Pulsar® 3D
Suction Blast Cabinet
O. M. 29374

DATE OF ISSUE: 02/20
REVISION:

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

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

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

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

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1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover setup, operation, maintenance, troubleshooting, optional accessories, and replacement parts for the following Pulsar® 3D Suction Blast Cabinet:

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

1.2 Safety Alerts

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

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

NOTICE

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

⚠ CAUTION

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

⚠ WARNING

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

⚠ DANGER

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

1.3 Table of Contents

1.4 General Description

1.4.1 Pulsar® 3D blast cabinets enclose the blasting environment to provide efficient blasting while maintaining a clean surrounding work area. Production rates are influenced by compressor output, working pressure, type and size of media, and angle and distance of the nozzle from the blast surface. Pulsar® 3D suction cabinets consist of three major components:

- Cabinet enclosure
- Reclaimer
- Reverse-pulse dust collector

1.4.2 Refer to Figure 1 for general arrangement of the cabinet, dust collector, and reclaimer.

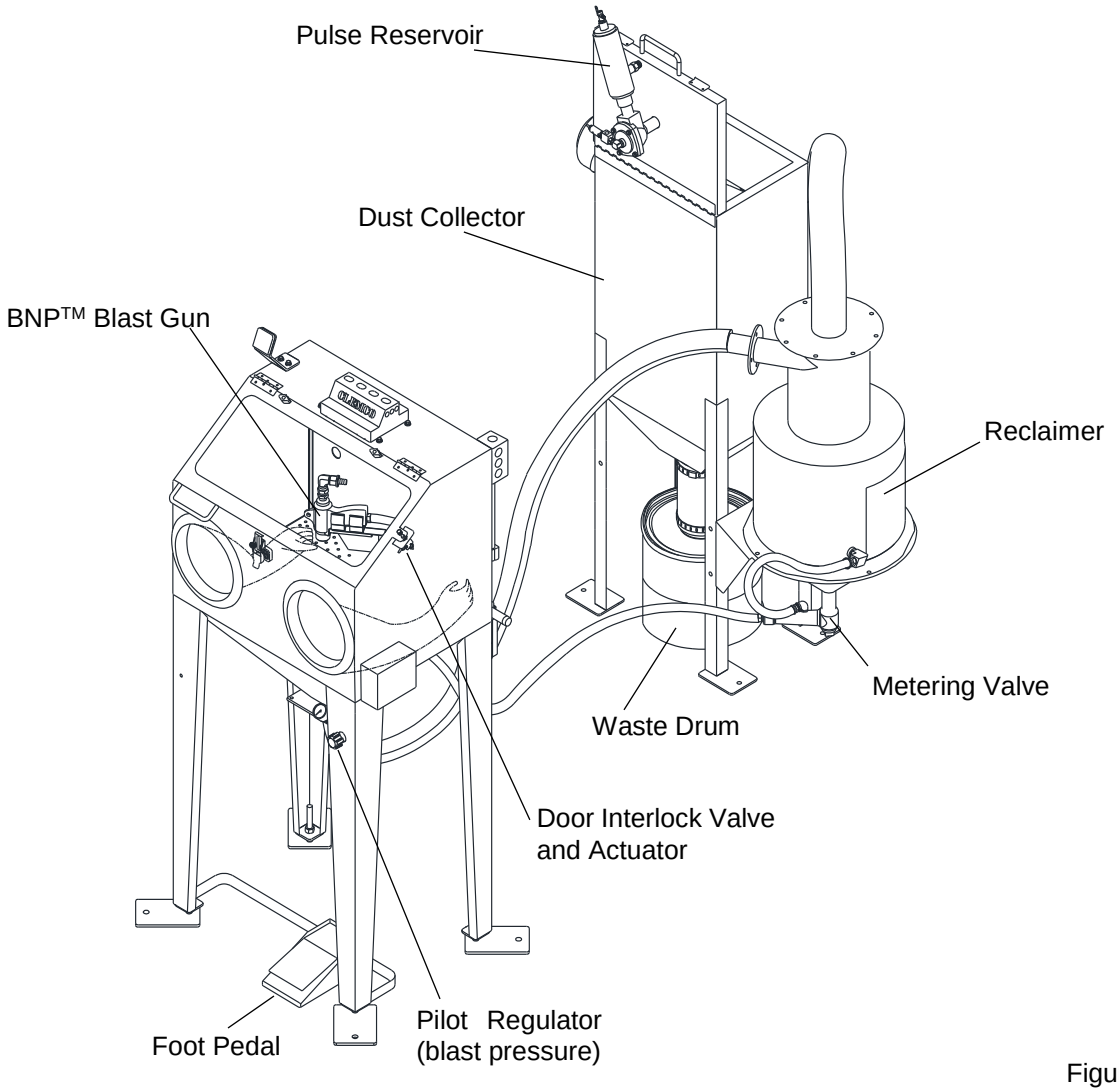


Figure 1

1.5 Theory of Operation

1.5.1 Once the cabinet is correctly set up and turned on, the cabinet is then ready for operation by actuation of the foot pedal. Fully depressing down on the foot pedal causes air to flow through the blast gun. The partial vacuum created by air moving through the gun draws media into the blast-gun mixing chamber. The media mixes with the air stream and is propelled out the nozzle. After striking the object being blasted, the blast media, fines, dust, and byproducts generated by blasting fall through the grate into the cabinet hopper. These particles are then drawn into the reclaimer for separation. Dust and fines are first separated from reusable media and 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.

1.6 Dust Collector

1.6.1 The Pulsar® 3D cartridge dust collector is not suitable for use in applications that generate dust from lead coatings, heavy metals, or any other toxic materials.

⚠ 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. This machine is not to be used in applications which generate dust from lead coatings, heavy metals or any other toxic materials. Identify all materials that are to be removed by blasting and obtain a safety data sheet (SDS) for the blast media.

1.7 Nozzle Options

1.7.1 Ventilation requirements limit standard cabinets to No. 5 (5/16" orifice) nozzle and No. 5 (5/32" orifice) air jet. Unless otherwise specified at the time of order, cabinets are supplied with a tungsten carbide lined nozzle. Ceramic nozzles are available but should be limited to occasional blasting and with mild media. More durable boron carbide nozzles should be used when blasting with aggressive media such as those listed in Section 1.8.4. Nozzle options are shown under BNP® Gun and Hose Assembly in Section 8.2.

1.8 Media

1.8.1 The Pulsar® 3D utilizes most common reusable media 60 mesh to 180 mesh that is specifically manufactured for dry blasting. Media finer than those recommended may carry over to the dust collector. Media coarser than those recommended may not convey through the media hose or recovery hose.

1.8.2 Steel: Steel grit 50 mesh to 120 grit or S70 to S170 shot may be used.

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

1.8.4 Aluminum Oxide, Silicon Carbide, and Garnet: These are the most aggressive of the commonly used media. Aggressive media such as these between 60 mesh and 180 mesh may be used, but the service life of any components exposed to the media will be reduced. To avoid unscheduled downtime and maximize cabinet life, periodically inspect all parts of the cabinet, nozzle, and hoses, that come in contact with the media.

When using aggressive media use a boron carbide lined nozzle. Nozzles lined with boron carbide extend nozzle wear life. Refer to Section 8.2 Item 9.

1.8.5 Glass Bead Recommended range is #6 thru #13: 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.

1.8.6 Fine-Mesh Media: In most cases media finer than 180 will carry over to the dust collector.

1.8.7 Lightweight Media: Plastic and similar lightweight and/or nonaggressive media are generally not recommended for suction-style cabinets because the lower blast velocity of suction blasting combined with the softer and lighter weight media do not provide the media impact for productive blasting.

1.9 Compressed-Air Requirements

1.9.1 The cabinet requires approximately 33 cfm of compressed air at a maximum of 80 psi.

1.9.2 The 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 clot 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.

1.10 Electrical Requirements

1.10.1 The system requires 115 VAC, 1 PH, 60 Hz, with 15 amps service. A 7-foot power cord is supplied. No additional wiring is required.

⚠ WARNING

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

2.0 INSTALLATION

2.1 General Installation Notes

2.1.1 Place the cabinet in a convenient location where compressed air and electrical service are available. Allow full access to the doors and service areas.

2.2 Connect Compressed Air-Supply Line

⚠ WARNING

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

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

2.2.1 Refer to Figure 2 and apply thread sealant to the male threads of an air fitting that is compatible with the air-supply hose fitting, and install it onto the 1/2" NPT inlet solenoid located on the side of the cabinet. The style of connection shown in Figure 2 is for reference only. The air line may also be hard piped.

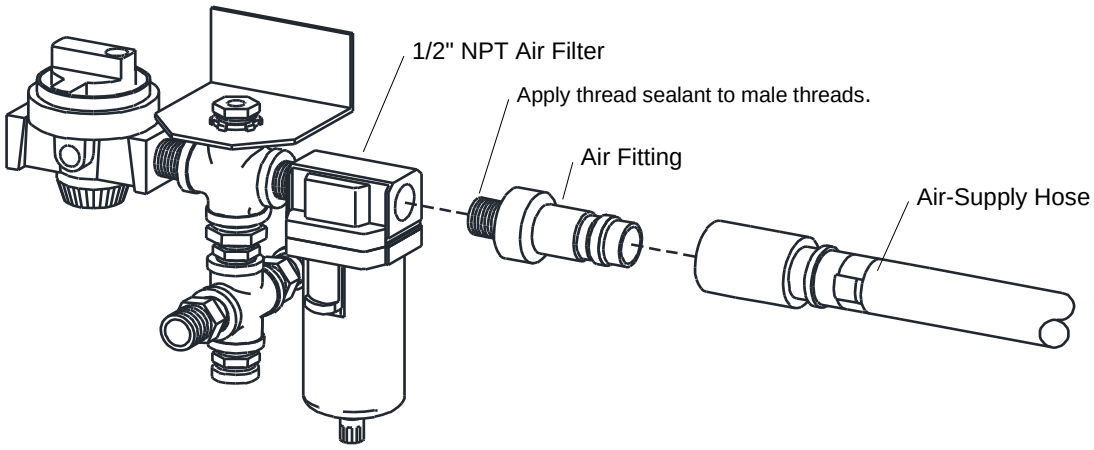
2.2.2 Connect a 1/2" ID or larger air line from the air source to the air fitting, as shown in Figure 2.

