

BNP Double 65 and 220 Dual Station Pressure Blast Cabinet



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The products described in this material, and the information relating to those products, is intended for knowledgeable, experienced users of abrasive blasting equipment.

No representation is intended or made as to the suitability of the products described herein for any particular purpose or application. No representations are intended or made as to the efficiency, production rate, or the useful life of the products described herein. Any estimate regarding production rates or production finishes are the responsibility of the user and must be derived solely from the user's experience and expertise, and must not be based on information in this material.

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

Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

OWNER'S MANUAL

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 BNP dual station pressure blast cabinets with all reclaimer and push through dust collector options. Supplemental manuals are provided for the Sentinel metering valve and optional reverse-pulse (RPC) dust collector.

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

1.2 Safety Alerts

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, 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 the user of this equipment of potential personal injury hazards.

Obey all safety messages that follow this symbol to avoid possible injury or death.

CAUTION

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING

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

DANGER

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

1.3 General Description

1.3.1 BNP blast 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. BNP pressure cabinets consist of four major components:

1. Cabinet Enclosure
2. Reclaimer
3. Blast Machine
4. Dust Collector

See Figure 1 for arrangement of components with a dry filter. Figure 2 shows the arrangement with a reverse-pulse (RPC) dust collector.

1.4 Theory of Operation

1.4.1 When the air supply is on, and the cabinet doors are closed, the blast machine is ready for operation by actuating the foot pedal positioned at one of the two operator stations. Fully depressing the foot pedal pressurizes the blast machine, and propels the media through the blast hose and out the nozzle. After striking the object being cleaned, the media, along with fines, dust, and by-products generated by the process, fall through the mesh work table into the cabinet hopper. These particles are drawn into the reclaimer for separation. Dust and fines are first separated from the reusable media. Next, the media is screened of oversize particles, and held in the reclaimer hopper for reuse. Dust and fines are drawn through the reclaimer into the dry filter or dust collector, which traps the dust and discharges clean air. When the foot pedal is released, blasting stops as the blast machine depressurizes, allowing stored media to refill the machine.

1.5 Blast Machine and Controls

1.5.1 The blast machine pressure vessel is manufactured to American Society of Mechanical Engineers (ASME) standards, as described in Section VII, Div. 1, and carry a National Board certification. It is the owners responsibility to maintain the integrity of the vessel as may be required by some states. This may include regular inspection and hydrostatic testing as described in National Board Inspection Code and Jurisdictional Regulations and /or Laws.

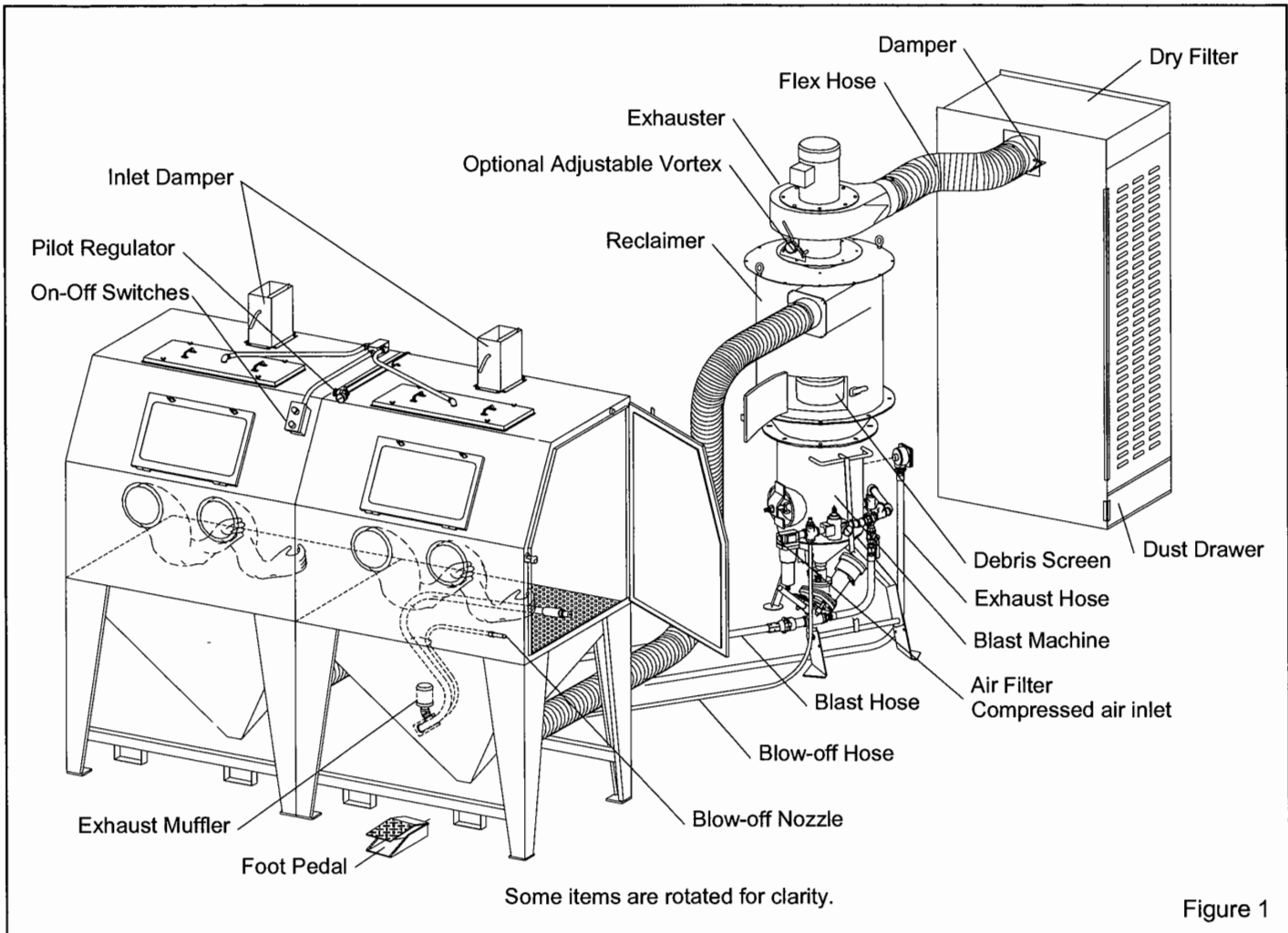


Figure 1

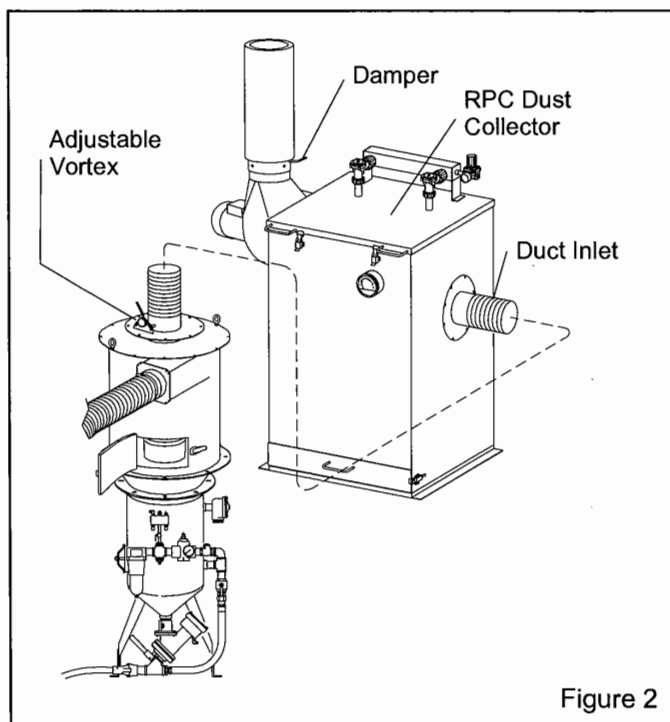


Figure 2

⚠ WARNING

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

1.5.2 All welding repairs done on 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 ASME and National Board certification of the vessel.

1.5.3 This vessel is rated for a maximum of 125 psi (pounds per square inch); do not exceed the rated pressure.

⚠ WARNING

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

1.5.4 OSHA does not require pressure relief valves on blast machines when air compressors supplying air to the blast machines are built to ASME⁽¹⁾ specifications and comply with OSHA⁽²⁾ regulations. ASME Manual section VIII, Division 1, UG-125, paragraph A90 (g) states that pressure relief valves or protective devices "...need not be installed directly on a pressure vessel when the source of pressure is external to the vessel and is under such positive control that the pressure in the vessel cannot exceed the maximum allowable working pressure at the operating temperature...". OSHA regulation 1910.169 refers to the above ASME code when describing the necessity of pressure relief valves on compressed air equipment. **DO NOT** operate blast machines with air compressors that are not equipped with properly functioning pressure relief valves.

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

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

1.5.5 When the air supply is on, and the cabinet doors are closed, the blast machine is ready for actuation by the foot pedal. Pressing the foot pedal opens the normally closed main inlet regulator, and closes the normally open outlet valve. The incoming air pressurizes the blast machine, and blasting begins. When pressure on the foot pedal is released, the blast machine depressurizes, and blasting stops.

1.6 Reclaimer Options

1.6.1 900 cfm reclaimers are standard on double cabinets. 1200 cfm and 1800 cfm reclaimers are available on special order.

1.6.2 Use a full rubber lined reclaimer when using silicon carbide, aluminum oxide, or other aggressive media.

1.7 Nozzle Options

1.7.1 Unless specified at the time of order, cabinets are shipped with a 3/16" (#3) orifice, tungsten carbide nozzle. Optional 1/8", 1/4", and 5/16" orifice nozzles are also available. The reclaimer size determines the maximum allowable nozzle size. The chart in Figure 3 shows the

maximum nozzle size recommended under normal conditions. Normal conditions are moderate part contamination, media break down, media flow, media size, and damper setting, and is further explained herein.

