

Bicarbonator Soda Blast Cabinets PSB-3636B and PSB-4050B For Intermittent Use O. M. 29174

DATE OF ISSUE: 07/18

REVISION:

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, 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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AEROLYTE by Clemco Industries Corp.
Systems

1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover setup, operation, maintenance, troubleshooting, optional accessories, and replacement parts for PSB-3636B and PSB-4050B Bicarbonator soda-blast pressure cabinets.

1.1.2 These instructions contain important safety information. All operators and personnel involved with the cabinet operation and maintenance must read and understand the contents of these instructions. It is equally important that the operator is trained and qualified to safely operate the cabinet and all other equipment used with the cabinet.

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-2011, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:



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

NOTICE

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

CAUTION

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

WARNING

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

! DANGER

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

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OPERATION

1.4 General Description

1.4.1 Aerolyte soda 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, angle, and distance of the nozzle from the blast surface. Aerolyte PSB-3636B and 4050B cabinet consists of three major components:

1. Cabinet Enclosure
2. Dust Collector, 600 cfm
3. Blast Machine and Loading Hopper

1.4.2 Cabinet Enclosure: This manual covers two cabinet sizes.

PSB-3636B approximate work chamber dimensions:
36" wide x 35" deep x 37" high.

PSB-4050B approximate work chamber dimensions:
50" wide x 39" deep x 43" high.

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

Refer to Figure 1 for the general arrangement and callouts of the major parts. Refer to Figure 2 for identification of blast machine parts, and Figure 3 for the controls circuit and blast machine hose connections,

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 applying pressure to the top of the foot pedal. Fully depressing the foot pedal pressurizes the blast machine, causing the media to be propelled through the blast hose and out the nozzle. After striking the object being blasted, the media, along with fines, dust, and by products generated by the blasting fall through the mesh worktable into the cabinet hoppers. These particles are pulled to the dust collector, where a filter cartridge traps them, and discharges clean air. Spent media accumulates in the dust-collector dust container. When the foot pedal is released, blasting stops. The machine remains under pressure until manually depressurized.

1.6 Blast Machine and Controls

1.6.1 Components of the blast machine are shown in Figure 2 and the control circuit is shown in Figure 3.

1.6.2 Clemco blast machines (pressure vessels) are certified 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

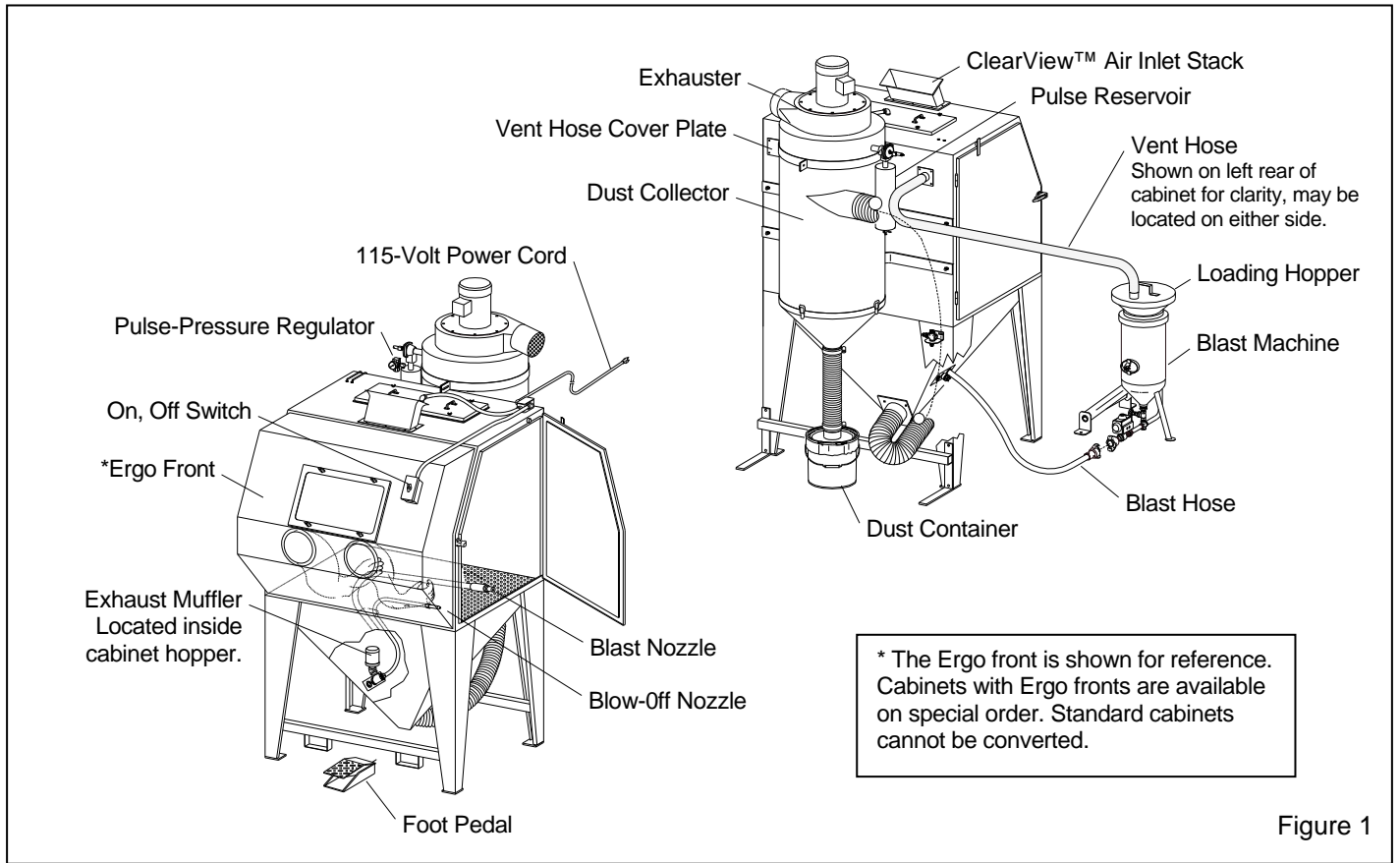


Figure 1

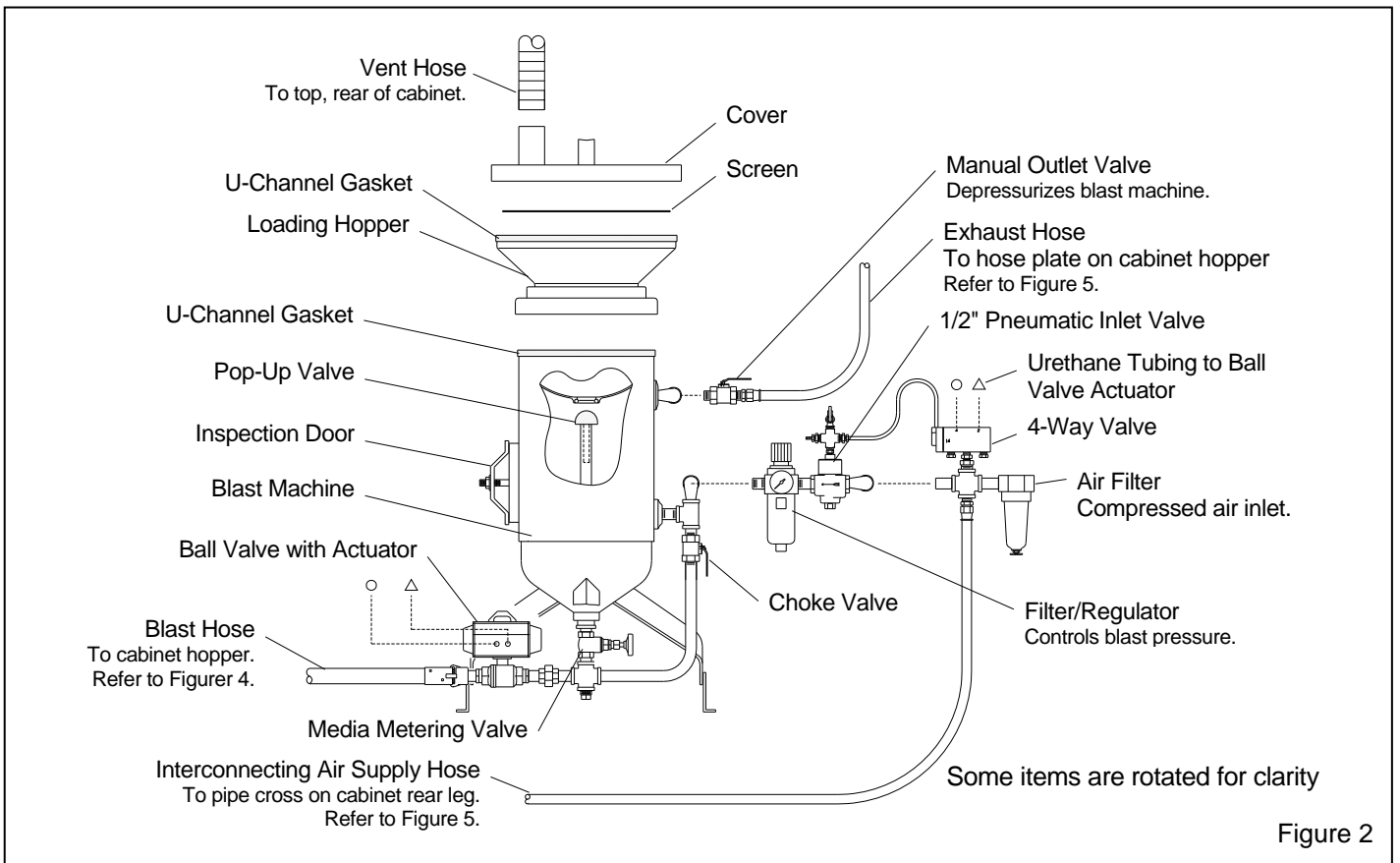


Figure 2

include regular inspection and hydrostatic testing as described in National Board inspection code and jurisdictional regulations and/or laws.

⚠ WARNING

Welding, grinding, or drilling on the blast machine could weaken the vessel. Compressed air pressure could cause a weakened 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.

1.6.3 All welding repairs done on the vessel must be performed by a certified welder, at a shop holding a National Board R Stamp. Welding performed by any welder not properly qualified per the ASME Code voids the Clemco ASME certification.

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

1.6.5 OSHA does not require pressure relief valves on blast machines when air compressors supplying air to the blast machines are built to ASME⁽¹⁾ code and comply with OSHA⁽²⁾ regulations. OSHA regulation 1910.169 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.

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

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

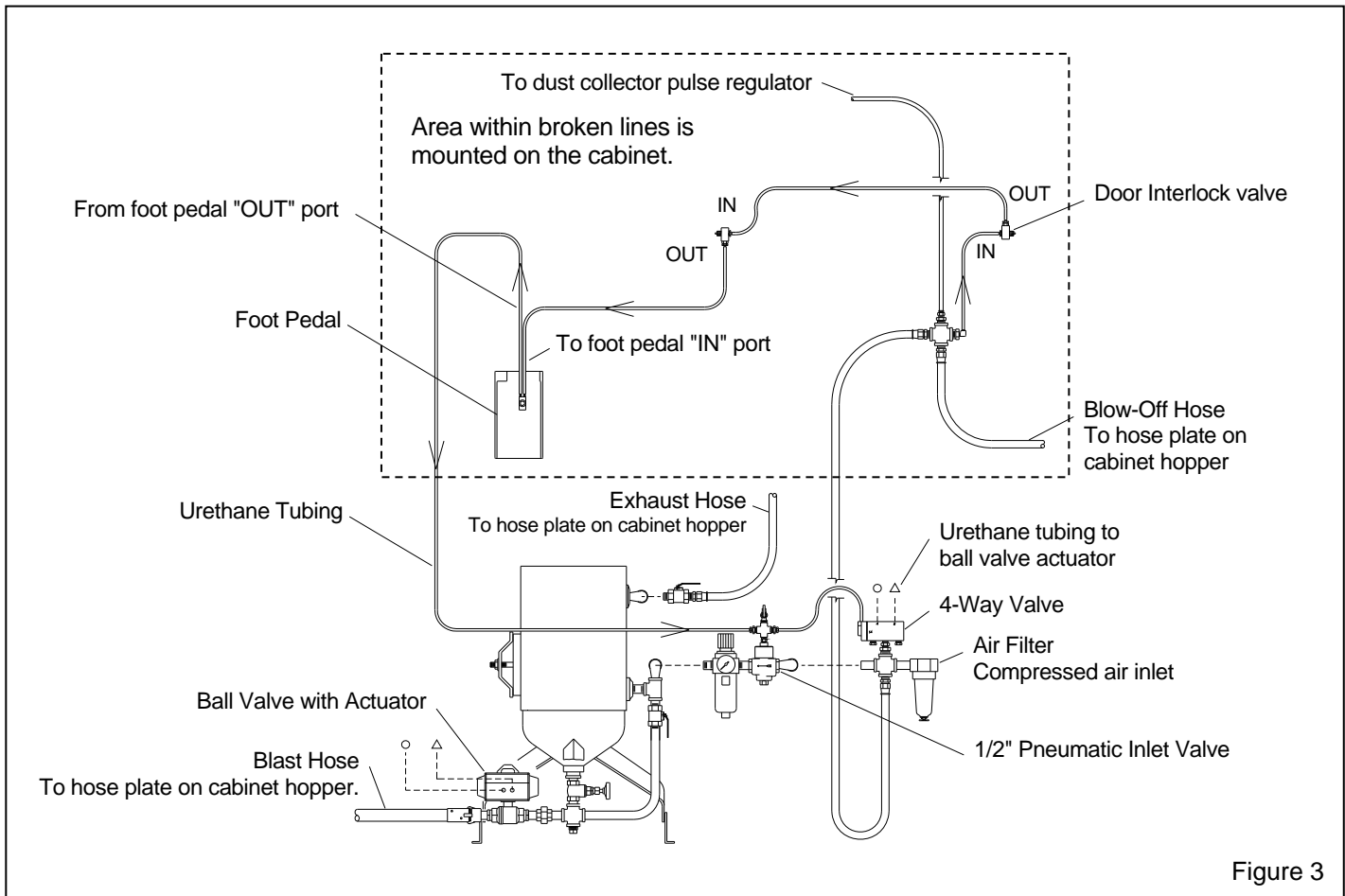


Figure 3

1.7 Pressure Regulators

1.7.1 The dust collector and blast machine are furnished with pressure regulators to perform the following functions:

- Inlet filter/regulator combination: controls blasting pressure. Refer to Section 6.1 for adjustment procedure.
- Dust collector pulse regulator: controls the pressure of the dust collector pulse. Refer to Section 6.2 for adjustment procedure.

1.8 Reverse-Pulse Dust Collector

WARNING

Prolonged exposure to any dust can result in serious lung disease and death. Short-term ingestion of toxic materials, such as lead dust or dust from other heavy metals and corrosives, can cause serious respiratory injury or death. Identify all materials that are to be removed by blasting. Use reverse-pulse dust collectors with HEPA after-filters if lead coating or any other toxic materials are being removed by the blasting process. Do not use dust collectors with simple cloth filters for those applications.

1.8.1 The dust collector exhauster draws the air that ventilates the cabinet and recovers spent media from the cabinet hopper. As the outside of the filter cartridge accumulates dust, air movement through it decreases. This decreasing air movement reduces the air changes inside the cabinet, decreases visibility, and eventually causes spent media to accumulate in the cabinet hopper. Pulse cleaning the cartridge removes excessive dust, restores air movement, and extends the life of the filter cartridge.

