PSB 3636HP and PSB 4050HP
Bicarbonator HP Soda Blast Cabinets
O. M. 29053

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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 user 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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AEROLYTE® by Clemco Industries Corp. Systems

1.0 INTRODUCTION

1.1 Scope of Manual

1.1.1 These instructions cover set-up, operation, maintenance, troubleshooting, optional accessories, and replacement parts for PSB 3636HP and PSB 4050HP high-production bicarbonate of soda pressure blast cabinet. Refer to the following manuals for operation and maintenance of accessories used with these Bicarbonator cabinets.

- RPH-2 HP Dust Collectors, ... manual no. 29330
- ACE Air Valve, ... manual no. 23938

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

1.2 Safety Alerts

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

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

NOTICE

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

⚠ CAUTION

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

⚠ WARNING

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

⚠ DANGER

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

1.3 Table of Contents

1.4 General Description

1.4.1 Aerolyte soda cabinets enclose the blasting environment to provide efficient blast cleaning 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 cabinets consist of four major components:

1. Cabinet enclosure
2. 2 cuft blast machine and loading hopper
3. 900 cfm dropout cyclone
4. RPH-2 Reverse-Pulse Dust Collector

Refer to the following figures for general arrangement of the major components:

Figure 1 - Typical layout of all components
Figure 2 - Blast machine arrangement and callouts
Figure 3 - Blast machine and control schematic
Figure 4 - Dust collector and dropout cyclone

1.5 Theory of Operation

1.5.1 When the air supply is on and the cabinet doors are closed, the cabinet is ready for operation. Depressing the foot pedal begins the process by propelling the media through the blast hose and out the nozzle. After striking the object being cleaned, spent media, along with fines, and byproducts produced by the process, fall through the grate into the cabinet hopper. These spent particles are pulled through the high efficiency dropout cyclone, which separates most of the particles from the air stream. Cleaner air enters the dust collector, which traps the remaining dust particles, and discharges clean air. 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 machine are shown in Figure 2. They include the blast machine, manual depressurization valve (outlet valve), internal agitator assembly, foot-pedal blasting controls, pressure regulator, and air filter.

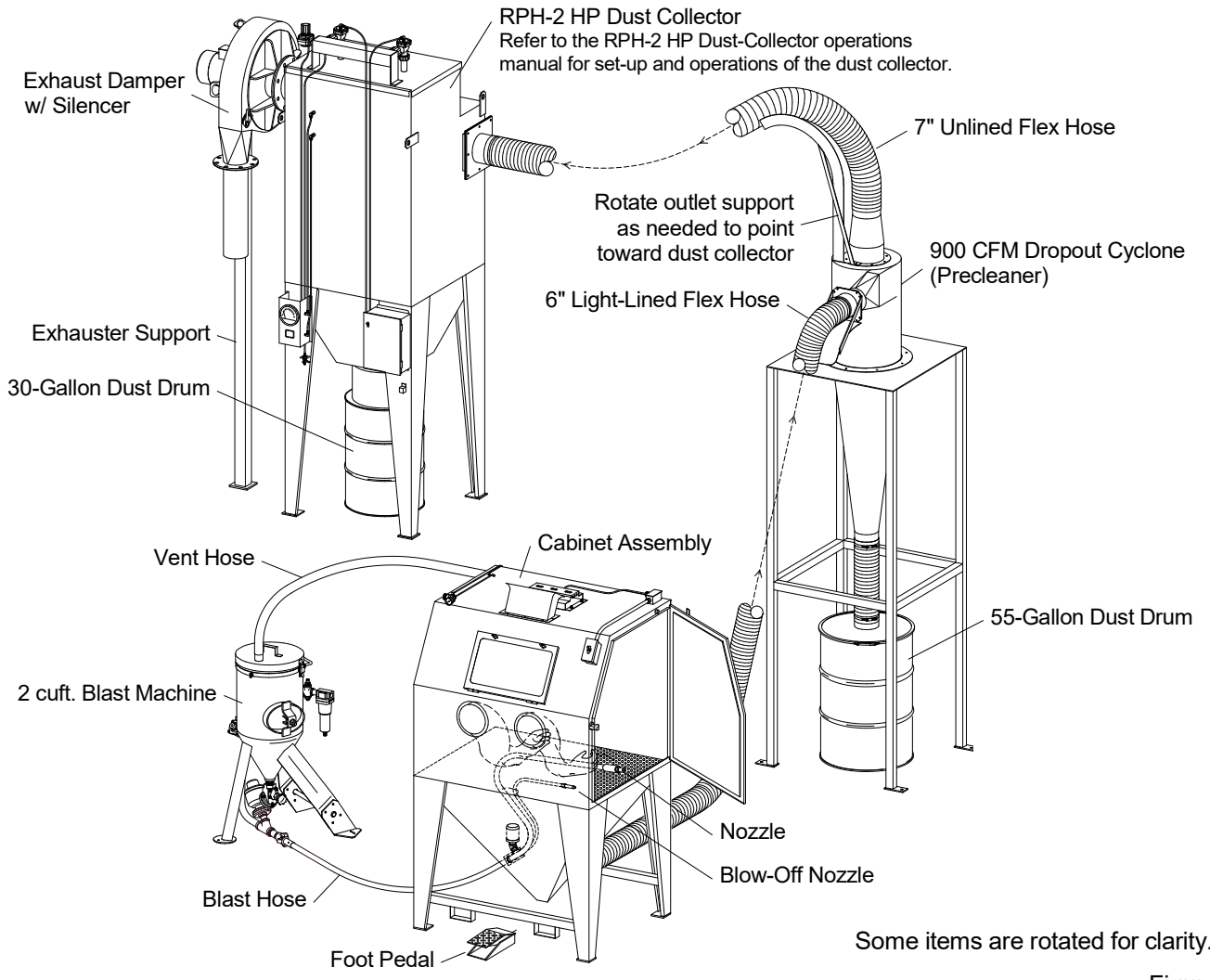


Figure 1

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 the requirements of state regulations. Regulations may include regular inspection and hydrostatic testing as described in National Board inspection code and jurisdictional regulations and/or laws.

⚠ WARNING

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

1.6.3 All welding repairs to the vessel must be performed by certified welders at shops holding a National Board R Stamp. Welding performed by any welder not properly qualified per the ASME code, voids the Clemco ASME certification.

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

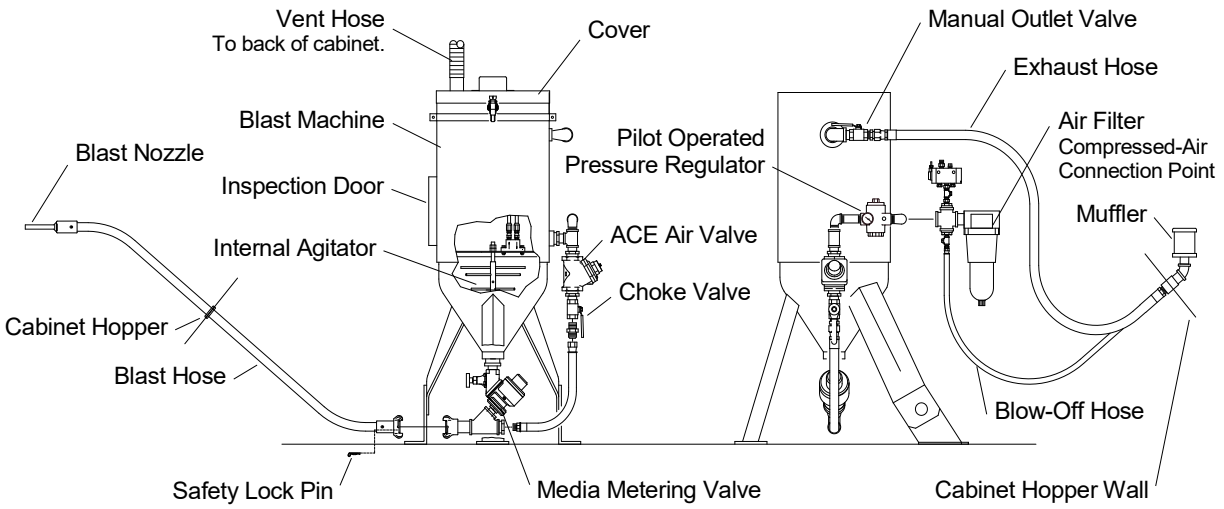


Figure 2

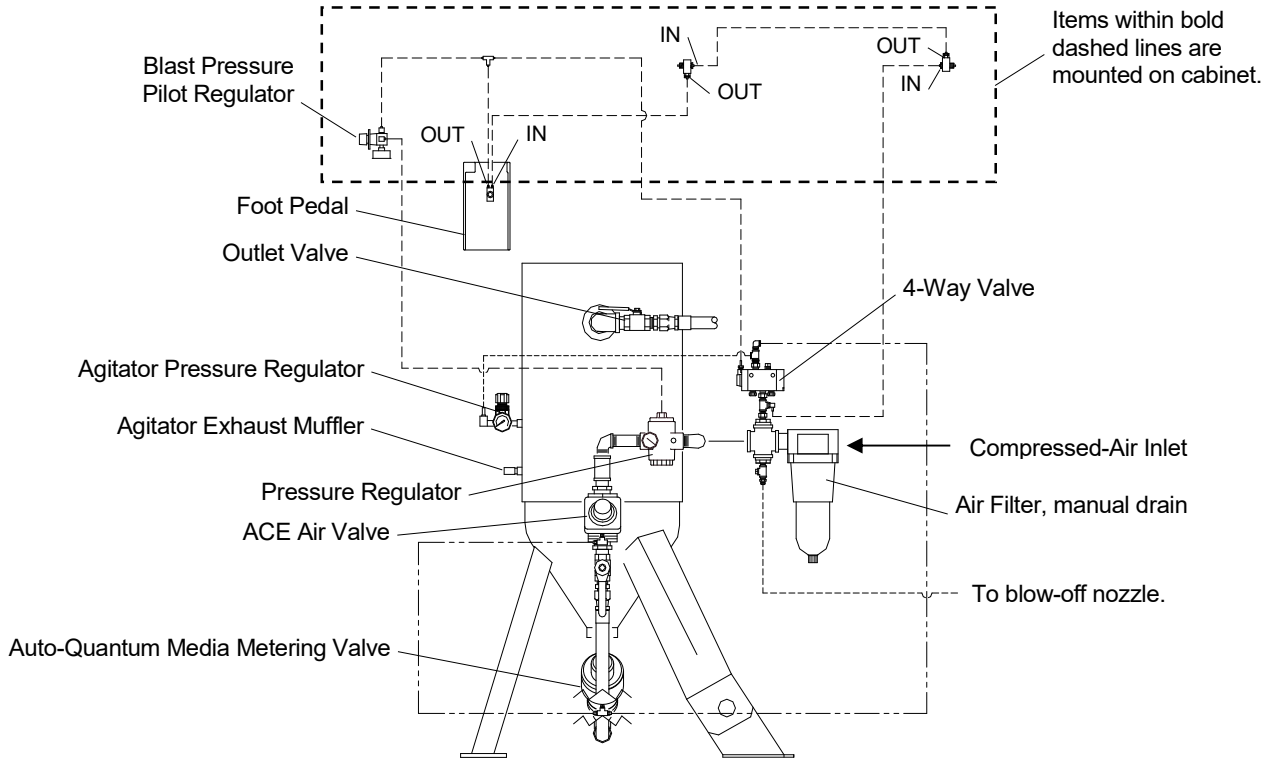


Figure 3

1.6.5 The Occupational Safety and Health Administration **(**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, Section VIII, Division 1,

[(2)] Occupational Safety and Health Administration, 29 CFR 1910, 169.

1.7 Internal Anti-Bridging Agitator

1.7.1 An anti-bridging agitator ensures continuous media flow. Agitator pressure, which controls its frequency, is adjusted by a pressure regulator mounted on the side of the blast machine.

1.8 Pressure Regulators

1.8.1 The system is furnished with three pressure regulators to perform the following functions: Refer to Section 6.0 for adjustments.

- Blast regulator: Mounted on the blast machine's inlet plumbing, controls blasting pressure. The regulator is adjusted with a pilot regulator mounted on the top left side of the cabinet.
- Agitator regulator: Mounted on the side of the blast machine, controls the vibrating frequency of the anti-bridging system.
- Dust-collector pulse regulator: Controls the pressure of the dust collector pulse. Refer to the RPH Dust-Collector operations manual.

1.9 Dropout Cyclone (Precleaner): The dropout cyclone removes large quantities of dust from the ventilated air stream before reaching the dust collector.

