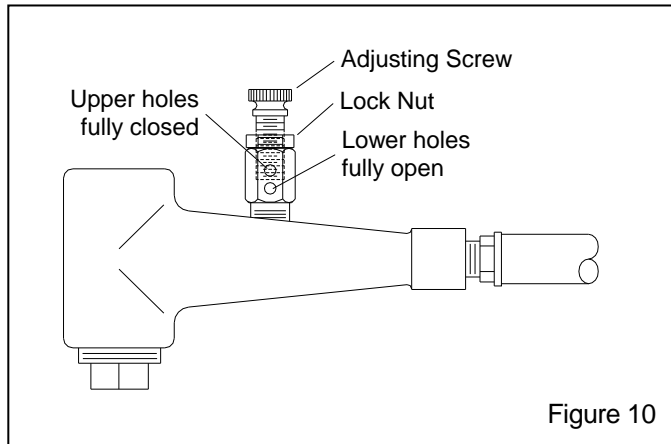
Figure 10

5.3.2   If media does not flow smoothly, loosen the lock nut, and adjust the metering screw until the upper holes in the metering stem are closed-off, and the lower holes are fully open, as shown in Figure 10. This adjustment is a starting point.

5.3.3   If pulsation occurs in the media hose, either media is damp and caked, or not enough air is entering the media stream. While blasting, loosen the lock nut and slowly turn the adjusting screw out (counterclockwise when viewed from the top) until media flows smoothly. Tighten the lock nut to maintain the setting.
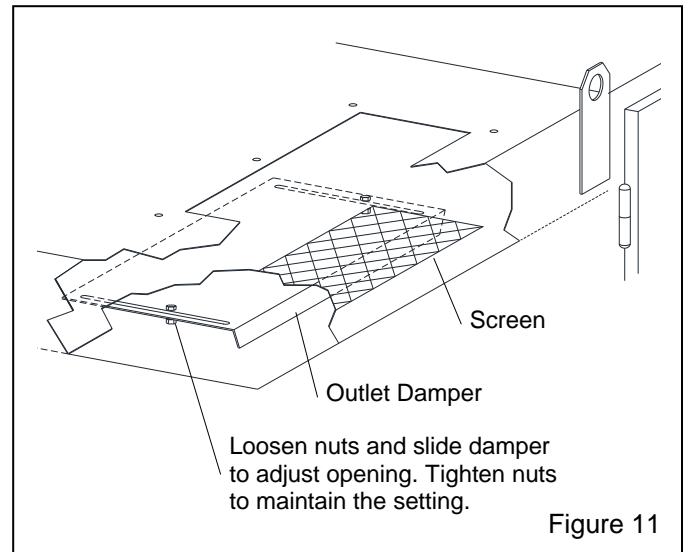
5.3.4   If media flow is too light, decrease air in the mixture by turning the metering screw in (clockwise when viewed from the top) covering more of the holes so less air enters the media hose. Tighten the lock nut to maintain the setting.

5.4   Static pressure

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

5.4.2   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 11. If the damper is not opened far enough, the reclaimer will not remove fines, resulting in dusty media, poor visibility, or will not convey media, causing media build-up in the hose between the cabinet hopper and reclaimer. If the

damper is opened too far, it may cause carryover (usable media carried into the dust collector) and result in excessive media consumption. Open damper only as far as necessary to obtain a balance of maximum dust removal without media carryover.

Screen
Outlet Damper
Loosen nuts and slide damper to adjust opening. Tighten nuts to maintain the setting.
Figure 11

5.4.3   A manometer is useful when adjusting and monitoring static pressure. The manometer kit is listed under Optional Accessories in Section 9.1. Refer to Section 5.8 for 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 5.4.2. Continue adjusting static pressure until optimum media cleaning without carryover is attained.

Glass Bead No. 6 and 7 .... 3-1/2" to 4"
Glass Bead No. 8 to 12 .... 3"-to to 3-1/2"
Alox. 60 to 80 ....4" to 5"
Alox. 80 to 180 ....3" to 4"

5.4.4   As dust accumulates on the outer surface of the cartridge, static pressure drops, requiring additional pulsing of the cartridge or an increase in pulse pressure as described in the auto-pulse supplement sheet. When pulsing no longer maintains the necessary static pressure, readjust the damper.

5.5   Door Interlocks, Figure 12

⚠ WARNING

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

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

5.5.2   Close cabinet doors.

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

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

Over-travel Stop

Adjusting Screw Nut
Loosen, and move sideways to center the adjusting screw on the over-travel stop.

Detent Sleeve

Adjusting Screw
Adjust the screw to push the valve stem in when door is closed.

Actuator Adjusting Bracket
Loosen the bracket screws, and move the bracket up or down to center the adjusting screw on the over-travel stop.
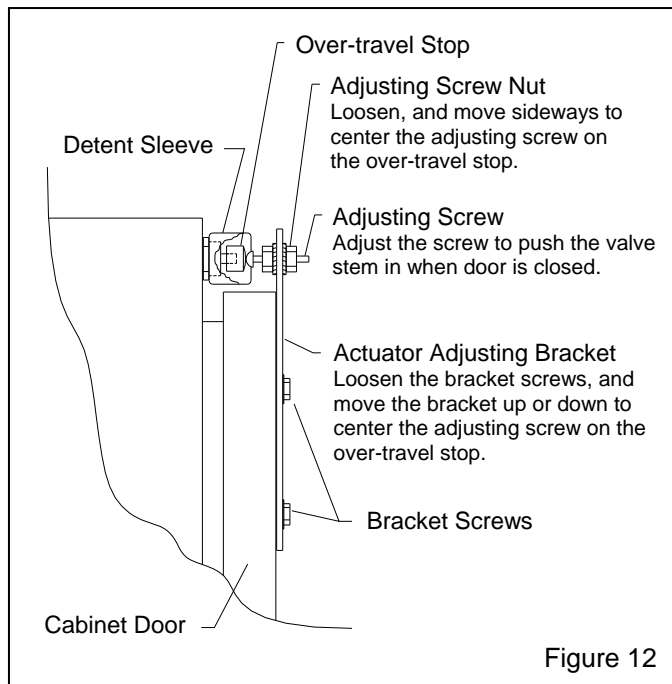
Bracket Screws

Cabinet Door

Figure 12

5.5.5   Test the operation with the doors open and then again closed. Point the nozzle away from the door during the tests, and only open the door enough to disengage the interlock switch. The interlocks should prevent blasting when either door is open, and permit blasting

when the doors are closed. NOTE: Negative pressure inside the cabinet may cause the doors to flex inward. Tests should be performed with the exhauster ON.

5.6   Pulse Pressure

NOTICE

Do not pulse new dust collectors or replacement cartridges until the cartridge is properly seasoned. Refer to Section 7.8. Pulsing unseasoned cartridges could cause premature cartridge failure or decrease the efficiency of dust collector.

5.6.1   Adjust pulse pressure using the regulator mounted on the pulse reservoir, as shown in Figure 13. Begin pulse at 60 psi. To adjust pressure, pull the knob to unlock it, as shown in Figure 13, 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.

Pulse Valve

Adjustment Knob
Pull up to unlock
Push down to lock

Pulse-Pressure Regulator

Pulse Reservoir

Some items removed for clarity
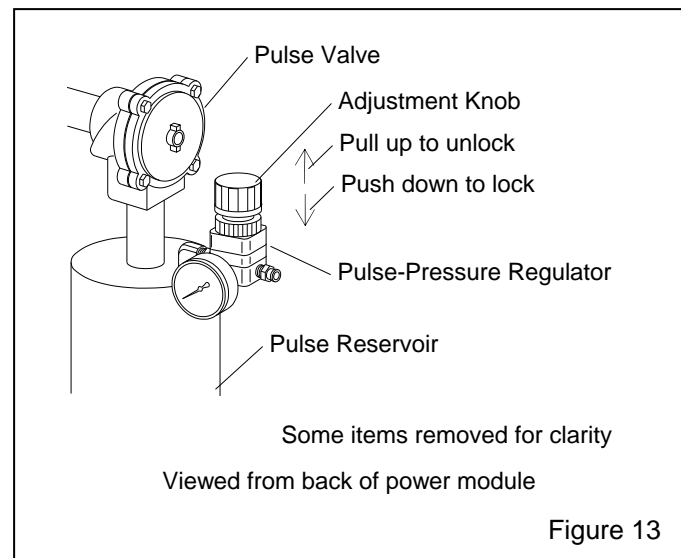
Viewed from back of power module

Figure 13

5.6.2   As the filter cartridge cakes with dust, it may be necessary to pulse between blasting, per Section 6.4.

5.6.3   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.

5.6.4   When the maximum pulse pressure of 90 psi is attained, and additional pulsing as described in Section

6.4 does not increase visibility or decrease differential pressure, replace the cartridge per Section 7.7.