⚠ 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 a lockout and tagout procedure and depressurization of the compressed-air line before performing maintenance.

⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins or safety wire to lock twist-on couplings together and prevent accidental separation, and also use safety cables to prevent hose from whipping should separation occur. Safety lock pins and safety cables are listed in *Section 8.1: Optional Accessories.*



Some items removed for clarity.

Figure 2

2.3 Ground Cabinet

2.3.1 To prevent static electricity buildup, attach an external grounded wire from an earth ground to the grounding bolt on the rear of the cabinet.

2.4 Connect Media Hose to Metering Valve

2.4.1 Refer to Figure 3 and attach the clear media hose from under the cabinet hopper to the metering valve at the bottom of the reclaimer hopper by sliding the hose onto the barded fitting on the metering valve.

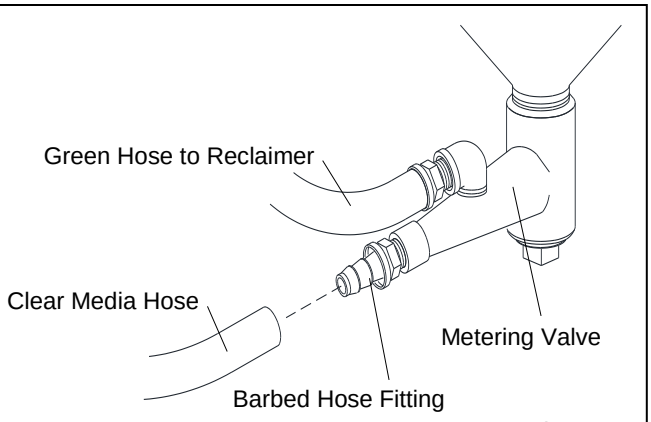


Figure 3

2.5 Connect Power Cord

2.5.1 Plug the cabinet power cord into a grounded, 115-volt outlet.

⚠ WARNING

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

2.6 Final Assembly

2.6.1 Position the foot pedal on the floor at the front of the cabinet.

3.0 OPERATION

NOTICE

Do not pulse new dust collectors or replacement cartridges until the cartridges are properly seasoned, as instructed in Section 6.8.

Pulsing unseasoned cartridges can decrease the efficiency of dust collectors and cause premature cartridge failure.

3.1 Control Functions

3.1.1 Door Interlock: When the door is open, the blast gun is disengaged, preventing blasting.

3.2 Media Loading

3.2.1 Media loading: With the exhauster OFF, add clean, dry media by pouring it 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.

3.3 Media Unloading – Figure 4

3.3.1 After all media is recovered from the cabinet, turn OFF the exhauster and place an empty bucket or other suitable container under the metering valve. Unscrew the plastic plug from the metering valve, permitting media to flow into the bucket. If media doesn't flow, it has caked; open the fill door and stir media until it starts to flow. Before the container becomes too heavy to easily manage, replace the plug and empty the container. Replace the plug when the reclaimer is empty or, if changing media type, purge the media hose, as noted below.

3.3.2 To purge the media hose, before replacing the plug turn ON the exhauster, grasp the gun, and press the foot pedal using the gun to blow off the cabinet interior until the air from the gun and the cabinet are clear. Turn OFF the exhauster and replace the plug.

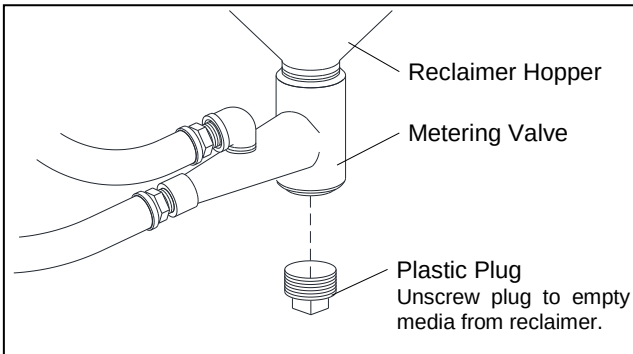


Figure 4

3.4 Loading and Unloading Parts

NOTE: Parts must be free of oil, water, grease, or other contaminants that will clump media or clog filter cartridge.

3.4.1 Load and unload parts through the top door.

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

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

3.5 Blasting Operation

⚠ WARNING

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

- **After blasting, keep door 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.**
- **Stop blasting immediately if dust leaks are detected.**

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

3.5.2 After the filter cartridge is seasoned, per Section 6.8, adjust the pulse pressure regulator to 60 psi. Refer to Section 4.2 for adjustment procedure.

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

3.5.4 Load parts.

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

3.5.6 Adjust the pilot pressure regulator to the required blast pressure, per Section 4.1. The regulator is located on the front right leg of the cabinet.

3.5.7 Insert hands into rubber gloves.

3.5.8 To blast, hold the gun firmly, point the gun toward the object to be blasted, and apply pressure to the top of the foot pedal; blasting will begin almost immediately.

⚠ 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 can result in serious lung disease. Short-term ingestion of toxic dust, such as lead or heavy metals, 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.

3.5.9 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.

NOTICE

To prevent rapid frosting of the view window, avoid pointing the blast nozzle toward the window.

3.5.10 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.

3.6 Blasting Technique

3.6.1 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.

3.7 Stop Blasting

3.7.1 To stop blasting, remove foot pressure from the top of the foot pedal.

3.7.2 Keep door closed and exhauster running until the cabinet is clear of all airborne dust.

3.7.3 Unload parts.

3.8 Pulsing (Cleaning) Dust Collector Cartridge

3.8.1 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 5.2.4.

3.9 Shutdown

3.9.1 Shut off the air-supply valve, bleed the air-supply line, and drain the compressed-air filter and dust-collector pulse reservoir.

3.9.2 Switch OFF the lights and exhauster.

4.0 ADJUSTMENTS

4.1 Blasting Pressure (Pilot Regulator)

4.1.1 The pilot regulator (located on the front-right leg of the cabinet), enables the user to adjust blasting pressure while blasting to suit the application. The maximum recommended pressure is 80 psi. Lower pressure may be used for delicate work. Higher pressure may cause dust or media to escape from the cabinet. Optimal production can only be achieved when pressure is carefully monitored.

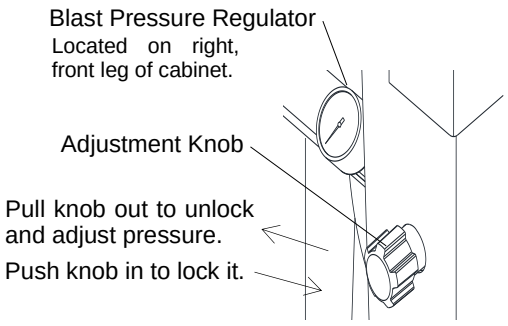


Figure 5

4.1.2 To adjust pressure, unlock the knob by pulling it out, as shown in Figure 5, and turn it clockwise to increase pressure or counterclockwise to decrease pressure. Pressure may drop slightly from closed-line pressure when blasting starts. Once operating pressure is set, push the knob in to lock it to maintain the setting.

4.2 Pulse Pressure – Figure 6

NOTICE

Do not pulse new dust collectors or replacement cartridges until the cartridge is properly seasoned. Refer to Section 6.8. Pulsing unseasoned cartridges can cause premature cartridge failure or decrease the efficiency of dust collector.

4.2.1 The pulse-pressure regulator, located in the piping behind the cabinet, is used to adjust pressure of the dust collector pulse. After the cartridge is seasoned, set the pulse pressure to 40 psi. When differential pressure reaches 8 inches (as noted on the slack tube manometer when equipped), do additional pulsing as noted in Section 5.2.4 and increase pulse pressure by 10 psi. Continue to do additional pulsing and increase pressure by 10 psi when differential pressure reaches 8 inches until the maximum of 80 psi is reached. Replace the cartridge when 80 psi does not lower pressure below 8 inches or sooner if media recovery is impaired.

4.2.2 To adjust, unlock the knob by pulling it out, as shown in Figure 6 and turn it clockwise to increase pressure or counterclockwise to decrease pressure. Once pressure is set, push the knob in to lock it and maintain the setting.

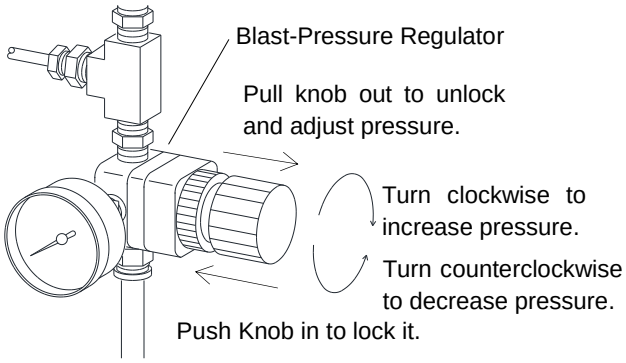


Figure 6

4.3 Optional Manometer

NOTE: These instructions show several methods of taking static pressure readings (negative pressure) on the Pulsar® 3D Reclaimer by using a flexible-tube manometer. Use the method best suited for the application. The instructions explain the processes for taking periodic readings and show how to permanently install the manometer for taking frequent readings. Permanent fittings should be installed when the manometer installation is permanent. Use silicone sealer or other sealant to seal around the fitting to prevent leaks. The fitting should be capable of being capped when the manometer tube is removed. This will prevent leaks that alter the reclaimer's separation efficiency. Taking readings at different locations could produce different readings. Static pressure readings at the door are generally 0.5" to 1" lower than readings taken above the reclaimer. The readings are reference points, so readings should be taken using the same method each time the reading is taken.