1.10 Reverse-Pulse Dust Collector

⚠ WARNING

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

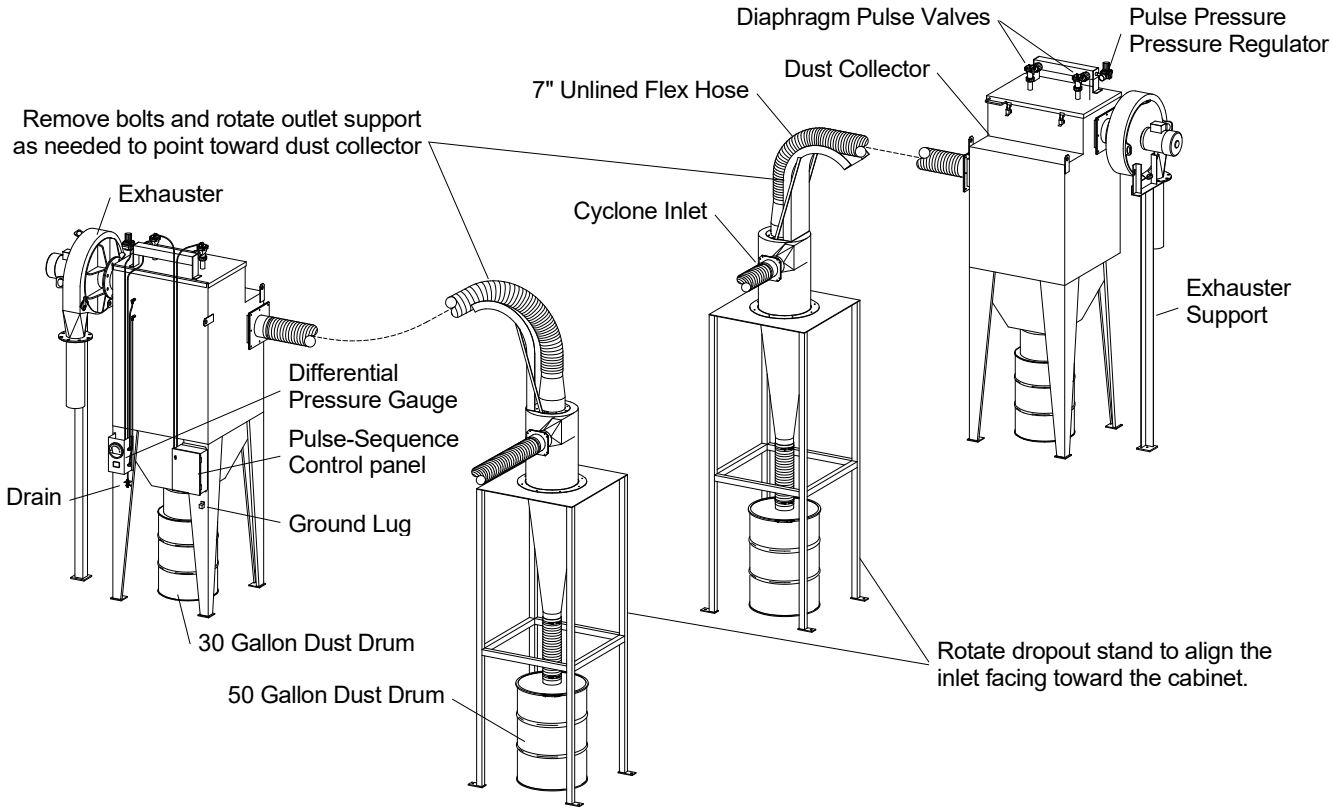


Figure 4

1.10.1 The dust-collector exhauster is the driver of air movement to ventilate the cabinet and to recover spent media from the cabinet hopper. As the filter cartridges accumulate dust, air movement through them decreases. Dust laden filters reduces the air changes inside the cabinet, decreases visibility, and eventually causes spent media to accumulate in the cabinet hopper. Pulsing the cartridges removes excessive accumulated dust and extends the life of the filter cartridges.

1.10.2 The filter cartridges are cleaned by a pulse of high velocity compressed air expanding against the inner surface of the cartridge at timed intervals. 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 hopper for removal.

1.11 Media: The cabinet is designed for bicarbonate of soda, which is a one-cycle media. Other non-aggressive, one-use media may be used without contaminating the systems; however, thorough purging is required when using alternate media.

1.12 Compressed-Air Requirements

1.12.1 The size of the compressor required to operate the cabinet depends on the orifice size of the nozzle and blasting pressure. Unless otherwise specified, cabinets are supplied with a 3/16" orifice ASV nozzle. The table in Figure 5 shows air consumption of nozzles when new. It does not show the recommended compressor size. As nozzles wear, they will consume up to 70% to 80% more air. Consult with a compressor supplier for a suggested compressor size based on the air consumption. The ASV nozzle is recommended for use with non-aggressive bicarbonate of soda. Use a CT tungsten-lined nozzle when using bicarbonate of soda that contains any additives that increase the cutting rate of the media. Aggressive bicarb will accelerate wear of the ASV nozzle.

Compressed-Air Consumption *(cfm)

Nozzle size	Air Pressure (psi) 50	60	70	80
CT-2, 1/8"	11	13	15	17
CT-3, 3/16"	26	30	33	38
ASV-3, 3/16"	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 5

A separate air line is required for the reverse-pulse dust collector. Refer to the dust-collector operations manual.

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

1.13 Electrical Requirements

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

1.13.1 Electrical requirements depend on the size and phase of the dust-collector exhauster motor. NOTE: Full load amps (FLA) shown below are for the motor only; the lights draw less than 1 amp. Standard cabinets are supplied as follows:

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

Additional wiring information is in Section 2.10.

2.0 INSTALLATION

2.1 General Installation Notes

2.1.1 Refer to Figure 1 for the general arrangement and Figure 3 for the control-line schematic. Select a location where compressed air and electrical service are available. The cabinet location must comply with OSHA and local safety codes. Allow for full access to all doors and service areas and for efficient handling of large parts. Provide enough clearance around the dropout cyclone and dust collector to remove the dust drums. Ideally, locate the blast machine directly behind the cabinet with the blast-hose connection toward the cabinet. The cyclone may be rotated to make flex hose connections with as few bends as possible. Determine the best location for all components and position them before making compressed-air connections and electrical connections.

2.1.2 Refer to the dust-collector operations manual to set up the dust collector and prepare it for operation.

2.2 Connect Blast Hose

⚠ WARNING

Hose disconnection while under pressure can cause serious injury or death. Use safety lock pins and safety cables on all coupling connections to help prevent hose couplings from accidental disconnection while under pressure. Lock pins and safety cables are listed in *Section 10.1*: *Optional Accessories*.

2.2.1 Connect the blast hose coming 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.

2.3 Connect Blow-Off Hose: Attach the 1/2" blow-off hose coming from the cabinet hopper, to the compatible fitting on the blast machine piping, between the air filter and pressure regulator. Refer to the schematic in Figure 3.

2.4 Attach Blast Machine Exhaust Hose: Screw the male end of the exhaust hose into the 1" coupling in the hose adaptor plate, located on the cabinet hopper, turning the hose as required. Connect the female swivel end to the male adaptor on the blast-machine outlet valve, as shown in Figure 2.

2.5 Connect Urethane Control Tubing: Uncoil the 1/8" urethane control tubing. The end of each tubing is numbered 1, 2 or 3. Connect the tubing to the adaptor with the corresponding number on the pressure regulator, piping, and 4-way air valve. Refer to the schematic in Figure 3 to confirm the connections.

2.6 Attach Conveying (Flex) Hoses

NOTE: The hose wire helps dissipate static electricity in the conveying hose and helps ground each segment. For the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

2.6.1 Attach the 6" light-lined flex hose between the cabinet hopper transition and the cyclone inlet adaptor. It is easier to slip the hose over the adaptor and create a tighter seal if the first two or three inches of wire are removed from the inside of the hose. Use care not to damage the hose.

2.6.2 Attach the 7" unlined hose between the cyclone outlet and dust-collector inlet.

2.6.3 Clamp flex hose securely in position with worm clamps provided.

2.7 Connect Compressed-Air Supply Line(s)

⚠ WARNING

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

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

2.7.1 Apply thread sealant to the male threads of an air fitting that is compatible with the air-supply hose fitting, as noted in Section 2.7.2, and install it onto the 1-NPT air filter located at the blast machine inlet, as shown in Figure 6. Note that the style of connection shown in Figure 6 is for reference only.

⚠ WARNING

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

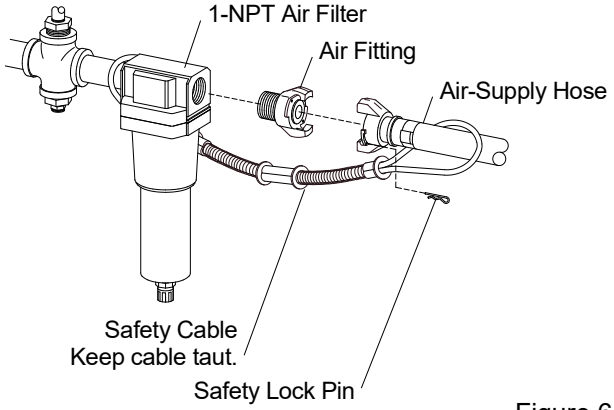


Figure 6

⚠ 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 lines before performing maintenance.

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

2.7.3 Refer to the dust-collector operations manual and connect a compressed-air line to the pulse manifold.

2.8 Attach Blast Machine Vent Hose: Attach the 2" flex (vent) hose between the pipe on the blast machine cover and adaptor pipe located on the rear cabinet wall.

2.9 Ground Cabinet: 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 and dust collector.

2.10 Connect Electrical Service

⚠ WARNING

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

All wiring external to the cabinet is provided by the user, must be done by a qualified electrician, and comply with electrical codes.

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

2.10.1 Electrical requirements depend on the size and phase of the dust-collector exhauster motor. Refer to the wiring schematic stowed inside the control panel mounted on the cabinet, and then wire from the users disconnect to the panel and from the panel to the dust-collector motor, per instruction on the motor data-plate. Systems are supplied with a 230-volt control panel unless 460-volt was specified at the time the order was placed.

2.10.2 Check the amperage on initial startup; if the motor draws excessive amperage, gradually close the dust-collector damper, located on the exhauster outlet on RPH Dust Collectors, until the amperage is within the specifications shown on the motor plate.

2.11 Check Motor Rotation (dust-collector exhauster motor) Refer to the dust collector manual for additional information.

⚠ WARNING

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

2.11.1 To check rotation of the exhauster motor, jog the starter (quickly turn switch ON and OFF), causing the motor to rotate slowly. Look through the slots in the motor's fan housing, where rotation of the fan can be easily observed. Proper rotation is indicated by the arrow on the exhauster housing; the fan should rotate toward the exhauster outlet. To reverse rotation, change the wires as noted on the motor plate.

2.12 Place Dust Containers

2.12.1 Place dust drums under the dropout cyclone and dust-collector hopper.

2.12.2 Place the appropriately sized lid onto the drum. The lid for the dropout cyclone has a 6" tube in the center and the dust-collector lid has a 16" tube.

2.12.3 Place the clamp ring around the lids and tighten the clamp bolt to secure.

2.12.4 Attach an appropriately sized flex hose between hoppers and dust-drum lids. Secure both ends of the flex hose with clamps provided.

NOTICE

All flex hose connections made at the bottom of the hopper and the lid must be airtight.

2.13 Anchor Segments

2.13.1 Anchor holes are located in the leg pads on each components. When all components are in their permanent positions, anchor through the holes to secure the component to the floor.

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

3.0 FIELD INSTALLED ACCESSORIES

Refer to Section 10.1: Optional Accessories.

3.1 Armrest – Figure 7

3.1.1 Assemble the armrest and mounting brackets, as shown in Figure 7.

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

3.1.3 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.

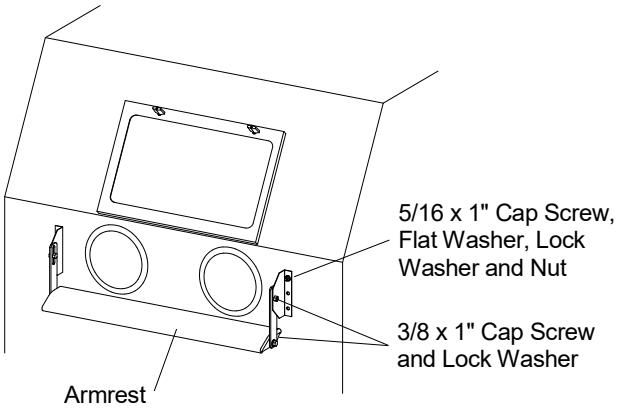


Figure 7

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

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

3.2 Turntable with Workcar and Track

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.