1.8.2 The filter cartridge is cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridge each time the foot pedal is pressed and released. The expanding air momentarily reverses air flow through the cartridge, releasing dust accumulated on the outer surface. The dust particles fall away from the cartridge and into the dust container for removal.

1.9 Media

1.9.1 The cabinet is designed primarily for use with bicarbonate of soda, a one-cycle media. Other non-aggressive media such as corn cob or nut shell may be used without contaminating the system; however,

thorough purging is required when changing over from one to another media type.

1.10 Compressed Air Requirements

1.10.1 Compressed air requirements depend upon the size of the nozzle and blasting pressure. Refer to the table in Figure 4 to determine air volume consumption in cubic feet per minute (cfm). The table shows air consumption of the nozzle when new. It does not show the recommended compressor size. As the nozzle wears, it will consume up to 70% to 80% more air. Consult with a compressor supplier for a suggested compressor size based upon the maximum air consumption. The ASV nozzle is suggested for use with non-aggressive bicarbonate of soda; use a CT tungsten-lined nozzle when using bicarbonate of soda that has any additives that increase the cutting rate of the media. Aggressive bicarb will accelerate wear of the ASV nozzle.

Nozzle Model	Orifice Size	Nozzle Length	Air Pressure (psi)			
			50	60	70	80
CT-2	1/8"	1-3/4"	11	13	15	17
CT-3	3/16"	1-3/4"	26	30	33	38
ASV-3	3/16"	6"	26	30	33	38

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

Figure 4

1.10.2 The air filter installed at the blast machine inlet removes condensed water from the compressed air. Its use is especially important in areas of high humidity or when using fine-mesh media. 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.

1.11 Electrical Requirements

1.11.1 Electrical requirements depend on the size and phase of the motor. Standard cabinets are supplied as follows:

Cabinet w/600 cfm dust collector: 1 HP, 115/230V, 1-PH, 60 HZ (wired 115). A power cord with U-ground plug is provided.

2.0 INSTALLATION

2.1 General Installation Notes

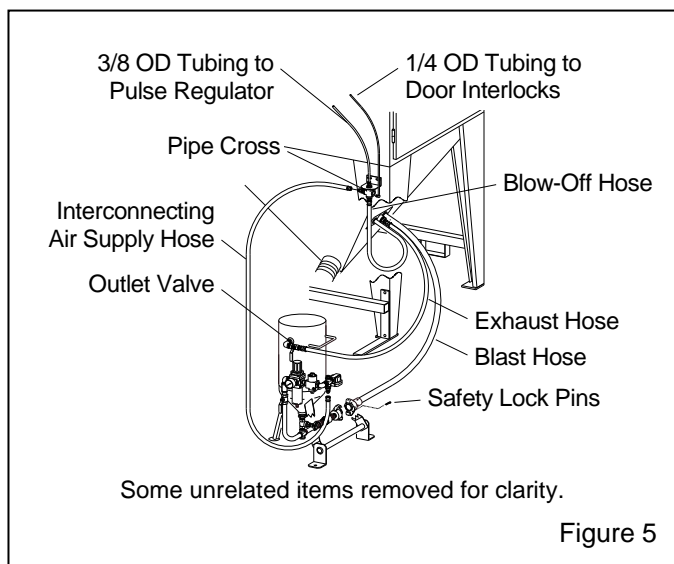
⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins or safety wire to lock twist-on (claw-type) couplings together and prevent accidental separation while under pressure, and safety cables to prevent hose from whipping should separation occur. Lock pins and safety cables are listed under Optional Accessories in Section 10.1.

2.1.1 Select a location where compressed air and electrical service are available. The location of the cabinet and accessories must comply with OSHA and local safety codes. Allow for full access to all doors and service areas, and for efficient handling of parts. Provide enough clearance around the dust collector to empty the dust container. Determine the best location, and position all units before final assembly.

2.2 Interconnecting Air-Supply Hose: Refer to Figure 5 and connect the 1/2" air supply hose to the compatible fittings on the inlet cross on the blast machine and the compatible fitting on the pipe cross, located on the cabinet rear leg.

2.3 Blast Hose: Refer to Figure 5 and connect the blast hose from the cabinet hopper to the coupling at the bottom of the blast machine. Make sure coupling gaskets are in place and couplings are secured with safety lock pins.



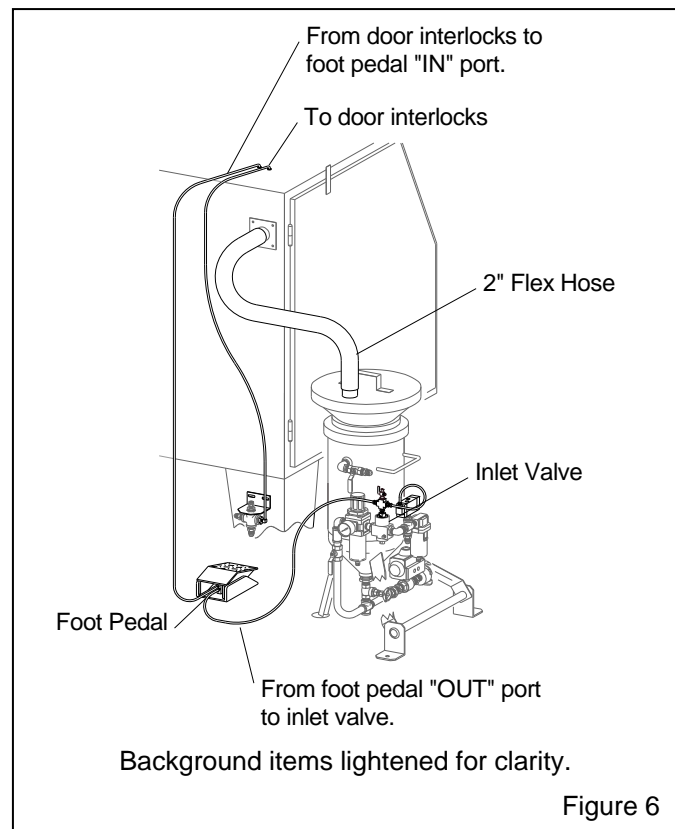
2.4 Blast Machine Exhaust Hose: Refer to Figure 5 and connect the exhaust hose (middle hose on cabinet hopper plate) to the compatible fitting on the blast machine's outlet valve.

2.5 Blow-Off Hose: The blow-off hose should already be attached to the cross as shown in Figure 5.

2.6 Pulse Tubing and Interlock Tubing: 3/8 OD tubing to the pulse regulator and 1/4 OD tubing to the door interlocks should already be attached.

2.7 Urethane Control Tubing: Refer to Figure 6 and connect the 1/8" urethane tubing from the foot pedal to the compatible fitting on the inlet valve. Refer to the control schematic in Figure 3 for the full pneumatic control circuit.

2.8 Vent Hose: Connect the 2" flex (vent) hose between the top of the loading hopper and adaptor pipe located on the rear cabinet wall, as shown in Figure 6. NOTE: there is a cover plate on the opposite side of the cabinet wall as shown in Figure 1. If it is more convenient to attach the vent hose to the other side, exchange the cover plate with the adaptor pipe.



2.9 Cabinet Ground: 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 cabinet.

2.10 Connect Compressed Air Supply Line

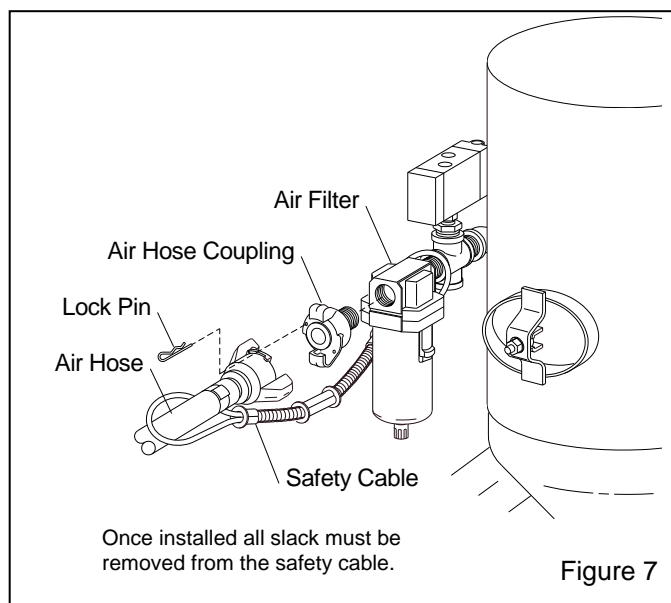
⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins or safety wire to lock twist-on (claw-type) couplings together and prevent accidental separation while under pressure, and safety cables to prevent hose from whipping should separation occur. Lock pins and safety cables are listed under Optional Accessories in Section 10.1.

⚠ 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.

2.10.1 Apply thread sealant to the male pipe threads of an air fitting that is compatible with the air supply hose fitting, as noted in Paragraph 2.9.2, and install it onto the air filter, located at the blast machine inlet as shown in Figure 7. NOTE: The style of connection shown in Figure 7 is for reference only.



2.10.2 Install an isolation valve at the air source to enable depressurization for service, and connect a 1/2" ID or larger air line from the air source to the hose fitting installed on the blast machine inlet. A smaller diameter hose can reduce blasting efficiency.

2.11 Electrical Supply

2.11.1 Plug the U-ground plug power cord into a 115-volt outlet.

⚠ WARNING

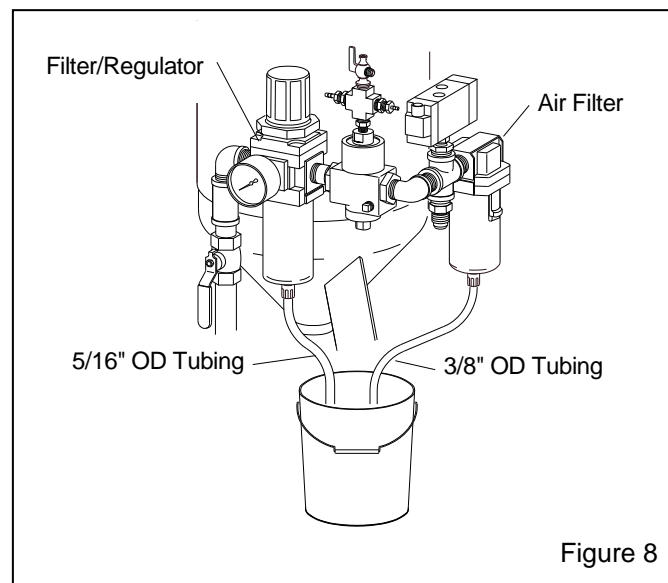
Do not use electrical adaptors that eliminate the ground prong. Doing so can cause electric shock and equipment damage.

2.12 Check Motor Rotation: Observe the warning below and check the rotation of the motor. To check, jog the starter (quickly turn switch ON and OFF). This will cause the motor to rotate slowly. Look through the slots in the fan housing on top of the motor where rotation of the fan can easily be observed. Do not look into the exhaust outlet. Proper rotation is indicated by the arrow on the exhaust housing. The motor should rotate toward the exhaust outlet.

⚠ WARNING

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

2.13 Insert a piece of 3/8" OD tubing into the automatic drain at the bottom of the filter/regulator and place the other end into a pail. When the filter automatically drains, the water will drain into the pail. Insert 5/16" OD tubing into the manual drain on the air filter, as shown in Figure 8.

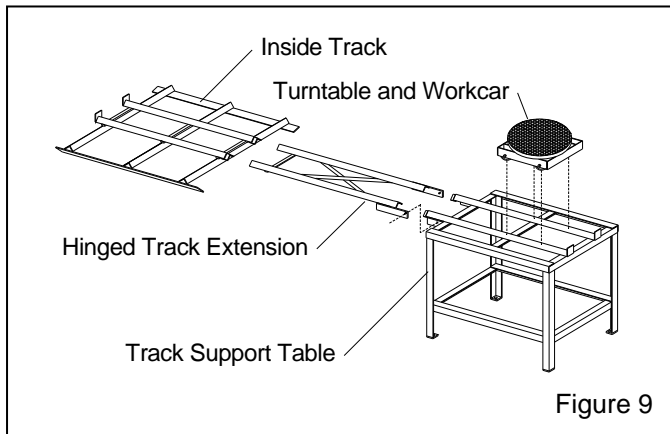


2.14 Foot Pedal: Position the foot pedal on the floor at the front of the cabinet.

3.0 OPTIONAL ACCESSORIES

3.1 Turntable with Workcar and Track

3.1.1 Components of the turntable and track assembly are shown in Figure 9.

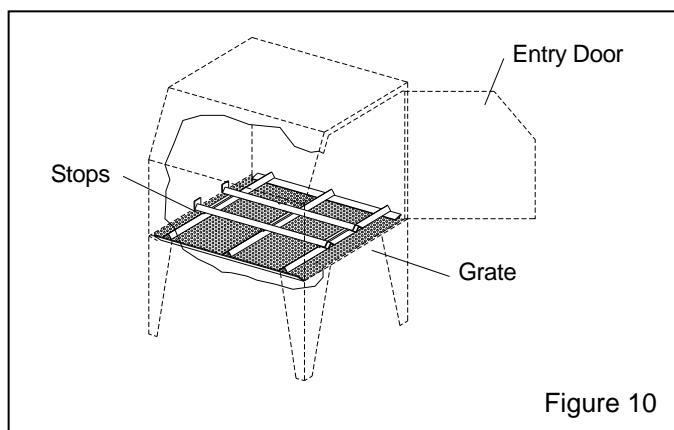


The assembly consists of:

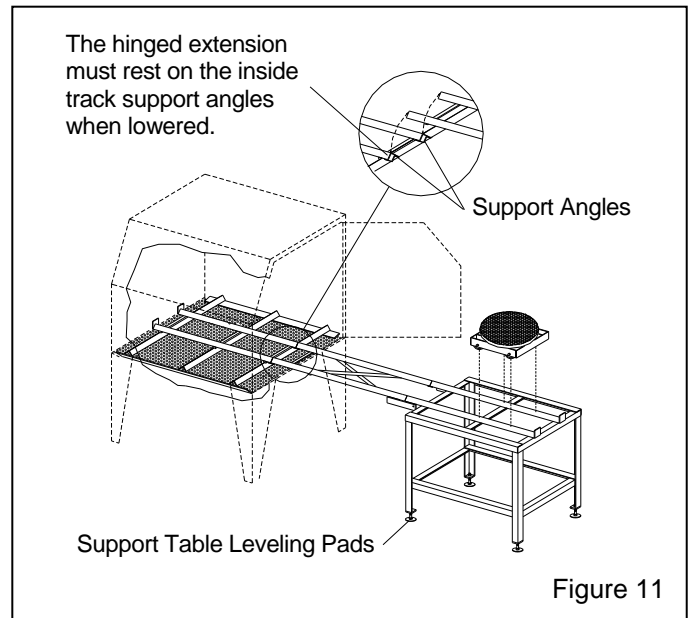
1. The inside track assembly, which is placed inside the cabinet.
2. The hinged track extension attaches to the support table, swings up to clear the door.
3. The track support table.
4. Turntable and workcar assembly.

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

3.1.2 Place the inside track in the cabinet over the existing grate as shown in Figure 10.



3.1.3 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.



3.1.4 Adjust the track-support table leveling pads to distribute weight evenly on the support angles and leg pads, when the extension is resting on the supports.