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

4.3.2 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.

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

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

4.3.5 Adjust the slide rule to align the zero with the fluid level. Refer to Figure 8

4.3.6 Needle placement: Figure 7 shows the manometer setup for taking both periodic and frequent static pressure readings.

4.3.6.1 Taking frequent readings using a permanent fitting: A permanent fitting may be installed in the reclaimer wall, as shown in Figure 7, for taking frequent static pressure readings. Permanent fittings must have a barb to accommodate the 3/16" ID tubing and have a means of sealing the fitting when the manometer is not in use. Use silicone sealer or other sealant to seal around the fitting to prevent leaks. The fitting should be capable of being capped when the manometer tube is removed. Sealing the fitting will prevent leaks that alter the reclaimer's separation efficiency. Air drawn into the reclaimer will cause carryover of good media to the dust collector.

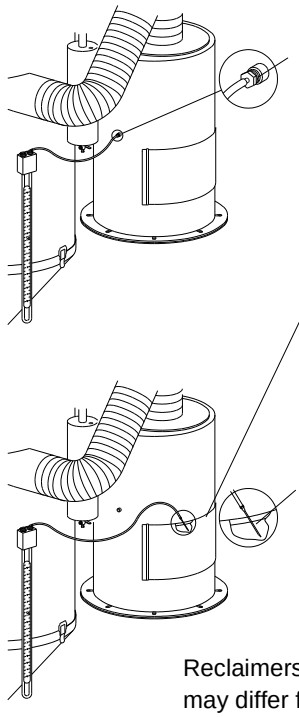


Figure 7

4.3.6.2 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

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

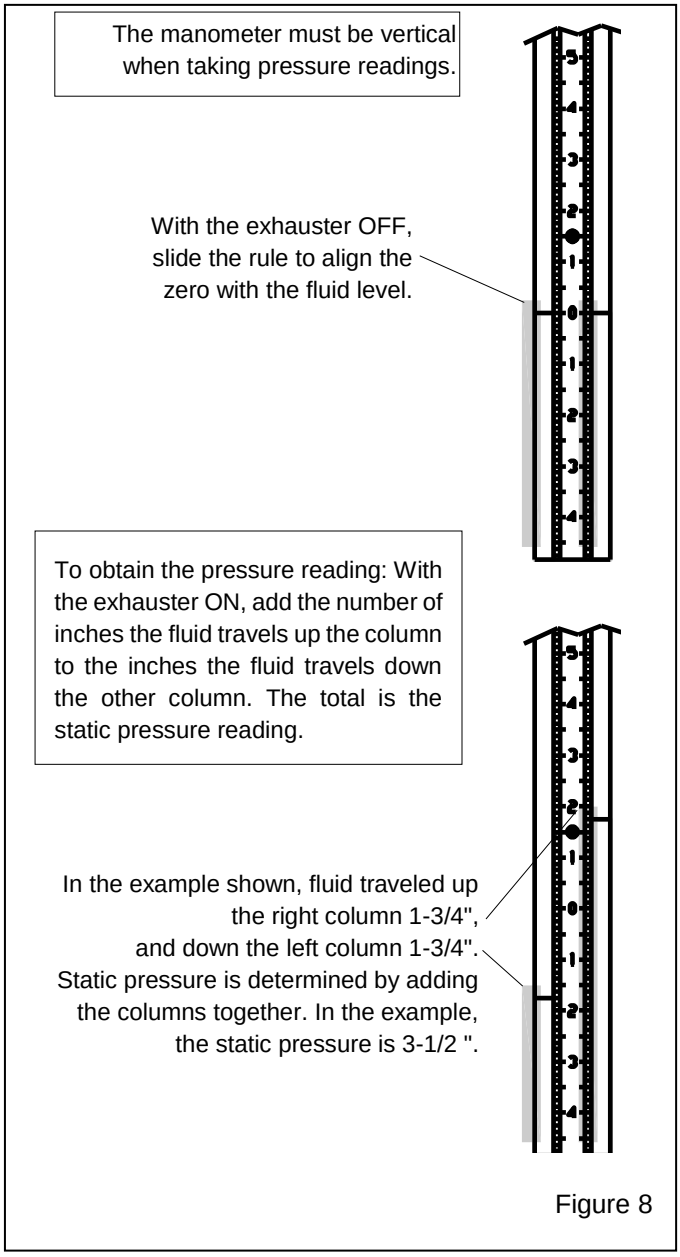


Figure 8

4.3.8 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 8.

4.3.9 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.

4.4 Air Jet Adjustment – Figure 9

4.4.1 Thread the air jet 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 maintain the setting. Refer to Section 8.2 for optional adjusting tool, which correctly positions the jet. Instructions are provided with the tool.

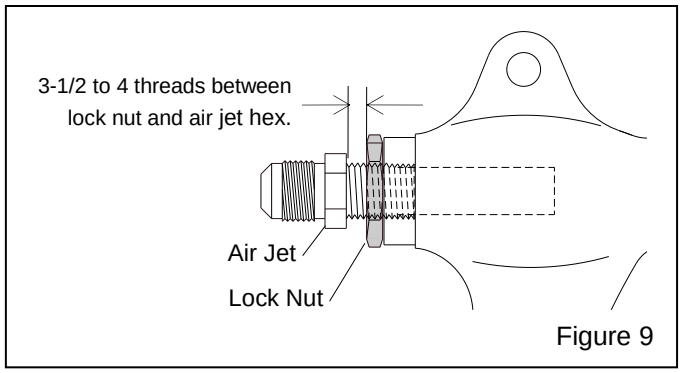


Figure 9

4.5 Door Interlocks – Figure 10

⚠ WARNING

Never bypass the door interlock system. Doing so can result in serious injury from unexpected blasting.

4.5.1 The door interlock disables the blasting control circuit when the door is open. To enable blasting, the door-interlock switch must be engaged when door is closed. The interlock is set at the factory and does not normally require field adjustment unless parts are replaced. When adjustment is required, proceed as follows.

4.5.2 Close cabinet door.

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

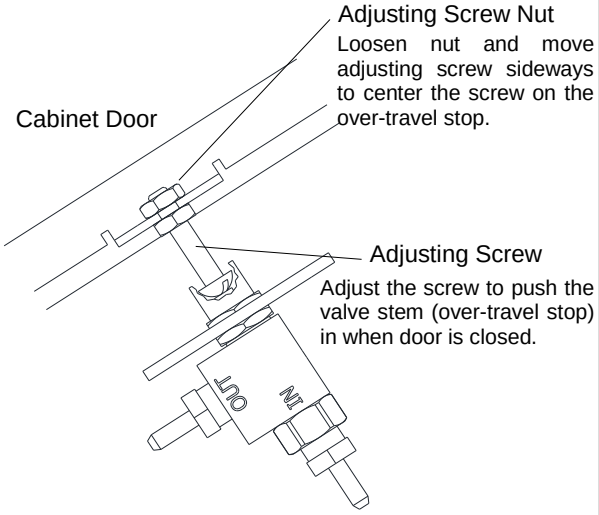


Figure 10

4.5.5 Test the operation with the door open and then closed. Negative pressure inside the cabinet may cause the door to flex inward. Tests should be performed with the exhauster running. Point the nozzle away from the door during the tests and open the door only enough to disengage the interlock switch. The interlock should stop the blasting when the door is open and permit blasting when the door is closed.

4.6 Adjustable Door Slide, Reclaimer Storage Section – Figure 11

4.6.1 The door slide is adjustable from fully closed to various degrees of open. The adjustment controls the amount of fines that are retained or removed from recycled media. When the slide is closed, no ambient air enters the reclaimer and finer media is retained. As the slide is gradually opened ambient air is drawn in, drawing out fines into the dust collector. The further the slide is opened, the more air is drawn in, which pulls out larger particles of spent media.

4.6.2 Begin with the slide closed.

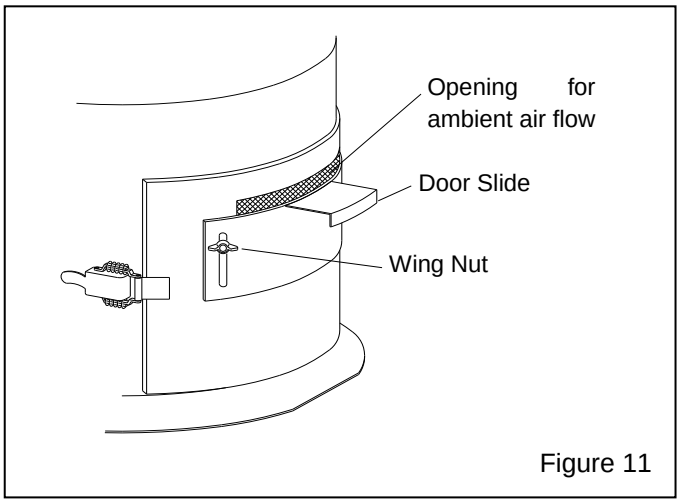


Figure 11

4.6.3 To Remove More Fines: (Too much dust in media.) Loosen the wing nuts and lower the door by no more than 1/16" increments. It may take a few cycles to remove the fines; allow the media to go through several cycles before further adjustment. Lower the door to remove more fines; raise the door to retain more media. The following are examples of the door slide setting during factory tests:

1) #13 glass beads – slotted door shut
2) #8 glass beads – slotted door open about 3/16"
3) #11 glass beads – slotted door open about 3/32"
4) 180 mesh aluminum oxide – slotted door open about 3/32"
5) 80 mesh aluminum oxide – slotted door open about 1/8"

4.6.4 To Remove Less Fines: (Too much good media carried over to the dust collector.) Loosen the wing nuts and raise the door by no more than 1/16" increments.