RECLAIMER SIZE	MAXIMUM NOZZLE SIZE
900 cfm	1/4" orifice
1200 cfm	5/16" orifice
1800 cfm	5/16" orifice

NOTICE

Nozzles larger than 1/4" will substantially increase wear on standard 1/2" ID blast hose. Optional 3/4" Supa Hose should be used with 5/16" nozzles.

Figure 3

1.7.2 Nozzles larger than 3/16" will affect usable media size. Nozzles larger than 1/4" should be used only when necessary in applications that require a high volume of air. When using nozzles larger than 1/4", media flow should be lean, or recovery from the cabinet hopper may be impaired. 5/16" orifice nozzles will substantially increase wear on 1/2" blast hose. Use optional 3/4" Supa hose with 5/16" nozzles.

1.7.3 Use boron carbide nozzles when blasting with aggressive media such as aluminum oxide or silicon carbide. See Optional Accessories, Section 9.1.

1.8 Dust Collector Options

⚠ WARNING

Prolonged exposure to any dust could result in serious lung disease and death. Short term ingestion of toxic materials, such as lead dust or dust from other heavy metals and corrosives, could cause serious respiratory injury or death. Identify all materials that are to be removed by blasting. Use reverse-pulse dust collectors with HEPA after-filters if lead coating or any other toxic materials are being removed by the blasting process.

1.8.1 Dry Filter: A push-through dry filter uses tubular filters which trap dust on their inner surfaces. A dry filter is efficient for use with 900 cfm reclaimers, and moderate dust contamination. The filters must be manually shaken every two hours and the dust drawer emptied regularly. This type of dust collection must never be used in applications which generate toxic dust.

1.8.2 Reverse Pulse Dust Collector: A pull-through reverse-pulse dust collector is the most efficient dust collector option. Cartridge filters are automatically cleaned by a periodic pulse of air. This type of dust collector used with the optional HEPA filter must be used in applications in which toxic dust is generated. See separate manual for operation of reverse-pulse dust collectors.

1.8.3 HEPA Filter: Optional HEPA after-filters provide additional filtration, and are available for use with reverse-pulse collectors only. HEPA filters must be used when removing lead coatings or any other toxic materials.

1.9 Metering Valve Options

1.9.1 Unless specified at the time of order, cabinets are shipped with a fine-mesh Sentinel metering valve. The valve is for use with 50 mesh and finer media, and #10 and finer glass bead. The optional Sentinel metering valve is for use with 50-mesh and coarser media. Conversions kits easily convert the valves either way. Kits are listed under Optional Accessories in Section 9.1.

1.10 Media

1.10.1 BNP Dual Station Pressure Blast Cabinets can utilize most common reusable media (with the appropriate metering valve, see Section 1.9) specifically manufactured for dry blasting. The usable media size range depends on the nozzle orifice size, media metering valve, and reclaimer cleaning rate. Several factors affecting the reclaimer cleaning rate include: air pressure, media/air mixture, media friability, contamination of parts being cleaned, and humidity. Media sizes shown under the media headings and in Figure 4, are guidelines only, based on standard nozzles and average conditions.

As a rule, larger nozzles deliver more media, thus demand higher reclaimer cleaning rates. With larger nozzles, the maximum size of media decreases from those recommended. Media finer than those recommended may decrease visibility, and increase carryover to the dust collector. Using media in the 200 mesh and finer range will usually require the addition of the optional, externally adjustable vortex cylinder. See Section 5.4. The vortex cylinder is standard on pull-through systems (cabinets with reverse-pulse dust collectors). Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper

1.10.2 Steel: Steel shot and steel grit are not recommended for use with reclaimers having standard

size inlet. 1200 cfm and 1800 reclaimers may be used with steel media if the inlet hose diameter is reduced as shown in Figure 4. Conveying hose on cabinets using steel media should have a smooth durable lining, and be reduced one size from standard. Rubber curtains should be used to protect the cabinet walls from peening and rapid wear. For these applications cabinets can be ordered from the factory with conveying hose appropriately sized for steel grit, and with curtains installed. They may also be field installed at a later date. See Optional Accessories in Section 9.1.

1.10.3 Sand and Slag: Sand should never be used because of the hazards of using media containing free silica. Slags are not recommended because they rapidly breakdown.

1.10.4 Aluminum Oxide, Silicon Carbide, and Garnet: Aggressive media such as these may be used but consideration must be given to accelerated wear on any part of the cabinet, reclaimer, nozzle and hoses, which comes in contact with the media. If aggressive media is used periodically, use an optional aluminum oxide kit. When these media are used extensively, use full rubber lined reclaimers and RP dust collectors. See Optional Accessories in Section 9.1.

1.10.5 Glass Bead: Most beads are treated to ensure free-flow operation even under moderately high humidity conditions. Glass beads subjected to excessive moisture may be reused after thorough drying and breaking up any lumps.

1.10.6 Fine-mesh Media: An optional, adjustable vortex cylinder should be installed when using 200-mesh, and finer, media. NOTE: The vortex cylinder is standard on pull-through systems (cabinets with reverse-pulse dust collectors). When using very fine media (200 mesh and finer), the inlet baffle of the reclaimer may also need to be removed. Consult the factory before proceeding with this option.

1.10.7 Lightweight Media: An optional adjustable vortex cylinder is available and should be installed when using plastic media, and most agricultural media. NOTE: The vortex cylinder is standard on pull-through systems (cabinets with reverse-pulse dust collectors). When using lightweight media, the inlet baffle of the reclaimer may also need to be removed. Consult the factory before proceeding with this option.

Media sizes shown below are guidelines only, based on standard 3/16" orifice nozzle (3/8" with plastic and similar weight media blasting at low pressure) and average conditions, such as air pressure, media/air mixture, visibility, contamination of parts being cleaned, humidity, media friability, reclaimer cleaning rate, etc. As a rule, larger nozzles deliver more media, thus requiring more performance from the reclaimer. Therefore, larger nozzles decrease the maximum mesh size of media from those recommended. Media finer than those recommended may decrease visibility, and at some point carryover to the dust collector. Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper.

RECLAIMER SIZE	MEDIA TYPE				
	STEEL GRIT	STEEL SHOT	PLASTIC	GLASS BEAD	ALUM. OXIDE
900 cfm with 6" inlet	Do not use	Do not use	12 to 40 mesh	#8 to #12	60 to 200 mesh
1200 cfm with 6" inlet	60 & finer	170 and finer	Do not use	Do not use	16 to 60 mesh
1200 cfm with 7" inlet	Do not use	Do not use	All sizes	All sizes	46 mesh & finer
1800 cfm with 7" inlet	25 & finer	330 & finer	Do not use	Do not use	16 to 60 mesh
1800 cfm with 8" inlet	Do not use	Do not use	All sizes	All sizes	46 mesh & finer

Figure 4

1.11 Compressed Air Requirements

1.11.1 The size of the compressor required to operate the cabinet depends on the size of the nozzle and blasting pressure. See the table in Figure 5 to determine the cfm requirements. The table 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.

NOTE: A separate air line is required for the optional reverse-pulse dust collector.

Compressed Air Consumption *(cfm)

Nozzle size	Air Pressure (psi)			
	50	60	70	80
1/8"	11	13	15	17
3/16"	26	30	33	38
1/4"	47	54	61	68
5/16"	77	89	101	113

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

Figure 5

1.11.2 The air filter at the blast machine inlet, removes condensed water from compressed air. Its use is especially important in areas of high humidity, or when fine-mesh media are used. Moisture causes media to

clot and inhibits free flow through the metering valve. If moisture problems persist, an air dryer may be required.

1.12 Electrical Requirements

1.12.1 Electrical requirements depend on the size and phase of the motor. A wiring schematic is packed in the electrical panel. Refer to the schematic for electrical requirements.

1.12.2 A magnetic starter is mounted in the electrical panel. Power from the user's disconnect has to be wired to it. Additional wiring information is in Section 2.11.

2.0 INSTALLATION

2.1 General Installation Notes

2.1.1 See Figure 1 (and Figure 2 for optional reverse-pulse collector) for the general arrangement and Figure 7 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 in front of the dust collector to remove the dust drawer without tipping. Ideally, locate the blast machine directly behind the cabinet with the blast hose connection toward the cabinet. The reclaimer may be rotated on the blast machine to enable hose connections with as few bends as possible. Determine the best location, and position all units before final assembly.

2.2 Assemble Blast Machine and Reclaimer

2.2.1 Apply adhesive-backed strip gasket to the top of the flange on the blast machine. Punch out an opening at each bolt hole.

2.2.2 Place the optional storage segment on the blast machine. The access door should be on the bottom, and rotated to allow access. Bolt into place. Apply adhesive backed gasket to the top flange as described in Section 2.2.1

2.2.3 Using a lift, raise the reclaimer over the blast machine assembly, and lower it in place. Attach with fasteners provided.

⚠ WARNING

Do not work under the reclaimer while it is hanging from the lifting device. Severe injury or death could occur if the reclaimer is released before it is secured to the blast machine.