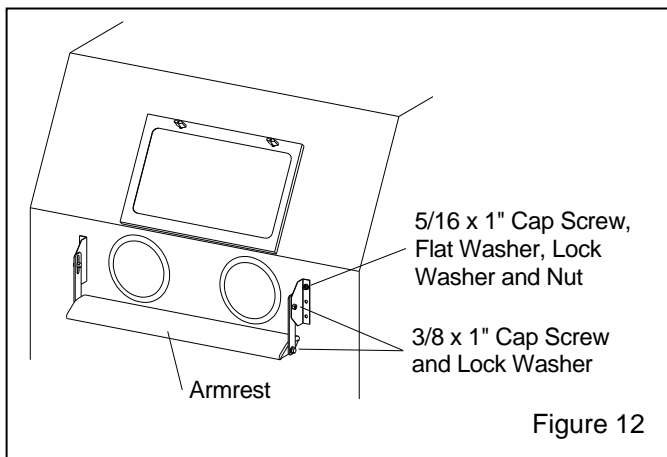
3.1.5 Holes are provided on the track-support table leg pads to permit anchoring.

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

3.2 Armrest

3.2.1 Assemble the armrest and mounting brackets as shown in Figure 12.

3.2.2 Position the assembly so the armrest is about even with the bottom of the arm-port opening. Use the mounting brackets as templates and mark the location on the front of the cabinet for each mounting hole.



3.2.3 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.

3.2.4 Match drill the remaining four bracket holes and install the remaining fasteners.

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

4.0 INITIAL START-UP

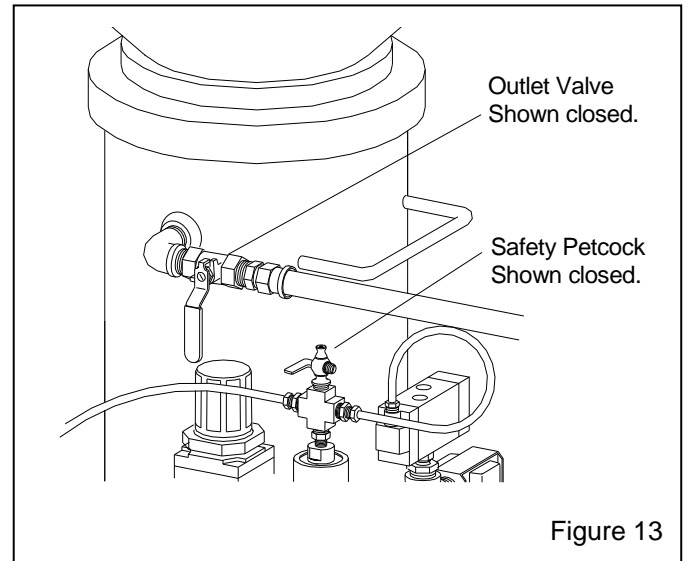
4.1 Make sure all hose connections are secure.

4.2 Turn ON the lights and exhauster. The on/off switch located to the right of the view window performs both functions. Verify the operation of the lights and exhauster.

4.3 Close the blast machine's outlet valve. The valve is closed when the handle is perpendicular to the valve as shown in Figure 13.

4.4 Slowly open the air supply valve to pressurize the air supply line. Listen for leaks. If any are noted, shut off the air supply, and identify and correct the leak(s).

4.5 Close the safety petcock. The petcock is closed when the lever is horizontal as shown in Figure 13. To prevent unintentional blasting, the machine will not operate when the safety petcock is open.



4.6 Adjust the dust collector pulse regulator located on the pulse manifold to 60 psi, as noted in Section 6.2.

4.7 Depress and release the foot pedal. The blast machine pressurizes and blasting begins when the pedal is depressed. Blasting stops but the machine remains pressurized when the pedal is released. The dust collector should pulse once when the pedal is depressed and once when it is released.

4.8 Adjust the inlet pressure regulator per Section 6.1.

4.9 Check for leaks in the plumbing and all hose connections.

4.10 When certain the cabinet is operational, release pressure on the foot pedal and depressurize the machine by opening the manual outlet valve.

4.11 Set pulse pressure to 0 psi until the cartridge is seasoned per Section 8.13.

4.12 Load media per Section 5.2.

5.0 OPERATION

5.1 Seasoning Filter Cartridge

NOTICE

Do not pulse new dust collectors or replacement cartridge until the cartridge is seasoned per Section 8.13. Premature pulsing decreases the efficiency of collector and reduces cartridge life.

5.2 Loading Media

NOTE: Media should be well screened. Use only bicarbonate of soda media specifically manufactured for blast cleaning.

5.2.1 Media Capacity: Media capacity is approximately 0.5 cubic feet.

5.2.2 Do not load new media into the blast machine before emptying the dust-collector dust container.

NOTICE

Failure to empty the dust-collector dust container before refilling the blast machine will result in overfilling the dust collector, and as a result, make it difficult to empty the container.

5.2.3 Remove the loading hopper cover, and load media by pouring it through the inlet screen and into the blast machine. **Do not let media cover the pop-up valve. Overfilling the blast machine can result in overfilling the dust-collector dust-container.**

5.3 Unloading Media

5.3.1 Empty the machine of all media when shutting down for the day. This will eliminate trouble from moist media when starting a new day's blasting. One way to avoid having to empty the machine is to load only as much media as will be used during the work period. To empty the machine, do the following.

5.3.2 Refer to Figure 14 and close the choke valve, then open the media-metering valve by turning the knob fully counterclockwise. Counting the turns on the metering handle makes it easier to return the valve to the preset position.

5.3.3 Close the doors, hold the nozzle securely, and press the foot pedal.

5.3.4 When the machine is empty, release the foot pedal, return the choke valve to the full open position, and readjust the metering valve.

5.4 Loading and Unloading Parts

WARNING

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

5.4.1 Load and unload parts through either door.

5.4.2 Parts must be free of oil, water, grease, or other contaminants that will cause media to clog the dust collector filter.

5.4.3 Close door. Be sure door is sealed securely, or door interlock system will prevent the machine from working.

5.5 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, reclaimer and dust collector doors before blasting. Keep all doors closed during blasting.**
 - **Always wear blast gloves.**
-

5.5.1 Slowly pressurize the air supply hose to the blast machine.

5.5.2 Turn ON the lights and exhauster.

5.5.3 Load parts.

5.5.4 Close door. Make sure doors are sealed securely, or door interlock system will prevent blasting.

5.5.5 Close the manual outlet valve.

5.5.6 Firmly grasp the nozzle and apply pressure to the foot pedal. Blasting will begin immediately.

5.5.7 Adjust the blast pressure per Section 6.1.

NOTE: When blasting 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.

⚠ WARNING

Stop blasting immediately if dust discharges from the cabinet or dust collector. Make sure the dust collector filter is correctly seated and not damaged. Prolonged breathing of any dust can 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 dust generated by blasting. Identify all material being removed by blasting, and obtain a safety data sheet for the media.

5.5.8 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 and retrieve it.

5.6 Blasting Technique

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

5.7 Operation and Function of the Choke Valve Figure 14

5.7.1 Temporarily closing the choke valve while blasting clears minor blockage caused from bridging and damp abrasive. Always blast with the choke valve fully open; the valve is open when the handle is vertical and aligned with the piping and closed when the handle is perpendicular to the piping.

5.7.2 Closing the choke valve while blasting, lowers pressure in the pusher line from pressure in the vessel, forcing abrasive through the metering valve to clear minor blockage such as damp abrasive. Closing the valve is also used to empty the machine quickly at the end of the day as noted in Section 5.3.

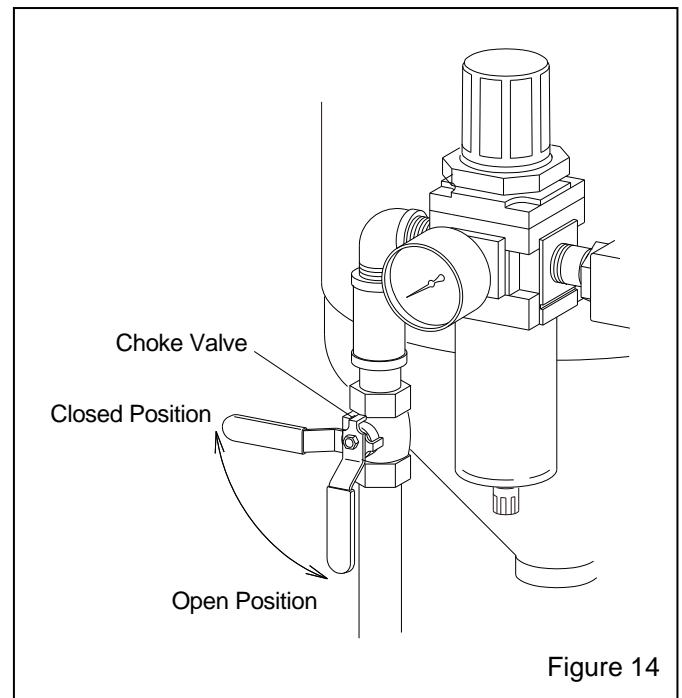


Figure 14

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.

5.8 Stop Blasting

5.8.1 To stop blasting, remove pressure on the foot pedal. Releasing the pedal closes the inlet valve and ball valve with actuator. The blast machine remains pressurized until the manual outlet valve is opened. NOTE: If there are small leaks in the plumbing, the blast machine may lose pressure. The machine will re-pressurize to full pressure as soon as the foot pedal is pressed.

5.8.2 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.

NOTICE

Do not use the blow-off nozzle to clean accumulated media from the ClearView™ glass partition or view window. Do not point the blow-off nozzle toward the front of the cabinet. Doing so will force dust laden air out the inlet stack.

5.8.3 Unload parts.

5.9 Depressurizing the Blast Machine

5.9.1 When ready to shutdown or refill the blast machine, remove pressure on the foot pedal, then open the manual outlet valve. Opening the outlet valve depressurizes the blast machine through the exhaust hose and into the cabinet hopper.

5.9.2 Refill the blast machine as needed per Section 5.2.

5.10 Shutdown

5.10.1 Empty the blast machine per Section 5.3.

5.10.2 Depressurize the blast machine per Section 5.9.

5.10.3 Switch OFF the lights and exhauster.

5.10.4 Empty the dust container per Section 7.3.

5.10.5 Shut off the air supply, and bleed the air supply line. Shutdown the compressor.

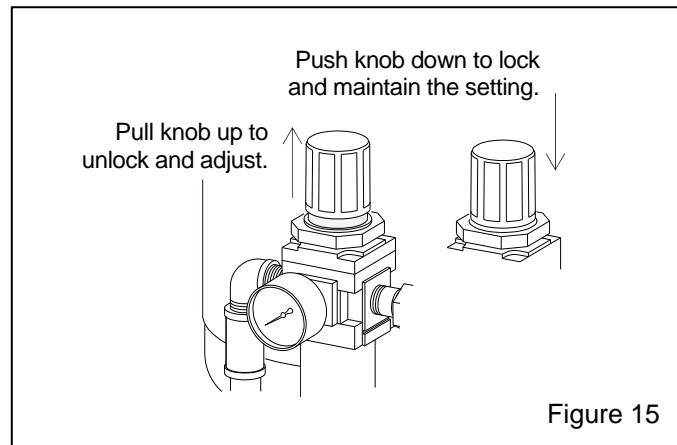


Figure 15

6.1.3 Once operating pressure is set, push the knob to lock it and maintain the setting. Once pressure is set, it seldom requires readjustment. If the application requires frequent air pressure adjustments, swap the location of the pneumatic inlet valve and regulator. This enables pressure adjustment before pressing the foot pedal.

6.0 ADJUSTMENTS

NOTE: Pressure regulators furnished on the machine have locking adjustment knobs. Pull the knob out to unlock it and make adjustment, push the knob in to lock it and maintain the setting.

6.1 Inlet Regulator (Blast Pressure) – Figure 15

6.1.1 Blasting pressure (the pressure coming out the nozzle), is adjusted at the blast machine's combination filter/regulator. Blast pressure may be regulated between a low of 5 psi to a maximum of 125 psi. Most bicarbonate of soda blasting is done between 30 and 60 psi.

6.1.2 Two people make the initial adjustment easier. Air does not pass through the regulator unless the foot pedal is pressed. To adjust pressure, press the foot pedal and pull the knob up to unlock it, as shown in Figure 15, turn clockwise to increase pressure or counterclockwise to decrease pressure.

6.2 Dust Collector Pulse Pressure – Figure 16

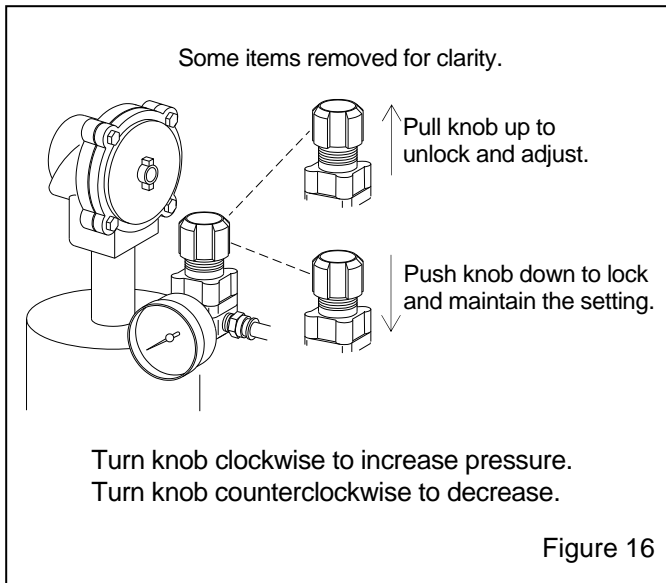
NOTICE

Do not pulse new dust collector or new cartridge until the cartridge is seasoned, as explained in Section 8.13. Premature pulsing decreases the efficiency of collector and cartridge life.

6.2.1 After the cartridge is seasoned, adjust pulse pressure using the regulator mounted on the pulse reservoir. Begin pulse at 60 psi. To adjust pressure, pull the knob up to unlock it, turn clockwise to increase pressure or counterclockwise to decrease pressure. Once operating pressure is set, push the knob down to lock it and maintain the setting.

6.2.2 As the filter cartridge cakes with dust, it may be necessary to pulse during blasting per Section 7.5.

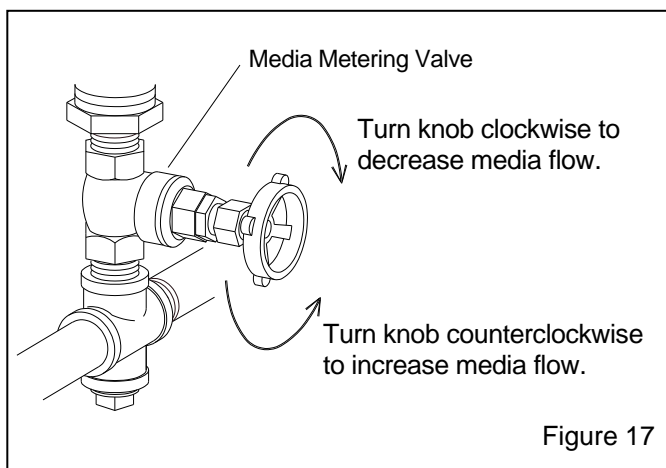
6.2.3 When pulsing alone does not adequately clean the cartridge, increase pulse pressure by 5 to 10 psi increments to a maximum of 100 psi. As dust cakes on the cartridge, the differential pressure increases. Using a manometer to measure the differential pressure is a good way to tell if the cartridge is heavily caked.