5.0 PREVENTIVE MAINTENANCE

⚠ WARNING

This machine is not to be used for applications that generate dust from lead coatings, heavy metals, or <u>any</u> other toxic materials. Failure to wear an approved respirator and personal protection when servicing dust-laden areas of the cabinet and dust collector, as well as when emptying the container, can result in lung disease, serious skin or eye irritation, or other health issues. Toxicity and health risk vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all material being

removed by blasting and obtain a safety data sheet (SDS) for the blast media.

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

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

5.1 Daily Inspection and Maintenance Before Blasting with the Air OFF

5.1.1 Check media level: Check media level in reclaimer and refill as necessary.

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

5.1.3 Drain compressed-air filter: The cabinet is equipped with a manual-drain air filter. Drain the filter at least once a day, and 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.

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

5.1.4.1 Turn off the exhauster and unlatch the lid lock ring from the dust container, as shown in Figure 12.

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

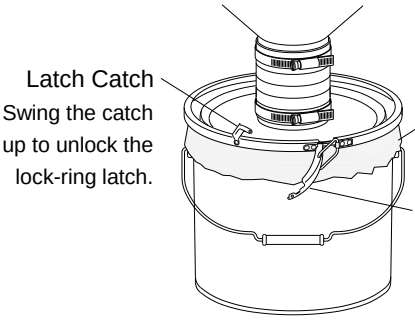


Figure 12

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

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

5.1.4.4 Place a new liner inside the container and drape it over the top edge. Reattach the container to the lid and latch the lock ring, making sure the lid and clamp are secure. Replacement liners are shown in Section 8.9.

5.2 Daily Inspection During Blasting – Have Someone Do the Following:

5.2.1 Inspect cabinet for dust leaks: During operation, inspect cabinet door seals for media leaks. Dust leaking from the cabinet indicates saturated filter cartridge. Refer to Section 5.2.4 for additional pulsing.

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

5.2.3 Drain pulse reservoir – Figure 13: Open the petcock to drain water from the pulse reservoir before and after each use.

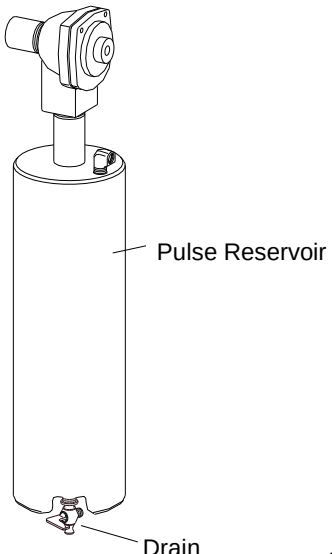


Figure 13

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

1 Turn OFF exhauster.

2 Hold the 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.

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

4 Repeat the process several times.

5.3 Weekly Inspection and Maintenance Before Blasting with Air OFF

5.3.1 Inspect gloves: Inspect gloves for wear. The first sign of deterioration may be excessive static shocks. Replace as needed, per Section 6.1.

5.3.2 Inspect BNP® gun assembly: 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. Replace parts as needed, per Section 6.2.

5.3.3 Inspect media hose: Inspect media hose for thin spots by pinching it every 6 to 12 inches. Replace the hose when it becomes soft.

5.4 Weekly Inspection During Blasting – Have Someone do the Following:

5.4.1 Inspect flex hoses: Inspect flex hoses for leaks and wear.

6.0 SERVICE MAINTENANCE

⚠ WARNING

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

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

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

6.1 Gloves

6.1.1 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.

6.1.2 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.

6.1.3 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.

6.2 BNP® Gun and Hose Assembly – Figure 14

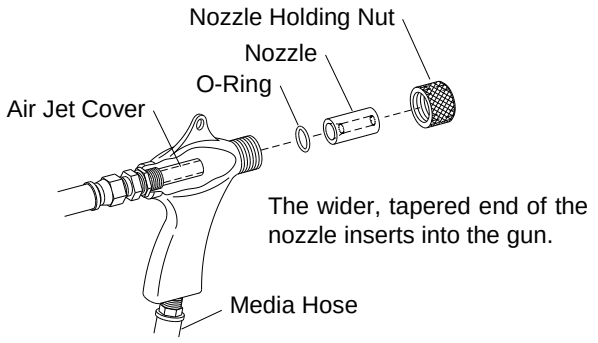


Figure 14

6.2.1 Replace the nozzle when its orifice diameter has worn 1/16" larger than its original size or when suction diminishes noticeably. To change the nozzle, unscrew the holding nut from the gun end, and pull the nozzle from the gun. Inspect the nozzle and O-ring and replace if worn or damaged. Inspect the air jet cover; replacing it before it wears through will prolong the life of the jet. Insert a new O-ring and nozzle, placing the tapered end of the nozzle toward the jet. Screw the holding nut onto the gun.

6.3 View-Window Replacement

⚠ WARNING

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

6.3.1 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 6.5.

6.3.2 Remove the old window.

6.3.3 Inspect the window-frame gaskets, both on the window frame and on the cabinet. If either gasket is damaged replace it, per Section 6.4.

6.3.4 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.

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

6.4 Window-Gasket Replacement – Figure 15

6.4.1 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.

6.4.2 Remove the window and window frame, per Section 6.5.

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

6.4.4 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 15. 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.

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

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

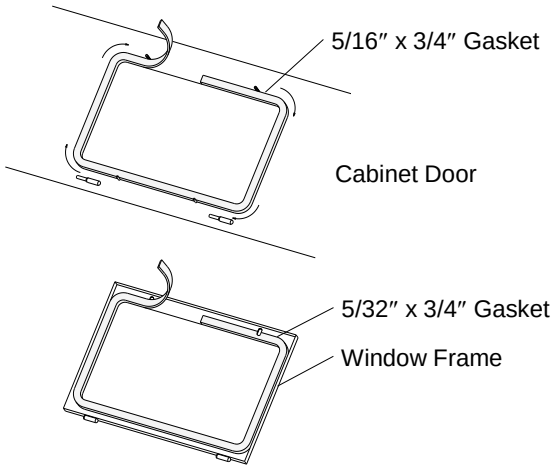


Figure 15

6.5 Window-Frame Removal – Figure 16

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

6.5.2 Remove the window to prevent breakage.

6.5.3 Pivot the window frame up or down until tension is off the frame tabs.

6.5.4 To remove, pull the frame out of the slots, as shown in Figure 16.

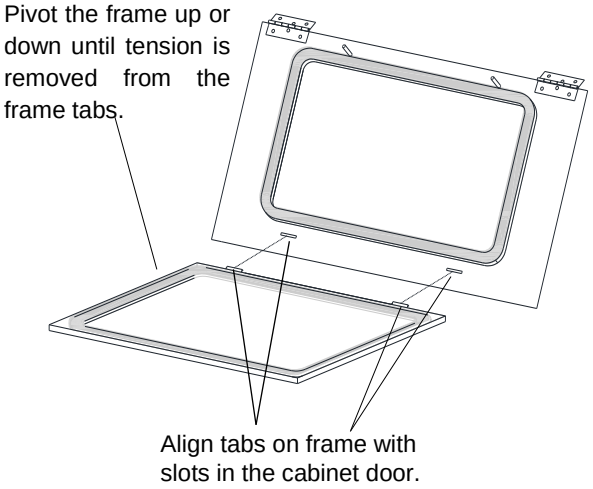


Figure 16

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

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

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

6.6 LED Light Assembly – Figure 17

⚠ WARNING

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

6.6.1 Remove light-mount cover

6.6.1.1 Turn OFF electrical power.

6.6.1.2 Remove the nut and washer that attach the light-mount cover to the cabinet and remove the cover, as shown in Figure 17.

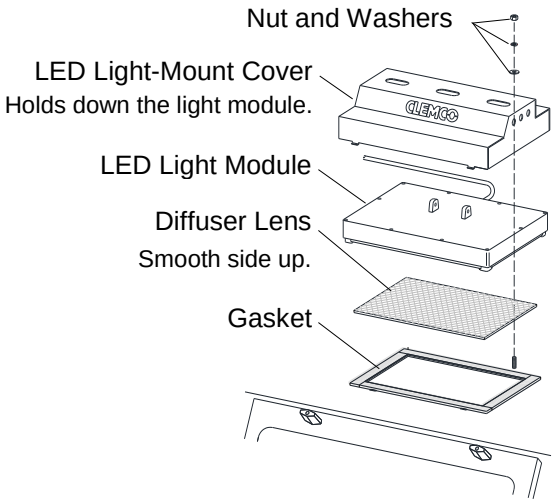


Figure 17

6.6.2 Gasket replacement

6.6.2.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 6.6.1. Move the light module off the diffuser lens and remove the lens.

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

6.6.2.3 Lay a section of strip gasket along the edge of the opening and cut to length, allowing 3/4″ overlap on each end. Peel a short section of adhesive backing and adhere the strip gasket to the top edge of the light opening, as shown in Figure 17. Press the gasket to bond. Repeat the process for each side, compressing the ends to seal.

6.6.3 Diffuser lens replacement

6.6.3.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 6.6.1. Move the light module off the diffuser lens and remove the lens. Inspect the gasket and replace it, per Section 6.6.2, if it is compressed or otherwise damaged, before centering the new diffuser (smooth side up) over the gasket.

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

6.6.4 LED light module replacement

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

6.6.4.2 Remove the light-mount cover, per Section 6.6.1.

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

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

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

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

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

6.6.4.6 Cut the cord to length and wire as follows:

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

6.6.4.7 Apply power to test the light.

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

6.7 Filter Cartridge Replacement – Figures 18

⚠ 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.