3.2.1 Components of the turntable and track assembly are shown in Figure 8. The assembly consists of:

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

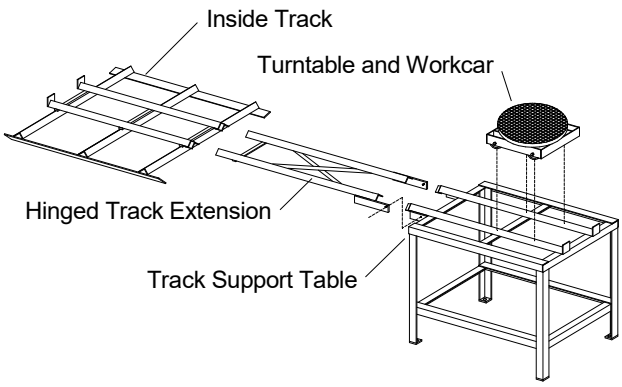


Figure 8

3.2.2 Place the inside track in the cabinet over the existing grate, as shown in Figure 9.

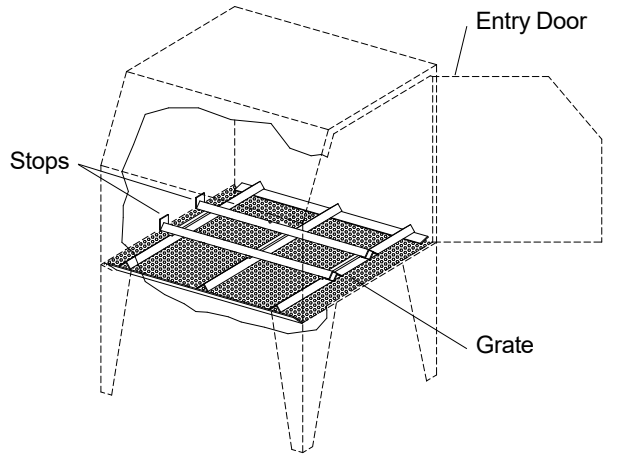


Figure 9

3.2.3 Position the track support table and extension, as shown in Figure 10. 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.

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

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

support table to the floor through the holes in the leveling pads.

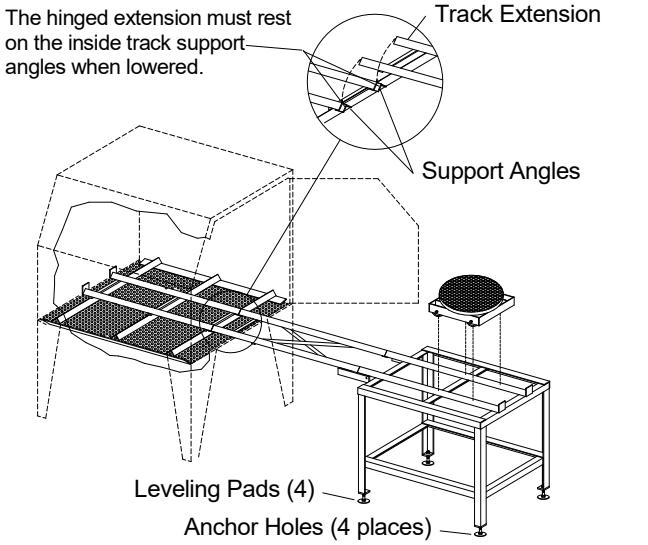


Figure 10

4.0 Initial Startup

4.1 Make sure blast hose and compressed-air hose connections are secured with lock pins and safety cables. Lock pins and safety cables are listed in *Section 10.1*: *Optional Accessories*.

4.2 Turn ON the lights and exhauster. The ON/OFF switch located on the right front of the cabinet 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 11.

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). Check for air leaks on the initial startup and periodically thereafter.

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

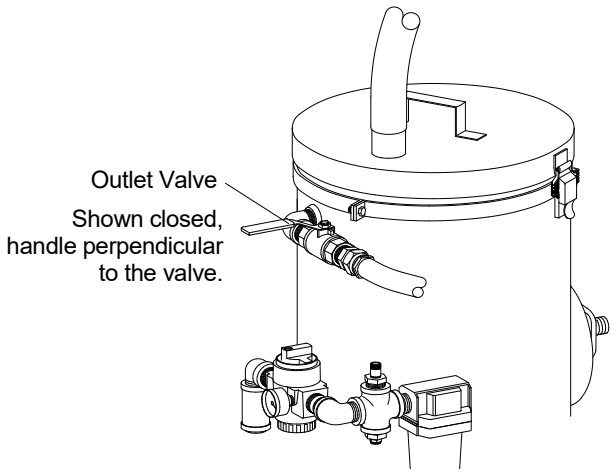


Figure 11

4.6 Place hands into the gloves and firmly grasp the nozzle.

4.7 Depress 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.

4.8 Adjust the inlet (blast pressure) regulator, per Section 6.1.

4.9 Check for leaks in the plumbing and hose connections.

4.10 Anti-Bridging Agitator Check

4.10.1 During the initial startup, make sure the agitator assembly is correctly in place. Refer to Section 8.11.

4.10.2 Press the foot pedal and adjust agitator pressure regulator to 40 psi. When satisfied the agitator is working, turn pressure regulator to 0 psi to stop agitator.

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

4.12 Set pulse pressure to 0 psi until the cartridges are seasoned. Refer to the RPH Dust-Collector operations manual.

4.13 Load media, per Section 5.2.

5.0 OPERATION

5.1 Season Filter Cartridges

NOTICE

Do not pulse new dust collectors or replacement cartridges until the cartridges are seasoned, as instructed in the dust-collector operations manual. Premature pulsing decreases the efficiency of dust 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 two cubic feet (2 cuft). Full capacity is when media is at the level of the pop-up valve.

5.2.2 Loading media: Do not replenish with new media before inspection and, when necessary, emptying the cyclone and dust-collector's dust containers.

NOTICE

Failure to empty the dust-collector dust container before refilling the blast machine will result in overfilling the dust collector. Overfilling can result in packed dust in the collector and difficulty in removing and emptying the container.

5.2.3 Remove the blast machine cover, and load media by pouring it through the screen and into the blast machine. **Do not fill above the pop-up valve.**

5.3 Unloading Media

5.3.1 Empty the machine of all media when shutting down for the day. This step eliminates problems caused from moist media when starting a new day's blasting. One way to avoid needing 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 Close the choke valve, and then open the media metering valve by turning the knob fully counterclockwise. Counting the turns on the metering knob 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, 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. Securing parts is especially important when using turntables and turntables with tracks.

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 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.

5.4.4 Close doors. The door interlock system will prevent blasting if either door is open.

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, take these precautions:

- **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.**
- **Stop blasting immediately if dust leaks are detected.**

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

5.5.5 Close the manual outlet valve.

5.5.6 Place hands into the gloves and grasp the nozzle holder or blast hose just behind holder.

5.6.7 Point the nozzle towards the object to be blasted.

5.5.8 Apply pressure to the foot pedal. Blasting will begin almost immediately. **Do not bypass the foot pedal or wedge it in the operating position.**

⚠ WARNING

Shut down the cabinet immediately if dust discharges from the cabinet or dust collector. Make sure the filter cartridges are 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 risks vary with dust generated by blasting. Identify all material being removed by blasting, and obtain a safety data sheet (SDS) for the media.

5.5.9 Adjust blast pressure, per Section 6.1.

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

5.5.10 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.

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 12

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.

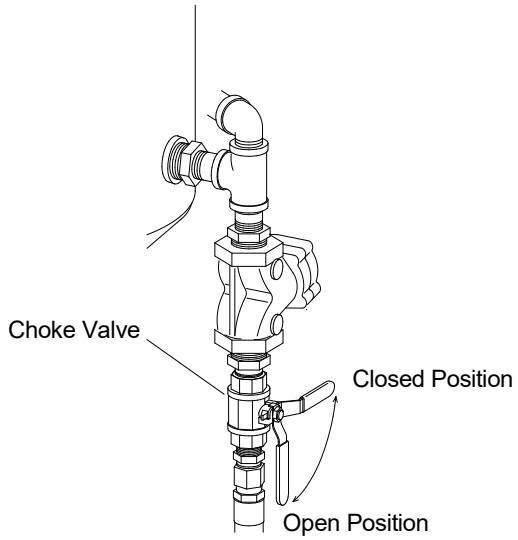


Figure 12

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.

NOTICE

Do not blast with the 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 foot pedal closes the ACE air valve and media metering valve. The blast machine remains depressurized until the manual outlet valve is opened. NOTE: A small leak in the plumbing will cause the blast machine to eventually 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 off media from 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 through either door.

5.9 Depressurizing the Blast Machine.

5.9.1 When ready to shut down or refill the blast machine, remove pressure on the foot pedal and 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 dropout cyclone and dust-collector dust drums.

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

5.10.6 Shutdown the compressor.

6.0 ADJUSTMENTS

6.1 Inlet Pressure Regulator (Blast Pressure)

NOTE: Pressure regulators furnished on the machine have locking adjustment knobs. Pull the knob out to make the adjustment, and push the knob in to lock it and maintain the setting. Refer to Figure 13.

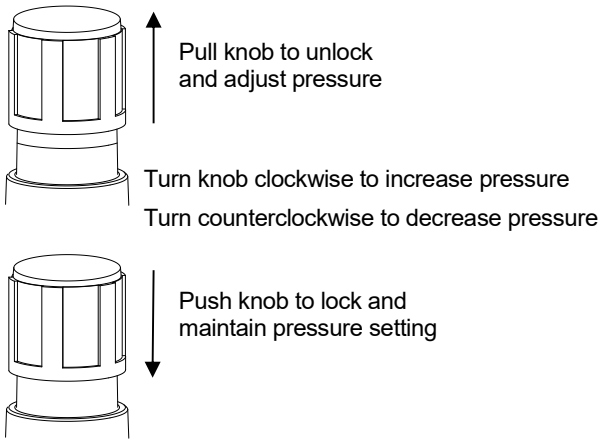


Figure 13

6.1.1 Blasting pressure (the pressure coming out the nozzle), is adjusted using the pilot regulator located on the top left side of the cabinet. Pressure registers on the gauge only while blasting. While holding the nozzle securely, adjust pressure.

6.1.2 Blast pressure may be regulated between a low of around 10 psi to a maximum of 125 psi. Most bicarbonate of soda blasting is done between 40 and 60 psi.

6.1.3 To adjust pressure, unlock the knob by pulling it out, as shown in Figure 13, and turn it clockwise to increase pressure or counter-clockwise to decrease pressure. Once operating pressure is set, push in on the knob to lock it and maintain the setting.

6.2 Dust-Collector Pulse Pressure

NOTICE

Do not pulse new dust collectors or new cartridges until the cartridges are seasoned. Premature pulsing decreases the efficiency of collector and cartridge life. Refer to the dust-collector operations manual

6.3 Anti-Bridging Agitator Pressure

6.3.1 Agitator pressure is adjusted using the pressure regulator mounted on the side of the blast machine. NOTE: The agitator will not energize until the foot pedal is pressed.

6.3.2 If media tends to bridge through the metering valve, activate the agitator by turning the regulator to 40 psi. Increase or decrease pressure as needed to find optimum vibration.

6.4 Media Metering (Abrasive Flow) – Figure 14

6.4.1 Media flow is adjusted by turning the knob on the metering valve, located at the bottom of the blast machine.

6.4.2 The hole in the knob enables the operator to monitor its rotation and count revolutions as the knob is turned. This helps to return the setting to its original position, if temporary adjustments are required.

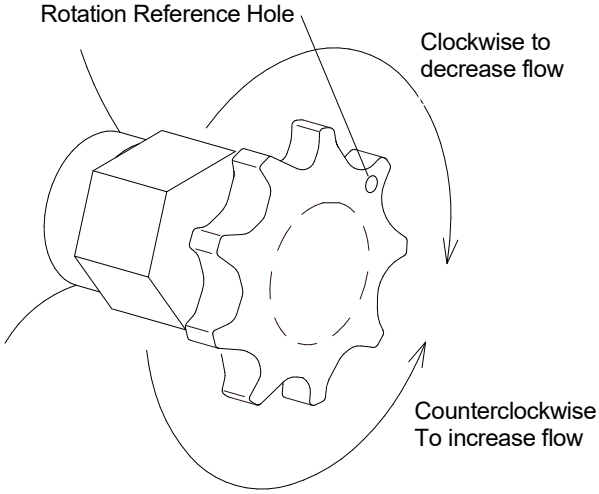


Figure 14

6.4.3 The valve is closed when the knob is turned fully clockwise. Begin with the knob set 1-1/2 turns from fully closed. While the operator is blasting, turn the knob no more than 1/4 turn counterclockwise to increase abrasive flow. Allow 10 to 15 seconds for the flow to stabilize before readjusting. Continue making adjustments as described until correct flow is attained.

6.4.4 Optimum media flow depends on the type and size of abrasive and blasting pressure, and can best be determined by experience. Use as little media as possible while maintaining the maximum cleaning rate. The air/media mixture should be mainly air.

6.5 Door Interlocks – Figure 15

⚠ WARNING

Do not to override the interlock system. Doing so can result in injury from unexpected blasting.