6.2.4 Replace the cartridge per Section 8.12, when the frequency of the pulse and maximum pulse pressure no longer sufficiently clean the cartridge to provide good visibility. An excessively dirty cartridge will eventually cause spent media to accumulate in the cabinet hopper and may create positive pressure inside the cabinet, resulting in dust leaks.

6.3 Media Metering (Abrasive Flow) – Figure 17

6.3.1 Adjust media flow by turning the knob on the metering valve. The valve is closed when the knob is fully clockwise. To adjust, close the valve and slowly turn the knob counterclockwise to increase media flow. Use as little media as possible while maintaining the best cleaning rate. Generally, with the correct mixture, media should barely be seen as light discoloration as it exits the nozzle.



6.4 Door Interlocks – Figure 18

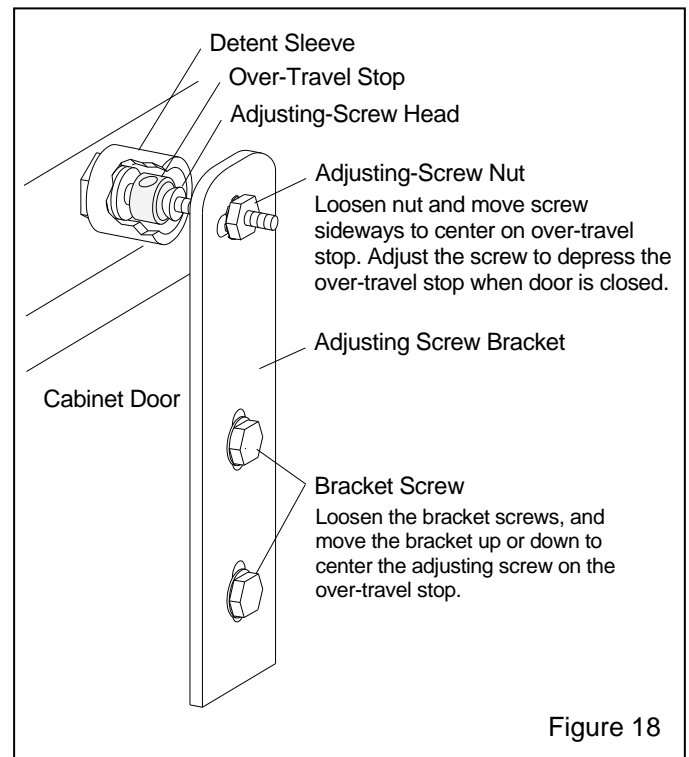
Door interlock valve and actuator are located on the top edge of each door.

⚠ WARNING

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

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

6.4.2 Close cabinet doors.



6.4.3 Loosen the actuator bracket screws and adjusting screw nut. Move the actuator-adjusting bracket up or down, and the adjusting screw sideways, to center the adjusting-screw head on the over-travel stop. Tighten the bracket screws only, not the adjusting screw nut.

6.4.4 Turn the adjusting screw in or out as required to depress the over-travel stop fully, but without applying excessive pressure. Tighten the adjusting screw nut.

6.4.5 Test the operation with the doors open and then again closed. 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 the doors are opened, 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.

7.0 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 dust from the collector, can 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 nozzle, media hose, flex hose, and all items covered in this section.

7.1 View Window and ClearView™ Air Channel

7.1.1 While the exhauster is running, clean the view window and glass air channel partition with a soft bristle brush. A long handle duster inserted through the top of the ClearView™ air inlet stack, may also be used. The blow-off nozzle may be used to blow-off the backside (work chamber side) of the partition, but **do not direct air into the airflow channel between the view window and ClearView™ partition.** Doing so will blow dust laden air out the inlet stack. The view window and partition are easily removed for thorough cleaning or replacement.

7.1.2 To remove the partition, loosen the side and top plastic retaining nuts, and slide the partition from the side retainers. When replacing the partition, tighten the nuts only enough to hold the partition; it takes very little pressure to hold it in place. Refer to Section 8.3 to service the view window.

7.2 Compressed-Air Filters

7.2.1 The cabinet's blast machine is equipped with an air filter and a combination pressure regulator/air filter.

1. The inlet (first) filter has a manual drain that must be opened periodically to drain accumulated water.
2. The filter/regulator automatically drains when moisture fills the bowl to a certain level. Moist air inhibits the flow of media. If moisture problems persist, an air dryer may be required.

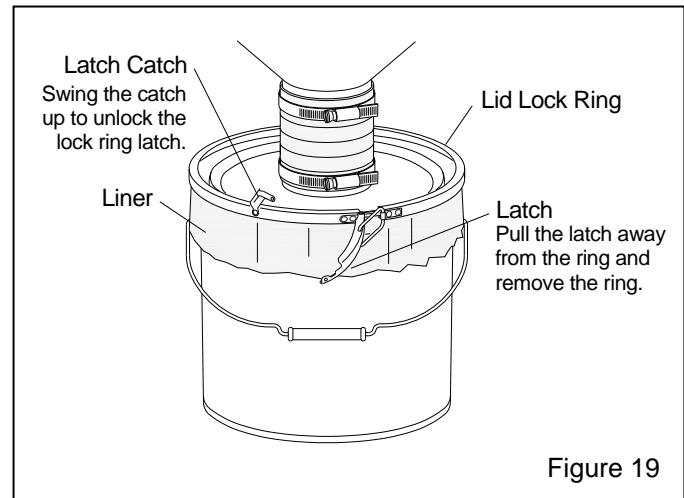
7.3 Dust-Collector Dust Container

NOTICE

Inspect dust level in the dust container when the collector is shut off and empty it before adding new media. Failure to monitor the dust level will overfill the collector, requiring extensive cleaning.

7.3.1 Turn off the exhauster and release the lid lock ring from the dust container as shown in Figure 19.

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



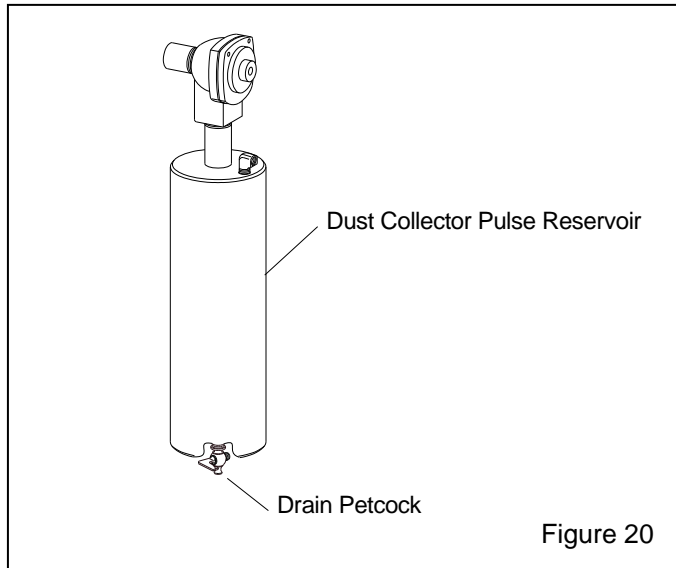
7.3.3 Tie-off or otherwise seal the top of the liner and remove it from the container. Dispose of the sealed liner into a suitable disposal receptacle. Replacement liners are shown in Section 10.10, Figure 40.

NOTE: Blasting media is usually non-toxic; however, some materials being removed by the 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.

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

7.4 Pulse Reservoir

7.4.1 Refer to Figure 20 and open the petcock to drain air and water from the pulse reservoir whenever the air supply is shut OFF. Close the petcock after the air supply is turned ON.



7.5 Routine Additional Cartridge Pulsing

7.5.1 The cartridge is pulsed each time the foot pedal is pressed or released. Additional pulsing should be performed daily per the following instructions, or more often under dusty conditions to prevent clogging the filter cartridge.

7.5.2 Turn OFF exhauster.

7.5.3 Hold the blast nozzle 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.

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

7.5.5 Repeat the process several times.

7.5.6 Refer to Section 8.11 for cartridge cleaning.

7.6 Monthly inspection

7.6.1 Before blasting and with air OFF

- Inspect the blast hose for wear; look for soft spots. Soft spots mean the hose is worn thin. Replace the blast hose before the tube wears into the fabric plies.
- Remove the nozzle for inspection. Replace if worn or cracked.
- Inspect and clean the compressed air filter and bowl.
- Inspect pop-up valve and seal for wear. Refer to Sections 8.7 and 8.8.

7.6.2 During blasting:

- Inspect the blast machine for leaks. If leaks are found around the pop-up valve, inspection door, or pipe fittings leading into the machine, stop blasting and repair or replace worn parts. If leaks are allowed to continue, irreparable damage caused by abrasive erosion may occur to the blast machine.
- Inspect the media-metering valve for leaks. If leaks are found, stop blasting and repair.
- Inspect blast hose, couplings, and nozzle holders for leaks. At the first sign of a leak, stop blasting and inspect all items for wear. Repair or replace as needed.

8.0 SERVICE MAINTENANCE

⚠ WARNING

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

8.1 Gloves

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

8.1.2 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.

8.1.3 Quick-Change type, clampless installation: Quick-change gloves are held in place using spring rings

sewn into the attachment end of the glove. To install, insert the glove into the arm port, so one spring is on the inside of the port and the other is on the outside, sandwiching the arm port between both spring rings.

8.2 Blast Hose and Nozzle – Figure 21

8.2.1 To remove old hose, disconnect hose from blast machine, remove nozzle holder or coupling, spray 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

8.2.2 When replacing blast hose, make sure the hose is squarely cut and that it is fully inserted into the nozzle holder and coupling until it seats tightly against the shoulder in the holder and coupling, as shown in Figure 21. Make sure correctly-sized screws are used to secure the nozzle holder and blast hose coupling. **NOTE;** Screws should not penetrate through to the inside of the blast hose.

8.2.3 Replace the nozzle when its orifice (smallest inside diameter) has increased by 1/16", or sooner if pressure diminishes noticeably. 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.

8.3 View Window Replacement

⚠ WARNING

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

8.3.1 Remove the two window frame nuts located on the upper edge of the window frame, and swing the window frame open. **NOTE Ergo models are not hinged; they are held by four frame nuts.** If the frame is to remain open, for cleaning or other reasons, remove it per Section 8.4.

8.3.2 Remove the old window.

8.3.3 Inspect both window frame gaskets, on the window frame and on the cabinet. If either gasket is damaged, replace it per section 8.5.

8.3.4 Set the new 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.

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

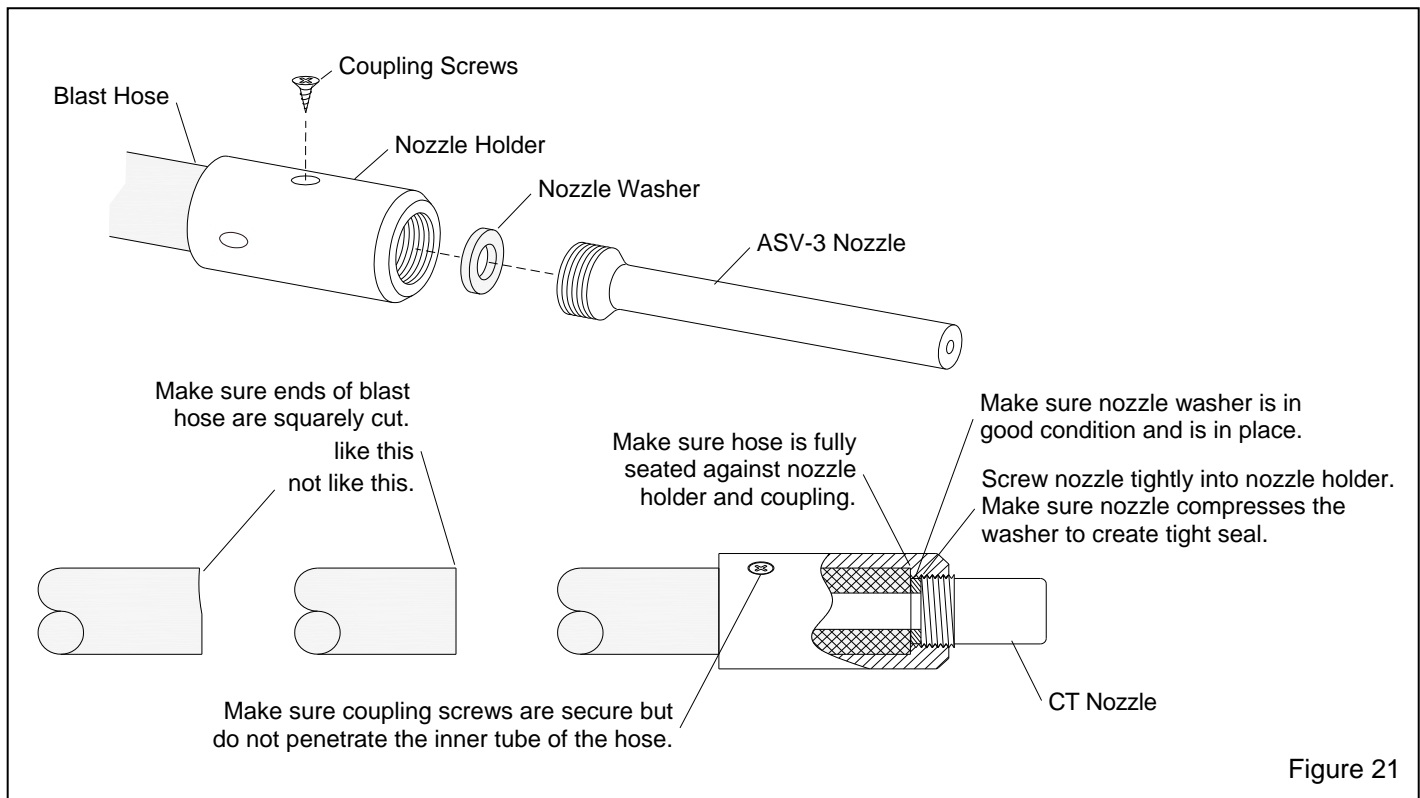


Figure 21

8.4 Window Frame Removal – Figure 22

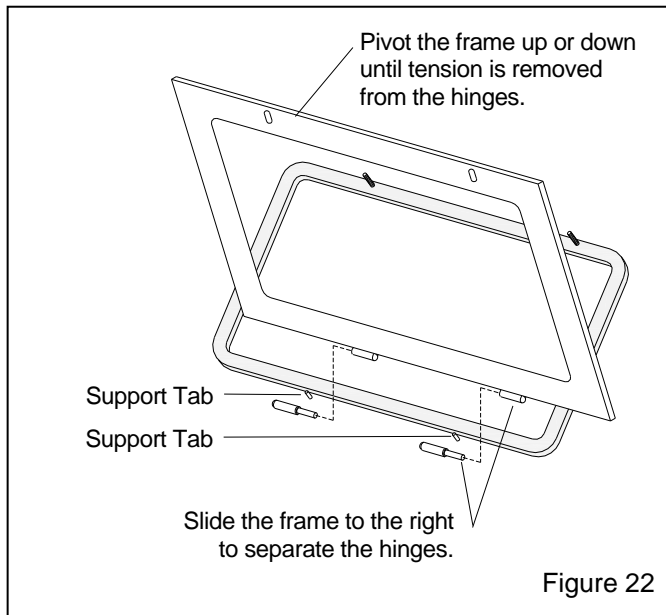
8.4.1 Remove the two window frame nuts located on the upper edge of the window frame, and swing the window frame open.