5.7   Inlet Damper

5.7.1   Once the inlet is initially set per Section 2.5, it seldom requires readjustment. The initial setting produces approximately .5" to .75" of static pressure in the cabinet enclosure. **Do not confuse cabinet static pressure with reclaimer static pressure, which is controlled by the outlet damper. See Section 5.4. Reclaimer pressure must be set before cabinet pressure.** In rare circumstances, cabinet pressure may need to be slightly higher or lower.

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

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

5.8   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 instruction explains the processes for taking periodic readings and shows 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 .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 the reading is taken.

5.8.1   Refer to directions packed with the manometer for preparation and operating instructions for the manometer.

5.8.2   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.
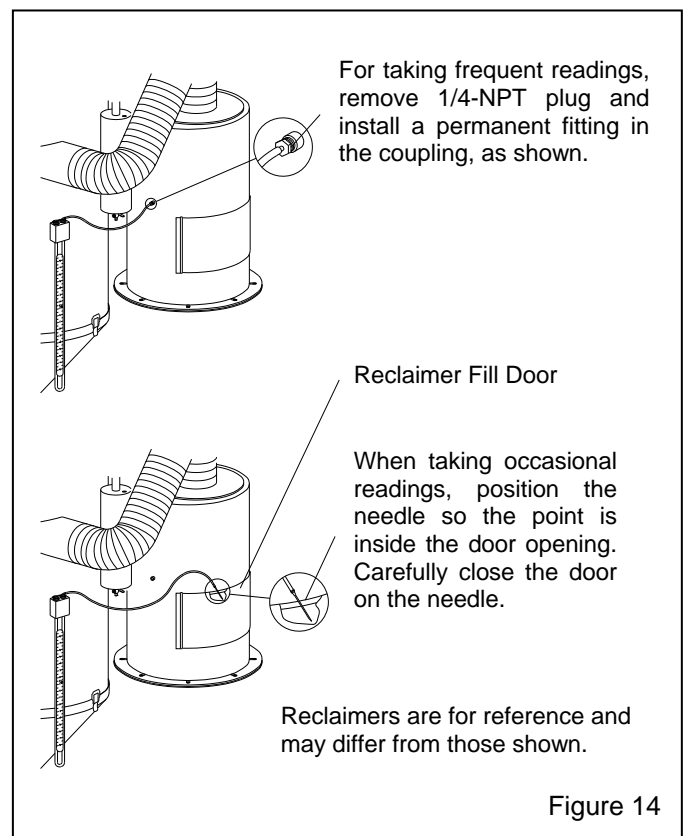
5.8.3   Open both manometer valves (elbows) per the instructions with the manometer.

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

5.8.5   Adjust the slide rule to align the zero with the fluid level. Refer to Figure 15.

5.8.6   Needle placement: Ref. Figure 14.

5.8.6.1 To take frequent readings: Permanently install the manometer for taking frequent readings. Remove the 1/4" NPT plug from the coupling on 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.

For taking frequent readings, remove 1/4-NPT plug and install a permanent fitting in the coupling, as shown.

Reclaimer Fill Door

When taking occasional readings, position the needle so the point is inside the door opening. Carefully close the door on the needle.

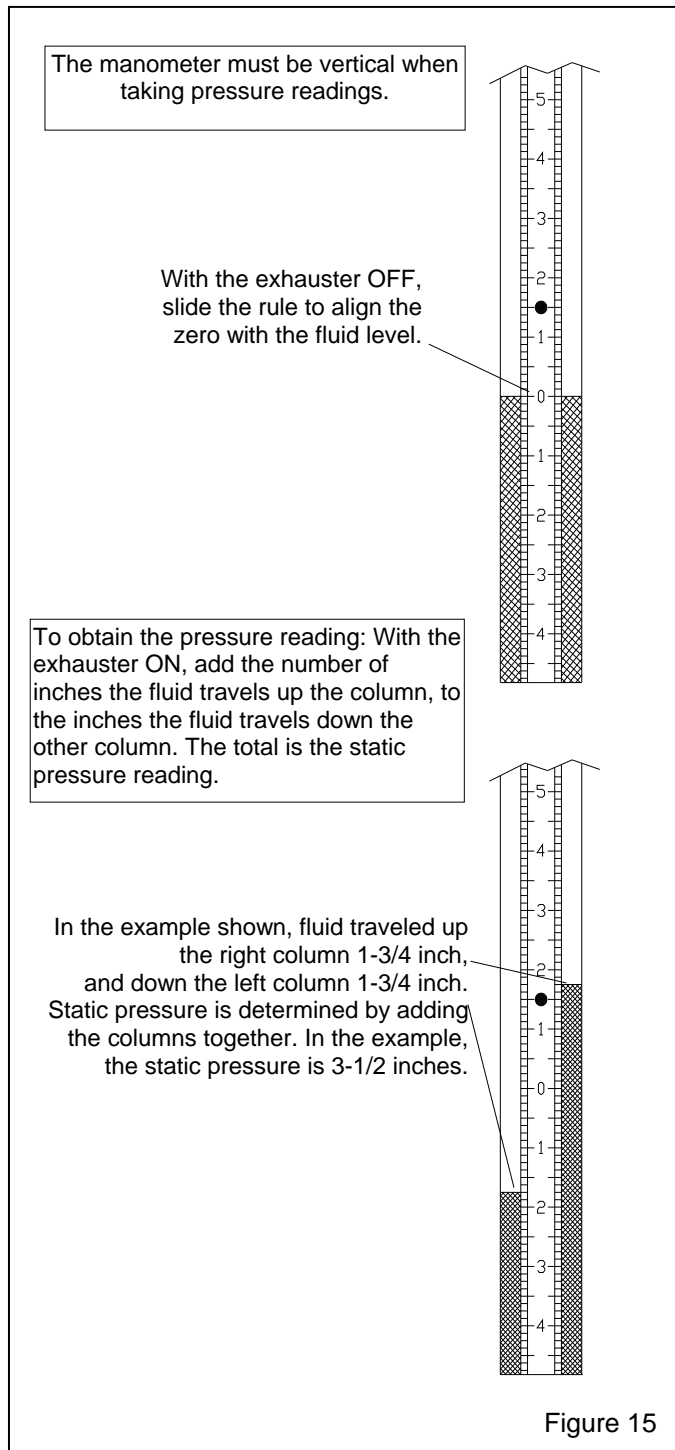Reclaimers are for reference and may differ from those shown.

Figure 14

5.8.6.2 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

5.8.7 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.**

5.8.8 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 15.

> The manometer must be vertical when taking pressure readings.

> With the exhauster OFF, slide the rule to align the zero with the fluid level.

> To obtain the pressure reading: With the exhauster ON, add the number of inches the fluid travels up the column, to the inches the fluid travels down the other column. The total is the static pressure reading.

> In the example shown, fluid traveled up the right column 1-3/4 inch, and down the left column 1-3/4 inch. Static pressure is determined by adding the columns together. In the example, the static pressure is 3-1/2 inches.

Figure 15

5.8.9 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.

5.9   Foot Shelf

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

6.0   PREVENTIVE MAINTENANCE

⚠ WARNING

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

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

6.1.   BNP Gun Assembly

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

6.2.   Dust Collector Dust Container

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

6.2.2 Turn OFF the exhauster and release the dust container from the lid. The lid's flexible inlet hose allows easy removal. Remove the liner and dump the contents or the tied-off liner into a suitable disposal receptacle. Replace the liner and attach the container to the lid

making sure the lid and clamp are secure. Replacement liners are shown in Section 9.9, Figure 33, Item 21.

NOTE: Blasting media is usually non-toxic, however, materials being removed by the blast process may be toxic. Obtain SDS sheets for the media and identify all material removed by the blast process. Check with proper authorities for disposal restrictions.

6.3   Pulse reservoir, Figure 16

6.3.1   Open the petcock to drain water from the pulse reservoir before and after each use.
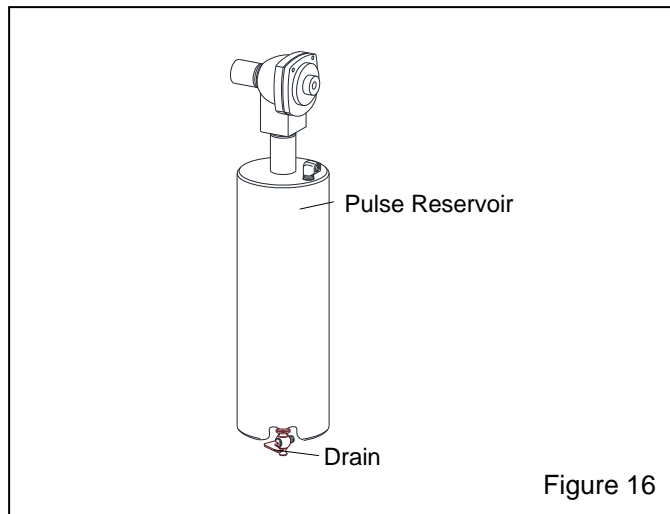

Pulse Reservoir

Drain

Figure 16

6.4   Cartridge Pulsing

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

6.4.2   Turn OFF exhauster.

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

6.4.4   Start the exhauster and let it run for 10 seconds or until all airborne dust is cleared from the cabinet.

6.4.5   Repeat the process several times.

6.5   Reclaimer Debris Screen

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

6.6   View Window Cover Lens

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

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

6.6.3   To install a cover lens, carefully remove the adhesive backing, leaving the adhesive on the lens, and apply the lens to the clean, dry, inner surface of the view window. Replace the cover lens when it becomes pitted or frosted.