6.5.1 The door interlocks disable the blasting control circuit when either door is 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 normally require field adjustment unless parts are replaced. When adjustment is required, proceed as follows:

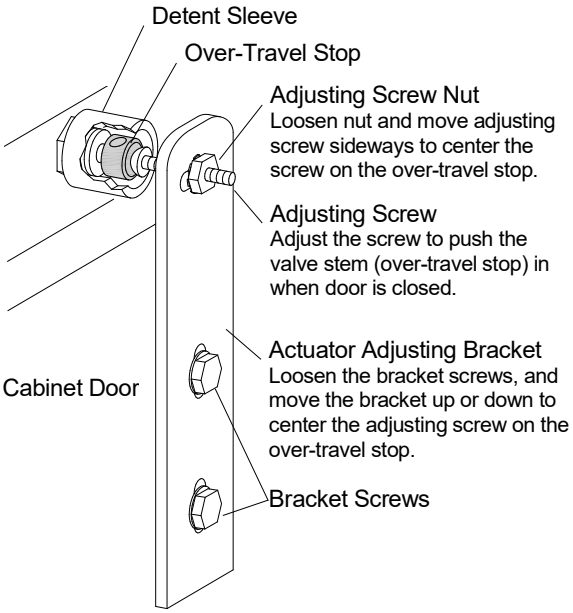


Figure 15

6.5.2 Close cabinet doors.

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

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

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

7.0 PREVENTIVE MAINTENANCE

⚠ WARNING

Failure to wear approved respirators 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 risks vary with type of media and dust generated by blasting. The respirator must be approved for the type of dust generated. Identify all materials being removed by blasting, and obtain a safety data sheet (SDS) for the blast media.

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

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

7.1 Daily Inspection and Maintenance

7,1,1 Before blasting and with air OFF

7.1.1.1 Empty dust drums: Check dust level in dropout cyclone and dust-collector dust drums and empty as necessary. Check level each time the blast machine is refilled with media.

NOTE: Blasting media is usually non-toxic; however, some materials being removed by the process may be toxic. Obtain safety data sheets (SDS) for the media and identify all material removed by the blast process. Check with proper authorities for disposal restrictions. Refer to the dust-collector manual and the warning at the beginning of Section 8.0 for additional safety information.

7.1.1.2 Check media level: Full capacity is when media is at the level of the pop-up valve. Do not replenish with new media before emptying the dust-collector dust container.

7.1.1.3 Inspect coupling and nozzle holder: Make sure coupling screws are fully seated and that none are missing. Make sure that safety lock pins are inserted in all couplings.

7.1.1.4 Check safety cables: Make sure safety cables are attached at all blast-hose and air-hose connections and that all slack is removed from the cable.

7.1.1.5 View window and ClearView™ ventilation channel: While the exhauster is running, clean the view window and glass air channel partition with a soft bristle brush. 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 flow channel. Doing so will blow dust-laden air out the inlet stack. The view window and partition are easily removed for thorough cleaning or replacement. 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 8.2 to service the view window.

7.1.1.6 Dust collector: Refer to the dust-collector operations manual. For dust-collector maintenance.

7.1.2 During blasting – Have someone do the following:

7.1.2.1 Check cabinet for leaks: During operation, inspect cabinet door seals for media leaks. Dust leaking from the inlet damper or other places on the cabinet indicates saturated filter cartridge. Refer to dust-collector operations manual to clean or replace the filter cartridges.

7.1.2.2 Check dust-collector exhaust air for dust: Dust discharge at the dust-collector 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 new cartridges are seasoned.

7.1.2.3 Inspect blast hose and couplings for leaks: Inspect blast-hose couplings, coupling gaskets, and nozzle holder for leaks. Replace as necessary.

⚠ WARNING

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

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

NOTICE

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

7.1.3 After blasting but before shutting OFF the compressor:

7.1.3.1 Drain pulse reservoir: Shut off the air supply to the dust collector, refer to the dust-collector operations manual and open the petcock to drain air and water from the pulse reservoir. Close the petcock after water is drained.

7.1.3.2 Drain compressed-air filter: Shut off the air supply to the blast machine and open the drain on the air filter. Close the valve after water is drained.

7.2 Weekly Inspection and Maintenance

7.2.1 Before blasting and with air off

7.2.1.1 Inspect gloves for wear: The first sign of deterioration may be excessive static shocks. Replace as needed, per Section 8.1.

7.2.1.2 Flex hoses: Inspect flex hoses for wear.

7.2.2 During blasting have someone do the following:

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

7.3 Monthly Inspection and Maintenance

7.3.1 Before blasting and with air off

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

⚠ WARNING

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

7.3.1.2 Inspect blast hose for wear: Inspect the blast hose for wear and thin spots by pinching it every 6 to 12 inches. Soft spots mean the hose is worn. The first sign of wear is usually along the outside radius where the hose bend just behind the nozzle holder. Replace the hose as soon as soft spots are noted. **Couplings will not safely grip worn hose, and may detach under pressure.**

7.3.1.3 Inspect pop-up valve: Check the pop-up valve’s urethane coating for cracks and grooves. Replace the pop-up valve at the first sign of wear, per Section 8.7

7.3.1.4 Inspect pop-up seal: Inspect the rubber pop-up seal and replace at the first sign of wear, drying, or cracking, per Section 8.8.

8.0 SERVICE MAINTENANCE

⚠ WARNING

Prior to any maintenance or opening the dust collector, the employer must meet OSHA Standard for PPE, 29CFR 1910, Subpart I
PPE required but not limited to:

- **Appropriate respirator**
- **Steel toe shoes**
- **Safety glasses and face protection**
- **Hard hat**
- **Gloves**
- **Protective clothing**

Toxicity and health risks vary with type of dust generated by blasting. Identify all materials that are 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 consumption. The employer shall meet all OSHA requirements including those for: confined space, combustible dust, fall protection, and hazardous communication.

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 that one spring is on the inside of the port and the other is on the outside, sandwiching the arm port between both spring rings.

8.2 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.

8.2.1 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 8.4.

8.2.2 Remove the old window.

8.2.3 Inspect both window frame gaskets, on the window frame and on the cabinet. If either gasket is damaged, replace it, per section 8.3.

8.2.4 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 lower locators.

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

8.3 Window Gasket Replacement – Figure 16

8.3.1 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.

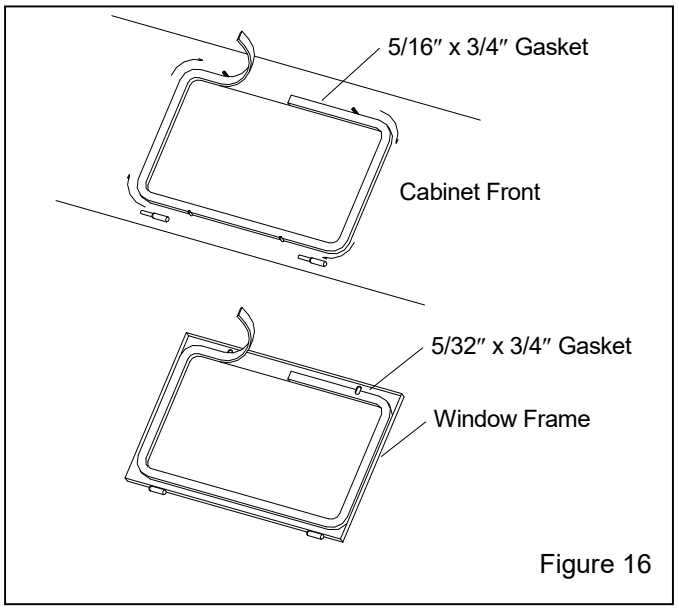


Figure 16

8.3.2 Remove the window and window frame, per Section 8.4.

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

8.3.4 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 16. 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.

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

8.3.6 Trim around the window-frame bolt slots as needed.

8.4 Window Frame Removal – Figure 17

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 17.

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, ensuring that all edges of the window are centered and overlapping the window gasket, and resting on the lower locators.

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

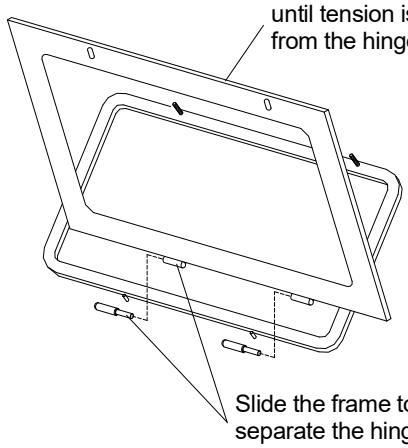


Figure 17

8.5 Blast Hose and Nozzle – Figure 18

8.5.1 To remove old hose, disconnect hose from blast machine and remove the 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.

8.5.2 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 18. Make sure correctly-sized screws are used to secure the nozzle holder and blast hose coupling. NOTE: Screws should not penetrate the inside of the blast hose.

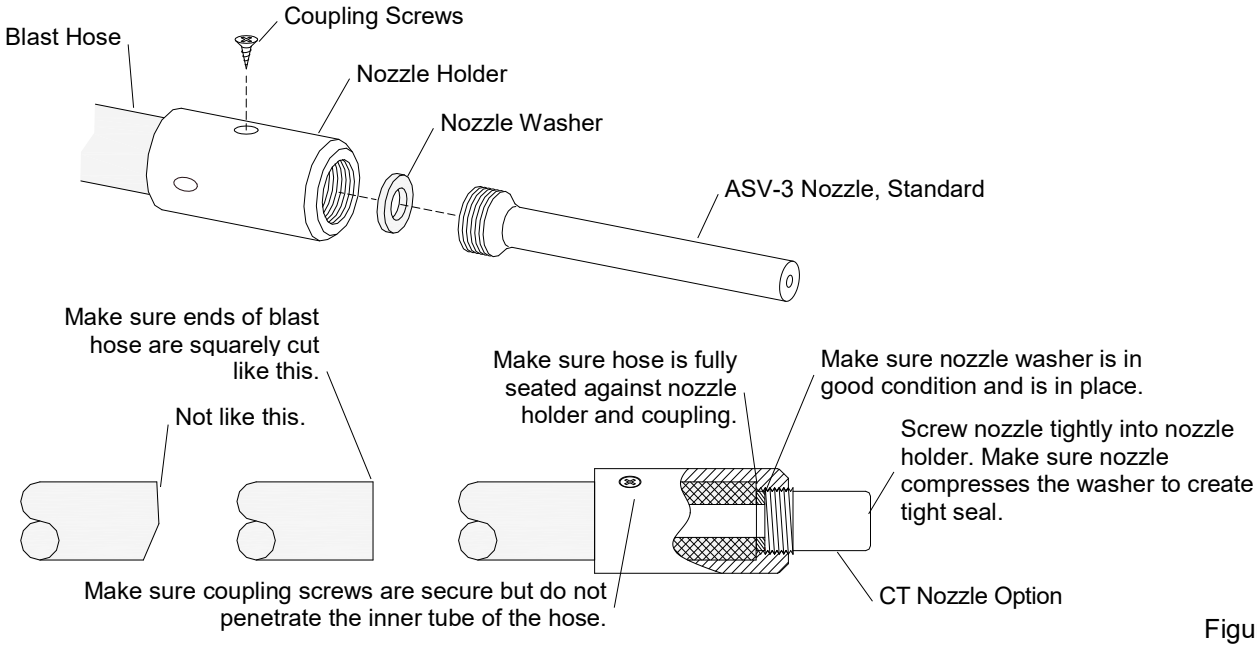


Figure 18

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

8.6 LED Light Assembly

⚠ CAUTION

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.

8.6.1 Remove light-mount cover

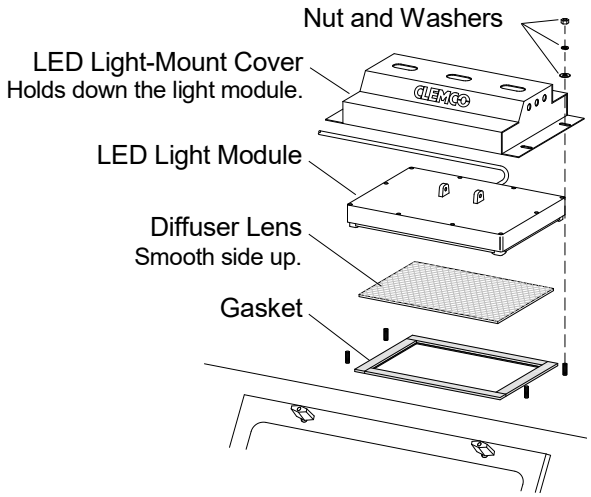


Figure 19

8.6.1.1 Turn OFF electrical power.

8.6.1.2 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as shown in Figure 19.

8.6.2 Gasket replacement

8.6.2.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 8.6.1. Move the light module off the diffuser lens and remove the lens.