8.4.2 Remove the window to prevent breakage.

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

8.4.4 To remove slide the frame to the right. The hinges separate as shown in Figure 22.

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



8.4.6 Set the window squarely over the window opening, making sure that all edges of the window are centered and overlapping the window gasket and resting on the window support tabs.

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

8.5 Window Gasket Replacement – Figure 23

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

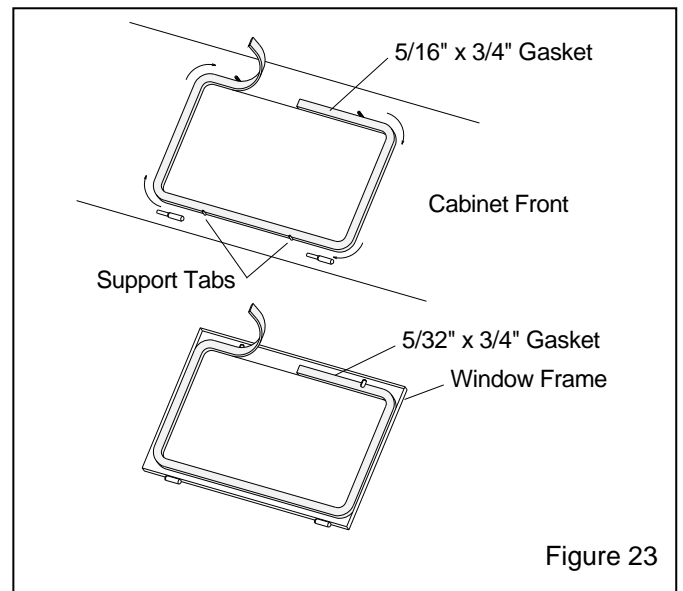
8.5.2 Remove the window and window frame per Section 8.4.

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

8.5.4 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 23. Peel additional backing as needed, and work the strip around the radius of each corner, pressing it tightly to bond. Trim the gasket to fit and compress the ends to seal.

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

8.5.6 Trim around the window frame bolt slots, as needed.



8.6 Light Assembly

NOTICE

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.

8.6.1 Shut OFF electrical power.

8.6.2 Gasket Replacement

8.6.2.1 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 24.

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

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

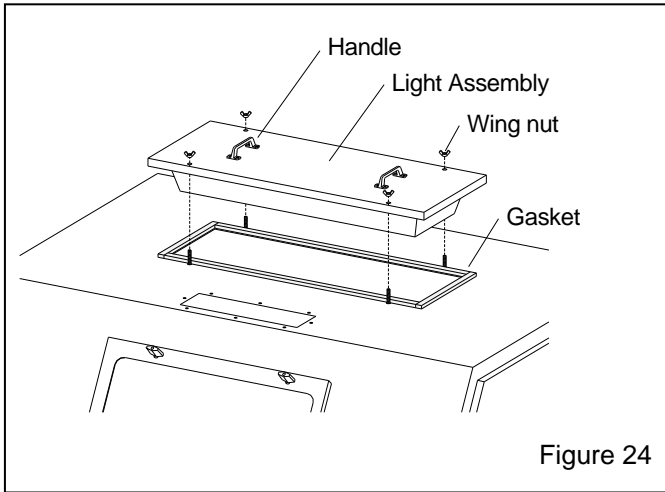


Figure 24

8.6.3 Lens and Tube Replacement

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

8.6.3.2 Flip the fixture over to access the lens screws, ref. Figure 25.

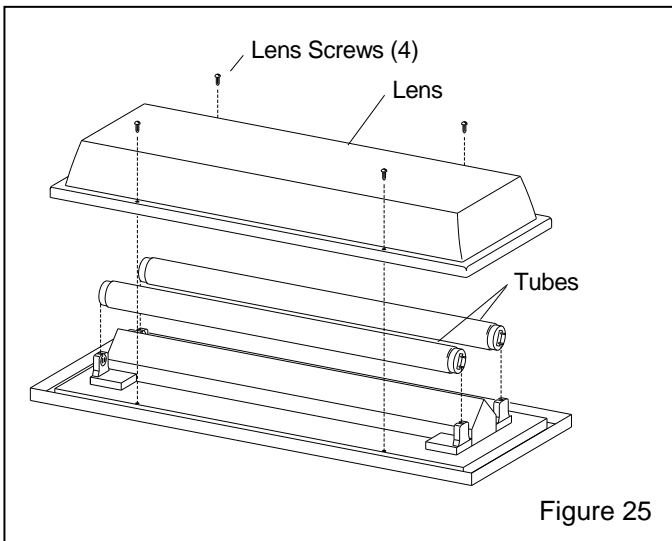


Figure 25

8.6.3.3 Remove the four lens screws and remove the lens.

8.6.3.4 Replace the lens or tubes as required.

8.6.3.5 Inspect the gasket, and replace when worn or damaged.

8.6.3.6 Reassemble in reverse order.

8.7 Replacing the Pop-up Valve – Figure 26

8.7.1 Empty the machine of media per Section 5.3.

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

⚠ WARNING

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

8.7.3 To gain access to the pop-up valve, remove the blast machine's inspection door assembly.

8.7.4 Use a small pipe wrench to unscrew the pop-up valve guide; turn it counter-clockwise to remove it from the elbow. Remove the pop-up valve and guide from the machine.

8.7.5 Slide the new guide over the pop-up valve stem. Screw the valve guide (with the pop-up valve in it) into position inside the machine. Tighten the guide with a wrench, snug but not wrench-tight. Over-tightening the guide will make it difficult to remove next time the pop-up valve needs replacement.

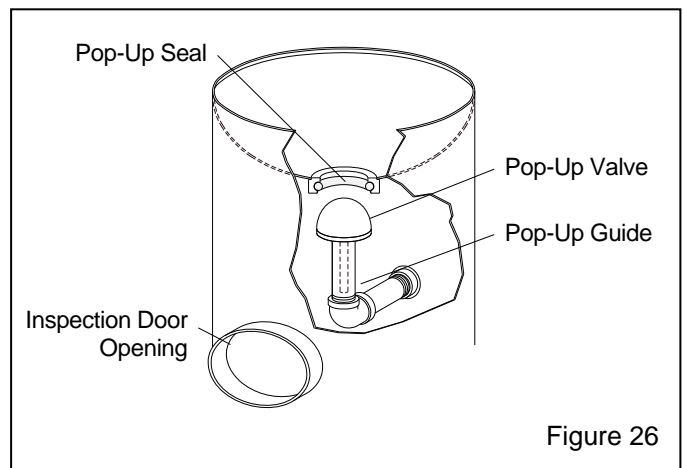


Figure 26

8.7.6 Put a new gasket on the inspection door assembly before bolting the door back onto the machine.

8.8 Replacing the Pop-Up Seal

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

8.8.2 Push the new seal all the way through the port and then fit it into the retaining groove. Pull up on the seal and allow it to pop into position.

8.9 Exhaust Muffler, Refer to Page 27 – Figure 35

8.9.1 Clean or replace the muffler body when depressurizing time increases noticeably. (Average time to depressurize the blast machine is about 2-3 seconds).

8.9.2 To clean, remove the locknuts and screws, separate the parts, and clean the interior of the body with solvent or compressed air. If the interior is so clogged that these methods do not clear the muffler, it must be replaced. The cap must be replaced when the urethane coating is worn away.

8.10 Removing Damp Media or Clearing Obstructions from the Blast Machine

8.10.1 To clear minor obstructions or damp media, with the machine in operation, rapidly open and close the choke valve several times.

8.10.2 For obstructions that are more difficult to clear, proceed as follows:

8.10.2.1 Adjust the blast machine pressure to 30 psi.

8.10.2.2 Close the choke valve, and open the media-metering valve by turning the knob fully counterclockwise.

8.10.2.3 Remove the nozzle and nozzle washer.

8.10.2.4 Pressurize the machine. While securely holding the hose, press the foot pedal. A heavy flow of media should come out of the end of the hose. If it does not, gradually increase blast machine pressure until the blockage is cleared.

8.10.2.5 Continue until the media is dry or the machine is empty. Release pressure on the foot pedal and depressurize the machine.

8.10.2.6 Thoroughly inspect the nozzle holder threads for wear before reconnecting the nozzle washer and nozzle.

8.10.2.7 Reset blast pressure.

8.11 Filter Cartridge Cleaning

WARNING

Wear approved respirator and protective gear when cleaning the cartridge. Contain dust generated while cleaning, and collect it in a suitable disposal container. Check with proper authorities for disposal restrictions.

NOTICE

Use extreme caution when inserting cleaning tools inside the filter cartridge or when cleaning the outside surface. Do not use stiff bristle brushes or other materials that can abrade the filter media. Any surface abrasion or puncture will decrease filter performance and may require filter replacement.

8.11.1 Pulse cartridge as described in Section 7.5.

8.11.2 Remove filter cartridge per Section 8.12.

8.11.3 Dry Method Cleaning

8.11.3.1 Attach a 3/8-inch ID or larger wand to a compressed-air line with pressure set at a maximum of 60 psi.

8.11.3.2 Insert the wand inside the filter cartridge and move the wand up and down following the pleats and covering the entire area of the cartridge.

8.11.3.3 Inspect the outside of the cartridge. If any contaminant is still visible on the outside (dust side) of the cartridge, clean the outside as follows.

NOTICE

Do not blow air directly onto the outside surface of the cartridge. Blow air at a 45-degree angle to the pleated surface, with the wand at a sufficient distance away from the surface to avoid damaging the filter media.

8.11.3.4 Use the wand to clean the outside surface. Make sure the wand is kept at 45 degrees and parallel to the pleats. Make sure the wand is at sufficient distance to avoid damaging the filter media. Remove contaminants from the outside surface without forcing it into the pores of the filter.

8.11.3.5 Repeat the cleaning of the inside of the filter one more time.

8.11.3.6 Reinstall the filter beginning at paragraph 8.11.5.

8.11.4 Wet Method Cleaning

NOTICE

Do not use high-pressure washers or water lines with pressure higher than 50 psi. Do not use oils solvents or harsh detergents. Damage to the filter can occur.

8.11.4.1 Place the filter in a 2-3% solution (about 4-oz. per gallon) of mild dishwashing soap, and let cartridge soak for 10 minutes.

8.11.4.2 Remove the filter and rinse the inside with water from a garden hose not exceeding 50 psi. Be careful not to abrade the filter media.

8.11.4.3 Rinse the outside of the filter with the water stream at a 45-degree angle and parallel to the pleats. Thoroughly rinse all traces of detergent from both the inside and outside of the filter.

8.11.4.4 Allow the filter to dry 24 to 48 hours at 70 degrees F or higher. Do not dry the filter inside the collector with the fan. Filters must be completely dry before reuse.

8.11.4.5 Reinstall the filter beginning at paragraph 8.11.5.

8.12 Filter Cartridge Replacement – Figure 27

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 can 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 for the blast media.

8.12.1 Close the air supply valve and bleed air from the pulse manifold.

8.12.2 Unlatch and remove the dust collector hopper-bottom.

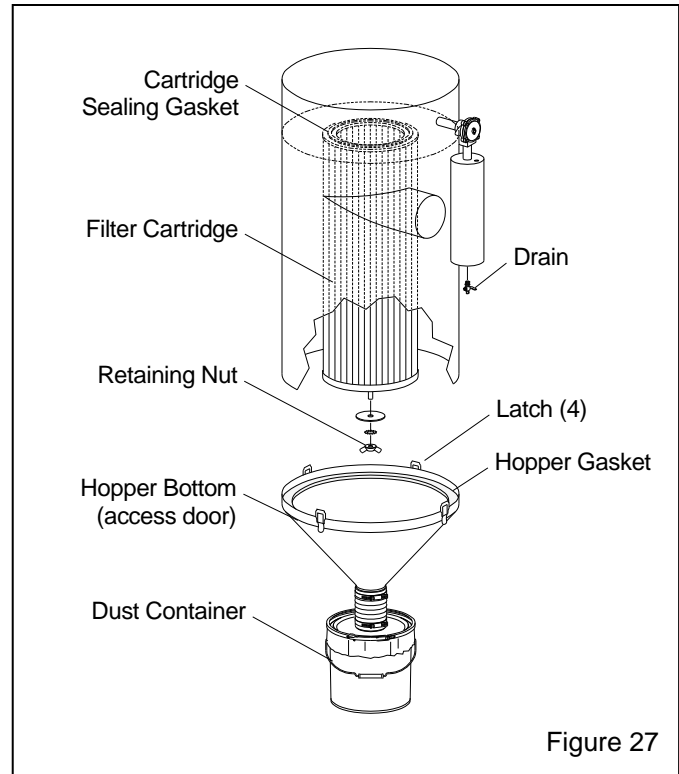


Figure 27

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

8.12.4 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.

8.12.5 Clean all parts that will be reused, especially those around the cartridge sealing area. Remove any dust buildup or residual gasket material from the sealing surface. Inspect the inside of the dust collector for dust buildup, wear, or damage. Clean or repair as required.

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

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

8.12.8 Attach the hopper bottom, and latch in place.

8.12.9 Season cartridge per Section 8.13.

8.13 Seasoning Cartridge

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

NOTICE

Do not pulse new dust collectors or replacement cartridge until the cartridge is seasoned. Premature pulsing decreases the efficiency of collector and cartridge life.

8.13.2 Disable the pulse by turning the pulse regulator off (to 0 psi). Refer to Section 6.2 to adjust the regulator.

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

9.0 TROUBLESHOOTING

WARNING

To avoid serious injury, observe the following when troubleshooting.

- **Turn off the air, and lockout and tagout the air supply.**
- **If checking the controls requires air, always enlist the aid of another person to:**
 - **Hold the nozzle securely**
 - **Operate the foot pedal**
- **Never bypass the foot pedal or wedge it in the operating position.**

Never override the door interlock system.

9.1 Poor visibility

9.1.1 Dirty filter cartridge. Refer to Section 7.5 for additional pulsing and 6.2 to adjust pulse pressure.

9.1.2 Exhauster motor rotating backwards. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, lockout and tagout power, and switch the motor leads as shown on the motor plate.

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

9.1.4 Obstruction in flex hose between the cabinet hopper and cyclone inlet.

9.1.5 Worn paddle wheel. Check wheel for wear.

9.2 Reduction in blast cleaning rate

9.2.1 Inaccurate metering valve setting. Adjust per Section 6.3.

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

9.2.3 Blockage in nozzle. Blockage may occur because of damp media.

9.2.4 Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. See Section 9.3.

9.3 Media bridging

9.3.1 Frequent bridging or blockage in the media-metering valve can be caused by damp media. Media becomes damp from moisture in the compressed air line or from absorption from ambient air.

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

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

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

9.4.1 Make sure the blast machine pressurizes; if it does not pressurize, refer to Section 9.9.

9.4.2 Depressurize the blast machine. After the pop-up valve has dropped, remove the nozzle to see if it is plugged.

9.4.3 Make sure that both the media-metering valve and the choke valve are open.

9.4.4 Check plumbing and blast hose for hardened or packed media.

9.4.5 Door interlocks not engaging. Check adjustment per Section 6.4.

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

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

9.4.8 Make sure lines are not reversed on the foot pedal or 4-way pilot valve. Refer to the control and plumbing schematic in Figure 3.