6.7   Compressed-Air Filter

6.7.1   The cabinet is equipped with a manual-drain air filter. Drain the filter at least once a day, or more often if water is present. Moist air inhibits the flow of media. 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.

6.8   Media Hose

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

7.0   SERVICE MAINTENANCE

⚠ WARNING

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

7.1   Gloves

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

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

7.2   Nozzle

7.2.1   Replace the nozzle when its diameter has increased by 1/16", or when suction diminishes noticeably. To change the nozzle, unscrew the nozzle holding nut and pull the existing nozzle from the gun. Inspect the nozzle o-ring and replace if worn or damaged. Insert a new nozzle, placing the tapered end toward the jet. Screw the nozzle holding nut onto the gun.

7.3   View Window Replacement

⚠ WARNING

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

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

7.3.2   Remove the old window.

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

7.3.4   Install a view window cover lens per Section 6.6.

7.3.5   Set the new window (cover lens down) squarely over the window opening, making sure that all edges of the window are centered and overlapping the window gasket, and that the window is resting on the window support tabs.

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

7.4   Window Gasket Replacement, Figure 17

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

7.4.2   Remove the window and window frame per Section 7.5.

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

7.4.4   Peel a short section of adhesive backing from the 5/16″-thick strip gasket, and adhere the gasket to the center of the top edge of the window opening as shown in Figure 17. 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.
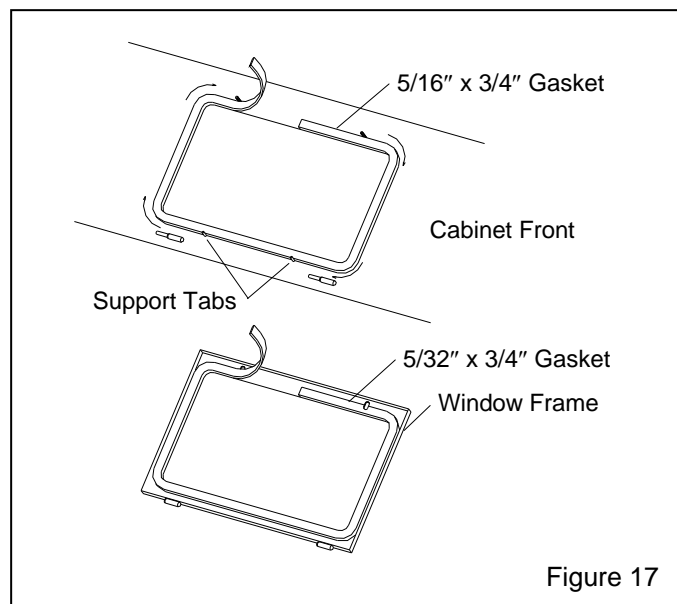

Figure 17

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

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

7.5   Window Frame Removal, Figure 18

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

7.5.2   Remove the window to prevent breakage.

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

7.5.4   Slide the frame to the right, to remove. The hinges separate as shown in Figure 18.

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

7.5.6   Set the window squarely over the window opening, 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.

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

Pivot the frame up or down until tension is removed from the hinges.

Support Tab
Support Tab

Slide the frame to the right to separate the hinges.

Figure 18
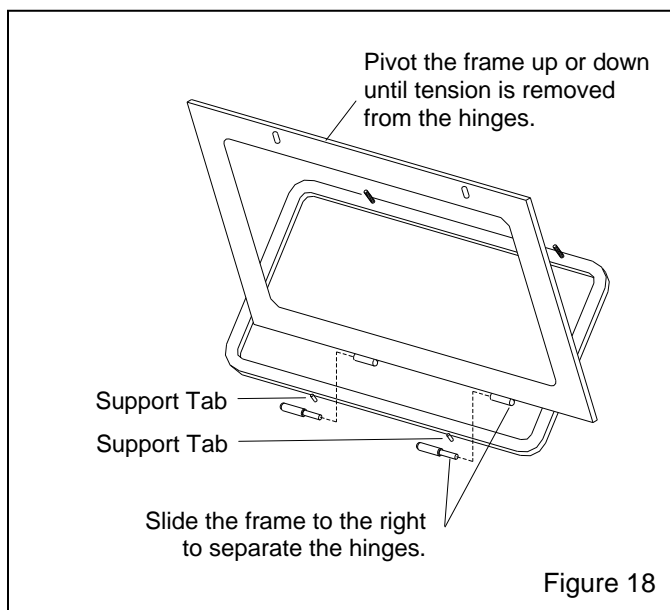
7.6   Light Assembly

CAUTION

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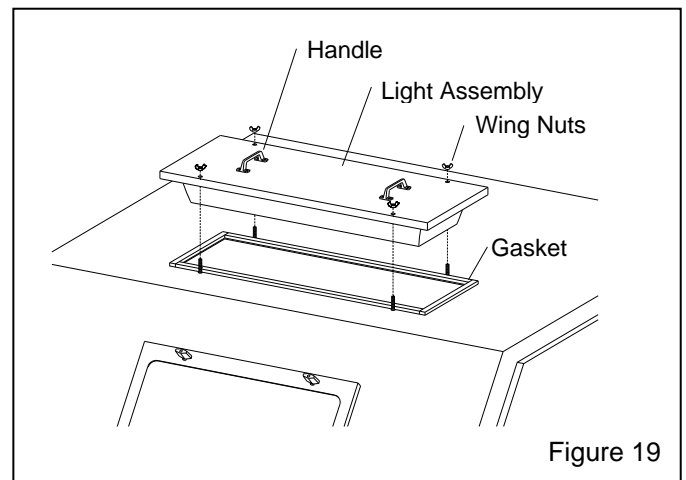
7.6.1   Shut OFF electrical power.

7.6.2   Gasket Replacement

7.6.2.1 Remove the four wing nuts holding the light fixture to the cabinet, and use the handles to lift the fixture off the cabinet, as shown in Figure 19.

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

7.6.2.3 Lay a section of strip gasket next to the opening, and cut to length, allowing 3/4″ overlap on each end. Peel a short section of adhesive backing and adhere the strip gasket to the top edge of the light opening, as shown in Figure 19. Press the gasket tightly to bond. Repeat the process for each side, compressing the ends to seal.

Handle
Light Assembly
Wing Nuts
Gasket

Figure 19

7.6.3   Lens and Tube Replacement

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

7.6.3.2 Flip the fixture over to access the lens screws, ref. Figure 20.

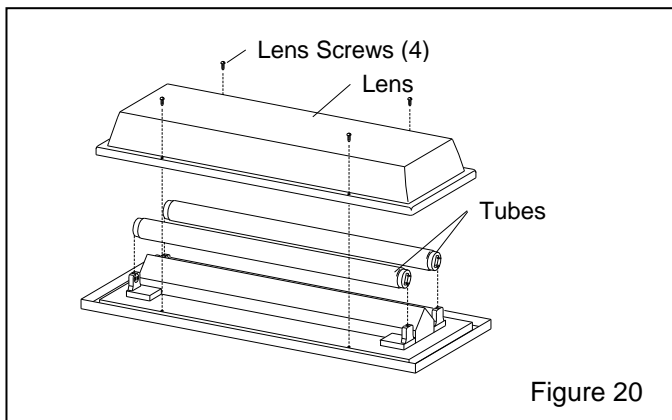**7.6.3.3** Remove the four lens screws and remove the lens.

Figure 20

7.6.3.4 Replace the lens or tubes as required.

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

7.6.3.6 Reassemble in reverse order.

7.7   Filter Cartridge Replacement, Figure 21

⚠ WARNING

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

7.7.1 Close the air supply valve and open the drain to remove all air from the pulse reservoir.

7.7.2 Unlatch the dust container cover from the container and remove the container.

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

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

7.7.5 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.