2.3 Support the Blast Machine

2.3.1 Use ropes or other means to temporarily support the blast machine and reclaimer during final assembly.

2.4 Connect Conveying Hose, Ref. Figure 6

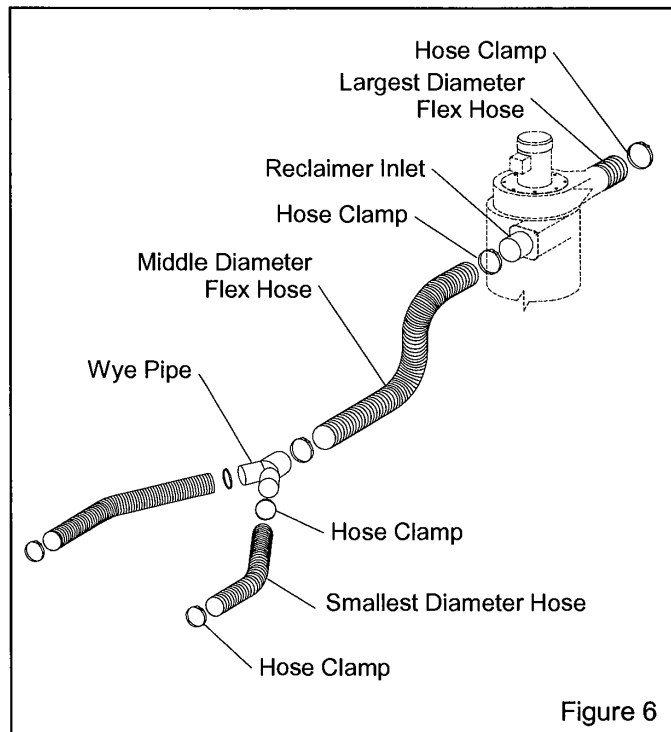


Figure 6

2.4.1 Connect the two smallest diameter flexible conveying hoses between the cabinet hopper transitions and wye pipe adaptor. It is easier to slip the hose over the adaptor and to create a tighter seal if the first two or three inches of wire is removed from the inside of the hose. Use care not to damage the hose. NOTE: The hose wire helps dissipate static electricity in the conveying hose, and also helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment. Clamp the flex hose securely with worm clamps provided.

2.4.2 Connect the middle diameter flex hose between the wye pipe and reclaimer inlet adaptor. Clamp the flex hose securely with worm clamps provided.

2.4.3 The largest diameter hose attaches to the reclaimer outlet, which will be connected later.

2.5 Connect Blow-Off Hose

2.5.1 Attach the 1/2" blow-off hose coming from the cabinet hopper, to the compatible fitting between the air filter and pressure regulator. See the schematic in Figure 7.

2.6 Connect Blast Hose

⚠ WARNING

Hose disconnection while under pressure could 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 under Optional Accessories in Section 9.1.

2.6.1 Connect the blast hose from the cabinet hopper to the coupling at the bottom of the blast machine. Be sure coupling gaskets are in place and couplings are secured with safety lock-pins.

2.7 Attach Air Exhaust Hose

2.7.1 Screw the male end of the exhaust hose into the 1" coupling in the cabinet hopper, turning the hose as required. Connect the female swivel end to the adaptor on the blast machine outlet valve.

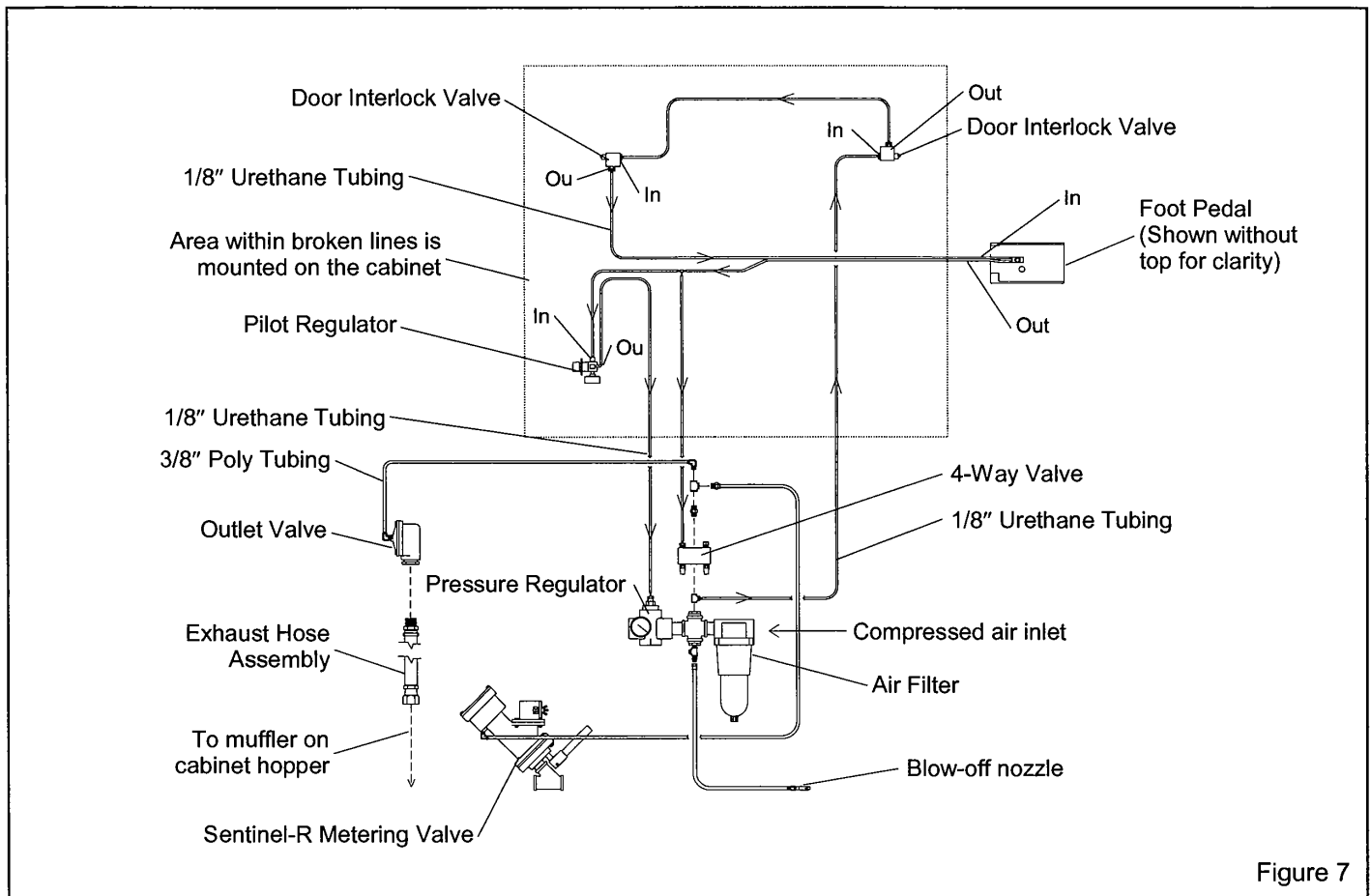


Figure 7

2.8 Connect Urethane Control Tubing

2.8.1 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. Check the schematic in Figure 7 to confirm the connections.

2.9 Connect Compressed Air Supply Line(s)

2.9.1 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 filter inlet on the blast machine. A smaller diameter hose may reduce blasting efficiency.

NOTE: A separate air line is required for the optional reverse-pulse dust collector.

⚠ WARNING

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

2.10 Ground Cabinet

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

2.11 Connect Electrical Service

⚠ WARNING

Shorting electrical components could result in serious electrical shocks, or equipment damage. All electrical work must be performed by a qualified electrician, and comply with applicable codes.

NOTE: A wiring schematic is supplied with the cabinet, and is packed in the electrical panel. After wiring is completed, keep a copy of the schematic with the manual for service and electrical replacement parts.

Conduit and wire are supplied from the cabinet electrical panel for wiring reclaimer motors when used with dry filter collectors. Reverse-pulse collectors are usually too far from the cabinet to use flex conduit. Conduit and wiring for Reverse-pulse collectors, and wiring from the

user's disconnect to the cabinet electrical panel must also be provided by the user.

2.11.1 Three-Phase Wiring

2.11.1.1 As much wiring as possible has been completed at the factory. The electrician only needs to provide service to the motor starter in the electrical panel mounted on the back of cabinet, and connect the conduit and wiring from the starter to the motor. Refer to the schematic packed in the cabinet. NOTE: The user must provide conduit and wiring from the starter to the motor for Reverse-pulse collectors.

2.11.1.2 Whether voltage is 230 or 460 is determined at time of order, and heaters are provided accordingly. A wiring schematic for the cabinet and accessories is included in the electrical panel mounted on the cabinet.

2.11.1.3 Connect flex conduit, and wire the motor per instruction on the motor plate.

⚠ WARNING

Lock out and tag out electrical power before continuing. Failure to do so could result in serious injury or death from electrical shock.

2.11.1.4 Supply service from the user's disconnect to the electrical panel.

2.11.1.5 Connect 3-phase power to terminals 1, 2, and 3 on the motor starter as shown in the schematic.

2.11.1.6 Connect the ground wire to the grounding lug as shown in the schematic.

⚠ WARNING

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

2.11.1.7 Check the motor rotation, by jogging the starter (momentarily turn switch on and off). This will cause the motor to rotate slowly. Look through the slots in the fan housing on top of the motor where rotation of the fan can easily be observed. The fan should rotate clockwise when viewed from the fan end of the motor. Proper rotation is indicated by the arrow on the exhaust housing.

2.12 Dry Filter Dust Collector. See separate manual for Reverse-pulse Dust Collector.

2.12.1 Dry filters can be converted to left or right hand inlet. If it is more convenient to have the inlet on the opposite side, switch the inlet adaptor for the blank cover.

2.12.2 Connect the flexible exhaust hose between the reclaimer outlet and dry filter inlet. It is easier to slip the hose over the adaptors, 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. Secure the hose with worm clamps. NOTE: The hose wire helps dissipate static electricity in the conveying hose, and also helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

2.13 Anchor Blast Machine

2.13.1 When all the components are in their permanent position, remove the temporary supports, and bolt the blast machine to the floor. Anchor holes are located in the blast machine leg pads. Anchor through the holes to secure the machine to the floor.

2.14 Inlet Dampers

2.14.1 Inlet dampers must be set to match the cabinet dimensions and reclaimer size. The decal on the dampers show the settings in degrees. The initial settings are as follows:

Double 65 w/900.....	align handles to 30 degrees
Double 65 w/1200.....	align handles to 30 degrees
Double 65 w/1800.....	align handles to 0 degree (full open)
Double 220 w/900.....	align handles to 30 degrees
Double 220 w/1200.....	align handles to 0 degree (full open)
Double 220 w/1800.....	align handles to 0 degree (full open)

See Section 5.6 for adjustment procedure

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

2.15 Final Assembly

2.15.1 Position the foot pedal on the floor in front of the operator station being used.

2.15.2 A package of 5 cover lenses is supplied with the cabinet. To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner

surface of the view window, per Section 6.2. When the cover lens becomes pitted or frosted, replace it.