9.5 Heavy media flow

9.5.1 Make sure the choke valve is open.

9.5.2 Media metering valve open too far. Adjust per Section 6.3.

9.6 Intermittent media flow

8.6.1 Moisture in the blast machine or in the air supply. Drain moisture from the compressor's receiver tank and the moisture separator/ filter. If moisture problems persist, installation of a dryer or aftercooler may be required in the air supply line.

9.6.2 Media metering valve may need adjustment. See Section 6.3.

9.7 Media surge

9.7.1 A certain amount of media surge is normal at startup. When the flow of media continues to surge, reduce the amount of media in the air stream by adjusting the metering valve per Section 6.3.

9.8 Only air (no media) comes out the nozzle

9.8.1 Media metering valve may be closed or needs adjustment. See Section 6.3.

9.8.2 Make sure outlet valve is closed.

9.8.3 Make sure the machine contains media.

9.8.4 Damp media. See Section 9.3.

9.8.5 Check for minor blockage in the media-metering valve by fully opening the metering valve, and closing the choke valve. Activate the foot pedal to blow out obstructions.

9.9 Blast machine will not pressurize

9.9.1 Safety petcock on pneumatic inlet valve open. Make sure petcock is closed.

9.9.2 Make sure that the air compressor is on and air supply valves are open.

9.9.3 Pressure regulator may be turned down or turned off. Check pressure on regulator.

9.9.4 Inadequate air supply. Refer to the table in Figure 4.

9.9.5 Pop-up valve not sealing. Pop-up valve stuck, or internal piping worn or out of alignment. Inspect pop-up valve and seat for wear. Inspect internal piping for wear and alignment.

9.10 Blast machine does not depressurize or depressurizes too slowly

9.10.1 Inspect the exhaust hose and outlet muffler for blockage. The muffler (Page 26, Item 22) is located on the inside of the cabinet hopper.

9.11 Media buildup in cabinet hopper

9.11.1 Exhauster motor rotating backwards. 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.

9.11.2 Filter cartridge heavily caked with dust. Do additional pulsing per Section 7.5. Increase pulse pressure per Section 6.2, clean cartridge per Section 8.11. If problem persists, replace cartridge per 8.12.

9.11.3 Hole worn in flex hose between cabinet hopper and dust collector inlet. Replace hose.

9.11.4 Obstruction in flex hose. Remove hose and check for blockage.

9.11.5 Dust drums not sealed; make sure drum lids are secure.

9.12 Static shocks

9.12.1 Cabinet and/or operator not grounded. Abrasive blasting creates static electricity. The cabinet must be grounded to prevent static build-up. See Section 2.9. 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.

9.12.2 Avoid holding parts off the grate. Static will build-up in the part if not dissipated through the metal cabinet.

9.13 Dust leaking from cabinet

9.13.1 Refer to Section 9.1.

9.13.2 Filter cartridge heavily caked with dust. Do additional pulsing per Section 7.5. Increase pulse pressure per Section 6.2, clean cartridge per Section 8.11. If problem persists, replace cartridge per 8.12.

9.14 Dust leaking from dust collector

9.14.1 Cartridge not seasoned; season cartridge per Section 8.13.

9.14.1 Damaged or loose cartridge. Inspect filter cartridge.

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

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

9.15.1 Check pressure on dust-collector pulse-pressure gauge. If low, adjust pulse pressure per Section 6.2.

9.15.2 Refer to Figure 28 and make sure the 3-way pulse valve has not come loose from the mounting bracket. Tighten the retaining nut as needed to secure.

9.15.3 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 28.

9.15.4 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 28. 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.

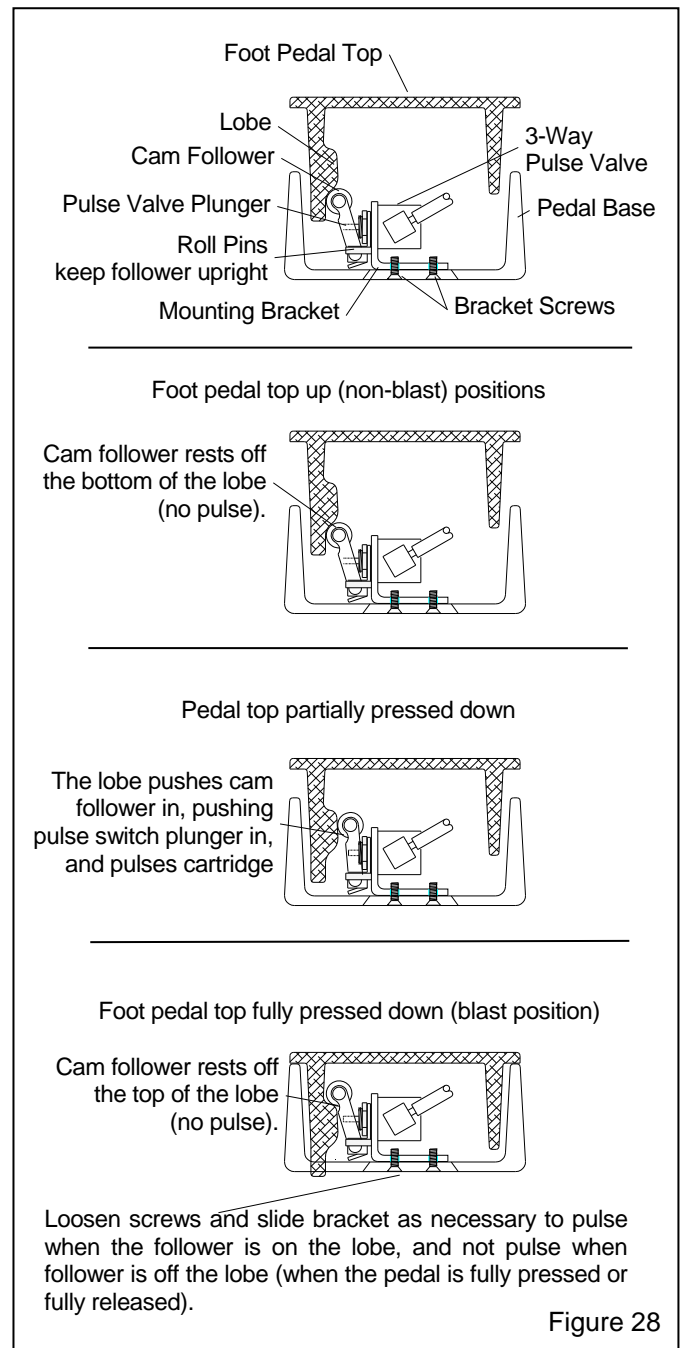


Figure 28

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. Recheck operation and 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. Recheck operation and alignment.

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

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.

9.15.5 Check the diaphragm pulse valve and actuator assembly. Refer to Figure 29.

9.15.5.1 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 9.15.5.2.
- 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 valve 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.

9.15.5.2 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 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 9.15.5.1.
- 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 9.15.2, 9.15.3, and 9.15.4.

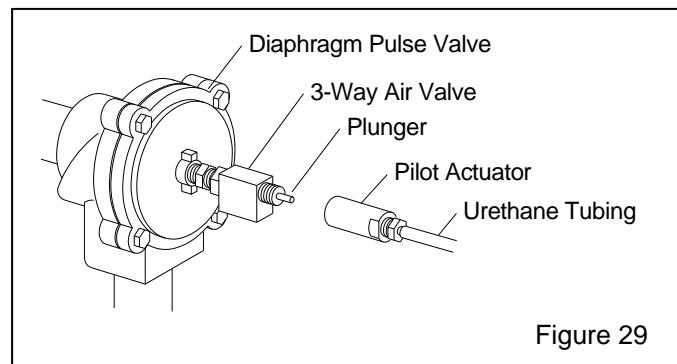


Figure 29

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

9.16.1 Cam follower does not ride off the foot pedal lobe. Inspect alignment per Section 9.15.

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

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

10.0 ACCESSORIES AND REPLACEMENT PARTS

10.1 Optional Accessories

Lock pins (pkg of 25) for twist-on hose cplgs	11203
Safety cable, blast hose, 1/2" OD to 1-1/4" OD	15012
Manometer kit	12528
Armrest assembly	24900

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.

Fixed-base Turntable without Bearing

Description	Stock No.
20" dia. 25 lb. capacity	12412

Fixed-base Turntable with Bearing, 500 lb. Capacity
Figure 30

Item	Description	Stock No.
(-)	20" dia. assembly, 500 lb. capacity	12411
(-)	30" dia., assembly 500 lb. capacity	14138
1.	Turntable	
	20" diameter 500 lb. capacity	18329
	30" diameter 500 lb. capacity	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

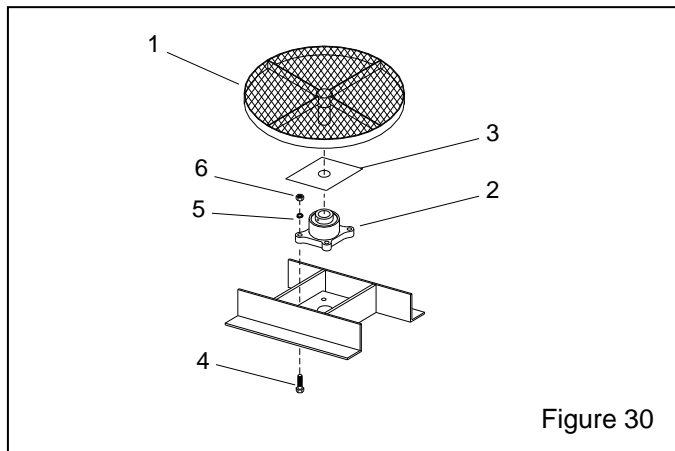


Figure 30

Turntable with Workcar and Track, 500 lb. Capacity,
Figure 31

Item	Description	Stock No.
(-)	20" dia. turntable and track assembly for 3636B	13530
	for 4050B	12835
(-)	30" turntable and track assembly for 4050B	24045
(-)	Turntable & workcar assembly replacement 20" diameter	24205
	30" diameter	24086
1.	Turntable replacement 20" diameter	18329
	30" diameter	21390
2.	Bearing, 1-1/2" bore	11517
3.	Protector, bearing	13479
4.	Screw, 1/2-NC x 1-1/2" cap	03454
5.	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 items. Contact distributor for price and availability.

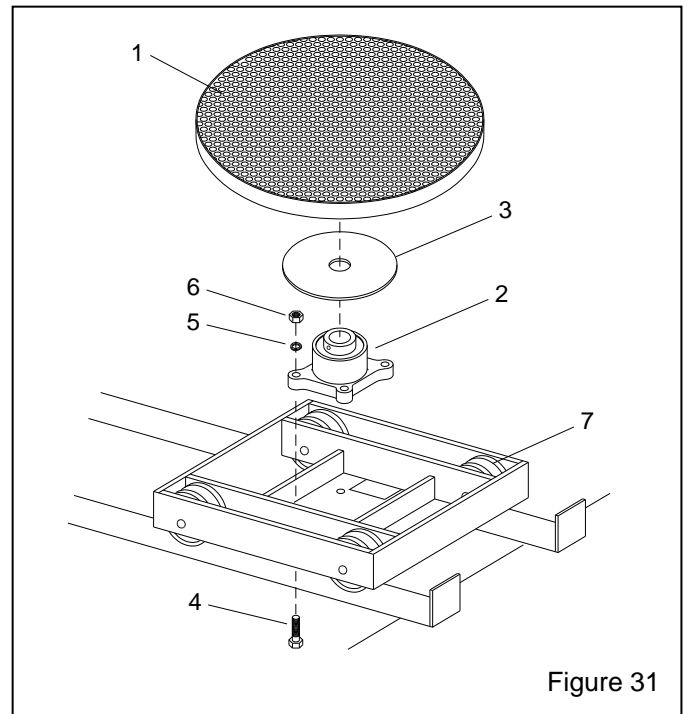


Figure 31

10.2 Cabinet Replacement Parts – Figure 32

Item	Description	Stock No.
1.	Gasket, 5/16" x 1" adhesive-backed, per foot, specify feet required 3636B door, 11 ft. per door 4050B door, 13 ft. per door Light assembly, 7 ft. required Air-inlet stack, 3 ft. required 3636B Ergo front, 13 ft. required 4050B Ergo front, 16 ft. required	00187 00187 00187 00187 00187 00187
2.	Light assembly w/ cover	23255
3.	Door assembly, left for 3636B for 4050B	20070 20074
4.	Door assembly, right for 3636B for 4050B	20071 20075
5.	Grate for 3636B for 4050B	11811 11810
6.	Latch kit, door	20064
7.	Glove set Band-clamp attachment Quick-change (clampsless) attachment ...	11215 28820
8.	Glove, left hand only Band-clamp attachment Quick-change (clampsless) attachment ...	12710 28638
9.	Glove, right hand only Band-clamp attachment Quick-change (clampsless) attachment ...	12711 28639
10.	Clamp, glove	11576
11.	Window glass, 12.5" x 19.5" laminated	12212
12.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 6-feet required	00189
13.	Gasket, 5/32" x 3/4", applied to window frame per foot, 6-feet required	00192
14.	Nut, plastic, window frame, 2 required on conventional, 4 on ergo	23035
15.	Window frame, quick change	22826
16.	Clamp, flex hose, 5-1/2"	11578
17.	Hose, 5" bulk light-lined, 9 ft. required	12467
18.	Grommet, blow-off hose	11798
19.	Grommet, blast hose	00184
20.	Adaptor pipe, 5" universal	23296
21.	Gasket, 5" adaptor pipe	23259
22.	Muffler, outlet	05068
23.	Foot pedal assembly, without tubing with tubing, 14 feet	20483 20195
24.	Actuator bracket, door interlock	19152
25.	Over-travel stop, door interlock	20004
26.	Detent sleeve, door interlock	15042
27.	Air valve, 3 way door interlock	12202
28.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
29.	Gasket, hopper plate adaptor	20247
30.	Plate, hopper hose adaptor	21657
31.	Grommet, 1/4" ID	12762
32.	Adaptor pipe, 2" ID hose	25094
33.	Cover plate, 2" ID hose	25093
34.	Gasket, 3/16" x 1" adhesive-backed, per foot, specify feet required	00186
35.	Brace, leg for 3636B for 4050B	24443 24445