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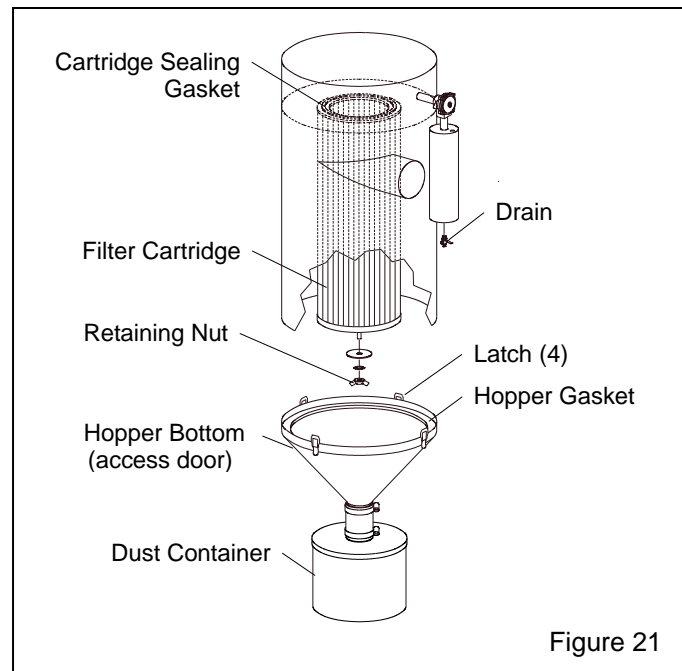

Figure 21

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

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

7.7.9 Attach the hopper bottom, and latch in place.

7.7.10 Remove the liner from the dust container and dump the contents or the tied-off liner into a suitable disposal receptacle. Replace the liner and reattach the container to the lid making sure the lid and clamp are secure.

7.7.11 Season cartridge per Section 7.8.

7.8   Seasoning Cartridge

NOTICE

Do not pulse a new dust collector or replacement filter cartridge until the cartridge is seasoned per Section 7.8. Pulsing unseasoned cartridges decreases the efficiency of collector and life of the cartridge.

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

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

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

7.9 **Reclaimer Wear Plate Replacement**

7.9.1 Remove the reclaimer from the power module.

7.9.2 Remove the reclaimer inlet adaptor and old wear plate. The wear plate is held in place by screws attached from the outside of the reclaimer. Angle the new wear plate into the reclaimer inlet until it is in position with the straight end at the reclaimer inlet. Insert a board or similar object into the reclaimer inlet for leverage, and pry the wear plate against the inner wall of the reclaimer. While forcing the wear plate against the reclaimer wall, install sheet metal screws through the old screw holes to secure. Caulk gaps or voids around the wear plate to prevent rapid wear in those areas.

7.9.3 Reinstall the reclaimer.

8.0 **TROUBLESHOOTING**

⚠ WARNING

To avoid serious injury, observe the following when troubleshooting.
- **Turn OFF the air, and Lockout and Tagout the air supply.**
- **If checking the controls requires air, always enlist the aid of another person to:**
  Hold the blast gun securely.
  Operate the foot pedal.
- **Never bypass the foot pedal or wedge it in the operating position.**
- **Never override the door interlock system**.

8.1 **Poor visibility**

8.1.1 Dirty filter cartridge. Empty the dust container. Pulse cartridge several times per Section 6.4. 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 electrical power** and switch motor leads as shown on the motor plate.

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

8.1.5 Outlet damper closed too far restricting air movement through the cabinet. Adjust static pressure per Section 5.4.

8.1.6 Inlet damper closed too far restricting air movement through the cabinet. Adjust damper per Section 2.5 and 5.7.

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

8.1.8 Reclaimer fill door open.

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

8.1.10 Paddle wheel worn. Check wheel for wear.

8.2 **Abnormally high media consumption**

8.2.1 Fill door on reclaimer open or worn door gasket. Air entering the reclaimer around the door will cause media carryover to the dust collector. DO NOT operate unless all doors are closed.

8.2.2 Outlet damper open too far. Adjust static pressure per Section 5.4.

8.2.3 Media may be too fine or worn-out.

8.2.4 Using friable media that rapidly breaks down.

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

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

8.3 Reduction in blast cleaning rate

8.3.1 Low media level reducing media flow. Check media level in reclaimer; add media or change media as needed.

8.3.2 Media/air mixture out of adjustment. Adjust metering valve per Section 5.3.

8.3.3 Reduced air pressure. This may be caused by a malfunctioning regulator, a dirty filter element in the air filter, partially-closed air valve, leaking air line, or other air tools in use.

8.3.4 Blockage in media hose or gun. Blockage may occur as a result of a missing reclaimer debris screen or heavy media flow. Inspect reclaimer screen and adjust media flow per Section 5.3.

8.3.5 Worn gun parts such as nozzle or air jet. Inspect gun and replace all worn parts.

8.3.6 Worn media hose. Check hose for leaks and soft spots. Replace worn or damaged hose.

8.3.7 Air jet in gun out of adjustment. Check adjustment per Section 5.2.

8.3.8 Moist media. Frequent bridging or blockage in the area of the metering valve can be caused by moisture. Refer to Section 8.5.

8.4 Plugged nozzle

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

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

8.5 Media bridging

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

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

8.5.3 Moist compressed air may be due to a faulty compressor that overheats, or pumps oil or moisture into the air line, too long an air line permitting moisture to condense on the inside, and from high humidity. Drain the air filter and receiver tank regularly. Ongoing problems with moist air may require the installation of an air dryer or aftercooler in the air supply line.

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

8.5.5 A vibrator attached to the reclaimer cone or metering valve may help to prevent bridging of fine-mesh media.

8.6 Media surge

8.6.1 Heavy media flow. Adjust media/air mixture per Section 5.3.

8.7 Blockage in media hose

8.7.1 Media obstructions. Usually caused when the media mixture is too rich. Adjust media/air mixture per Section 5.3.

8.7.2 Wet or damp media. Refer to Section 8.5.

8.8 Poor suction in media hose

8.8.1 Inadequate air supply. Check the tables in Figures 2 and 3.

8.8.2 Air jet needs adjustment. Check adjustment per Section 5.2.

8.8.3 Nozzle worn. Replace if worn 1/16" or more.

8.8.4 Blockage in media hose or nozzle. Refer to Sections 8.4 and 8.7.

8.8.5 Wrong size-combination of air jet and nozzle Refer to the table in Figure 2.

8.8.6 Air jet sleeve extends past end of air jet. Cut the sleeve even with the air jet.

8.8.7 Nozzle pressure too high, refer to Section 5.1.

8.8.8 Nozzle inserted backward; the tapered end of the nozzle should face toward the air jet.

8.9 Air only (no abrasive) from nozzle

8.9.1 Make sure the reclaimer contains media.

8.9.2 Check media hose for blockage. Media obstructions is usually caused when the media mixture is too rich, adjust media/air mixture per Section 5.3.

8.9.3 Make sure the air hose and media hose are not reversed; the air hose attaches to the back of the gun and the clear media hose attaches to the bottom of the gun's grip. Refer to Figure 28.

8.10   Blow-back through media hose

8.10.1 Blockage in nozzle. Remove the nozzle and check for blockage.

8.10.2 Air jet may be too large for nozzle. Refer to the table in Figure 2.

8.11   Blasting does not begin when the foot pedal is pressed.

8.11.1 Door interlocks not engaging. Check adjustment per Section 5.5.

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

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

8.11.4 Pressure regulator may be set too low or OFF. Check pressure on pilot regulator.

8.11.5 Make sure that the air compressor is operating and air supply valves are open.

8.11.6 Check the nozzle to see if it is plugged. Refer to Section 8.4.

8.11.7 Make sure lines are not reversed on the foot pedal or pilot regulator. Refer to the schematic in Figure 28.

8.12   Blasting continues when foot pedal is released

8.12.1 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.

8.13   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. Refer to 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 grate. Static will build-up in the part if not dissipated through the metal cabinet.

8.14   Dust leaking from dust collector

8.14.1 Cartridge not seasoned, season cartridge per Section 7.8.

8.14.2 Damaged or loose cartridge. Inspect filter cartridge, tighten or replace as needed.

8.14.3 Faulty seal on the dust collector hopper gasket. Inspect gasket and replace if damaged.

8.15   Dust collector does not pulse when foot pedal is pressed or released.

8.15.1 Check pressure on dust-collector pulse-pressure gauge. If low, adjust pulse pressure per Section 5.6.

8.15.2 Refer to Figure 22 and make sure the 3-way pulse valve has not come loose from the mounting bracket. Tighten the retaining nut as needed to secure.

8.15.3 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 21.

8.15.4 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 22. 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 and 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 and slide the switch toward the lobe as needed and recheck alignment.