3.0 FIELD INSTALLED ACCESSORIES

3.1 Alox Kit

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

3.2 Curtain Installation

3.2.1 Match curtain to corresponding size wall. Position curtain on wall or door to be protected. Using the curtain as a template, mark each mount point through the grommet holes along the upper edge. For front and rear walls, drill a .187" (3/16") diameter hole at each point marked. Install the curtains using the fasteners provided (machine screw, 11/16" OD flat washer, lockwasher, and nut) at each grommet point. The flat washer is used between the screw head and the rubber curtain grommet on all curtains. The flat washer is used between the screw head and the rubber curtain grommet on all curtains.

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

3.3 Manometer

3.3.1 A constant static pressure balance is necessary for precise separation, as the reclaimer's efficiency is accomplished by a centrifugal balance of particle weight and size. The air balance and static pressure are set by adjusting the outlet damper. The manometer measures static pressure. Use the instruction sheet provided with the manometer, for installation and operation instructions. The optional manometer kit is listed in Section 9.1.

3.4 Turntable with Workcart and Track

3.4.1 The components of the turntable and track are shown in Figure 8. The assembly consists of:

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

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

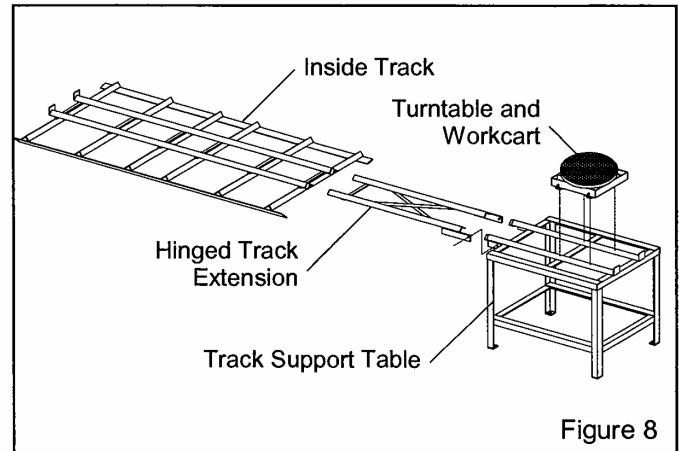


Figure 8

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

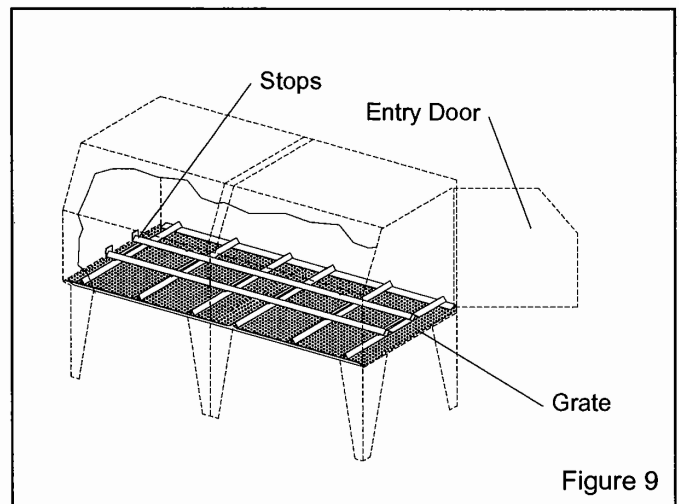
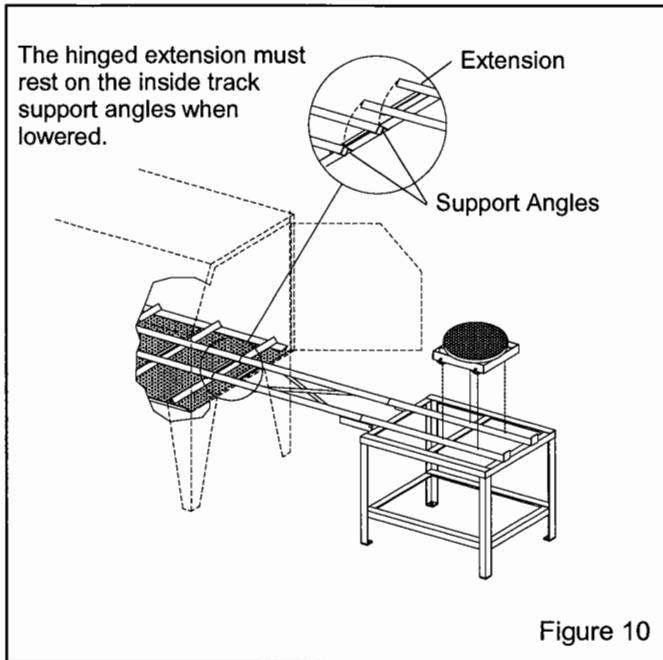


Figure 9

3.4.3 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.



3.4.4 Holes are provided on the track table leg pads, to permit anchoring when needed.

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

4.0 OPERATION

4.1 Media Loading and Unloading

4.1.1 Media Capacity: Media is approximately 2.0 cu. ft. Full capacity will be at the pop-up valve opening. Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose. The optional storage segment provides nearly 2 additional cubic feet of media storage, and raises the overall height by approximately 17 inches.

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

4.1.3 Media Unloading: To empty the cabinet and blast machine of media, allow all media to be recovered from the cabinet, and reduce pressure to 40 psi. Place an empty container, such as a bucket, on the cabinet grate. Remove nozzle and nozzle washer, close the

door, close the choke valve and press the foot pedal. Direct media flow into the container. Empty the container when full or before it is too heavy to handle, and repeat the process until the machine is empty. Return the choke valve to the full open position. Clean the nozzle holder threads and inspect the threads on the nozzle and nozzle holder before reinstalling the nozzle washer and nozzle. If complete purging of media is required, use a vacuum to clean media residue in cabinet hopper and blast machine head.

4.2 Loading and Unloading Parts

⚠ WARNING

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

4.2.1 Load and unload parts through either door.

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

4.2.3 When blasting very small parts, place an appropriately sized screen over the grate to prevent parts from falling into the hopper.

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

4.3 Blasting Operation

⚠ CAUTION

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

4.3.1 Slowly open the air valve on the air supply hose to the blast machine. Check for air leaks on the initial start up and periodically thereafter.

4.3.2 Turn on the lights and exhauster. The on/off switch performs both functions.

4.3.3 Load parts.

4.3.4 Close door. Be certain door is sealed securely, or door interlock system will prevent blasting.

4.3.5 Insert hands into rubber gloves.

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

WARNING

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

NOTE: When blasting small parts, use a solid back rest for the part. Without this assist, especially with longer blasting operations, the operator will tire easily from resisting blast pressure. Whenever possible avoid holding small parts that will require blasting into the glove.

4.3.7 Adjust the pilot pressure regulator located on the top front edge of the cabinet, to the required blasting pressure.

4.3.8 When blasting very small parts, place a 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.

4.4 Stop Blasting

4.4.1 To stop blasting, remove pressure on the foot pedal. The blast machine will depressurize each time the foot pedal is released.

4.4.2 The blast machine refills with media stored in the reclaimer each time the foot pedal is released. Refilling takes approximately 15 seconds.

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

4.4.4 Unload parts, shut off the air supply valve, drain the air filter, and switch off the lights and exhauster.

4.5 Blasting Technique

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

5.0 ADJUSTMENTS

5.1 Blasting Pressure

5.1.1 The pilot pressure regulator, located on the top of the cabinet, enables the user to adjust the blasting pressure to suit the application. The suitable pressure for most purposes is around 80 psi. Lower pressures may be required on delicate substrates, and will reduce media breakdown. Higher pressure may be required for difficult blasting jobs on durable substrates, but will increase media breakdown. In all cases, highest production can only be achieved when pressure is carefully monitored.

5.1.2 If the application requires blasting below 40 psi, first pressurize the blast machine at 40 psi, then turn the pressure to the required setting before blasting the part. If the initial pressure is below 40 psi the pop-up valve may not seal.

5.1.3 Pressure registers on the gauge only while blasting. While holding the nozzle securely, adjust air pressure at the pilot regulator located on the top front edge of the cabinet. To adjust, unlock the knob, and turn it clockwise to increase pressure or counter-clockwise to decrease. Once operating pressure is set, lock the knob to maintain the setting.

5.2 Media Metering

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

5.2.1 Media flow is adjusted by the metering valve located at the bottom of the blast machine. The valve is closed when the handle is fully right. To adjust, close the valve and slowly move the handle to the left to increase media flow. Allow time for the flow to stabilize before further adjusting. The valve is fully open when the handle is at the full left position. The correct flow rate will depend on the type and size of media and blasting pressure, and can best be determined by experience. Use as little media as possible to do the job while maintaining the best cleaning rate. Generally, with the correct mixture, abrasive can be seen as light discoloration as it exits the nozzle.

5.3 Static Pressure

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

5.3.2 Adjust static pressure by opening (handle horizontal) or closing (handle vertical) the damper. The damper is located on the dust collector inlet on dry filters, and on the outlet of reverse pulse collectors. If the damper is not opened enough, the reclaimer will not remove fines, resulting in dusty media, poor visibility, and possible media blockage in the conveying hose. If the damper is opened too far, it may cause carryover (usable media carried into the dust collector) and result in excessive media consumption. Open only as far as necessary to obtain a balance of dust removal without media carryover.

5.3.3 A manometer is useful when adjusting or monitoring static pressure. The optional manometer kit is listed under Optional Accessories in Section 9.1. The following are static pressure starting points for given media. Static pressure may need to be lower with finer media, higher with coarser media.