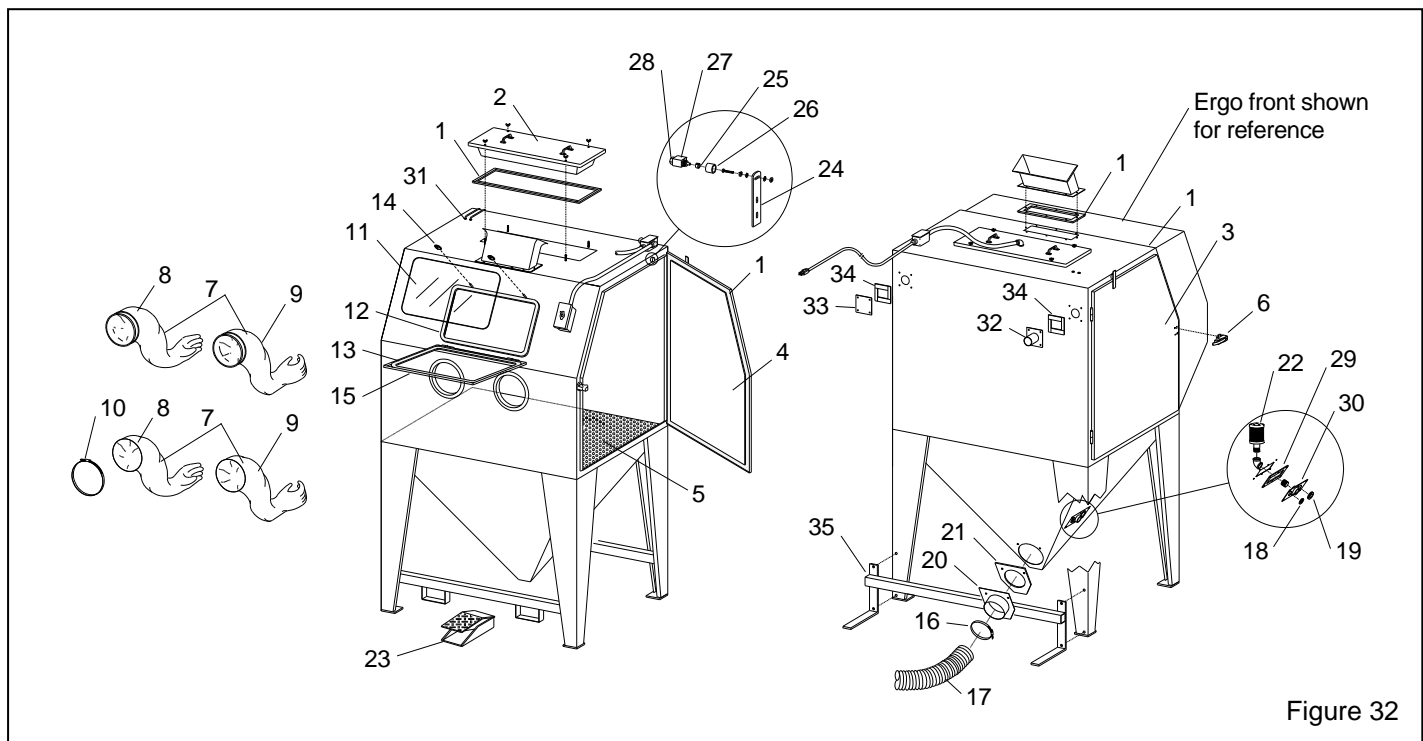


Figure 32

10.3 ClearView™ Window Assembly – Figure 33

Item	Description	Stock No.
1.	Window glass, 12.5" x 19.5" laminated	12212
2.	Gasket, 3/16" x 1", applied to frame per foot, 4-feet required	00186
3.	Nut, plastic, window frame, 6 required	23035
4.	Clamp, ClearView™ window, each	25198

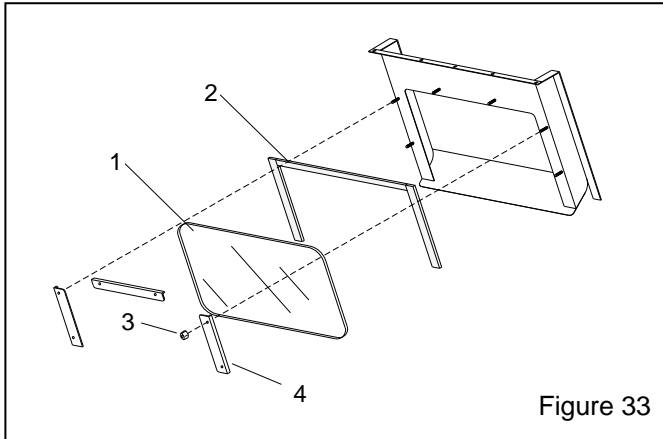


Figure 33

10.4 Light Assembly – Figure 34

Item	Description	Stock No.
(-)	Light assembly w/ cover	23255
1.	Light fixture (without cover or tubes)	24740
2.	Reflector lens	23253
3.	Tube, fluorescent, 17w	24741

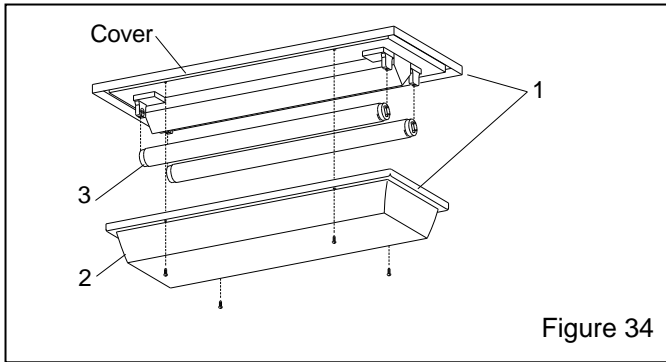


Figure 34

10.5 Muffler Assembly – Figure 35

Item	Description	Stock No.
(-)	Muffler assembly	05068
1.	Screw, 8-32" x 4"	05061
2.	Cap, coated	05067
3.	Body, element	05065
4.	Screen	05060
5.	Guide w/ guide nut	22344
6.	O-ring, 1-1/4" ID	05069
7.	Seat	05062
8.	Nut, 8-32" ss lock.....	05815

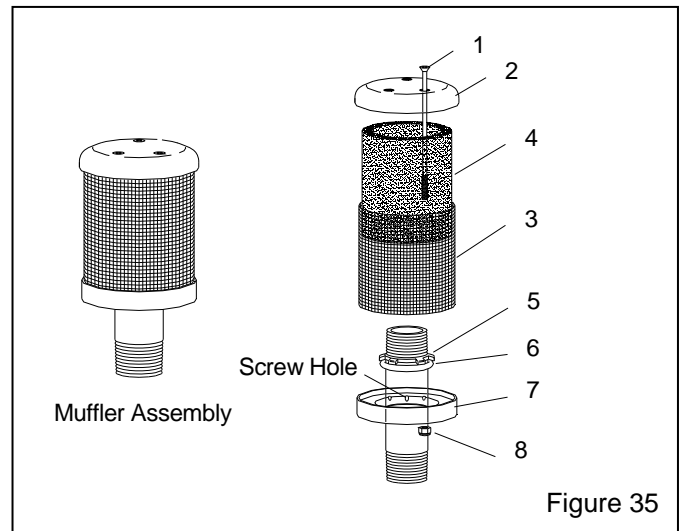


Figure 35

10.6 Foot Pedal Assembly – Figure 36

Item	Description	Stock No.
(-)	Foot pedal assembly, without tubing	20483
	with tubing, 14 feet	20195
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 thread 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, 28 ft. sup. ...	19577
14.	Roll pin, 1/8"	20479
15.	Screw, 8-32 x 3/8"	11389
16.	Bumper (foot), neoprene	21522
17.	Tie, nylon wire, 3-7/8" long	12139

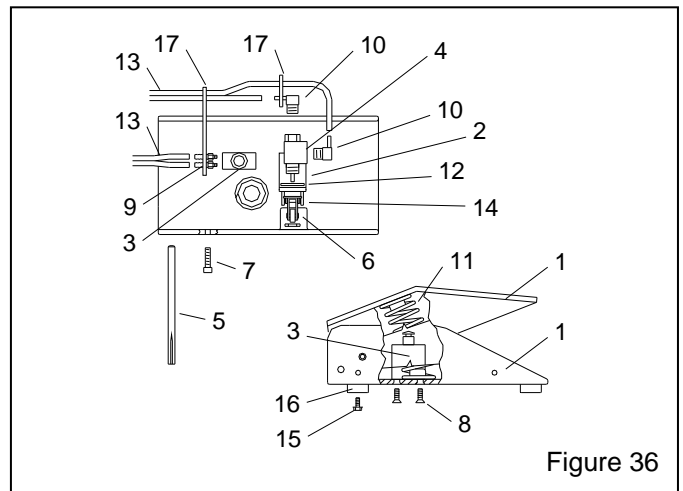


Figure 36

10.7 Controls and Plumbing Schematic – Figure 37

Item	Description	Stock No.
1.	Valve, 4-way air	12203
2.	Adaptor, 1/8" NPT x 1/8" barb	11732
3.	Bushing 1/4"x 1/8" NPT brass	02010
4.	Adaptor, 1/2" NPT x 1/2" male flare	11351
5.	Hose end, 1/2" barb x 1/2" female swivel	15002
6.	Hose end, 1/2" barb x 3/8" male NPT	06369
7.	Blow-off nozzle	06368
8.	Hose, 1/2" ID air, specify feet required	12472
9.	Tubing, 1/8" ID urethane, specify feet required	12475
10.	Tubing, 1/8" ID twin urethane specify feet required	19577

11.	Foot pedal with tubing	20194
12.	Bushing, 1/2" x 1/8" NPT brass	03991
13.	Valve, 3 way	12202
14.	Tee, 1/8" tube barb	11734
15.	Nipple, 1/8" NPT hex	01962
16.	Actuator, air pilot	19123
17.	Regulator with gauge, 1/4"	12050
18.	Adaptor, straight 1/4" male NPT x 3/8" tube	11736
19.	Bushing, 1/2"x 1/4" NPT	01801
20.	Tubing, 3/8" OD poly, specify ft. required	12478
21.	Adaptor, el. 1/4" male NPT x 3/8" tube	11685
22.	Valve w/actuator, 3/4"	25081
23.	Ball valve, 3/4", replacement for Item 22	29237

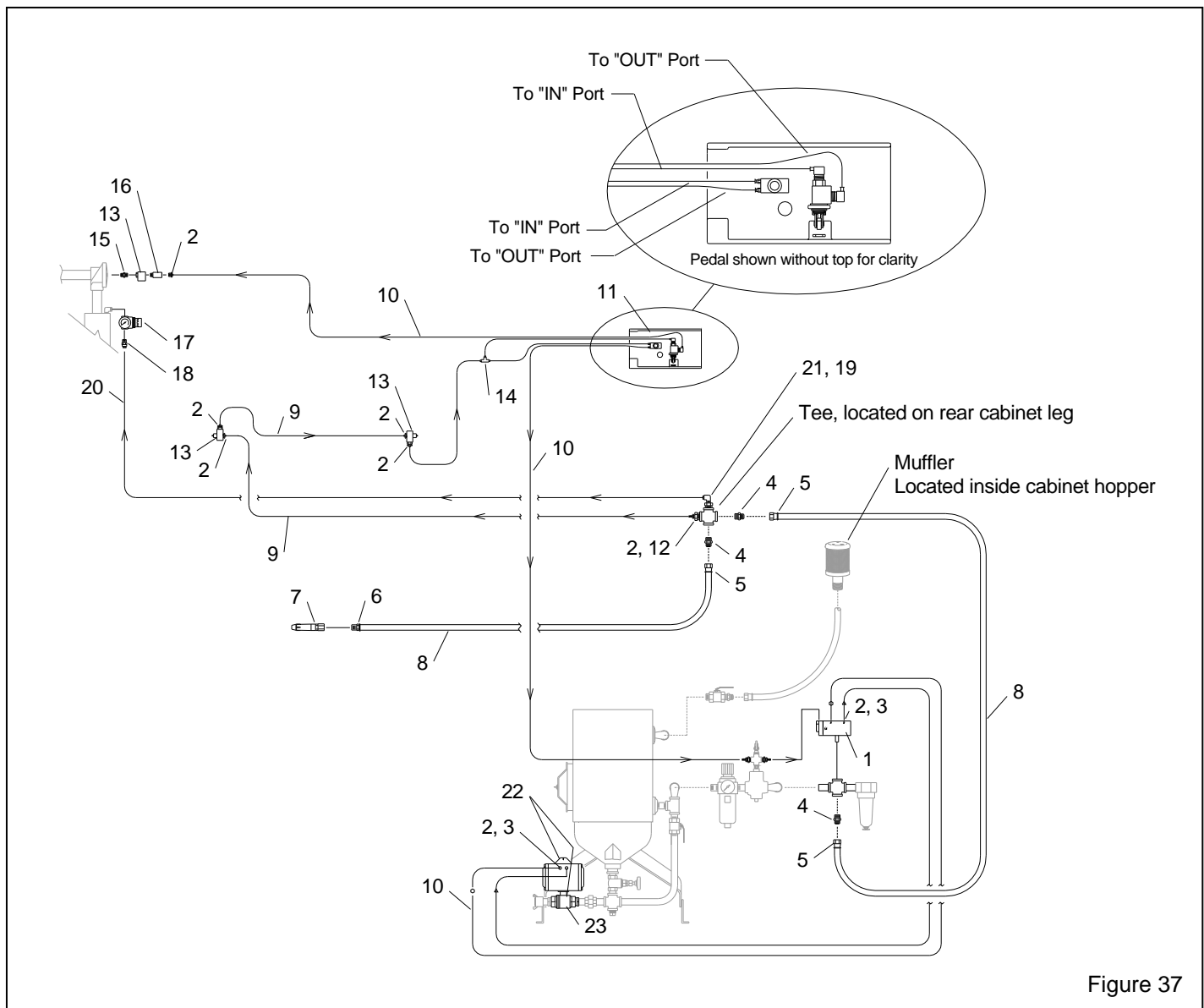


Figure 37

10.8 Blast Machine and Accessories – Figure 38

Item	Description	Stock No.
1.	Seal, pop-up, rubber	01245
2.	Pop-up valve and shaft	01242
3.	Handle, 1/2" ball valve	01252
4.	Valve, 1/2" NPT ball w/ handle	01241
5.	Filter, 1/2" manual drain	01308
6.	Metering valve, abrasive	25128
7.	Coupling, CFA-1/2, 1/2" NPT alum.	00558
8.	Gasket, inspection door, 3" x 4"	01249
9.	Inspection door assembly, 3" x 4"	01267
10.	Gaskets, CQG, for items 7 and 17, pack of 10	00850
11.	Valve, 4-way air	12203
12.	Muffler, 1/4" bronze	03988
13.	U-Channel seal, specify ft. required	19071
14.	Valve, 1/2" inlet, bicarb-cab	25095
15.	Filter/regulator w/ gauge, 1/2"	05530
16.	Hose 1/2" x 16-ft blast coupled with items 17 & 18	01251

17.	Coupling, 1/2" blast hose, CQA-1/2	00599
18.	Nozzle holder, CHE-1/2	00577
19.	Nozzle, ASV-3, 3/16" orifice x 6" venturi	27014
20.	Nozzle, optional CT type, 1-3/4" long CT-2, 1/8" orifice	01351
	CT-3, 3/16" orifice	01352
21.	Nozzle washer, NW-1, pkg. of 10	21580
22.	Adaptor, 1/2" NPT x 1/2" male flare	11351
23.	Hose end, 1/2" barb x 1/2" female swivel	15002
24.	Lock pin, coupling (package of 25)	11203
25.	Hose, 2" vacuum, bulk, 5-ft required	10332
26.	Valve w/actuator, 3/4"	25081
27.	Hose, 1/2" ID air, specify feet required	12472
28.	Adaptor, 1/8" NPT x 1/8" barb	11732
29.	Bushing 1/4"x 1/8" NPT brass	02010
30.	Nipple, 1/4" brass hex	02808
31.	Hose, 1.2" ID, x 12", cut to fit	25082
32.	Adaptor, 1/2" NPT x 3/4 JIC	25084
33.	Hose end, 3/4 JIC fem. swivel x 1/2" barb ...	25083
34.	Ball valve, 3/4", replacement for Item 26	29237