6.7.1 Close the air-supply valve and bleed all air from the pulse reservoir.

6.7.2 Remove the three nuts and washers securing the cover plate and remove the cover plate.

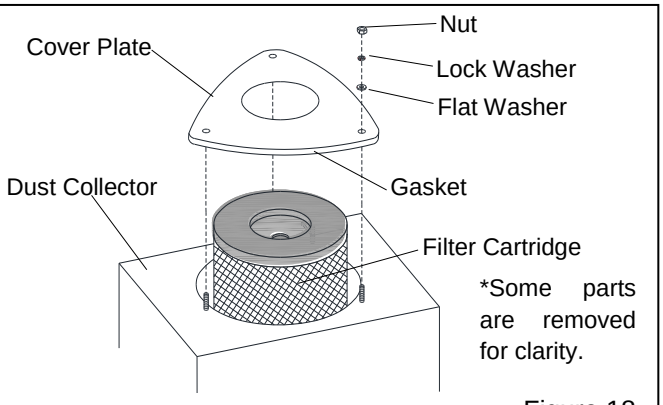


Figure 18

6.7.3 Remove the cartridge through the opening, sliding it out of the dust collector. **NOTE: Contain dust by sliding a durable plastic bag over the cartridge as it is removed.**

6.7.4 After the cartridge is removed, clean the inside of the collector to remove loose dust or hardened dust clumps, particularly from the cartridge sealing surface (front side of the cartridge sheet).

6.7.5 A new rubber gasket comes with the new cartridge. Use the new gasket, reuse the fasters, and install the cartridge in reverse order.

6.7.6 Inspect the cover gasket for any condition that will prevent the gasket from sealing. Replace the gasket if necessary.

6.7.7 Install the cover plate and secure.

6.7.8 Season cartridge per Section 6.8.

6.8 Seasoning Cartridge

6.8.1 New cartridge must be seasoned. Cartridges are seasoned by not pulsing them until a dust cake develops on the filter media.

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

6.8.3 Operate the cabinet without pulsing until the differential pressure gauge reaches 2 inches. At that time, turn the pulse regulator to 40 psi to start the pulsing cycle. Refer to Section 4.2 to adjust pulse pressure.

6.9 Tube-Lock Fittings – Figure 19

⚠ WARNING

Failure to observe the following procedure before performing any maintenance can cause injury from the sudden release of trapped compressed air.

- **Lock out and tag out the compressed air supply.**
- **Bleed all compressed air-supply lines.**

6.9.1 To remove the tubing, push the retaining collar toward the fitting, releasing the tubing so it can be easily removed by pulling it out. Do not force it; only a slight pull on the tubing is required if the collar is pushed in correctly.

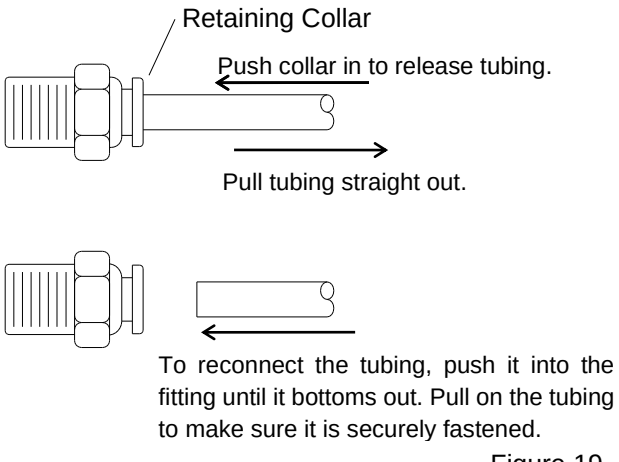


Figure 19

6.9.2 Reconnect the tubing by inserting it into the retaining collar until it seats. Tug on the tubing to make sure it is secured.

6.10 Replace Reclaimer Wear Plate – Figure 20

6.10.1 Remove the fasteners holding the reclaimer top to the body and remove the top.

6.10.2 The gasket should adhere to the reclaimer when the top is removed. Inspect the gasket and replace it if damaged.

6.10.3 Remove the screws that hold the wear plate to the body and remove the old wear plate.

6.10.4 Press or clamp the new wear plate into position and use self-drilling screws inserting through the existing screw holes to secure the wear plate.

6.10.5 Replace the top and secure with fasteners.

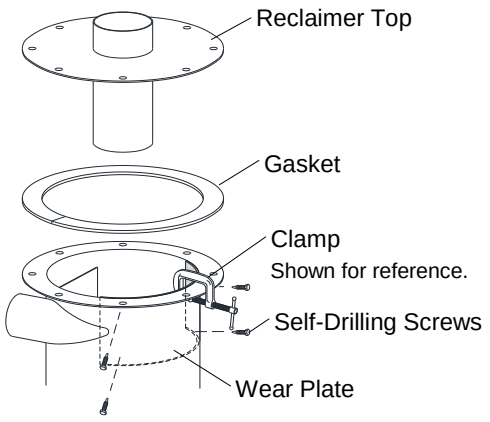


Figure 20

7.0 TROUBLESHOOTING

⚠ WARNING

To avoid serious injury, observe the following when troubleshooting:

- **Turn OFF the compressed-air supply, bleed the supply line, 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 bypass the door interlock system.**
- **Follow all OSHA regulations, including lockout and tagout procedures.**

7.1 Poor visibility

7.1.1 Dirty filter cartridge. Empty the dust container. Pulse cartridge several times, per Section 5.2.4. Inspect cartridge and replace when necessary.

7.1.2 Exhauster motor not operating. Check voltage to motor and motor wiring.

7.1.3 Using friable media that rapidly breaks down, or using media that is too fine or worn out. Check condition of media.

7.1.4 Reclaimer door open. Check door.

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

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

7.2 Abnormally High Media Consumption

7.2.1 Door on reclaimer open or improper fit, or worn door gasket. Air entering the reclaimer at this point will cause media to be carried into the dust collector. DO NOT operate unless all doors are closed.

7.2.2 Reclaimer slide door open. Refer to Section 4.6 to adjust slide door.

7.2.3 Media may be too fine or worn-out. Refer to Section 1.8 for recommended media size.

7.2.4 Using friable media that rapidly breaks down.

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

7.3 Reduction in blast cleaning rate

7.3.1 Low media level reducing media flow. Check media level and replenish or replace as needed.

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

7.3.3 Blockage in media hose or gun. Refer to Section 7.4 and 7.7.

7.3.4 Kink or blockage in vent hose between metering valve and reclaimer. Make sure hose is clear.

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

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

7.3.7 Air jet in gun out of adjustment. Check adjustment, per Section 4.4.

7.3.8 Moist media. Frequent bridging or blockage in the area of the metering valve can be caused by moisture. Refer to Section 7.5.

7.4 Plugged nozzle

7.4.1 Remove nozzle and check for blockage from foreign material. If the reclaimer allows large particles to pass and block the nozzle, adjust the door slide per Section 4.6. If nozzle is blocked by hardened or caked media, moisture is present. Refer to Section 7.5

7.5 Media bridging

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

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

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

7.5.4 Absorption. Some media types tend 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.

7.5.5 Using lightweight or low-density media as noted in Section 1.8.7.

7.6 Neither Media Nor Air Comes Out the Nozzle.

7.6.1 Door interlocks not engaging. Check adjustment per Section 4.5.

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

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

7.6.4 Plugged nozzle. Refer to Section 7.4.

7.7 Blockage in Media Hose

7.7.1 Wet or damp media. Refer to Section 7.5.

7.7.2 Kink or blockage in vent hose between metering valve and reclaimer. Make sure hose is clear.

7.8 Poor suction in media hose

7.8.1 Inadequate air supply. Refer to Section 1.9 and make sure cfm requirements are met.

7.8.2 Air jet needs adjustment. Check adjustment, per Section 4.4.

7.8.3 Nozzle is worn. Replace if orifice diameter is worn 1/16" or more from original size.

7.8.4 Blockage in media hose or nozzle. Refer to Sections 7.4 and 7.7.

7.8.5 Air jet sleeve extends past end of air jet. Cut the sleeve to align with the air jet.

7.8.6 Blast pressure too high. Reduce pressure to 80 psi maximum.

7.8.7 Nozzle inserted backward. The wider tapered end of the nozzle inserts into the gun toward the air jet.

7.9 Air Only (no media) from Nozzle

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

7.9.2 Reduced air pressure decreases vacuum in media hose, which could be caused by a malfunctioning pressure regulator, a dirty filter element in the air filter, a partially closed air valve, a leaking air line, other air tools in use, or regulator pressure set too low.

7.9.3 Blockage in media hose or gun. Refer to Section 7.4 and 7.7.

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

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

7.9.6 Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. Refer to Section 7.5.

7.9.7 Make sure the air hose and media hose are not reversed on the BNP gun; the green 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 Page 22, Figure 23.

7.10 Blow-back through media hose

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

7.10.2 Air pressure too high. Reduce pressure to 80 psi maximum.

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

7.11.1 Door interlock not engaging. Check adjustment, per Section 4.5.

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

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

7.11.4 Make sure lines are not reversed on the foot pedal or pilot regulator. Refer to the schematic on Page 25, Figure 28.

7.11.5 Pressure regulator may be set to low or OFF. Adjust blast pressure, per Section 4.1.

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

7.11.7 Check the nozzle to see if it is plugged. Refer to Section 7.4.

7.12 Blasting continues after releasing foot pedal

7.12.1 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.