Glass Bead No. 8 to 13	2-1/2 - 3"
Alox. 60 & coarser	4 - 5"
Alox. 80 & finer	2-1/2 - 3"
Steel Grit.....	6 - 7"

5.3.4 If the damper has been adjusted and carryover or excessive dust in the media continues to be a problem, the optional adjustable vortex cylinder, which is standard on pull through reclaimers, may help retain media. The vortex cylinder is usually required only when using 200 mesh and finer media, or lightweight media. See Section 5.4 and Accessories in Section 9.1.

5.4 Optional Externally Adjustable Vortex Cylinder (standard on pull-through reclaimers). For use with fine-mesh or lightweight media.

5.4.1 The adjusting lever for the vortex cylinder is mounted on the spacer above the reclaimer body. Start with the lever in the vertical position. Before adjusting the vortex cylinder, adjust the damper on the dust collector to increase or decrease static pressure per Section 5.3. Once the damper is adjusted, adjust the cylinder as follows.

5.4.2 Dusty Media: If the reclaimer is not removing sufficient quantities of dust, raise the cylinder by moving the lever left toward "COARSE", in 1/4" increments at the indicator plate. Do not adjust again until the media has gone through several cycles, to be certain whether further adjustment is required.

5.4.3 Media Carryover: If too much usable media is being carried to the dust collector, lower the vortex cylinder by moving the lever right toward "FINE", in 1/4" increments at the indicator plate. NOTE: If the cylinder is lowered too far, the reclaimer will again begin to allow usable media to be carried over, and cause abnormally high static pressure.

5.4.4 When using very fine media (200 mesh and finer), the inlet baffle of the reclaimer may also need to be removed. Consult the factory before proceeding with this option.

5.5 Door Interlocks, Figure 11

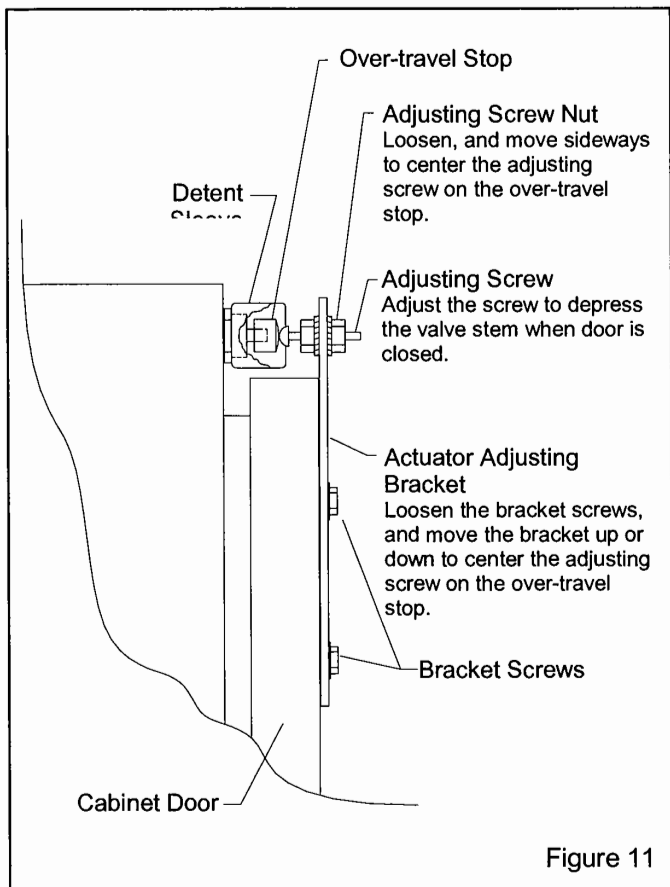
WARNING

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

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

5.5.2 Close cabinet doors.

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



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

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

5.6 Inlet Damper

5.6.1 Once the inlet is initially set per Section 2.14, it seldom requires readjustment. The initial setting produces approximately .5" to .75" of static pressure in the cabinet enclosure. **Do not confuse cabinet static pressure with reclaimor static pressure as noted in Section 5.3, which is controlled by the outlet damper. Reclaimor pressure must be set before cabinet pressure.** In rare circumstances, cabinet pressure may need to be slightly higher or lower.

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

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

6.0 PREVENTIVE MAINTENANCE

⚠ WARNING

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

NOTE: To avoid unscheduled downtime, establish a weekly inspection schedule. Inspect all parts subjected to media contact, including; nozzle, media hose, flex hose, plus all items covered in this section.

6.1 Dry Filter Dust Collector

6.1.1 The dry filter uses tubular filters which collect dust on their inner surfaces. A shaker arm accessible from the outside of the collector is used to shake the filters. Every two hours, turn off the exhaustor and shake the filters vigorously.

CAUTION

Do not shake the filters when the exhaustor is on. Doing so will accelerate wear on the filters around the shaker assembly, but will not shake the dust loose.

6.1.2 Empty the dust collector drawer regularly. Begin by checking the drawer daily and adjust frequency based on usage and breakdown rate of media.

⚠ CAUTION

Do not open the dust drawer door while the exhauster is on. The drawer chamber is under positive pressure when the exhauster is on. Opening the dust door while the exhauster is operating or the paddle wheel rotating, will allow dust to escape.

NOTE: Blast media is usually non-toxic, however, some materials removed by the process may be. Check with proper authorities for disposal restrictions.

6.2 View Window Cover Lens

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

6.2.2 The best way to install a cover lens is to remove the window from the cabinet. If, for some reason, it is not helpful to remove the window, the lens may be applied with it in place.

6.2.3 To install a cover lens, remove the adhesive backing and apply the lens to the clean, dry, inner surface of the view window. When the cover lens becomes pitted or frosted, replace it.

6.3 Reclaimer Debris Screen

6.3.1 The screen is accessible through the reclaimer door. With the exhauster off, remove the screen and empty it daily or when loading media. Empty the screen more often if parts being blasted causes excessive debris. Do not operate the machine without the screen in place.

6.4 Air Filter

6.4.1 The cabinet is equipped with a auto-drain air filter. The filter automatically drains when moisture fills the bowl to a certain level. Moist air inhibits the flow of media. If moisture continues to be a problem, a dryer or after cooler may be required in the air supply line.

6.5 Abrasive Trap (optional)

Recommended for 40 mesh and coarser media.

6.5.1 Check and clean the abrasive trap screen and empty the trap twice a day.

6.6 Blast Hose And Couplings

6.6.1 To avoid unscheduled down-time, inspect the blast hose for thin spots by pinching it every 6 to 12 inches. Check coupling gaskets and couplings for leaks and wear.

6.7 Sentinel Metering Valve

6.7.1 Refer to the Sentinel valve owners manual for maintenance

7.0 SERVICE MAINTENANCE

⚠ WARNING

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

7.1 Gloves

7.1.1 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.

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

7.2 Nozzle

7.2.1 Replace the nozzle when its diameter has increased by 1/16", or sooner if pressure diminishes noticeably. Make sure the nozzle gasket is in place before screwing the nozzle into the nozzle holder.

7.3 View Window Replacement

⚠ WARNING

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

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

7.3.2 Remove the old window.

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

7.3.4 Install optional view window cover lens per Section 6.2.

7.3.5 Set the new window (cover lens down) squarely over the window opening, ensuring that all edges of the window are centered and overlapping the window gasket, and that the window is resting on the lower locators.

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

7.4 Window Gasket Replacement, Figure 12

7.4.1 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.

7.4.2 Remove the window and window frame per Section 7.5.

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

7.4.4 Peel a short section of adhesive backing from the 5/16" thick strip, and adhere the gasket to the center of the top edge of the window opening as shown in Figure 12. 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.

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

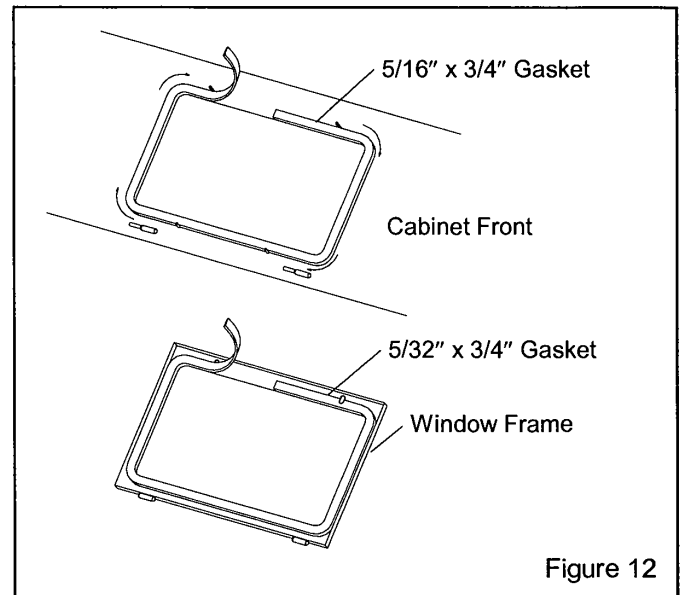


Figure 12

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

7.5 Window Frame Removal, Figure 13

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

7.5.2 Remove the window to prevent breakage.

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

7.5.4 Slide the frame to the right, to remove. The hinges separate as shown in Figure 13.

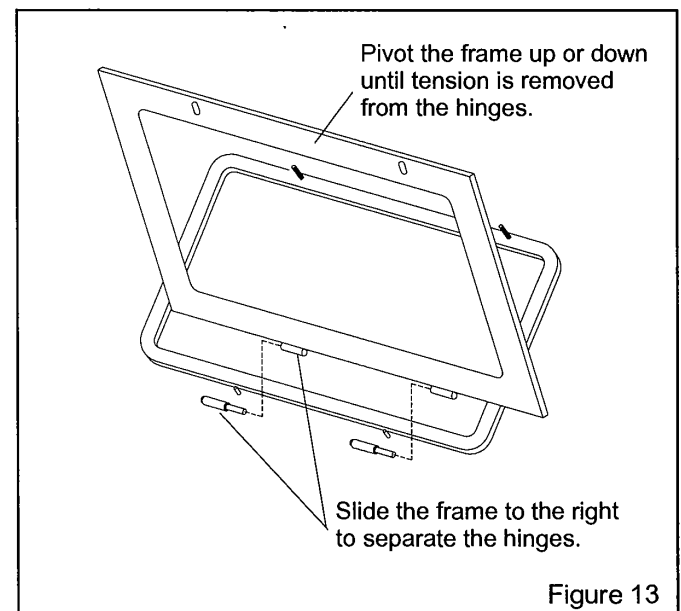


Figure 13

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

7.5.6 Set the window squarely over the window opening, ensuring that all edges of the window are centered and overlapping the window gasket, and resting on the lower locators.