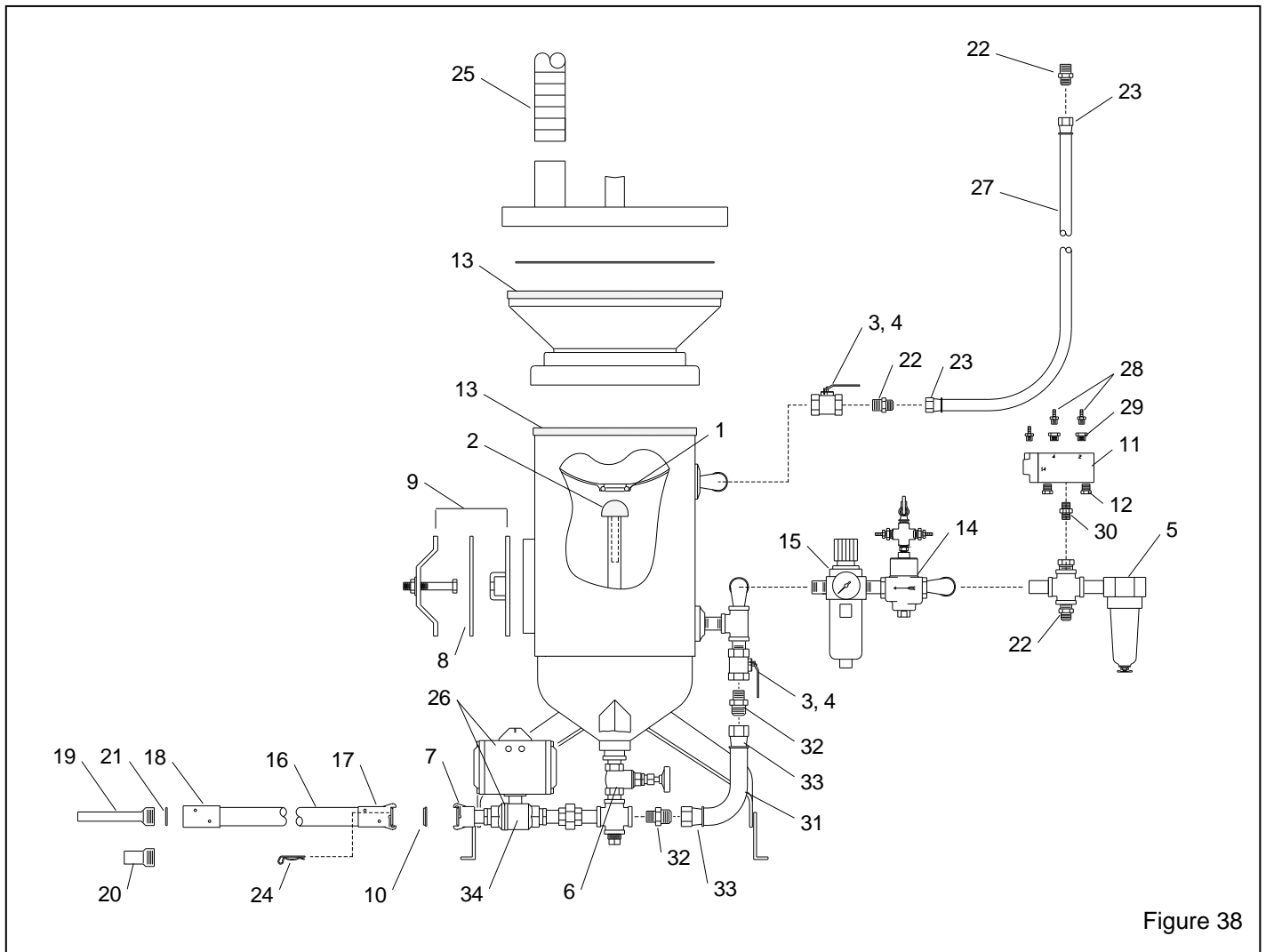


Figure 38

10.9 Inlet Valve, 1/2-Inch – Figure 39

Item	Description	Stock No.
(-)	Valve, 1/2" inlet, bicarb-cab	25095
*	Service kit, 1/2" inlet valve (Fig. 39a)	07814
1.	Cap	02175
2.	Piston	02192
3.	Body	02170
4.	Plug, bottom	02176
5.	Plug, 1/8" NPT	01897
6.	Reducer, 1/4" NPT x 1/8" NPT	02026
7.	Cross, 1/4" NPT brass	02193
8.	Petcock 1/4" NPT	01993
9.	Adaptor, 1/8" NPT x 1/8" barb	11732
10.	Bushing 1/4"x 1/8" NPT brass	02010

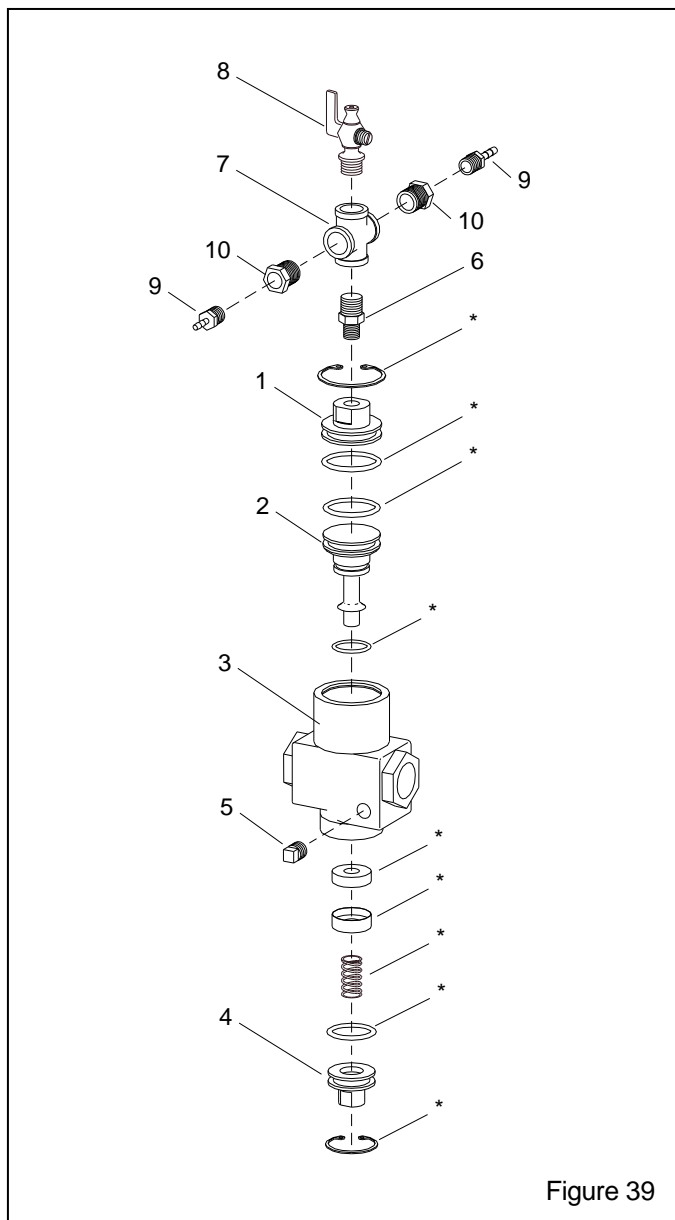


Figure 39

07814 SERVICE KIT
TLR-50 INLET VALVE

Item	Qty.	Description
1.	1	Retaining ring, cap
2.	1	Retainer, washer
3.	1	Spring, 17/32" OD x 1" long
4.	1	Retaining ring, bottom plug
5.	1	O-ring, 7/8" ID x 1/8" C/S
6.	1	Washer
7.	1	O-ring, 3/4" ID x 3/32" C/S
8.	1	O-ring, 1-1/8" ID x 1/8" C/S
9.	1	O-ring, 1-3/16" ID x 1/8" C/S

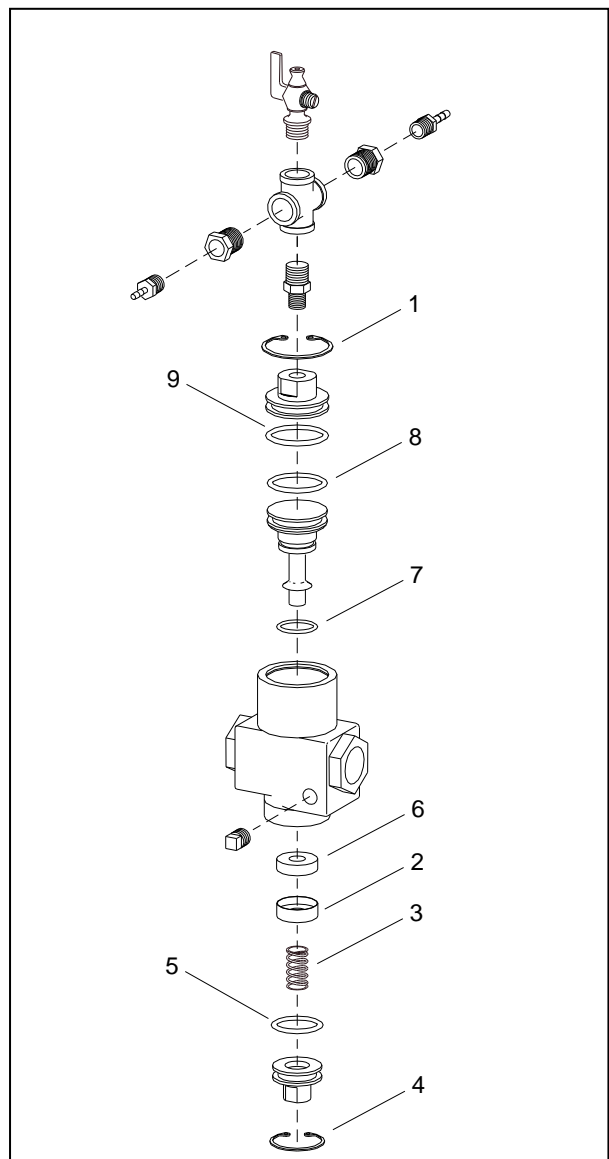


Figure 39a

10.10 Dust Collector – Figure 40

Item	Description	Stock No.
(-)	Repair kit, diaphragm pulse valve	21600
1.	Valve, 1" diaphragm pulse	19578
2.	Valve, 3 way	12202
3.	Adaptor, 1/8" NPT x 1/8" barb	11732
4.	Nipple, 1/8" NPT hex	01962
5.	Actuator, air pilot	19123
6.	Adaptor, 1/4" male NPT x 3/8 tube	11736
7.	Petcock	01993
8.	Filter cartridge, 12-3/4" x 30", SB	25967
9.	Wing nut, 1/2" NC	20108
10.	Gasket, 5/16" x 1" adhesive-backed, specify feet required	00187
11.	Latch assembly	11876
12.	Hose, flex, 4", 1 ft. minimum order	12447
13.	Clamp, 4" hose	11577

14.	Lid and lock ring, dust container	23419
15.	Drum, 5-gallon dust	28250
16.	Liners, dust container, pack of 5	28621
17.	Drum assembly, 3.5-gallon dust includes items 12 through 16	23411
18.	Washer, 1/2" ID x 1-1/16" OD	03515
19.	Elbow, 1/4" brass st.	02027
20.	Washer, 1/2" lock	03516
21.	Tubing, 3/8" OD poly, specify ft. required ...	12478
22.	Regulator with gauge, 1/4"	12050
23.	Motor, exhauster, 1 HP, 115/230, 1-ph.....	12314
24.	Plate, motor mount, 600 cfm	12004
25.	Housing, exhauster, 600 cfm	12272
26.	Paddle wheel, 600 cfm	12334
27.	Clamp, 6"	00750
28.	Screen, 600 cfm exhauster outlet	25092
29.	Nipple, 1/4" brass hex	02808
30.	Clamp, dust collector mounting w/bracket ...	27427

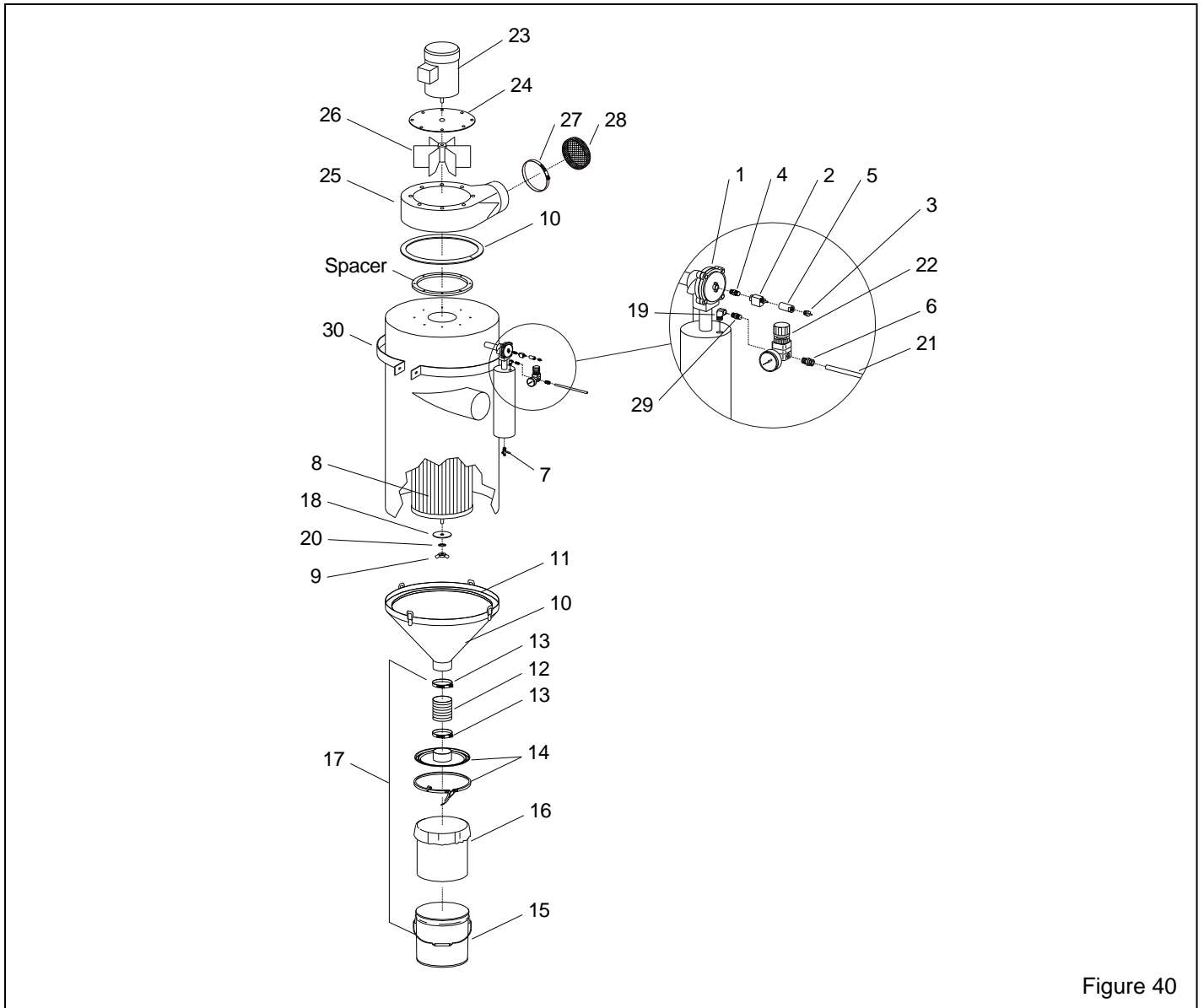


Figure 40