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

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

8.6.3 Diffuser lens replacement

8.6.3.1 Remove the four nuts and washers that attach the light-mount cover to the cabinet and remove the cover, as noted in Section 8.6.1. Move the light module off the diffuser lens and remove the lens. Inspect the gasket and replace it, per Section 8.6.2, if it is compressed or otherwise damaged, before centering the new diffuser (smooth side up) over the gasket.

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

8.6.4 LED light module replacement

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

8.6.4.2 Remove the light-mount cover, per Section 8.6.1.

8.6.4.3 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.

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

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

8.6.4.6 Cut the cord to length and wire as follows:

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

8.6.4.7 Apply power to test the light(s).

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

8.7 Replacing the Pop-up Valve

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

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

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

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

1. Loosen the inspection-door clamp nut enough to slide the clamp bolt from behind the bolt bracket; then remove the clamp, bolt, and nut, as an assembly, as shown in Figure 20.

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

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

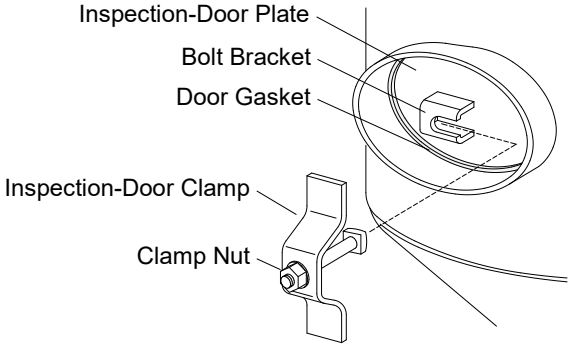


Figure 20

8.7.5 Use a short pipe wrench to unscrew the pop-up guide by turning it counterclockwise, as shown in Figure 21. Remove the pop-up valve and guide from the machine.

8.7.6 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.

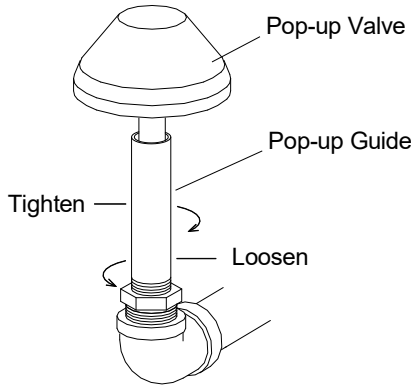


Figure 21

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

8.8 Replacing the Pop-Up Seal – Figure 22

8.8.1 The easiest method to replace the rubber pop-up seal is from the top of the blast machine. If for some reason replacement cannot be made through the top, or if the seal has fallen inside the blast machine, observe the warning in Section 8.7.2, empty the machine, and bleed the air-supply line. Remove the inspection-door assembly and work through the opening.

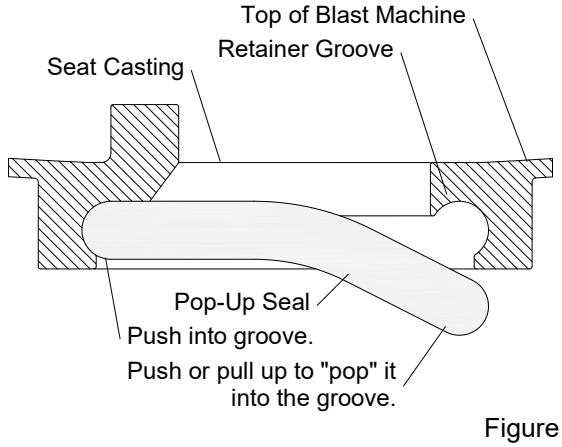


Figure 22

8.8.2 Remove the old seal by using a finger, screwdriver, or similar object, to work the seal out of the retainer groove. Remove the seal through the top or through the inspection-door opening.

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

8.8.4 If the inspection door was removed, glue a new gasket onto the door assembly before bolting the door back onto the machine.

8.9 Exhaust Muffler

8.9.1 Replace the exhaust muffler when depressurizing time increases noticeably. Average time to depressurize the blast machine is approximately 3 or 4 seconds, depending on how fast the manual outlet valve is opened.

8.10 Removing Damp Media or Clearing Obstructions from the Blast Machine

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

8.10.2 For obstructions that are more difficult, 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 holding the hose securely, press the foot pedal. A heavy flow of media should come out 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 Inspect Agitator System

8.11.1 Empty the machine of media. Turn off the air supply. Lockout and tagout the air supply.

8.11.2 To gain access to the agitator, remove the inspection-door assembly.

8.11.3 Make sure that all fasteners on the tree assembly are tight.

8.11.4 Make sure all hose connections are tight.

8.11.5 Inspect mounting pads. Replace before rubber wears to the metal.

8.12 Auto-Quantum Metering Valve

8.12.1 Metering segment – Figure 23
Refer to Section 8.12.2 to service the actuator segment.

8.12.1.1 Empty the machine of abrasive. Turn off the compressed-air supply. Lockout and tagout the air supply, and bleed the air-supply line to the blast machine.

8.12.1.2 Remove the inspection-plate wing nuts and inspection plate.

8.12.1.3 Remove the four socket head screws securing the metering housing and remove the housing assembly.

8.12.1.4 The adaptor flange and actuator do not need to be removed from the blast machine to service the metering assembly. Thoroughly inspect the adaptor flange for wear, and replace it if worn.

8.12.1.5 Turn the metering shaft clockwise to remove the shaft from the metering screw.

8.12.1.6 Loosen the knob nut and pull the knob assembly from the housing.

8.12.1.7 Use a drive pin and hammer to force the roll pin from the knob and remove the knob.

8.12.1.8 Remove the metering screw by pushing it out the front of the knob nut.

8.12.1.9 Inspect the metering screw for damage and any signs of abrasive ingress or metal filings.

8.12.1.10 Clean the metering screw threads and test the condition of the threads by installing the screw into the metering-plate shaft. Replace the metering screw if there is any resistance, binding, or metal filings.

8.12.1.11 Remove the O-ring from the knob nut, and remove the O-ring and wiper from the housing.

8.12.1.12 Thoroughly clean and inspect all parts that are to be reused. Replace all worn parts.

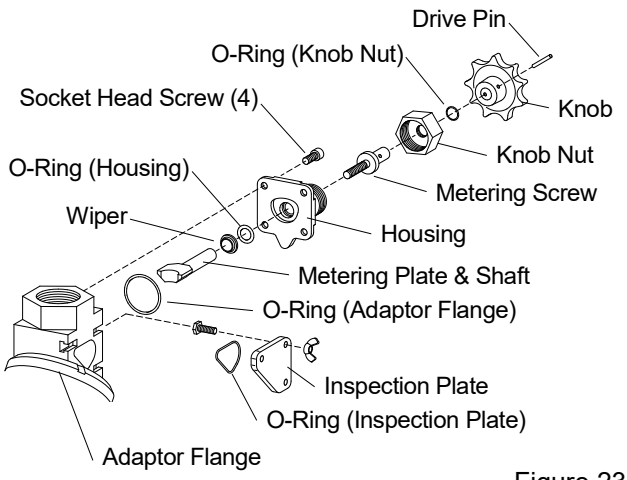


Figure 23

8.12.1.13 Place a new O-ring in the knob nut.

8.12.1.14 Place a new O-ring and wiper seal in the housing. A generous amount of silicone-based lubricant eases installation. The small side of the wiper seal faces away from the O-ring.

8.12.1.15 Insert the metering-plate shaft through the housing bore and wipe off any lubricant on the metering-plate side of the bore.

8.12.1.16 Reassemble the metering screw, nut, knob, and drive pin. NOTE: Applying a small amount of silicone-based lubricant on the unthreaded end of the metering shaft eases insertion through the nut O-ring.

8.12.1.17 Apply a molybdenum disulfide or graphite-based anti-seize lubricant to the metering shaft and metering screw threads, and thread the shaft onto the screw.

8.12.1.18 Place a new O-ring in the groove on the face of the adaptor flange.

8.12.1.19 Insert the metering plate (flat side up) through the adaptor flange opening. Be careful not to displace the O-ring.

8.12.1.20 Secure the metering housing finger-tight before tightening all screws.

8.12.1.21 Place a new O-ring on the inspection plate, and securely attach the plate.

8.12.1.22 Once service of the metering assembly is complete, test the machine and piping for air leaks before returning to service.

8.12.2 Service AQV-H actuator

Refer to Section 8.12.1 to service the metering segment.

8.12.2.1 Empty all abrasive from the machine per Section 5.3. NOTE: If the metering assembly does not require service, abrasive flow may be shut off by closing the metering valve.

8.12.2.2 Turn off the compressed-air supply. Lockout and tagout the air supply, and bleed the air-supply line to the blast machine.

8.12.2.3 Disconnect the control line from the fitting on the actuator assembly.

8.12.2.4 Refer to Figure 24 and remove the screws securing the adaptor flange and the outlet flange to the actuator assembly, and then remove the actuator assembly.

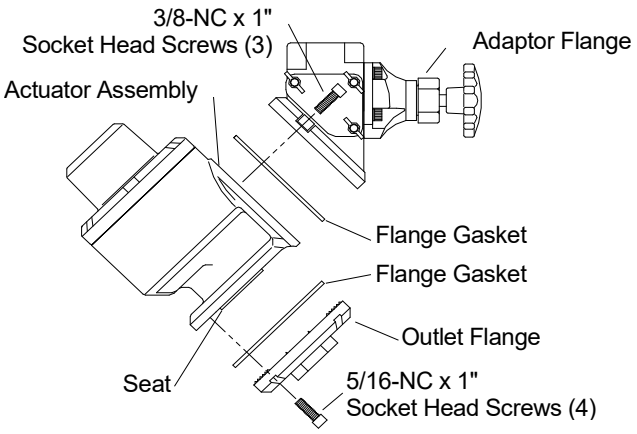


Figure 24

8.12.2.5 Refer to Figure 25 and unscrew the six socket head screws, and remove the cylinder cover and spring. Spring compression is relieved when the cover is approximately 9/16" from the actuator valve body.

8.12.2.6 Remove the felt disc from inside the cylinder cap.

8.12.2.7 Use a hammer handle or similar object to push the bottom of the plunger, forcing the plunger/piston assembly out the top of the valve body cylinder.

8.12.2.8 Pry the urethane wear sleeve from the bottom of the actuator valve body.

8.12.2.9 It is not necessary to separate the plunger from the piston unless either part is scored or worn. To separate the parts, hold the plunger in a vise with the vise jaws covered with copper or similar protection (if the plunger is damaged it does not matter if the vise jaws mar the plunger). Using a wrench placed on the flats of the piston stop, unscrew the stop.

8.12.2.10 Remove the wiper and O-ring from the valve body.

8.12.2.11 Inspect the abrasive path in the actuator valve body, adaptor flange, and outlet flange for wear. Replace if worn.

8.12.2.12 Clean all items and inspect for wear. Replace worn or damaged parts.

8.12.2.13 If the plunger and piston were separated as noted in Section 8.12.2.9, apply removable thread sealant to the threads on the piston stop and reassemble the piston assembly using a new O-ring from the service kit**.** NOTE: Make sure the two flat washers and rubber-backed washer are installed, as shown in Figure 25.

8.12.2.14 Replace the wiper and O-ring in the actuator body; the open side of the wiper must face toward the bottom of the body, as shown in Figure 25.

8.12.2.15 Lubricate the O-ring and wiper in the actuator body, with a silicone-based lubricant.

8.12.2.16 Lubricate the body's cylinder wall with tool oil or 10 wt. oil.

8.12.2.17 Install the plunger-piston assembly into the body. Make sure the bottom side of the piston cup does not fold back during assembly. Tucking in the lip of the cup, while applying pressure to the piston, eases assembly.

8.12.2.18 Place the urethane wear sleeve in the actuator body. Align the ridge in the wear sleeve with the slot in the body.

8.12.2.19 Assemble the actuator assembly onto the adaptor flange and outlet flange. NOTE: The adaptor flange is secured with three screws, and the outlet flange is secured with four screws. The gaskets are the same for both parts. Align the gaskets so the mounting holes match the pattern in the flange. First hand-tighten the outlet flange screws to the actuator valve body. Hand-tighten the adaptor flange screws before tightening all screws.

8.12.2.20 Place the two flat washers and spring over the piston stop, as shown in Figure 25.

8.12.2.21 Install the felt disc in the cylinder cover, assemble the cover, and tighten the screws to secure.

8.12.2.22 Connect the control line to the fitting or port on the actuator assembly, and test the operation before putting the valve in service.