7.13 Media buildup in cabinet hopper; media does not convey to reclaimer

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

7.13.1 Dirty filter cartridge reducing air flow through cabinet. Inspect slack tube manometer. Refer to Section 4.3.

7.13.2 Damaged door gaskets. Inspect and replace damaged gaskets.

7.13.3 Blockage in flex hose between cabinet hopper and reclaimer inlet. Inspect hose for blockage.

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

7.13.5 Reclaimer door open. DO NOT operate unless door is closed.

7.13.6 Reclaimer slide door open. Refer to Section 4.6 to adjust slide door.

7.13.7 Obstruction in flex hose. Remove hoses and check for blockage.

7.13.8 Exhauster not operating. Make sure exhauster motor is in operation. If it is not, have the motor and circuit checked by a qualified electrician.

7.14 Static shocks

7.14.1 Cabinet and/or operator not grounded. Abrasive blasting generates static electricity. The cabinet must be earth-grounded to prevent static buildup. See Section 2.3. If shocks persist, the operator may be building up static. Attach a small ground wire, such as a wrist strap, from the operator to the cabinet.

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

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

7.15 Dust leaking from cabinet

7.15.1 Refer to Section 7.13.

7.16 Dust leaking from dust collector

7.16.1 Cartridge not seasoned; season cartridge, per Section 6.8.

7.16.2 Damaged or loose cartridge. Inspect filter cartridge and tighten or replace as needed.

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

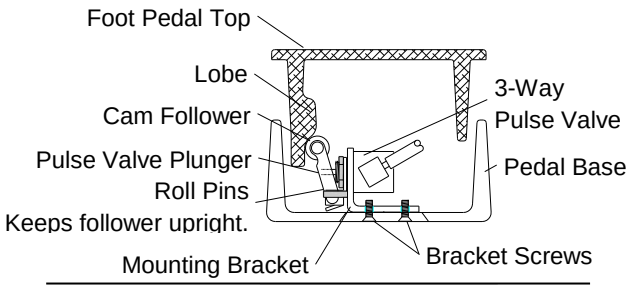
7.17 Dust collector does not pulse when foot pedal is pressed or released

7.17.1 Check pressure on dust-collector pulse-pressure gauge. If low, adjust pulse pressure, per Section 4.2.

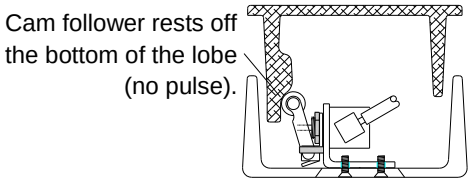
7.17.2 Refer to Figure 21 and make sure the 3-way pulse valve has not come loose from the mounting bracket. Tighten the retaining nut as needed to secure.

7.17.3 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.

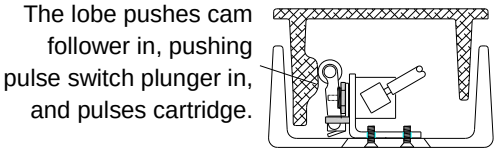
7.17.4 Check alignment of pulse-valve cam follower: With the exhauster running and with blast pressure adjusted to 0 psi, hold the foot pedal in hand and fully press the pedal top. The collector should pulse as the cam follower rides over the lobe on the pedal top when the pedal is pressed, and again when the pedal is released, as shown in Figure 21. 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.



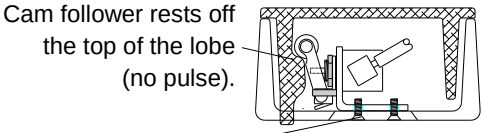
Foot pedal top up nonblast position.



Pedal top partially pressed down.



Foot pedal top fully pressed down.



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 21

The lobe on the pedal top should press the cam follower IN to engage the 3-way pulse valve, and disengage the switch when the pedal is fully pressed and again when the pedal is released. If the switch is not aligned to function as described, align as follows:

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

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

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

7.17.5 Check the diaphragm pulse valve and actuator assembly. Refer to Figure 22.

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

- If the cartridge does pulse, the diaphragm pulse valve and 3-way valve are functioning; proceed to Section 7.17.5.2.
- If it does not pulse, listen for a spurt of air coming from the 3-way exhaust port when the plunger is pressed.
  - If it does spurt air, the problem is likely in the diaphragm pulse valve. Inspect the diaphragm for wear or damage.
  - If it does not spurt air, the 3-way valve is not functioning. Replace the 3-way valve.

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

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

- If the actuator piston operates as noted, the problem is not in the foot pedal or actuator. Inspect the 3-way and diaphragm valve, per Section 7.17.5.1.
- 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 7.17.2, 7.17.3, and 7.17.4.

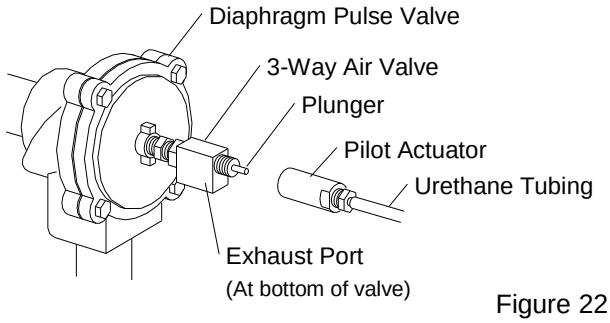


Figure 22

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

7.18.1 Cam follower does not ride off the foot-pedal lobe. Inspect alignment, per Section 7.17.

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

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

8.0 ACCESSORIES AND REPLACEMENT PARTS

8.1 Optional Accessories

Lock pins (pkg. of 25)
for twist-on air hose couplings.....11203
Safety cable, for 1/2" to 1-1/4" OD hose 15012

8.2 BNP® Gun and Hose Assembly – Figure 23

Item	Description	Stock No.
(-)	BNP Gun assemblies less nozzle, includes items 1 (brass) through 7	
	No. 4 Gun	12301
	No. 5 Gun	12302
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, includes item 5	
	No. 4	12342
	No. 5	12343
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, green tip	11930
	Nozzle, tungsten carbide	
	No. 5	13118
	Nozzle, boron carbide	
	No. 5	11935
10.	Hose, 1/2" air, specify ft. required	12472
11.	Hose, media, clear, specify ft. required	12476
12.	Adjusting tool, correctly positions air jet	19041

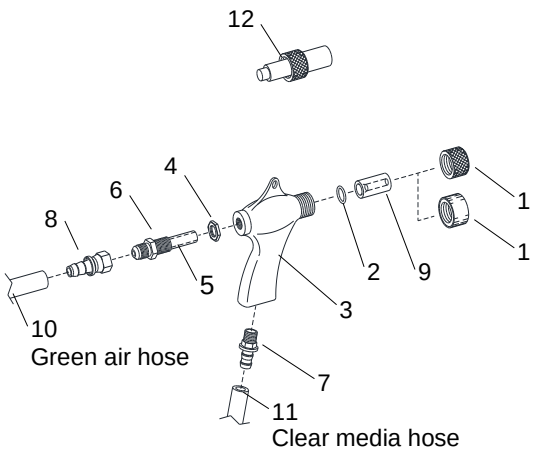


Figure 23

8.3 View-Window Assembly – Figure 24

Item	Description	Stock No.
1.	Window glass, 10" x 18" laminated	29915
2.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 6-feet required	00189
3.	Gasket, 5/32" x 3/4", applied to window frame per foot, 5-feet required	00192
4.	Nut, plastic, window frame, 2 required	23035
5.	Window frame	29908

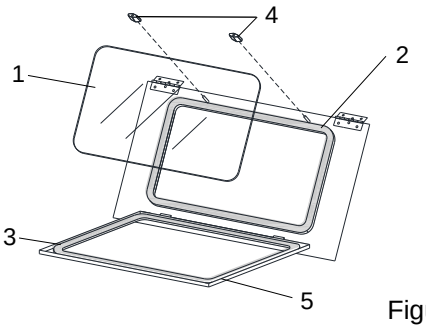


Figure 24

8.4 LED Light Assembly – Figure 25

Item	Description	Stock No.
1.	Cover, LED light mount	29800
2.	LED light module, 50w	29799
3.	Diffuser lens	29802
4.	Gasket	29801
5.	Strain relief connector	02213
6.	Nut, 1/2"conduit	12713
7.	Wing nut, 5/16”	03213

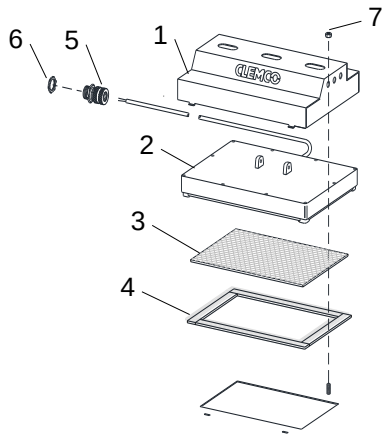
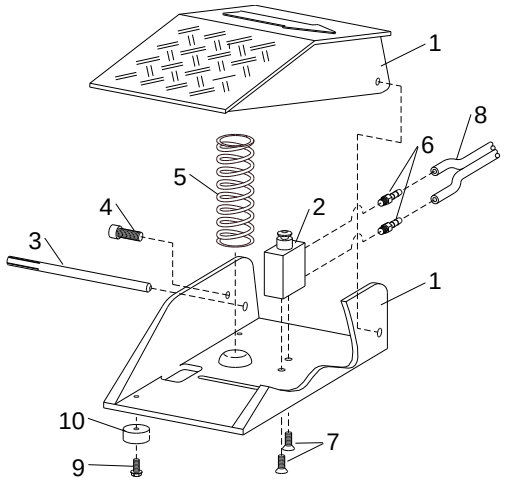