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

7.6 Light Assembly

CAUTION

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

7.6.1 Shut-off electrical power.

7.6.2 Gasket Replacement

7.6.2.1 Remove the four holding wing nuts, and use the handles to lift the fixture off the cabinet, as shown in Figure 14.

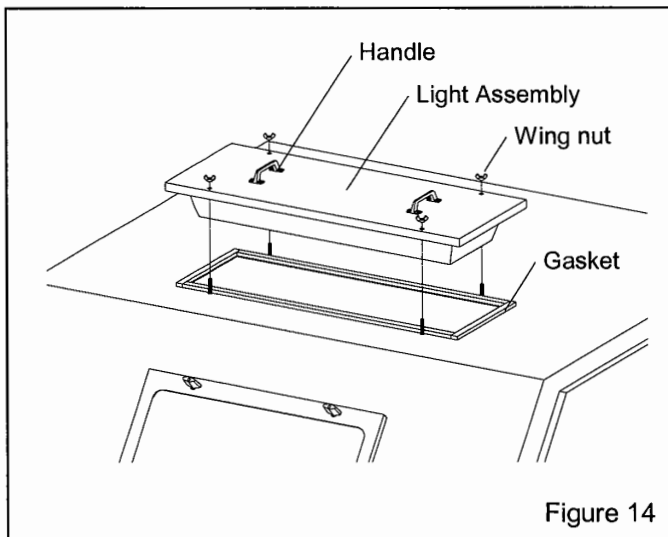


Figure 14

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

7.6.2.3 Lay a section of strip gasket next to the opening, and cut to length, allowing 3/4" overlap on each end. Peel a short section of adhesive backing, and adhere the strip gasket to the top edge of the light opening, as shown in Figure 14. Press the gasket tightly to bond.

Repeat the process for each side, compressing the ends to seal.

7.6.3 Lens and Tube Replacement

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

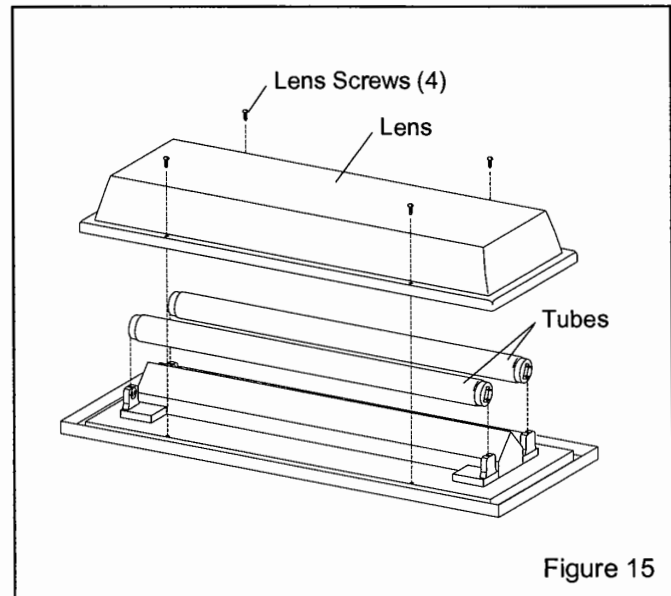


Figure 15

7.6.3.2 Flip the assembly over to access the lens screws, ref. Figure 15.

7.6.3.3 Remove the four lens screws and remove lens.

7.6.3.4 Replace the lens or tubes as required.

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

7.6.3.6 Reassemble in reverse order.

7.7 Dry Filter Tube Replacement, Figure 16

7.7.1 Replace damaged filters immediately. Remove the old filters by pulling the spring rings off the bottom and top tube plates. Working from the back to the front, install one filter at a time. To install new filters, form the end of the spring ringed tubular filter into a shallow "c" shape, push the filter far enough into the hole of the top plate to allow one spring ring to snap into place above the tube plate and the other to snap into place below it. See the illustration in Figure 16.

▲ CAUTION

- Do not bend spring ends tight enough to cause ends to kink.
- Do not use a sharp instrument to force spring rings into the opening. This could damage the filter and seriously impair the function of the dust collector.
- Install one filter at a time. Check the seating of the top and bottom spring rings, and that tube is not twisted, before proceeding to the next.

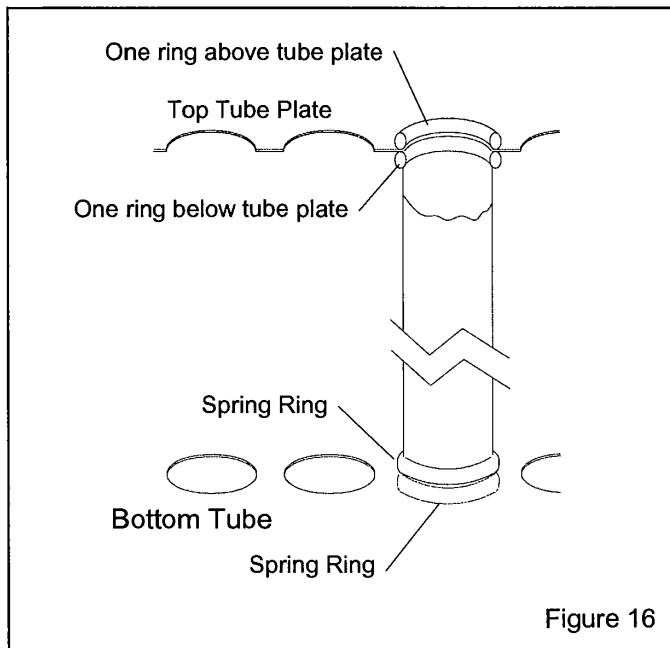


Figure 16

7.7.2 The tubular filter is held firmly by a spring ring above and below the perimeter of the holes in the top and bottom plate. The filters fit tight to prevent dust leakage. To ensure a tight seal, some force may be required by the installer. Check for proper seating at both ends, and remove any twist in the tube before proceeding to the next filter.

7.8 Pop-up Valve Replacement, Figure 17

7.8.1 Empty the machine of media as described in Section 4.1.3.

7.8.2 Depressurize the blast machine, and lock out and tag out the compressed-air supply.

▲ WARNING

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

- Depressurize the blast machine.
- Lock out and tag out the compressed air supply.
- Bleed the air supply line to the blast machine.

7.8.3 To gain access to the pop-up valve, remove the inspection door assembly.

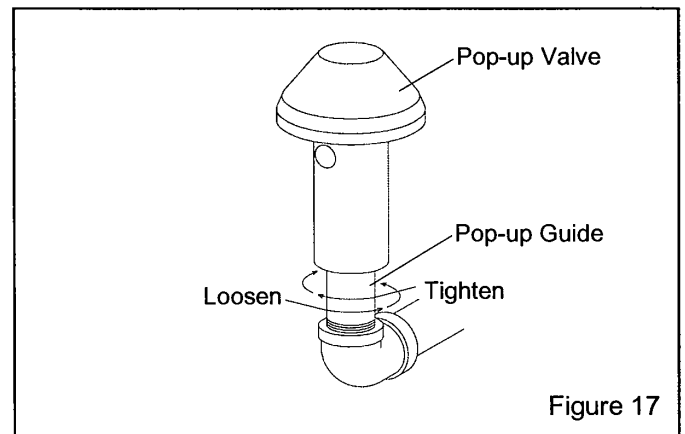


Figure 17

7.8.4 Using a small pipe wrench, unscrew the pop-up valve guide (Figure 25 Item 12), by turning it counterclockwise. Remove the pop-up valve and guide from the machine. Place the new pop-up valve over the guide, and screw the valve guide (with the pop-up valve on it) back into position inside the machine. Tighten the guide as tight as possible without using a wrench.

7.8.5 Put a new gasket on the inspection door and bolt the door back onto the machine.

7.9 Pop-up Valve Seat Replacement

7.9.1 The easiest method to replace the rubber pop-up seat is through the reclaimer access door. If for some reason replacement can not be made through the reclaimer, observe the warning in Section 7.8, and empty the machine and bleed the air supply line. Remove the inspection door assembly and work through the opening.

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

7.9.3 Push the new seat all the way through the port and then fit it into the groove. For the last few inches, pull up on the seat and allow it to "pop" into position.

7.10 Reclaimer Wear Plate Replacement

7.10.1 Remove the reclaimer inlet adaptor and old wear plate. The wear plate is held in place by screws attached from the outside of the reclaimer.

7.10.2 Angle the new wear plate into reclaimer inlet until it is in position with the straight end at the reclaimer inlet. Using a board or similar object as leverage, pry the wear plate against the inner wall of the reclaimer and install sheet metal screws to hold in place. Caulk any gaps or voids around the wear plate to prevent rapid wear in those areas.

7.11 Reverse-Pulse Dust Collector

Optional reverse-pulse dust collectors are covered by a separate manual.

8.0 TROUBLESHOOTING

⚠ WARNING

To avoid serious injury, observe the following when troubleshooting.

- **Turn off the air, and lock out and tag out 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.**
-

8.1 Poor Visibility

8.1.1 Dirty tube filters or filter cartridge. Shake tube filters, and empty dust drawer regularly. Ref. RP Dust Collector Manual for pulse pressure and sequence.