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

Foot Pedal Top
Lobe
Cam Follower
3-Way Pulse Valve
Pulse Valve Plunger
Pedal Base
Roll Pins keep follower upright
Mounting Bracket
Bracket Screws

Foot pedal top up non-blast positions

Cam follower rests off the bottom of the lobe (no pulse)

Pedal top partially pressed down

The lobe pushes cam follower in, pushing pulse switch plunger in, and pulses cartridge

Foot pedal top fully pressed down

Cam follower rests off the top of the lobe (no pulse)

Loosen screws and slide bracket as necessary to pulse when the follower is on the lobe, and not pulse when follower is off the lobe (when the pedal is fully pressed or fully released).
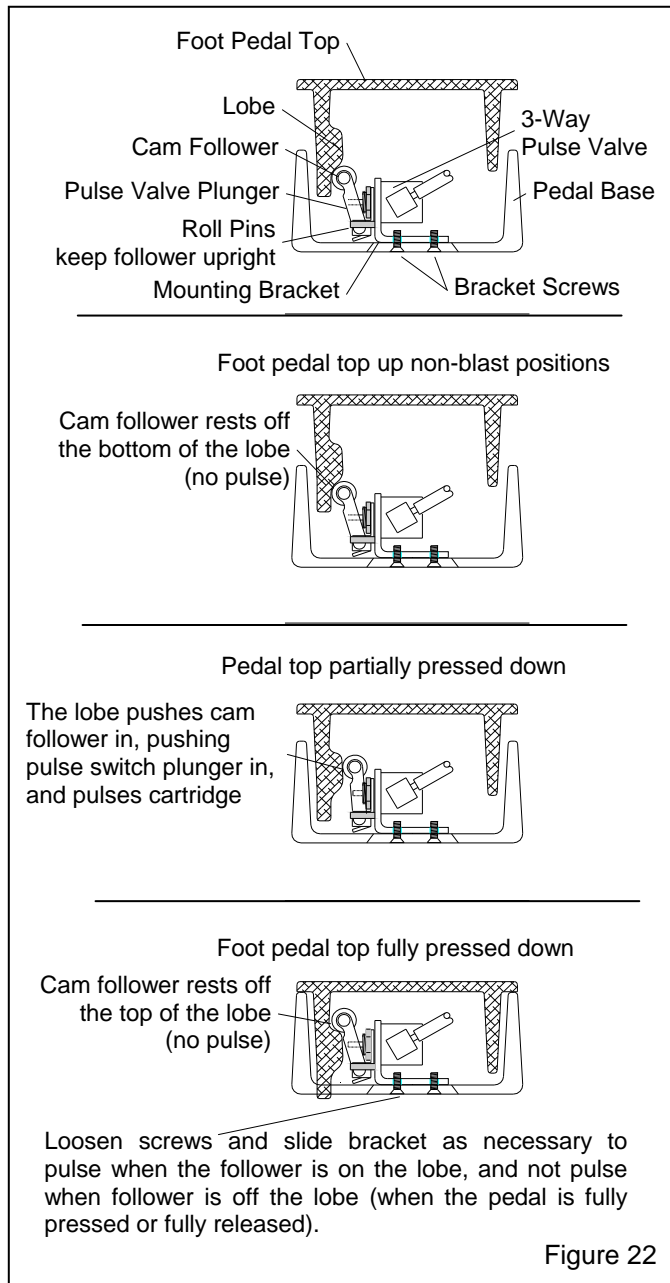
Figure 22

When the pedal is operating correctly, a spurt of air should be heard as 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.

8.15.5 Check the diaphragm pulse valve and actuator assembly. Refer to Figure 23.

8.15.5.1 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.

• If the cartridge does pulse, the diaphragm pulse valve and 3-way valve are functioning; proceed to Section 8.15.5.2.
• If it does not pulse, listen for a spurt of air coming from the plunger 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.

8.15.5.2 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 toward the end of the retainer 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 8.15.5.1.
• 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 8.15.2, 8.15.3, and 8.15.4.

Diaphragm Pulse Valve
3-Way Air Valve
Plunger
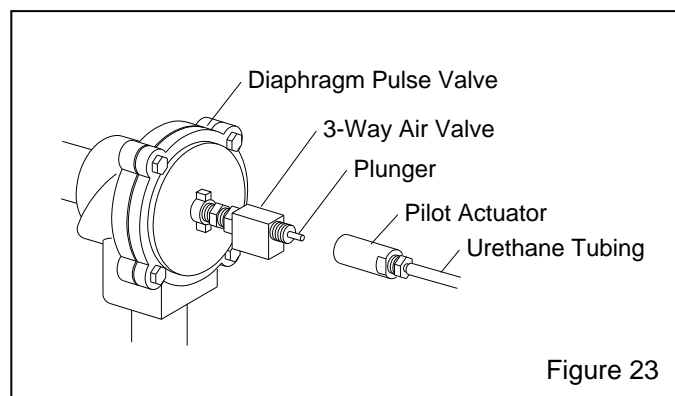Pilot Actuator
Urethane Tubing

Figure 23

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

8.16.1 Cam follower does not ride off the foot pedal lobe. Inspect alignment per Section 18.15.

8.16.2 Diaphragm in the diaphragm pulse valve may be ruptured. Inspect the diaphragm.

8.16.3 The 3-way valve on the diaphragm pulse valve stuck in exhaust position, inspect 3-way valve.

9.0   ACCESSORIES AND REPLACEMENT PARTS

9.1   Optional Accessories

Description	Stock No.
20" Turntable, without bearing, 25 lb. capacity	12412
20" Turntable, with bearing, 500 lb. capacity	12411

Table, 17.5″ x 18.5″, 500 lb. Capacity, Low-Profile, Figure 24

Item	Description	Stock No.
(-)	Table and Track Assembly	24841
1.	Roller, track	25023
2.	Washer, 5/8 flat (each, seven per roller) six for spacers, one with jam nut	03715
3.	Nut, 5/8-NF jam	03712

Table Frame

Figure 24
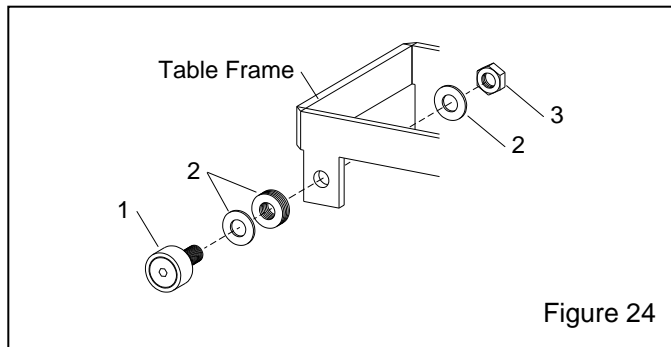
Aluminum oxide kit 12954
   Includes black curtains and #5 boron nozzle,

Rubber curtains, black
   Curtain set 23530
   Back Curtain 14318
   Front curtain 14319
   Door curtain, 2 required 14320

Rubber curtains, white
   curtain set 23540

HEPA filter assembly, top mount 22807

Wide spray nozzle
   Tungsten carbide No. 6 11947
   Boron carbide No. 6 11934

NOTE: Wide spray nozzles require the following accessories. Refer to Section 9.3
   Wide spray nozzle nut 11916
   Wide spray retaining ring 12038
   Wide spray nozzle guard 12295