8.13 ACE Air Valve

8.13.1 Refer to the ACE Air Valve operations manual, O. M. 23938, for service and replacement parts.

8.14 RPH-2 HP Dust Collector

8.14.1 Refer to the RPH Dust-Collector operation manual for service and replacement parts.

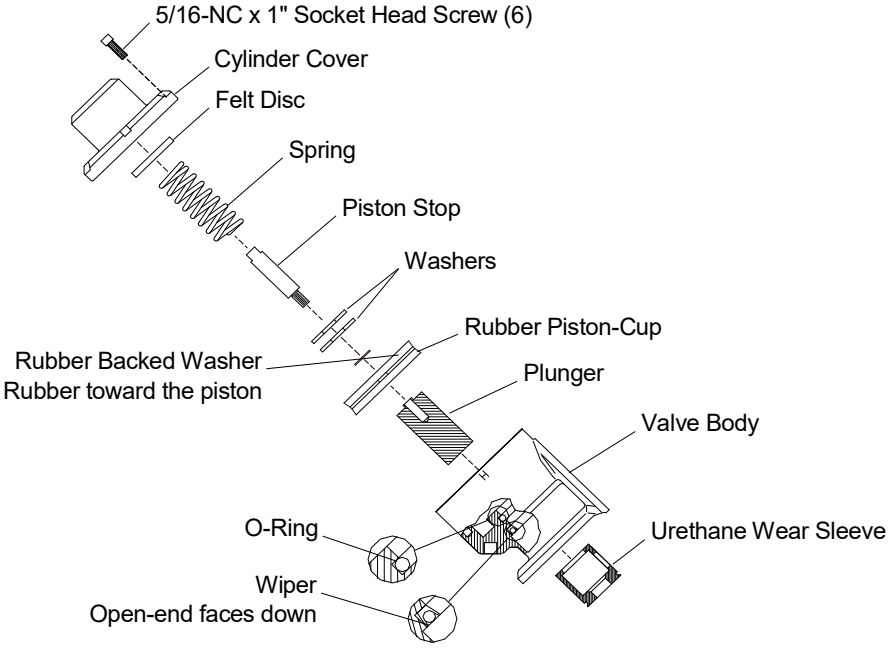


Figure 25

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 cartridges. Refer to the RPH Dust Collector manual for pulse pressure and pulse intervals.

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

9.1.3 Motor rotating backward. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, logout and tagout power and switch the motor leads, as shown on the motor plate.

9.1.4 Hole or other leak in flex hose between cabinet hopper and cyclone or between the cyclone and dust-collector inlet. Replace hose and route it with as few bends as possible to prevent wear.

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

9.1.6 Paddle wheel worn. Check wheel for wear.

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

9.2 Abnormally high media consumption

9.2.1 Make sure the choke valve is open.

9.2.2 Media metering valve open too far. Adjust, per Section 6.4. If adjusting the media valve does not regulate media flow, empty the machine, depressurize the machine, and inspect the internal parts of the valve for wear.

9.3 Reduction in blast cleaning rate

9.3.1 Low media level. Check media level and refill as needed.

9.3.2 Media-air mixture out of adjustment. Adjust per Section 6.4.

9.3.3 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.

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

9.3.5 Moist media. Frequent bridging or blockage in the area of the metering valve can be caused by moisture. See Section 9.4.

9.3.6 Manual outlet valve open. Make sure outlet valve is closed.

9.4 Media bridging

9.4.1 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.

9.4.2 Moist compressed air may be due to:

- High humidity
- 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 the filter not removing sufficient moisture before it enters the blast machine.
- Too short an air line letting warm moist air to enter the blast machine.

Drain filters and receiver tank regularly. If problems with moisture persists, it may be necessary to change media more often, or to install an aftercooler or air dryer in the air-supply line.

9.4.3 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.

9.4.4 Anti-bridging agitator not activating or requires adjustment. Refer to Section 6.3.

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

9.5.1 Make sure the blast machine pressurizes; if it does not pressure, refer to Section 9.10.

9.5.2 Depressurize the blast machine. After the pop-up valve has dropped, remove the nozzle and check for obstruction.

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

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

9.5.5 Door interlocks not engaging. Check adjustment, per Section 6.5.

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

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

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

9.6 Heavy media flow

9.6.1 Make sure the choke valve is open.

9.6.2 Media metering valve open too far. Adjust, per Section 6.4. If adjusting the media valve does not regulate media flow, empty the machine, depressurize the machine, and inspect the internal parts of the valve for wear.

9.6.3 ACE air valve not opening. Inspect ACE valve for ruptured diaphragm or other malfunction.

9.7 Intermittent media flow

9.7.1 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, a dryer or aftercooler may be required in the air-supply line.

9.7.2 Media metering valve may need adjustment. See Section 6.4.

9.7.3 Anti-bridging agitator not activating or requires adjustment. Refer to Section 6.3.

9.8 Media surge

9.8.1 A small amount of media surge is normal at startup. Should the flow of media continue to surge, reduce the amount of media in the air stream by adjusting the metering valve per Section 6.4.

9.8.2 Heavy media flow. Adjust per Section 6.4.

9.8.3 Empty the blast machine, depressurize the blast machine, and inspect the internal parts of the metering valve for wear. Refer to the media metering valve operations manual.

9.9 Only air (no media) comes out the nozzle

9.9.1 Media metering valve may be closed or needs adjustment. See Section 6.4

9.9.2 Make sure the machine contains media.

9.9.3 Damp media. Refer to Section 9.4.

9.9.4 Check for minor blockage in the media metering valve by fully opening the metering valve and closing the choke valve. Remove the nozzle and nozzle washer and activate the foot pedal to blow out obstructions.

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

9.9.6 Check the muffler on the 4-way air valve. Air should exhaust from the muffler when the foot pedal is pressed. If air does not exhaust, remove the muffler and try again. If air exhausts now, the muffler is blocked. If air still does not exhaust, the 4-way valve may be faulty. Refer to Paragraph 9.8.7 to check the 4-way valve.

9.9.7 Check the 4-way valve as follows: Depressurize the air-supply line. Remove the tubing leading to either the media metering valve or agitator. Pressurize the air-supply line. No air should exhaust from the tube adaptor. Press the foot pedal; air should start exhausting at the adaptor and stop when pressure on the pedal is released. If it does not operate accordingly, the 4-way valve is faulty or air supply is insufficient.

9.9.8 Manual outlet valve open. Make sure outlet valve is closed.

9.9.9 Metering valve requires service. Refer to the media metering valve manual.

9.10 Blast machine does not pressurize

9.10.1 Safety petcock on ACE air valve or Quantum media valve open. Make sure petcocks and drain cocks are closed.

9.10.2 Make sure that the air compressor is ON and air-supply valves are open.

9.10.3 Manual outlet valve open. Make sure outlet valve is closed.

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

9.10.5 Inadequate air supply. Refer to the cfm table in Figure 5.

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

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

9.10.8 Foot-pedal valve malfunction. Check foot pedal for alignment and inlet and outlet lines for pressure.

9.10.9 Make sure the lines are not reversed on the foot pedal or pilot regulator. Refer to the schematic in Figure 3.

9.10.10 Check the 4-way valve per Paragraphs 9.9.6 and 9.9.7.

9.11 Blast machine does not depressurize or depressurizes too slowly

9.11.1 Inspect the exhaust hose and outlet muffler for blockage. The muffler (Item 17 – Figure 28) is located on the inside of the cabinet hopper.

9.12 Media buildup in cabinet hopper

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

9.12.2 Dust-collector filter cartridges clogged. Refer to the dust-collector operations manual.

9.12.3 Hole worn in flex hose between cabinet hopper and cyclone inlet or between the cyclone outlet and dust-collector inlet. Replace hoses and route them with as few bends as possible to prevent wear.

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

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

9.13 Static shocks

9.13.1 Cabinet and/or operator not grounded. Abrasive blasting creates static electricity. The cabinet and all other segments must be grounded to prevent static build-up. Refer to Sections 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.

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

9.14 Media flow decreases shortly after blasting starts

9.14.1 Insufficient air supply causes control pressure to drop, in turn closing the valve. Check for undersized air-supply hose, and check the cfm of the compressor against the cfm consumption of the nozzle. Refer to the table in Figure 5.

9.14.2 Media bridging in the blast machine. Refer to Section 9.4.

9.15 Dust leaking from cabinet

9.15.1 Filter cartridges heavily caked with dust. Refer to the RPH Dust-Collector operations manual.

9.16 Dust leaking from dust collector

9.16.1 Damaged or loose cartridge. Inspect filter cartridge.

Refer to the RPH-2 HP Dust Collector manual for additional information.

10.0 ACCESSORIES AND REPLACEMENT PARTS

10.1 Optional Accessories

Lock pins (pkg of 25) for twist-on hose couplings ... 11203
Safety cable, blast hose 1/2" 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 26

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

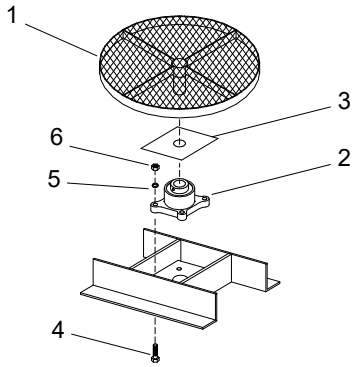


Figure 26

Turntable with Workcar and Track, 500 lb. Capacity – Figure 27

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.

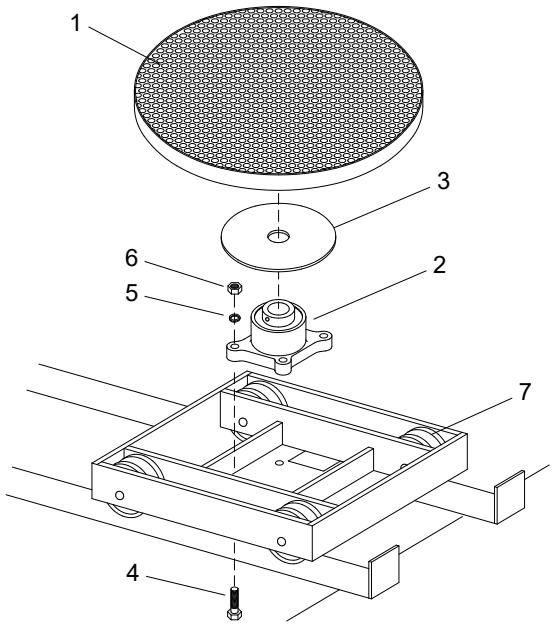
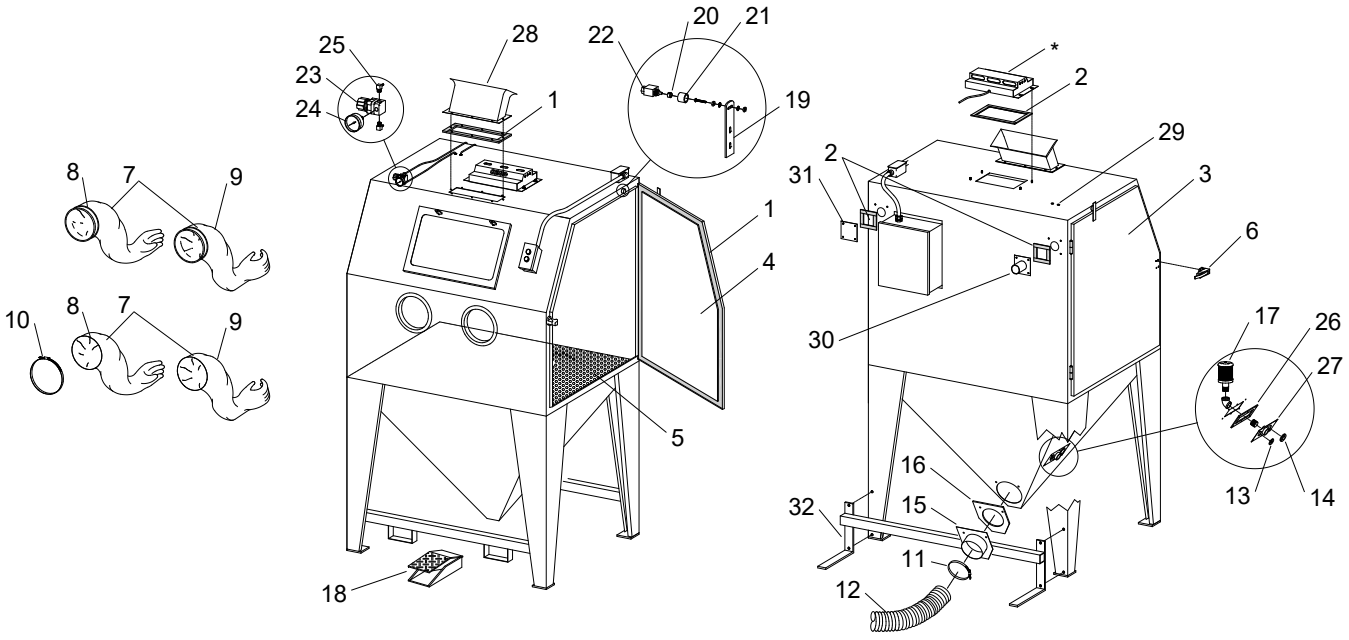