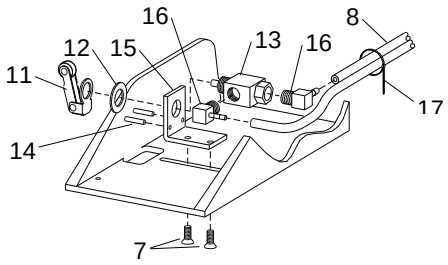
Figure 25

8.5 Foot Pedal Assembly– Figure 26

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



Blast Controls



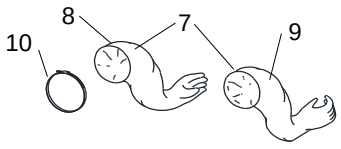
Pulse Controls

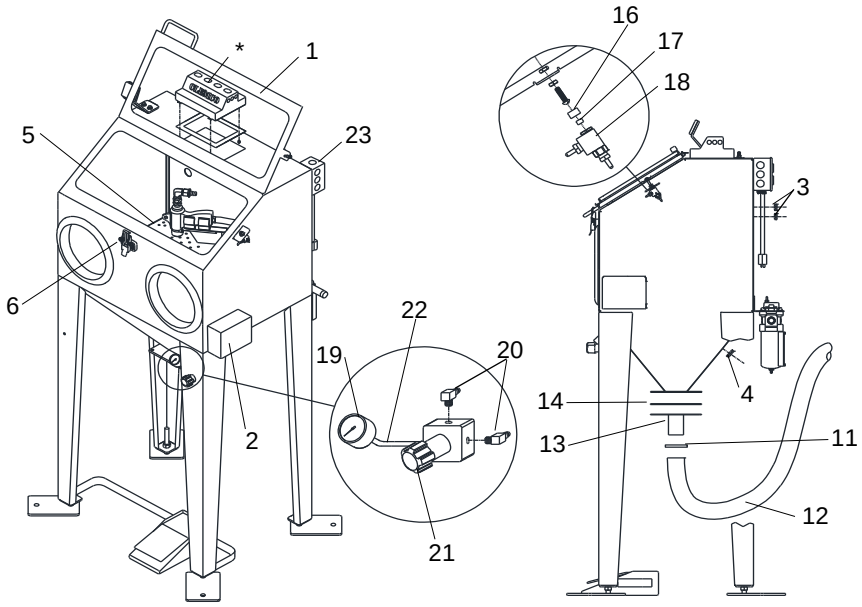
Figure 26

8.6 Cabinet Replacement Parts – Figure 27

Item	Description	Stock No.
1.	Gasket, 5/8" x 1-1/4" adhesive-backed, per foot, 9 ft. required	27464
2.	Filter, air-inlet	12481
3.	Grommet, media & air hose	11798
4.	Grommet, 1/16” x 1-3/8”	13666
5.	Grate	
	Left side	29852
	Right side	29853
6.	Latch kit, door	11876
7.	Glove set	30171
8.	Glove, left hand only	29905
9.	Glove, right hand only	29906
10.	Clamp, for clamp-attached glove	11576
11.	Hose clamp, 2-1/2”	02817
12.	Flex hose, 1-3/4”	29922
13.	Adaptor pipe, flex hose	29925
14.	Gasket, flex hose adaptor pipe	00187
16.	Detent sleeve, door interlock	15042
17.	Over-travel stop, door interlock	20004
18.	Air valve, 3 way, door interlock	12202
19.	Gauge, 1/8" NPT cbm pressure	01908
20.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
21.	Mini-regulator, 1/8”	12715
22.	Pipe nipple, 1/8” x 2” SCH 40	01895
23.	Outlet with ON/OFF switch	10769

*Light assembly shown for reference. Refer to Figure 26 for parts.





Some items removed or rotated for clarity.

Figure 27

8.7 Cabinet Controls and Plumbing – Figure 28

Item	Description	Stock No.
1.	Valve, 3 way	12202
2.	Fitting, straight,1/8" NPT x 1/8" barb	11732
3.	Tubing, 1/8" urethane, specify ft. required	12475
4.	Tubing, twin urethane, specify ft. required	19577
5.	Foot-pedal assembly, with tubing	20194
6.	Pressure gauge	01908
7.	1/8 Mini-regulator	12715
8.	Elbow, 1/8# brass 90 str.	11733
9.	Fitting, 1/8” male hose x 1/4 NPT	11732
10.	Elbow, 90 degree 1/8”	13265
11.	Pipe nipple, 1/8 x 2-SCH 40	01895
12.	Hose end, 1/2" barb x 1/2" female swivel	15002
13.	Adapter, 1/2 NPT x 1/2	11351
14.	90 Degree street elbow, 1/2”	01773
15.	Hose, 1/2" air, specify ft. required	12472
16.	BNP No. 4 gun assembly without nozzle	12301
17.	Hose, media, clear, specify ft. required	12476
18.	Pilot operated regulator, 1/2”	11345
19.	Pipe cross, 1/2	10254
20.	Nipple, 1/4” hex brass	02808
21.	Metering valve assembly, BNP	12417
22.	1/8 Male hose x ¼ NPT fitting	11732
23.	Bushing, 1/4 x 1/8 hex	02010
24.	Nipple, 1/4” hex brass	01962
25.	Filter, 1/2-NPT air	01308
26.	Adaptor, elbow ¼” male NPT x 38 tube	11685
27.	Actuator, ait pilot	19123
28.	Nipple, 1/8” NPT hex	01962
29.	Cross, 1/4” brass	02193
30.	Nipple, 1/2" x 2	01734

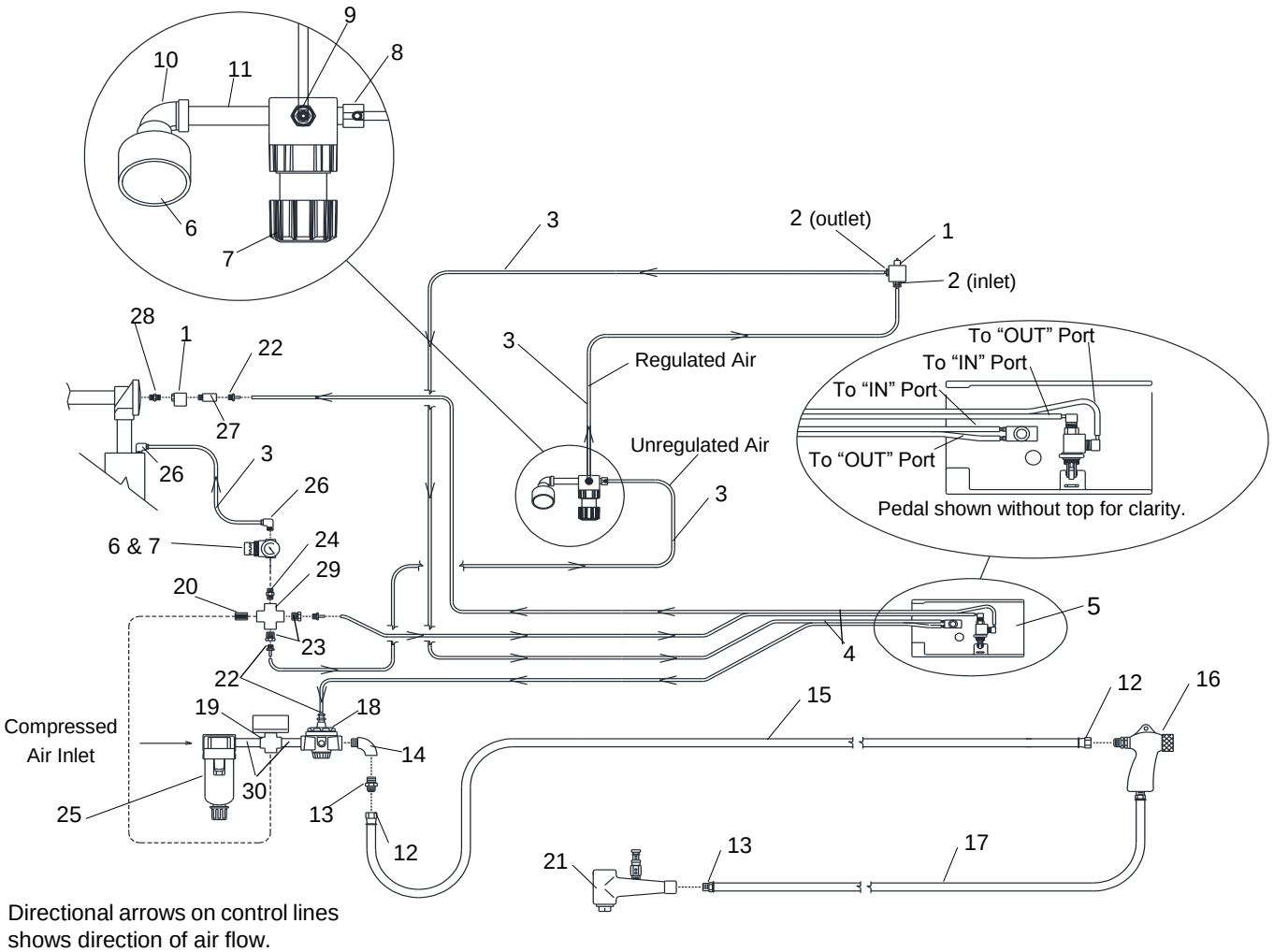


Figure 28

8.8 Reclaimer Assembly – Figure 29

Item	Description	Stock No.
1.	Latch, spring assembly	12263
2.	Screen assembly, 8-mesh	21265
3.	Elbow, 3/8" NPT street, brass	03595
4.	Fitting, hose, 3/8" NPT male x 1/2" barb	06369
5.	Body, metering valve	11532
6.	Plug, 1" Nylon pipe	12011
7.	Gasket, slotted door	24974
8.	Hose, 3" unlined flex	25873
9.	Clamp, 3" OD, each	02816
10.	Gasket, 5/16" x 1" adhesive backed 3-feet required	00187
11.	Hose, 1/2" air, 4-feet required	12472
12.	Grommet, rubber	11798
13.	Hose, 1/2" clear media, 4-ft Required	12476
14.	Clamp, 2-1/2"	02817
15.	Hose, 1-3/4" flex,	29922
16.	Wear plate, reclaimer	24969
17.	Nut, 1/4" NC wing	03113
18.	Door with slide, order gaskets separately	24967
19.	Screw, 10 x 3/4 self-drilling	12722
20.	Adaptor, reclaimer outlet pipe	25852
21.	Pipe nipple, 3/8” x 1” SCH 40	12747
22.	Elbow, 3/8”-90 degree	01765
23.	Reclaim inlet pipe	29877
24.	Reclaim inlet gasket	29875