Time delay door locks 24163

Lock-pins (pkg of 25) for twist-on hose couplings 11203

Adjusting tool, air jet 19041

Manometer kit 12528

Differential pressure gauge assembly 23356

Noise-reduction arm port covers, pair 24885

Tumble basket, 2-gallon door mount..................... 12227

Anti-fatigue floor-mat, for front of cabinet 24744

Automatic pulse kit 21773

Armrest, Figure 25

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

Armrest installed

Cabinet shown for reference
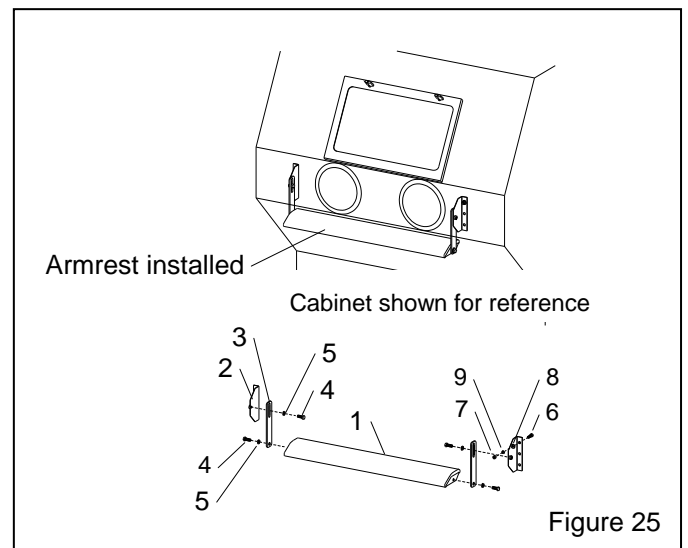
Figure 25

9.2 Cabinet Replacement Parts, Figure 26

Item	Description	Stock No.
1.	Gasket, adhesive-backed, per foot, 8-ft. per door, specify feet required	00187
2.	Light shield assembly, w/cover	23255
3.	Window glass, 12.5" x 19.5"	12212
4.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 6 feet required	00189
5.	Gasket, 5/32" x 3/4", applied to frame per foot, 6 feet required	00192
6.	Cover lens, pkg. of 5	06190
7.	Door assembly, left	20068
8.	Door assembly, right	20069
9.	Grate for 55	11813
10.	Latch kit, door	20064
11.	Glove set	11215
12.	Glove, left hand only	12710
13.	Glove, right hand only	12711
14.	Clamp, glove	11576
15.	Hose, 4" ID light-lined flex per foot, 7 ft. required	12466
16.	Clamp, for 4" hose	11577
17.	Grommet, media/air hose	11798
18.	Adaptor pipe, universal, for 4" flex hose	23295
19.	Gasket, 4" adaptor pipe	23258
20.	Actuator, door interlock	19152
21.	Over-travel stop, door interlock	20004
22.	Detent sleeve, door interlock	15042
23.	Air valve, 3 way, door interlock	12202
24.	Regulator, 1/8" NPT pilot	12715
25.	Gauge, pressure 1/8" NPT cbm	01908
26.	Foot pedal with tubing	20194
27.	Nut, plastic, window frame, 2 required	23035
28.	Gasket, 5/16" x 1", per foot, specify feet required	00187
29.	Motor, exhauster 1/2 hp	12308
30.	Paddle wheel	19232
31.	Motor plate	20229
32.	Shelf, adjustable foot	27599
33.	Pin, quick release, each	24838
34.	Bracket, foot-shelf mounting, each	27600
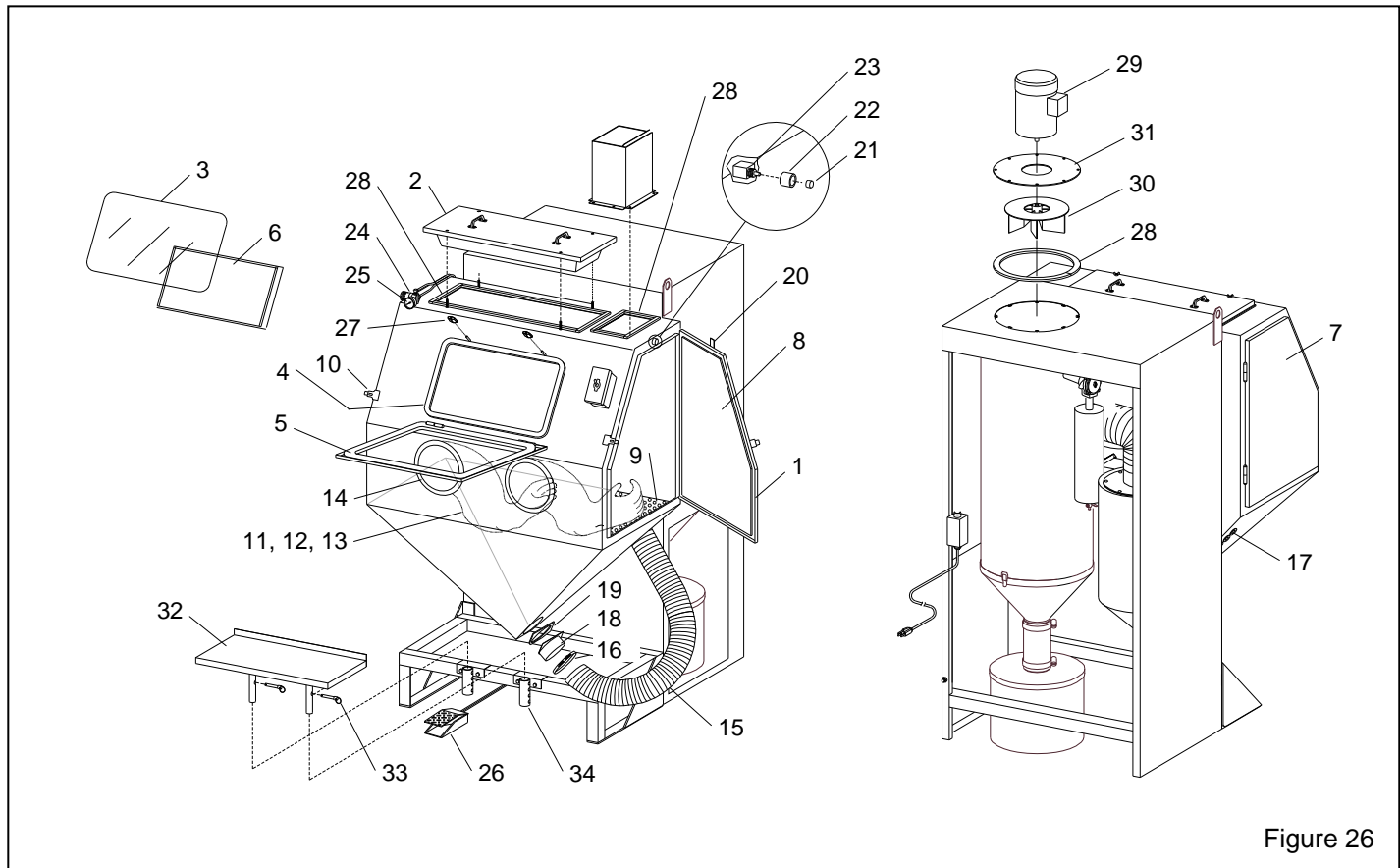
Figure 26

9.3   BNP Gun and Feed Assembly, Figure 27

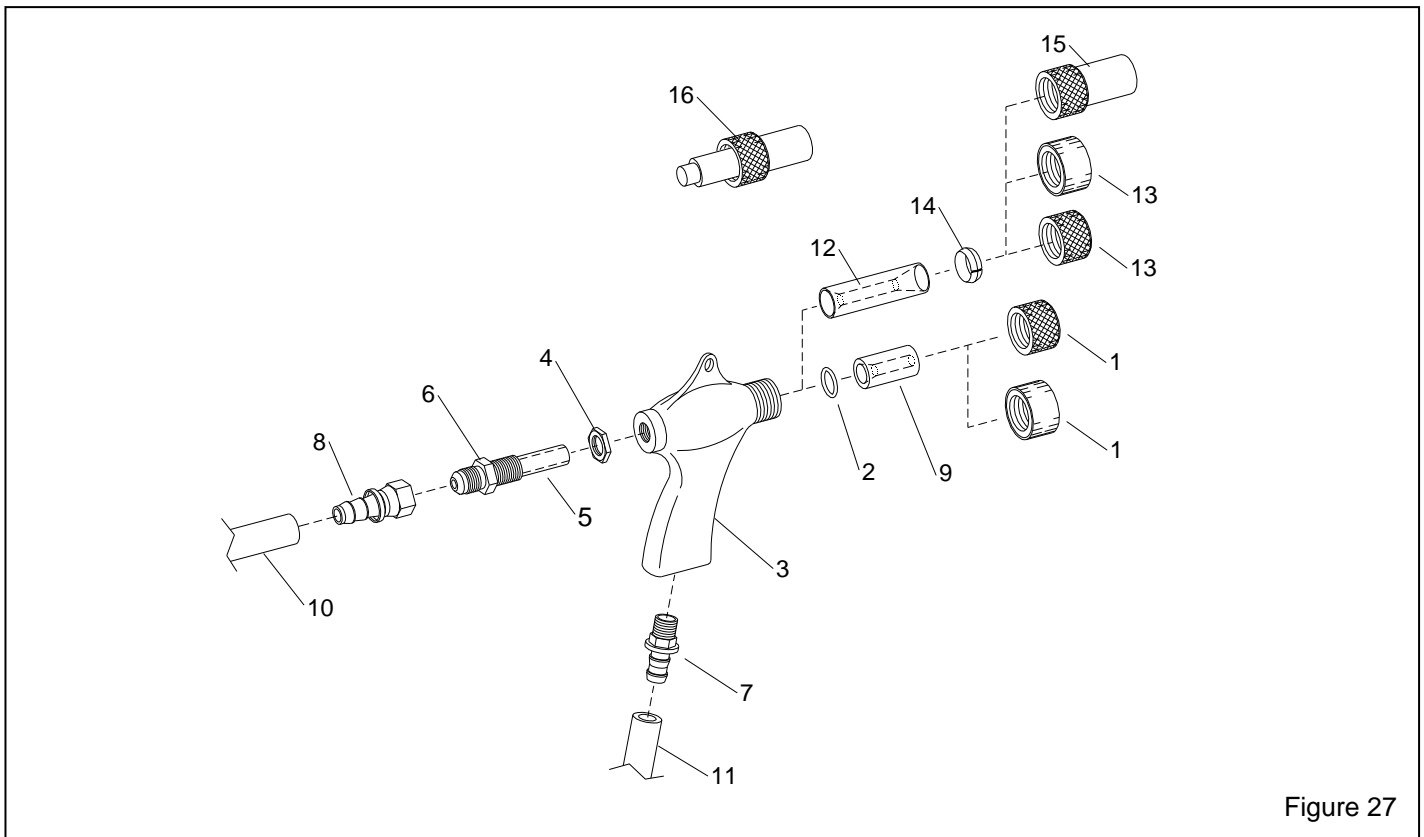| Item	Description	Stock No.
(-)	BNP Gun assemblies less nozzle, includes items 1 (brass) through 7	
	No. 4 Gun	12301
	No. 5 Gun	12302
	No. 6 Gun	12303
1.	Nut, nozzle holding	
	Standard, knurled brass	11914
	Urethane covered	11574
2.	O-ring	08975
3.	Gun body	11802
4.	Lock nut, air jet	11913
5.	Rubber sleeve	12097
6.	Air jet assembly w/ Item 5	
	No. 4	12342
	No. 5	12343
	No. 6	12344
7.	Fitting, hose, 3/8" NPT x 1/2" barb	06369
8.	Hose end, 1/2" barb x 1/2" fem. swivel	15002
9.	Nozzle, ceramic	
	No. 5	11930
	No. 6	11931
	Nozzle, boron carbide	
	No. 5	11935
	No. 6	11936
	Nozzle, tungsten carbide	
	No. 5	13118
10.	Hose, 1/2" air, specify ft. required	12472
11.	Hose, media, clear urethane, specify ft. required	12476
12.	Wide spray nozzle	
	Tungsten carbide, No. 6	11947
	Boron carbide, No. 6	11934
13.	Wide spray nozzle nut	
	Knurled brass	11916
	Urethane covered	12906
14.	Wide spray retaining ring	12038
15.	Wide spray nozzle guard	12295
16.	Adjusting tool, air jet	19041