Figure 27

10.2 Cabinet Replacement Parts – Figure 28

Item	Description	Stock No.
1.	Gasket, 5/16" x 1" adhesive-backed, per foot, specify feet required	
	3636 door, 11 ft. per door	00187
	4050 door, 13 ft. per door	00187
	Air-inlet stack, 3 ft. required	00187
2.	Gasket, 5/32" x 3/4" adhesive-backed, per foot, specify feet require	
	3 ft required for light	00192
	1 ft required for each items 30 and 31	00192
3.	Door assembly, left	
	for 3636 series	20070
	for 4050 series	20074
4.	Door assembly, right	
	for 3636 series	20071
	for 4050 series	20075
5.	Grate	
	for 3636 series	11811
	for 4050 series	11810
6.	Latch kit, door	20064
7.	Glove set	
	Band-clamp attachment	11215
	Quick-change (clampless) attachment	28820
8.	Glove, left hand only	
	Band-clamp attachment	12710
	Quick-change (clampless) attachment	28638
9.	Glove, right hand only	
	Band-clamp attachment	12711
	Quick-change (clampless) attachment	28639
10.	Clamp, glove	11576
11.	Clamp, 6-1/2"	00750
12.	Hose, 6" ID light-lined flex, 15 ft. req'd	12468
13.	Grommet, 3/4" ID for blow-off hose	11798
14.	Grommet, 1" ID for blast hose	00184
15.	Adaptor pipe 6" flex hose	23297
16.	Gasket, 6" adaptor pipe	23291
17.	Muffler, outlet	05068
18.	Foot pedal assembly,	
	less tubing	20483
	with tubing, 14 feet	20195
19.	Actuator bracket, door interlock	19152
20.	Over-travel stop, door interlock	20004
21.	Detent sleeve, door interlock	15042
22.	Air valve, 3 way door interlock	12202
23.	Regulator, 1/8" NPT pilot pressure	12715
24.	Gauge, pressure, 1/8" cbm	01908
25.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
26.	Gasket, hopper plate adaptor	20247
27.	Plate, hopper hose adaptor	21657
28.	Stack, air-inlet	29114
29.	Grommet, 1/4" ID for urethane tubing	12762
30.	Adaptor plate, 2" hose	25094
31.	Plate, 2" cover	25093
32.	Brace, leg	
	for 3636 series	24443
	for 4050 series	24445



*LED light shown for reference. Refer to Section 10.6 for parts.

Figure 28

10.3 View Window Assembly – Figure 29

Item	Description	Stock No.
1.	Window glass, 12.5" x 19.5" laminated	12212
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, 6-feet required	00192
4.	Nut, plastic, window frame, 2 required	23035
5.	Window frame, quick change	22826

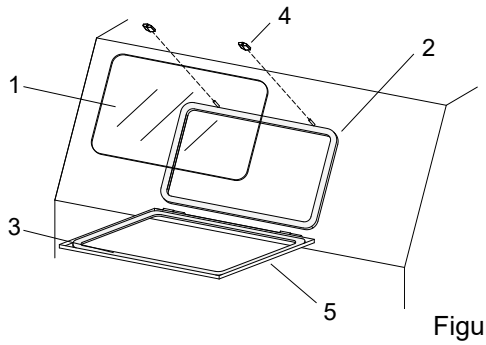


Figure 29

10.4 Foot Pedal Assembly – Figure 30

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

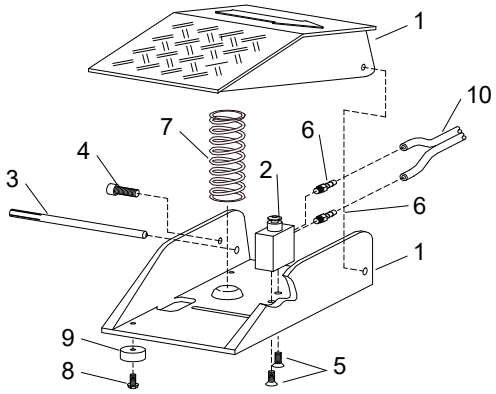


Figure 30

10.5 ClearView™ Window Assembly – Figure 31

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

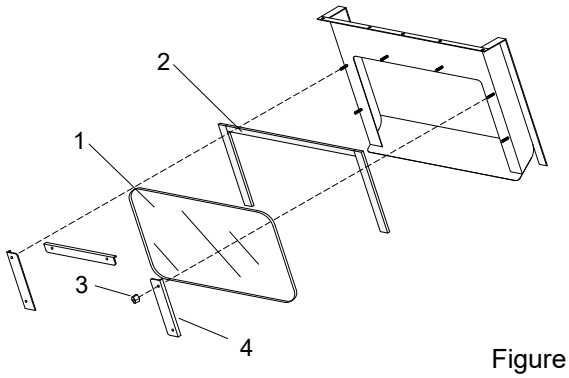
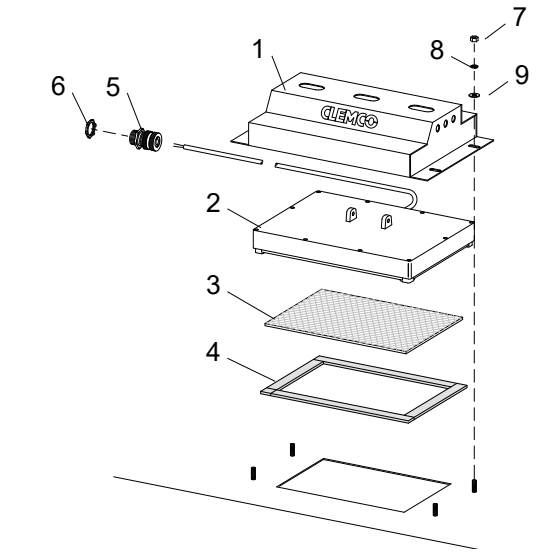


Figure 31

10.6 LED Light Assembly – Figure 32

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



ClearView™ stack removed for clarity.
Figure 32

10.7 Controls and Plumbing Schematic – Figure 33

Item	Description	Stock No.
1.	Valve, 4-way air	12203
2.	Fitting, straight, 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	13116
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 assembly, less tubing	20483
	with tubing, 14 feet item 10	20195
12.	Valve, 3 way	12202
13.	Regulator, 1/8" NPT pilot pressure	12715
14.	Adaptor, straight 1/4" male NPT x 3/8 tube	11736
15.	Tubing, 3/8" OD poly, specify ft. required	12478
16.	Adaptor, el. 1/4" male NPT x 3/8" tube	11685
17.	Muffler, 1/4" bronze	03988
18.	Tee, 1/4" brass	02025
19.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
20.	Tee, 1/8" tube barb	11734
21.	Nipple, 1/4" Hex	02808
22.	Filter, 1-in manual drain	22424
23.	Regulator, 1" pilot operated w/ gauge	12052
24.	Gauge, 1/4" cbm	11830
25.	Plug, 1/4-NPT	01950
26.	Metering valve, Bicarb AQV-HP Auto-Quantum	29122
27.	ACE 1-1/4" air valve, standard valve only, without fittings	24074
	valve assembly with fittings	24044
28.	Hose, air, 3/16 x 5-ft, coupled	03083
29.	Adaptor 1/4-NPT x SAE	02494

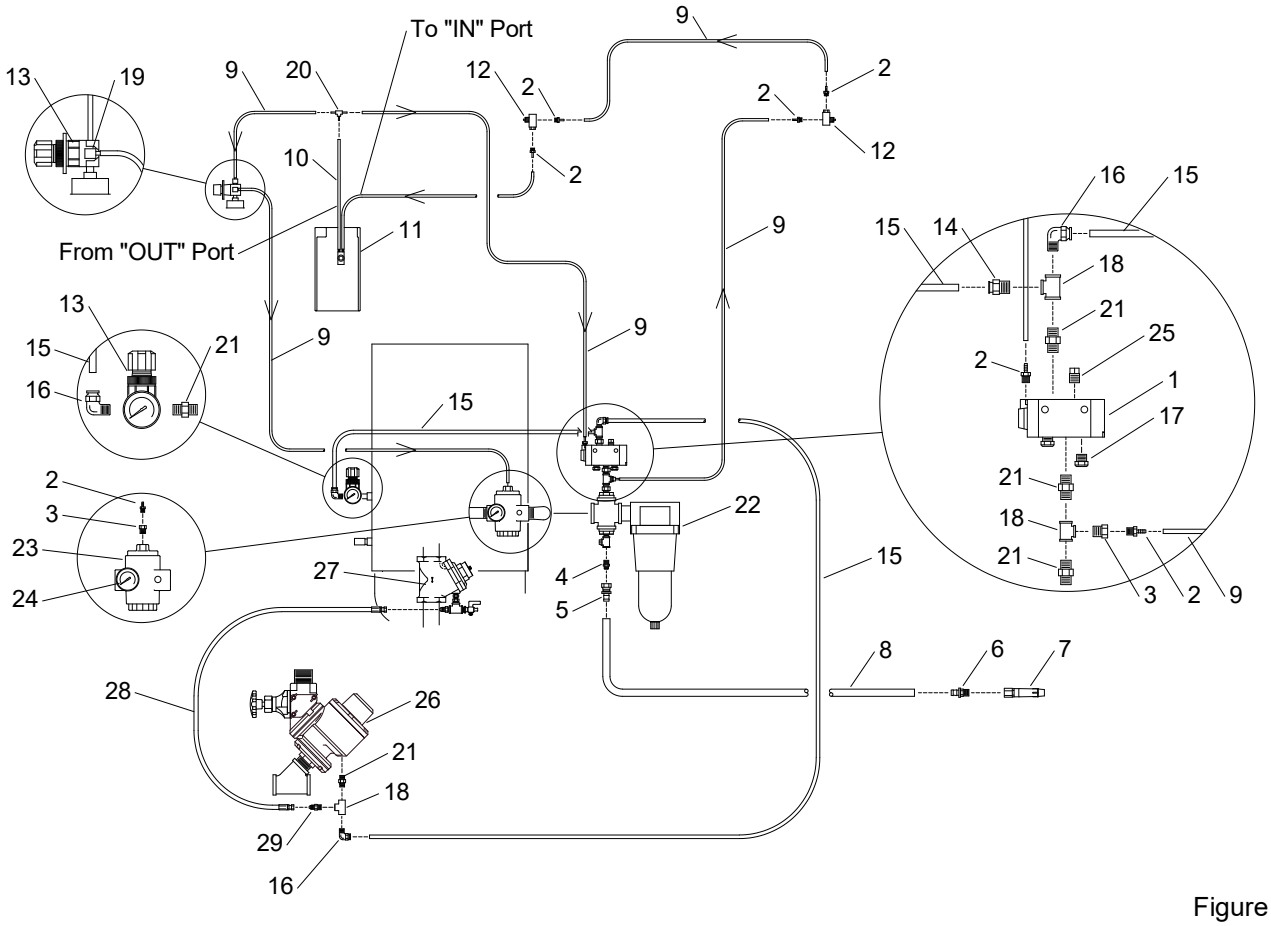


Figure 33

10.8 Blast Machine and Accessories – Figure 34

Item	Description	Stock No.
1.	Ball valve with handle, 1-inch NPT	02396
2.	Handle, 1" ball valve,	22531
3.	Pop-up valve	02321
4.	Adaptor, 1" male NPT x male JIC1	11720
5.	Coupling, 1-1/4" CF	00551
6.	Wye, 1-1/4" standard	01818
7.	ACE 1-1/4" air valve, standard	
	valve only, without fittings	24074
	valve assembly with fittings	24044
8.	Leg pad, right, 2 cu ft machine	20735
9.	Leg pad, left, 2 cu. ft. machine	20736
10.	Metering valve, Bicarb AQV-HP	
	Auto-Quantum	29122
11.	Gasket, CQG coupling, (package of 10)	00850
12.	Inspection door assembly, 6" x 8"	02377
13.	Gasket, 6" x 8" inspection door	02369
14.	Seal, pop-up, gum rubber, standard use	02325
15.	Blast hose, 1/2" ID x 25 ft. 2-braid	
	without couplings	23750
	coupled with items 16 and 17	01268
16.	Holder, nozzle, CHE-1/2	00577
17.	Coupling, CQA-1/2 quick	00599
18.	Nozzle,	
	ASV-3, 3/16" orifice x 6" venturi (std)	27014
19.	Nozzle, optional CT tungsten lined, 1-3/4" long	
	CT-2, 1/8" orifice	01351
	CT-3, 3/16" orifice	01352
20.	Nozzle washer, NW-1, pkg. of 10	21580
21.	Lid Assembly	29120
22.	Hose, 2 in vacuum, 5 ft required	10332
23.	Gasket, 5/16" x 1" adhesive-backed,	
	per foot, 3 ft required	00187
24.	Filter, 1-in manual drain	22424
25.	Regulator, 1" pilot operated w/ gauge	12052
26.	Hose, 3/16 x 18-in air, coupled	02454
27.	Adaptor 1/4-NPT x SAE	02494
28.	Adaptor 1/8-NPT x SAE	01940
29	Agitator, pneumatic	21477
30.	Regulator with gauge, 1/4"	12050
31	Muffler, 1/4-NPT	03988
32.	Valve, 4-way air	12203
33.	Hose assembly, 1" x 10′ exhaust	23915
34.	Hose assembly, 1" x 19" pusher line	24167
35.	Lock pin, coupling (package of 25)	11203