8.1.2 Motor rotating backwards. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, LOCK-OUT AND TAG-OUT POWER and switch the motor leads as shown on the motor plate. See Section 2.11.

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

8.1.4 Outlet damper closed too far restricting air movement in cabinet. Adjust static pressure per Section 5.3.

8.1.5 Inlet damper requires opening. Restrictions at the inlet damper reduces air movement in the cabinet. Open damper per Section 2.14 and 5.6.

8.1.6 Hole worn in flex hose between cabinet hopper and reclaimer inlet (if RP collector is used also check hose between the reclaimer outlet and dust collector inlet). Replace hose and route it with as few bends as possible to prevent wear.

8.1.7 Reclaimer door open.

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

8.1.9 Paddle wheel worn. Check wheel for wear.

8.2 Abnormally High Media Consumption

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

8.2.2 Dust collector damper open too far. Adjust static pressure per Section 5.3.

8.2.3 Media may be too fine or worn-out.

8.2.4 Using friable media that rapidly breaks down.

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

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

8.2.7 Optional externally adjustable vortex cylinder out of adjustment, See Section 5.4.

8.2.8 If using very fine media (200 mesh and finer), the inlet baffle of the reclaimer may need to be removed. Consult the factory before proceeding with this option.

8.3 Reduction In Blast Cleaning Rate

8.3.1 Low media level reducing media flow. Check and fill if low.

8.3.2 Incorrect metering valve adjustment. Adjust per Section 5.2.

8.3.3 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.

8.3.4 Blockage in nozzle. Blockage may occur as a result of a missing debris screen.

8.3.5 Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. See Section 8.5.

8.4 Plugged Nozzle

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

8.5 Media Bridging

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

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

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

8.5.4 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.

8.5.5 A vibrator mounted either on the blast machine leg or on a bolt on the media metering valve may help prevent bridging of fine-mesh media.

8.6 Neither Media Nor Air Comes Out The Nozzle When The Foot Pedal Is Pressed

8.6.1 Depressurize the blast machine, and check the nozzle to see if it is plugged. See Section 8.4.

8.6.2 Check that the blast machine pressurizes when the foot pedal is pressed. If it does not, see Section 8.11.

8.6.3 Check that the media metering valve and the choke valve are open.

8.7 Blast Machine Will Not Depressurize Or Depressurizes Too Slowly

8.7.1 Check for blockage in the 4-way valve mufflers.

8.7.2 Check that the 3-way valve in the foot pedal exhausts air when pedal is released. If it does not, check the line for blockage, and check the switch for defect.

8.7.3 Check the outlet muffler that is located inside the cabinet, for blockage.

8.7.4 Check 4-way air valve for jamming. See Section 8.10.4 and 8.10.5.

8.8 Heavy Media Flow

8.8.1 Make sure the choke valve is open.

8.8.2 Media metering valve open too far. Adjust per Section 5.2. If adjusting the media valve does not regulate media flow, empty the machine, depressurize the machine, and inspect the internal parts of the valve for wear.

8.9 Media Surge: A small amount of surge is normal at start-up.

8.9.1 Heavy media flow. Adjust per Section 5.2

8.9.2 Empty, and depressurize the blast machine, and inspect the internal parts of the metering valve for wear.

8.10 Air Only (no media) Comes Out The Nozzle

8.10.1 Make sure the machine contains media.

8.10.2 Check that the media metering valve is not closed.

8.10.3 Check for minor blockage in the media metering valve by fully opening the metering valve, and closing the choke valve. Activate the foot pedal to blow out obstructions. If this procedure fails, depressurize the

machine, open the metering valve inspection plate and check for foreign objects.

8.10.4 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.

8.10.5 Check the 4-way valve as follows: Depressurize the air supply line. Remove the tubing leading to either the media metering valve or diaphragm outlet valve. Pressurize the air supply line. 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 probably faulty.

8.11 Blast Machine Will Not Pressurize

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

8.11.2 Check that pressure regulator is not turned down. Minimum pressure is 40 psi. See Section 5.1.

8.11.3 Door interlock not engaging. Check door interlock adjustment per Section 5.5.

8.11.4 Inadequate air supply. Check table in Figure 5.

8.11.5 Inspect the diaphragm in the outlet valve for wear.

8.11.6 Inspect pop-up valve and seat for wear and alignment.

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

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

8.11.9 Make sure the lines are not reversed on the foot pedal or pilot regulator. See schematic in Figure 7.

8.11.10 Check the 4-way valve per Sections 8.10.4 and 8.10.5.

8.11.11 Inspect the check valve for obstruction or broken flap.

8.12 Static Shocks

8.12.1 Cabinet and/or operator not grounded. Abrasive blasting creates static electricity. The cabinet must be

grounded to prevent static build-up. See Sections 2.4.1 and 2.10. If shocks persist, the operator may be building up static. Attach a small ground wire (such as a wrist strap) from the operator to the cabinet.

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

8.13 Dust Leaking From Dust Collector

Refer to the reverse-pulse dust collector manual for service of reverse-pulse dust collectors.

8.13.1 Check for damaged or loose filters.

8.13.2 Check for a faulty seal on the dust drawer.

8.13.3 Check that upper and lower tube sheets are sealed on both sides, front, and rear.

9.0 ACCESSORIES AND REPLACEMENT PARTS

9.1 Optional Accessories

Description	Stock No.
Storage segment, 16": Fits between the reclaimers and blast machine. Provides nearly 2 additional cubic feet of media storage	21128
Vortex cylinder assembly, externally adjustable for 900 cfm exhauster mounted reclaimers. For use with fine-mesh or lightweight media.	23047
Pass-thru door, with 15 inch square cut-out	
Right door	
for double 65	23610
for double 220	23612
Left door	
for double 65	23611
for double 220	23613
Aluminum oxide kit: Includes #3 boron carbide nozzle, black rubber curtains with eyelets and curtain hardware.	
for double 65	14146
for double 220	21248
Flex hose, heavy lined, for heavy usage with aluminum oxide. Available in 15 ft. lengths only	
4" ID. for 900 cfm cabinet hopper	12473
5" ID. for 1200 cfm cabinet hopper	12465
6" ID. for 900 cfm reclaimer inlet	12457
7" ID. for 1200 cfm reclaimer inlet	12459

Rubber curtains, white	
Curtain set	
for double 65	23543
for double 220	23544
Rubber curtains, black	
Curtain set	
for double 65	23533
for double 220	23534
Back curtain, 2 required	
for double 65	14243
for double 220	14247
Front curtain, 2 required	
for double 65	14242
for double 220	14246
Door curtain, 2 required	
for double 65	14244
for double 220	14245

Boron carbide nozzle	
CTB-2, 1/8" orifice	21090
CTB-3, 3/16" orifice	21091
CTB-4, 1/4" orifice	21092

Lock pins (pkg of 25) for twist-on hose couplings ..	11203
Safety cable, blast hose	15012
Manometer kit	12528
Abrasive trap	02011

Conversion kits, Sentinel metering valve	
To convert from fine mesh media to coarse	22848
To convert from coarse mesh media to fine	22849

20" Turntable, with bearing, 250 lb. capacity	12411
20" Turntable, without bearing, 25 lb. capacity	12412
30" Turntable, with bearing, 500 lb. capacity	14138
20" Turntable, work cart and track assembly,	
500 lb. capacity	
for double 65	13899
for double 220	21199

Turntable with Bearing, 20" 250 lb. Capacity
Figure 18

Item	Description	Stock No.
1.	Turntable, 20" diameter less base	18329
2.	Bearing, 1-1/2" bore	11517
3.	Protector, bearing	13479
4.	Screw, 1/2-NC x 1-1/2" cap	03454
5.	Lock-washer, 1/2"	03516
6.	Nut, 1/2-NC hex	03511

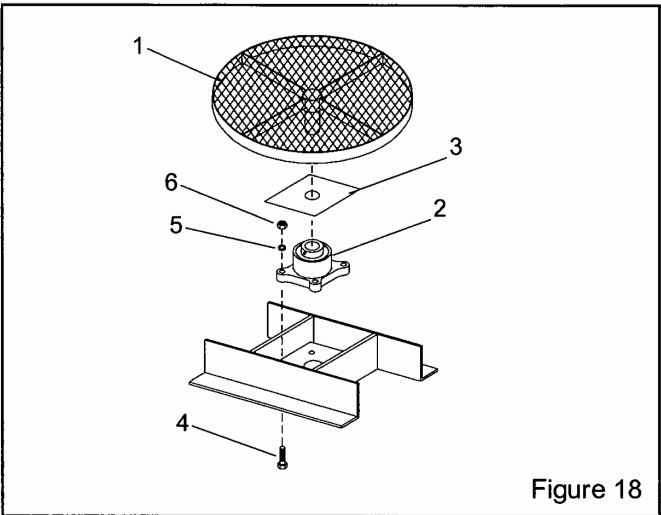


Figure 18

Turntable with Workcart and Track, 500 lb. Capacity,
Figure 19

Item	Description	Stock No.
1.	Turntable, 20" diameter	18329
2.	Bearing, 1-1/2" bore	11517
3.	Protector, bearing	13479
4.	Screw, 1/2-NC x 1-1/2" cap	03454
5.	Lock-washer, 1/2"	03516
6.	Nut, 1/2-NC hex	03511
7.	Caster, 4" V groove	11594