Figure 27

9.4   Plumbing Assembly, Figure 28

Item	Description	Stock No.
1.	Valve, 3 way	12202
2.	Fitting, 1/8" NPT straight x 1/8" barb	11732
3.	Tubing, 1/8" urethane, specify ft. required	12475
4.	Tubing, 1/8" urethane twinline, specify ft. required	19577
5.	Adaptor, straight, 1/4" NPT x 3/8 tube	11736
6.	Tubing, 3/8" OD poly, 5 ft. required	12478
7.	Tee, 1/8" barb	11734
8.	Regulator w/ gauge, 1/4"	12050
9.	Nipple, 1/8" NPT hex	01962
10.	Actuator, air pilot	19123
11.	Bushing, 1/2"x 1/4" NPT	01801
12.	Tee, 1/2" NPT	01787
13.	Bushing 1/2"x 1/8" NPT	11350
14.	Nipple, 1/2" close	01733
15.	Bushing 1/4"x 1/8" NPT	02010
16.	Bracket, mounting	19231
17.	Filter, 1/2" manual drain	01308
18.	Fitting, 1/2" NPT x 1/2" 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.	Air hose, 1/2" specify ft. required	12472
23.	Gun assembly, BNP No. 5	12302
24.	Hose, media, clear urethane, specify ft. required	12476
25.	Regulator, 1/2" pilot operated	11345
26.	Valve, diaphragm pulse	19578
27.	Regulator, 1/8" pilot	12715
28.	Gauge, pressure	01908
29.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
30.	Metering valve assembly	12417
31.	Foot pedal with tubing	20194
32.	Nipple, 1/4" brass hex	02808
33.	Cross, 1/2" NPT	10254
34.	Elbow, 1/4" brass st.	02027
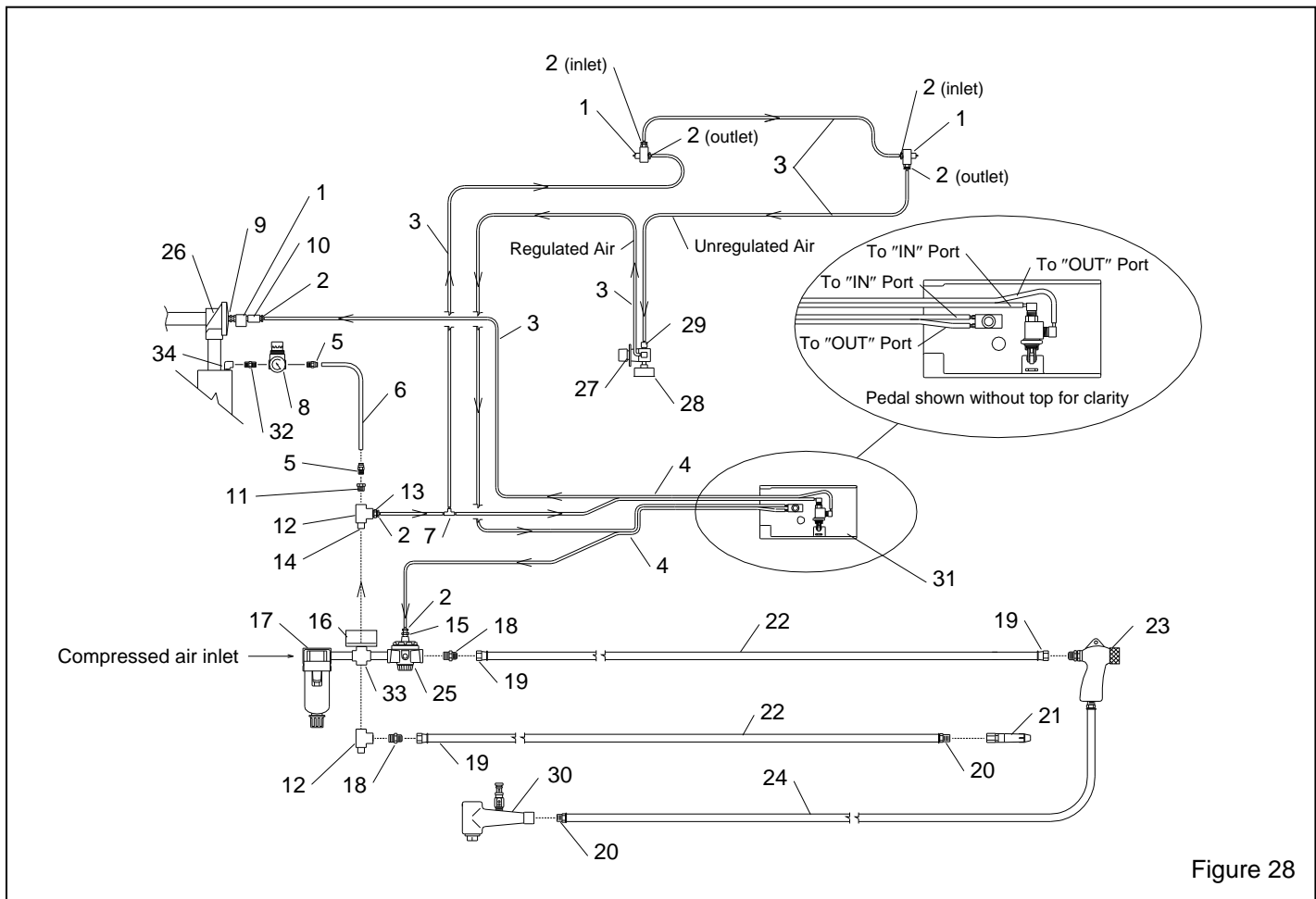
Figure 28

9.5   Metering valve assembly, Figure 29

Item	Description	Stock No.
(-)	Metering valve assembly	12417
(-)	Metering stem assembly (items 1, 2, & 3) ..	23889
1.	Stem, metering adjusting	23097
2.	Screw, adjusting	23098
3.	Nut, adjusting stem lock	23099
4.	Body, metering valve	11532
5.	Fitting, hose, 3/8" NPT x 1/2" barb	06369
6.	Plug, metering valve	12011
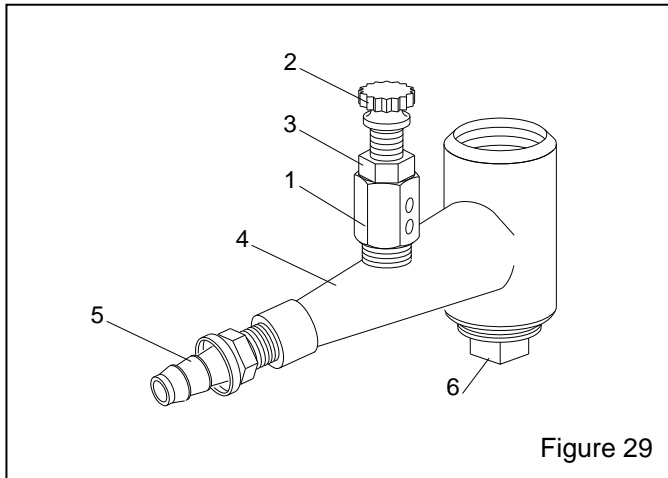
Figure 29

9.6   Light Shield Assembly, Figure 30

Item	Description	Stock No.
(-)	Light shield assembly, w/cover	23255
1.	Light fixture (does not include cover or tubes)	24740
2.	Reflector lens	23253
3.	Tube, fluorescent, 17w	24741