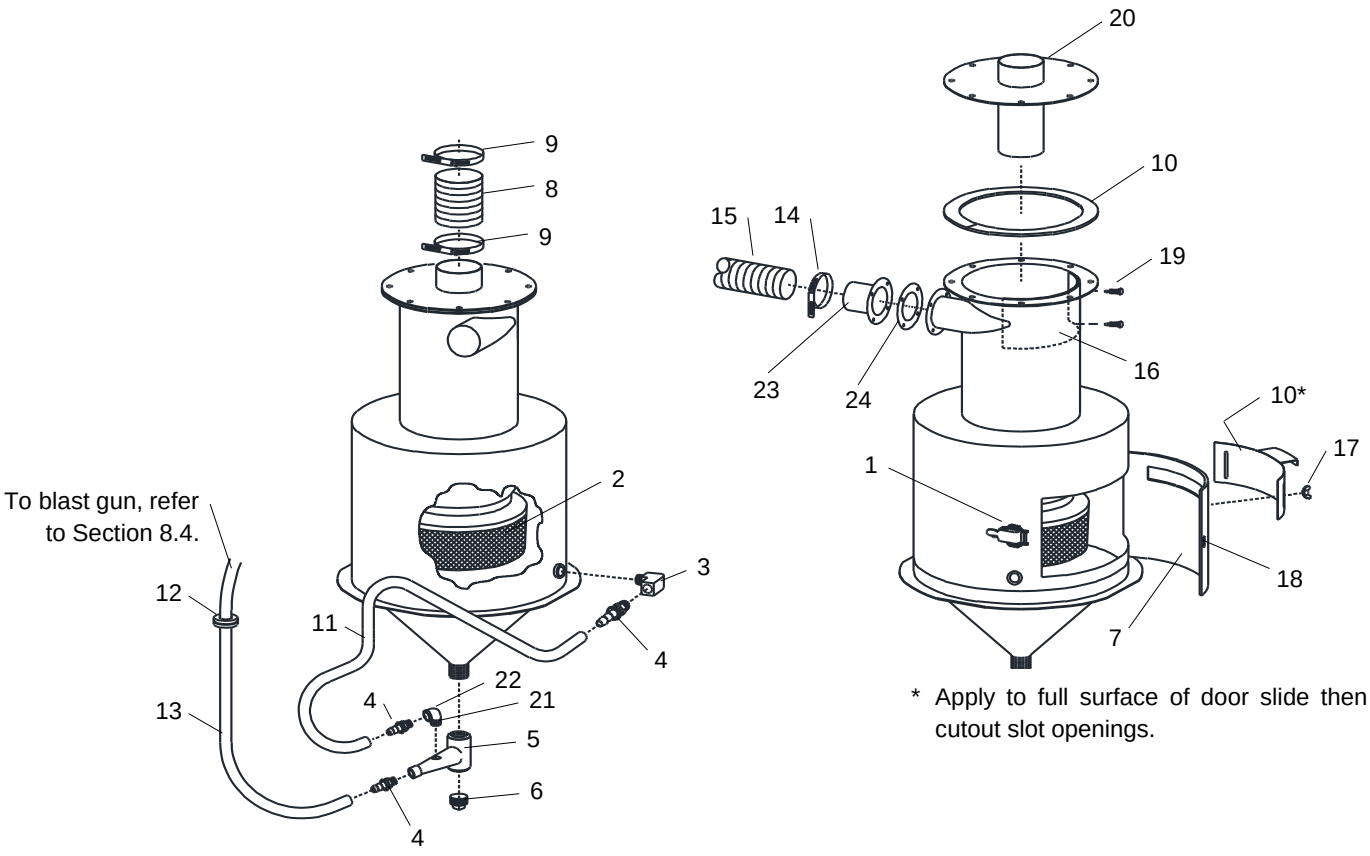


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Figure 29

8.9 Dust Collector Assembly – Figure 30

Item	Description	Stock No.
1.	Filter cartridge 8" x 16" flanged	29903
2.	Hex nut, 3/8” – 16	03318
3.	Filter cartridge hold down plate	29901
4.	Band, blower motor	16409
5.	Gasket, 3/16” x 1”, 2 ft. required	00186
6.	Blower/motor assembly	24975
7.	Brushes, blower motor, not shown	28157
8.	Muffler, blower	24976
9.	Latch, door	10290
10.	Valve, 3/4" NPT diaphragm pulse	25867
11.	Elbow, 1/8" NPT brass st	03993
12.	Nipple, 1/8" brass hex	01945
13.	Valve, 3 way	12202
14.	Actuator, air pilot	19123
15.	Fitting, straight 1/8" NPT x 1/8" barb	11732
16.	Petcock, drain	01993
17.	Fitting, straight 1/4" NPT x 3/8" tube	11736
18.	Clamp, 4"	11577
19.	Hose, 4" unlined flex, 1-ft minimum	12447
20.	Lid and locking ring, dust drum	23419
21.	Liners, drum, pack of 5	28621
22.	Dust drum, 3.5 gallon	23417
23.	Washer, 5/16" flat	03216
24.	Washer, 5/16" lock	03217
25.	Nut, 5/16" NC hex	03211
26.	Gasket, 5/16” x 1”, 5 ft. required	00187
27.	Reclaim mount	29902

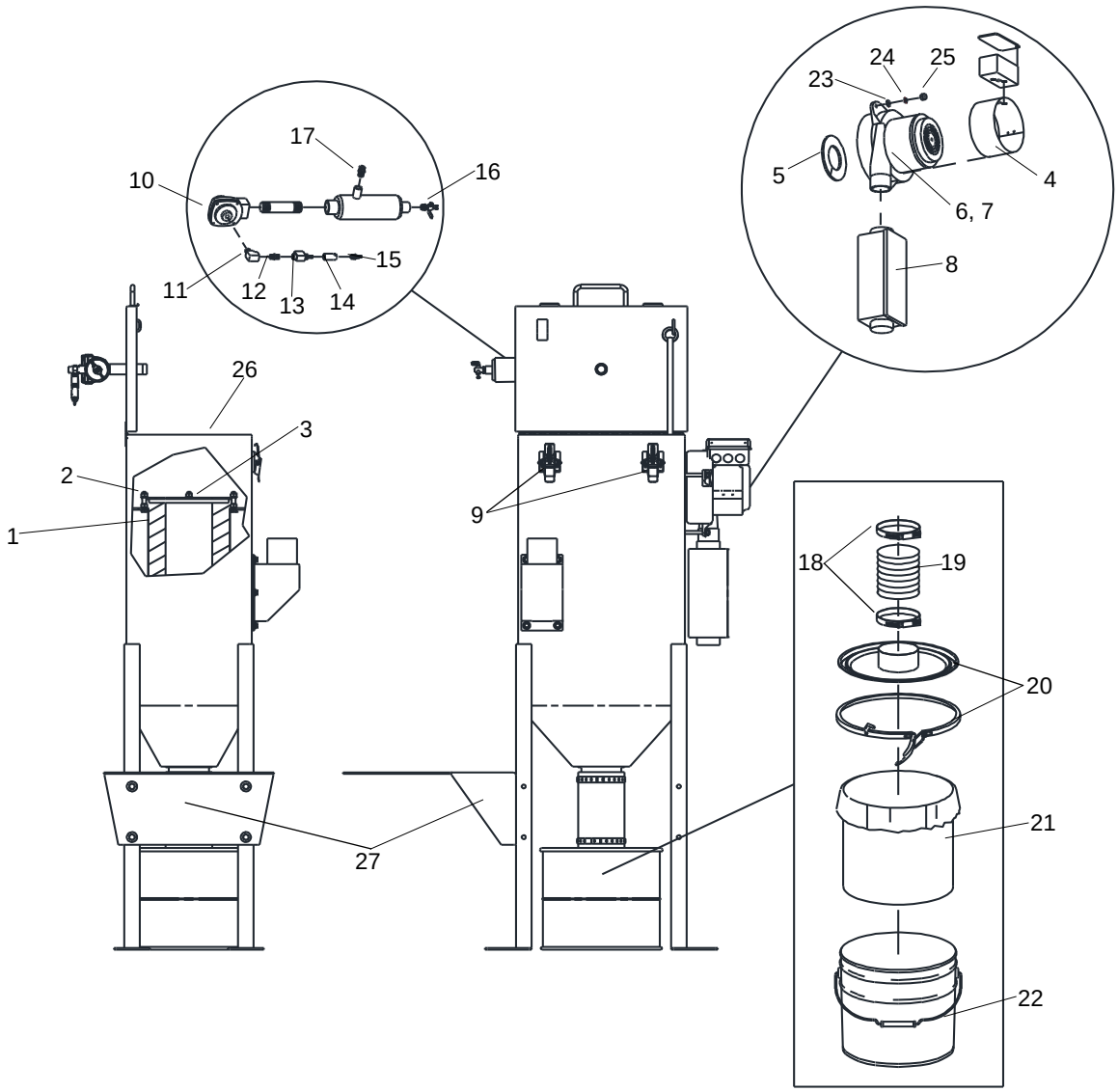

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Figure 30