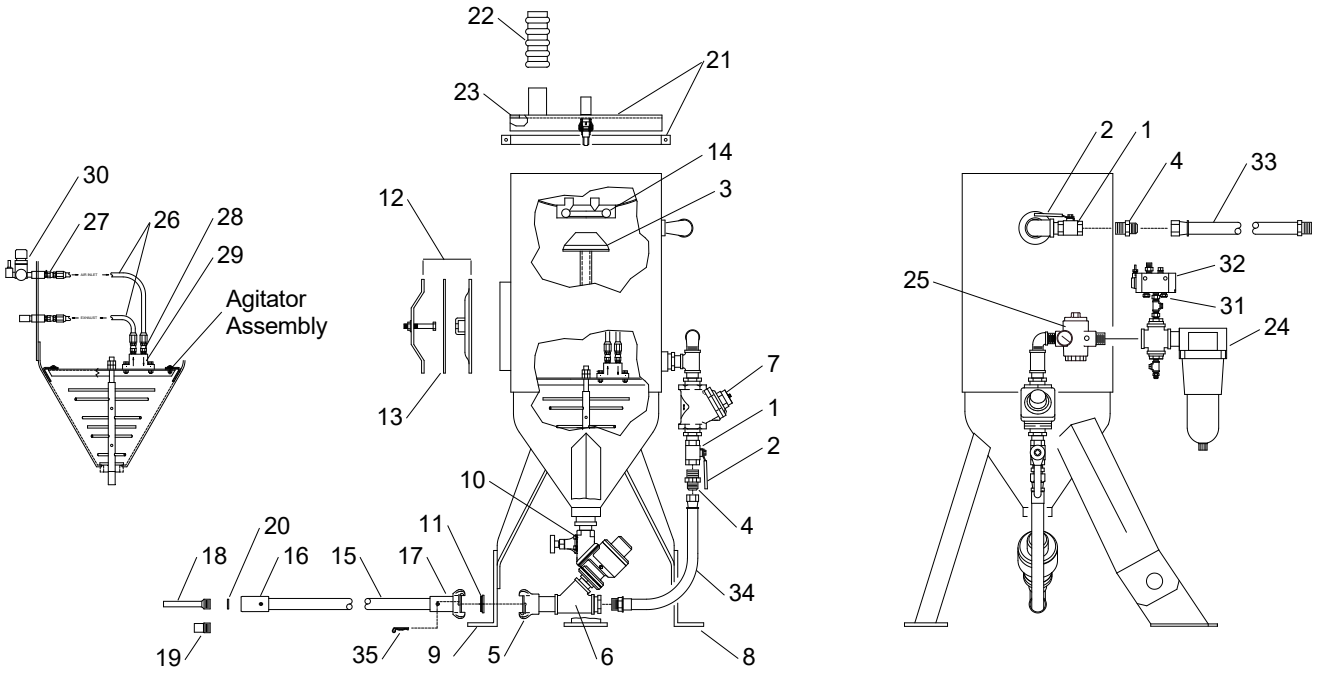


Figure 34

10.9 Quantum HP Bicarb Metering Valve Metering-Segment – Figure 35

Item	Description	Stock No.
*	Service kit, metering assembly (Fig. 35a)	22854
1.	Adaptor flange w/slotted insert, HP bicarb	29258
2.	Screw, 3/8-NC x 1" socket head	22655
3.	Nipple, 1-1/2" x 2" heavy wall	01840
4.	Cover, cleanout	22620
5.	Screw, 1/4-NC x 3/4" hex head cap	03052
6.	Nut, 1/4-NC wing	03113
7.	Housing, knob	22761
8.	Nut, knob-housing	22762
9.	Metering plate and shaft	22763
10.	Metering screw	22764
11.	Knob, adjustment	22766
12.	Screw, 5/16-NC x 3/4" socket head	22767

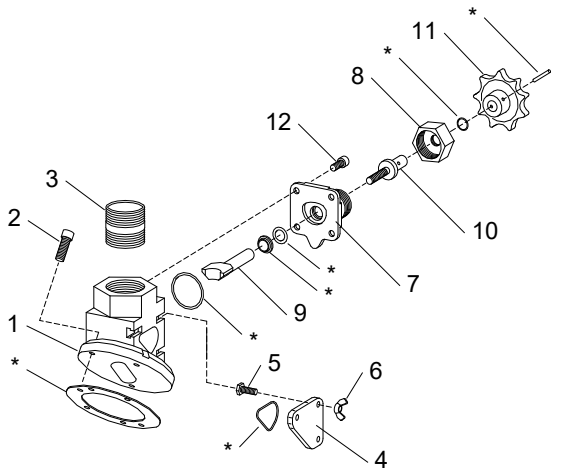


Figure 35

22854 SERVICE KIT
QUANTUM METERING ASSEMBLY

Item	Qty	Description
1.	1	Flange gasket
2.	1	Wiper seal
3.	1	O-ring, 3/4" OD nominal
4.	1	O-ring, 5/8" OD nominal
5.	2	O-ring 1-1/2" ID nominal
6.	1	Roll Pin

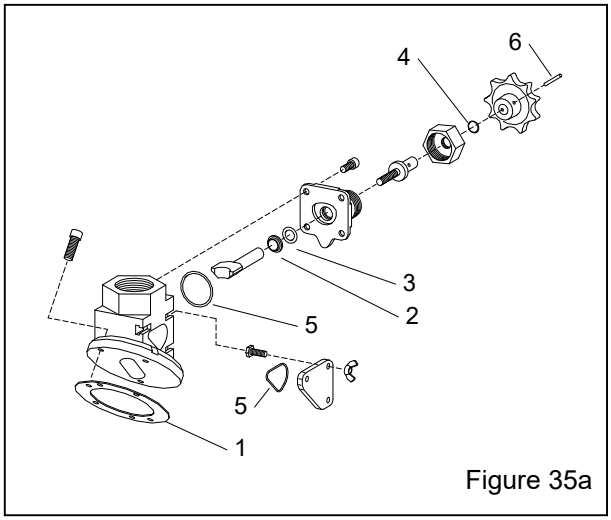


Figure 35a

10.10 AQV-H Auto Quantum Actuator – Figure 36

Item	Description	Stock No.
(-)	Metering valve, Bicarb AQV-HP	29122
(-)	Actuator assembly, AQV-H	27620
*	Service kit, actuator, See Fig. 36a	24446
1.	Cover, cylinder	21317
2.	Stop, piston	21323
3.	Piston cup	20515
4.	Valve body, actuator	21349
5.	Plunger, AQV-H	27523
6.	Wear sleeve, urethane, AQV-H	27521
7.	Flange, threaded outlet	21319
8.	Screw, 5/16-NC x 1-3/4" socket head	21321
9.	Screw, 5/16-NC x 1" socket head	21318
10.	Spring, AQV-H	27524
11.	Adaptor, 1/4" NPT elbow	02513
12.	Petcock, 1/4" NPT	01993
13.	Screw, 3/8-NC x 1" socket head	22655
14.	Nipple, 1-1/2" x close, schedule 80	01791
15.	Nipple, 1-1/4" x 2"	01718
16.	Wye, 1-1/4" NPT	01818
17.	Wye, 1-1/2" NPT	01819
18.	Bushing, 1-1/2 NPT x 1-1/4 NPT	01805
19.	Nipple, 1-1/4 x close HD	01854
20.	Metering assembly, ... Refer to Section 10.9 for replacement parts.	

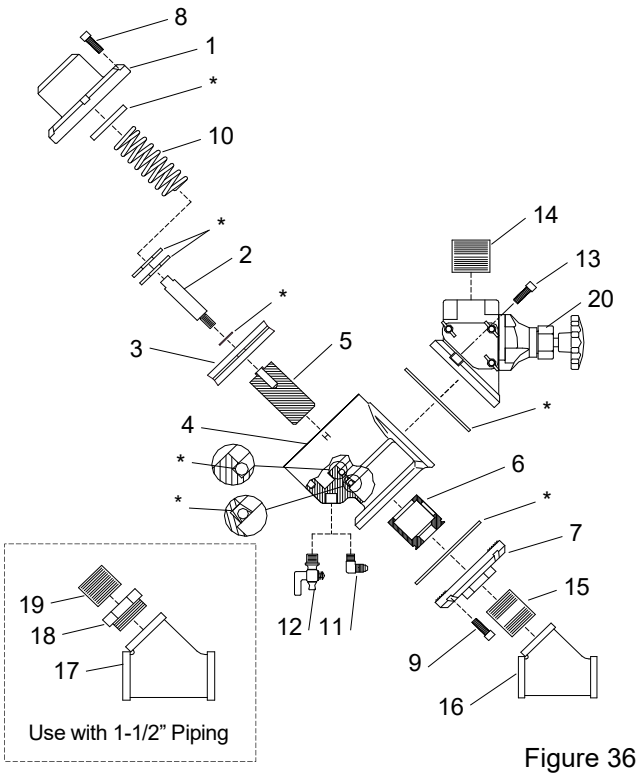


Figure 36

24446 SERVICE KIT
QUANTUM ACTUATOR ASSEMBLY

Item	Qty	Description
1.	1	Seat, urethane
2.	2	Flange gasket
3.	1	U-seal, 3-1/2" ID (used only w/ alum piston)
4.	1	O-ring. 1-1/2" ID x 3/16" nom.
5	1	Wiper, plunger
6	1	O-ring, 31/64" ID
7	1	Roll pin, 1/8" x 1/2"
8.	1	O-ring, 1-1/2" ID x 3/32" nom.
9	1	Felt disc
10	1	Washer, rubber backed
11	2	Washer, 3/4 flat

NOTE: Items 1, 6, 7, and 8 used with standard AQV actuator only.

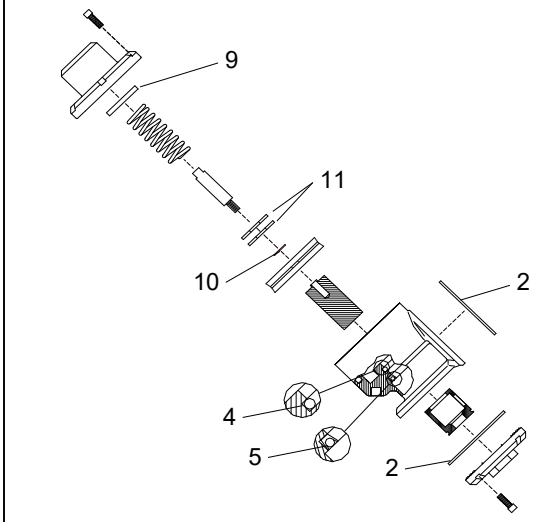


Figure 36a

10.11 Dropout Cyclone, 900 CFM – Figure 37

Item	Description	Stock No.
1	Drum, 55 gallon dust	10796
2.	Lid, 55 gal drum w/6" inlet	06633
3.	Hose, 6" light-lined flex, 15-ft required	12468
4.	Clamp, 8-1/2 inch	11576
5.	Gasket, 900 cfm inlet	11759
6.	Hose, 7" unlined, 13-ft required	12448
7.	Support, inlet hose, 6"	16887
8.	Gasket, 3/16" x 1" adhesive backed, 2-ft required	00186
9.	Hose, 6" unlined, 2-ft required	12452

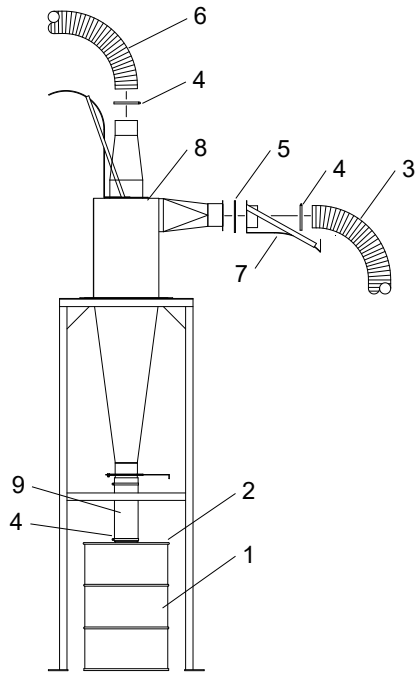


Figure 37

10.12 RPH-2 HD Dust Collector, 900 CFM

Refer to RPH Dust-Collector Drawing B29125 for replacement parts