Cover
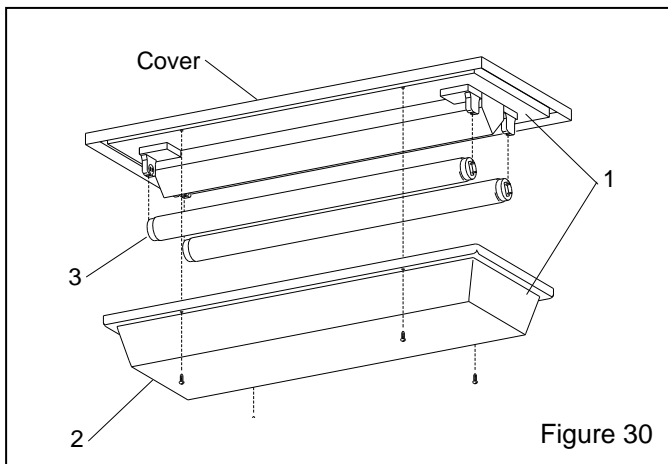
Figure 30

9.7   Foot Pedal Assembly, Figure 31

Item	Description	Stock No.
(-)	Foot pedal with tubing	20194
1.	Foot pedal casting set, top and base	28379
2.	Bracket, valve mount	22858
3.	Air valve, 3-way, n/c (blast valve)	20026
4.	Valve, 3-way (pulse valve)	12202
5.	Drive pin, grooved	20109
6.	Cam follower	19576
7.	Screw, socket head, 1/4 NF x 3/4"	03086
8.	Screw, fh, 10-32 x 1/2"	19571
9.	Fitting, tube, 10-32 pipe x 1/8" barb	11731
10.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
11.	Spring, 1-1/4" OD x 3-1/2"	20121
12.	Spacer	19258
13.	Tubing, 1/8" ID twin (per foot, 12 ft. req.) ...	19577
14.	Roll pin, 1/8"	20479
15.	Screw, 8-32 x 3/8"	11389
16.	Bumper, neoprene	21522
17.	Tie, nylon wire	12139
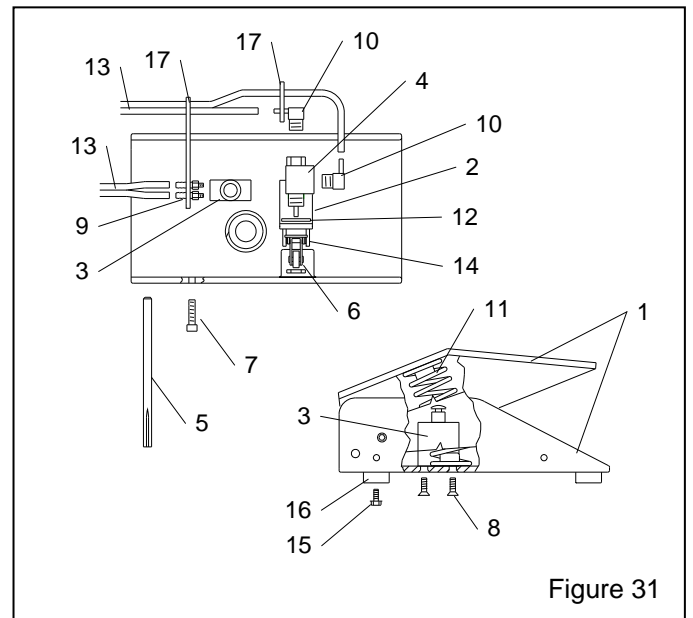
Figure 31

9.8 Reclaimer Assembly, Figure 32

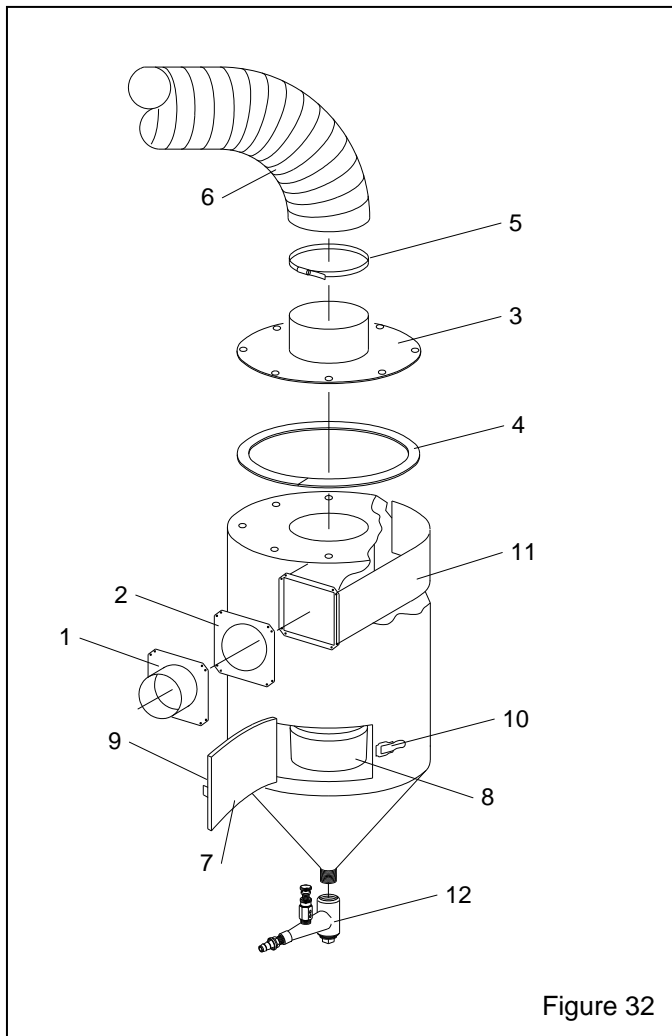| Item	Description	Stock No.
(-)	Reclaimer assembly	20340
1.	Inlet pipe adaptor, 4"	12365
2.	Gasket, inlet pipe	11746
3.	Outlet adaptor, 300 CFM	20343
4.	Gasket, 5/16" x 1" adhesive-backed, per foot, 4-feet required	00187
5.	Clamp, 6" hose	00750
6.	Hose, 6" flex, 2 ft. required	12452
7.	Gasket, door	11745
8.	Debris screen Standard, 8-mesh	21265
	4.5-Mesh w/ magnets	23146
9.	Door assembly, access	14271
10.	Latch assembly, door	12263
11.	Wear plate w/mounting screws, 300 cfm	14060
12.	Metering valve	12417

Figure 32

9.9 Dust Collector, Figure 33

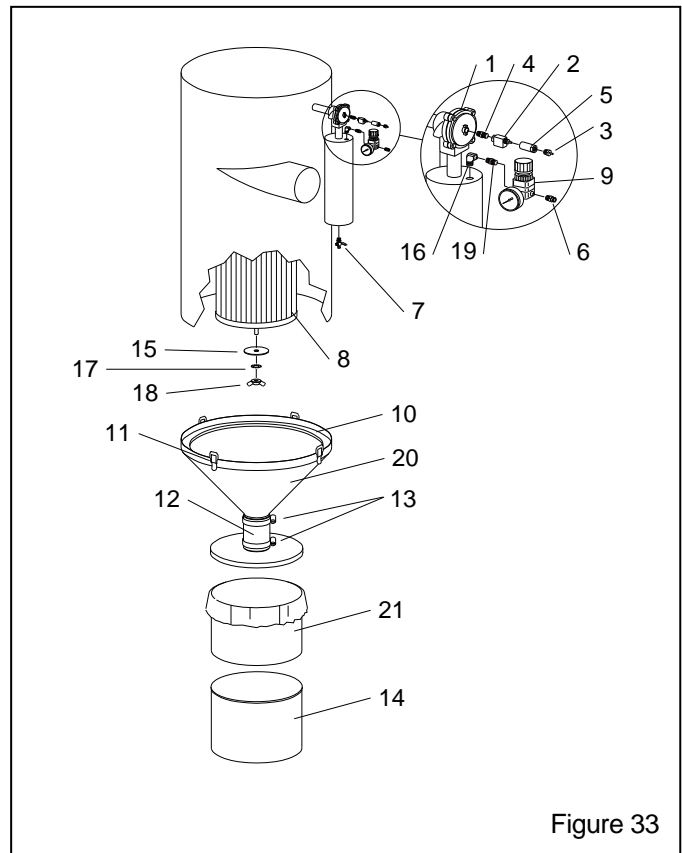| Item	Description	Stock No.
(-)	Repair kit, diaphragm pulse valve	21600
1.	Valve, 1" diaphragm pulse	19578
2.	Valve, 3 way	12202
3.	Fitting, 1/8" NPT x 1/8" barb	11732
4.	Nipple, 1/8" NPT hex	01962
5.	Actuator, air pilot	19123
6.	Adaptor, straight, 1/4" NPT x 3/8 tube	11736
7.	Petcock	01993
8.	Filter cartridge, 9" x 26"	19122
9.	Regulator w/ gauge, 1/4"	12050
10.	Gasket, 5/16" x 1" adhesive-backed, per foot, 5-feet required	00187
11.	Latch assembly	11876
12.	Hose, 4" light-lined flex, 1 ft. min. order	12466
13.	Clamp, 4" hose, each	11577
14.	Dust container assembly includes items 12 & 13	23411
15.	Washer, 1/2" ID x 1-1/16" OD	03515
16.	Elbow, 1/4" brass st.	02027
17.	Washer, 1/2" external lock	21699
18.	Wing nut, 1/2" NC	20108
19.	Nipple, 1/4" NPT hex	02808
20.	Hopper Assembly, includes items 10 & 11	27047
21.	Liners, dust container, pack of 5	28621

Figure 33