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

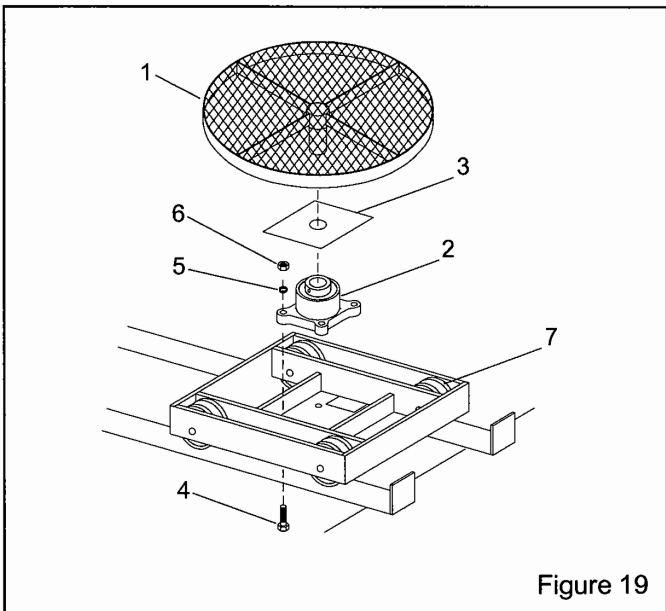


Figure 19

9.2 Cabinet Replacement Parts, Figure 20

Item	Description	Stock No.
1.	Gasket, door, adhesive backed, specify length required in feet BNP double 65, 11 ft. per door00187 BNP double 220, 13 ft. per door00187	
2.	Light assembly w/ cover (each)23255	
3.	Window glass, 12.5" x 19.5"12212	
4.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 6 feet required00189	
5.	Gasket, 5/32" x 3/4", applied to window frame per foot, 6 feet required00192	
6.	Cover lens, pkg. of 506190	
7.	Door assembly, left for double 6520070 for double 22020074	
8.	Door assembly, right for double 6520071 for double 22020075	
9.	Grate for double 65, 2 required11811 for double 220, 2 required11810	
10.	Latch kit, door20064	
11.	Glove set11215	

12.	Glove, left hand only12710
13.	Glove, right hand only12711
14.	Clamp, glove11576
15.	Foot pedal assembly, less tubing20483
16.	Grommet, blow-off hose11798
17.	Grommet, blast hose11801
18.	Adaptor pipe, universal, flex hose 4" for double 65 w/ steel media23295 5" for std dbl. 65 or dbl. 220 w/ steel23296 6" for standard double 22023297
19.	Gasket, universal flex hose adaptor pipe 4" for double 65 w/ steel media23258 5" for std dbl. 65 or dbl. 220 w/ steel23259 6" for standard. double 22023291
20.	Muffler, outlet05068
21.	Adaptor, 1" male NPT x 1" male flare11720
22.	Actuator, door interlock19152
23.	Over-travel stop, door interlock20004
24.	Detent sleeve, door interlock15042
25.	Air valve, 3-way, door interlock12202
26.	Gasket, hopper plate adaptor20247
27.	Plate, hopper hose adaptor21657
28.	Regulator, 1/8" NPT pilot12715
29.	Gauge, pressure01908
30.	Nut, plastic, window frame, 2 required23035
31.	Gasket, light assembly, applied to cabinet per foot, 7 ft. required per light00187

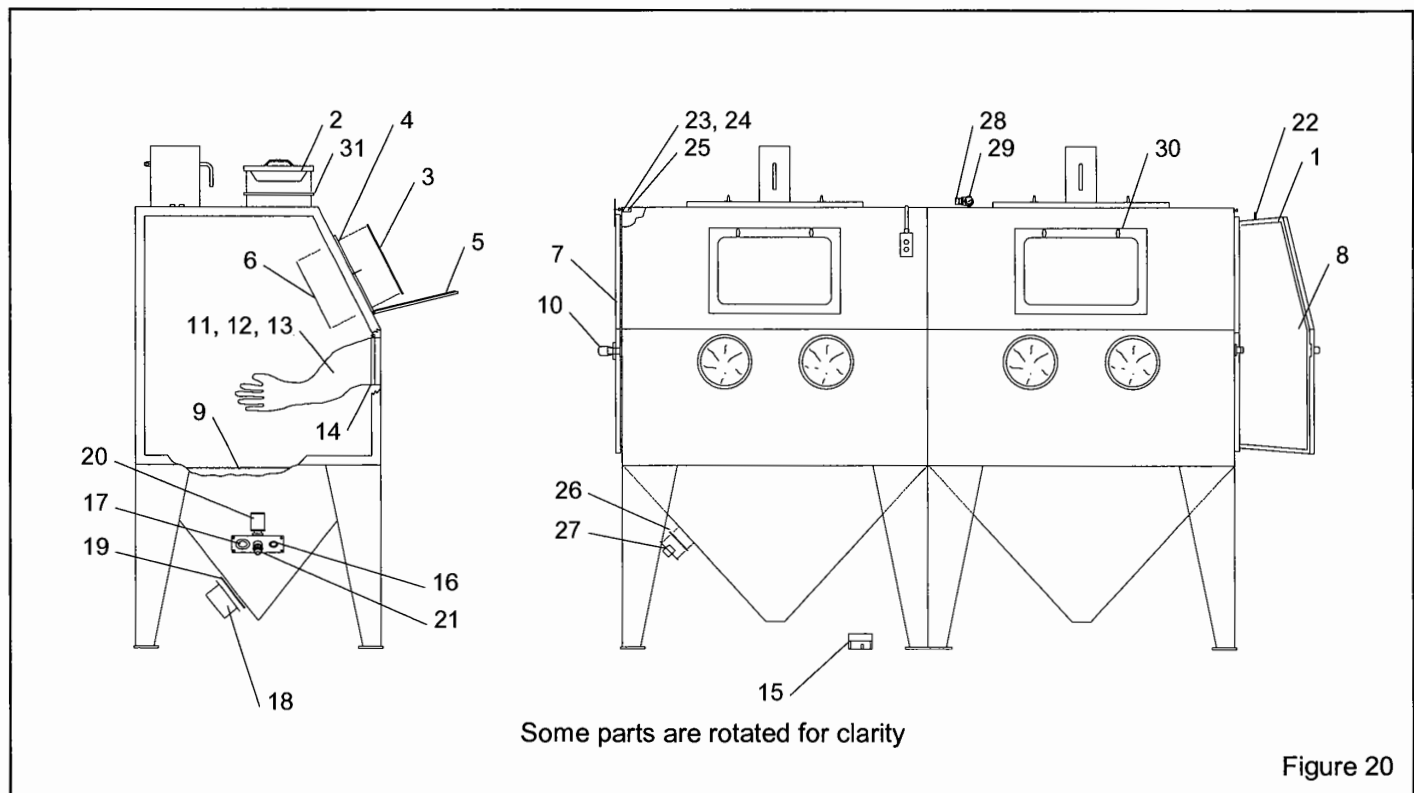


Figure 20

9.3 Light Assembly, Figure 21

Item	Description	Stock No.
(-)	Light assembly w/ cover	23255
1.	Light fixture (assembly less cover)	23251
2.	Reflector lens	23253
3.	Tube, fluorescent, 20w	23252

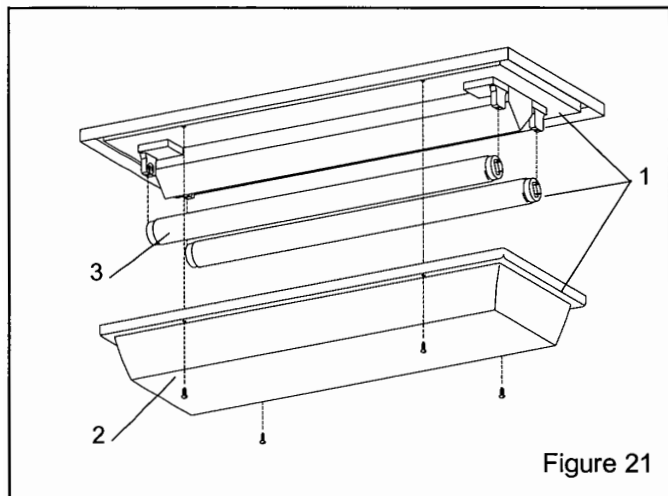


Figure 21

9.4 Foot Pedal Assembly, Figure 22

Item	Description	Stock No.
(-)	Foot pedal assembly, less tubing	20483
1.	Top, foot pedal	20017
2.	Base, foot pedal	19991
3.	Valve, way n/c	20026
4.	Drive pin, grooved	20109
5.	Screw, 1/4 NF x 3/4" soc. hd.	03086
6.	Screw, 10-32 x 1/2" fh	19571
7.	Adaptor, 10-32 thrd. x 1/8" barb	11731
8.	Spring, 1-1/4" x 3-1/2"	20121
9.	Screw, 8-32 x 3/8" thread cutting	11389
10.	Bumper, rubber (feet)	21522

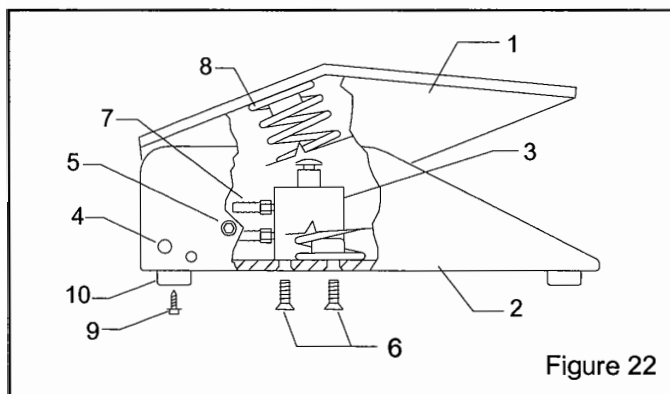


Figure 22

9.5 Flex Hose & Wye Adaptor, Figure 23

Item	Description	Stock No.
1.	Hose, light lined flex, specify length required.	
	4" ID	12466
	5" ID	12467
	6" ID	12468
	7" ID	12469
	8" ID	12470
2.	Clamp, hose	
	for 4" hose	11577
	for 5" hose	11578
	for 6" hose	00750
	for 7" and 8" hose	11576
3.	Wye adaptor	
	two 4" x one 6"	12379
	two 5" x one 7"	16939
	Consult local distributor for larger sizes	

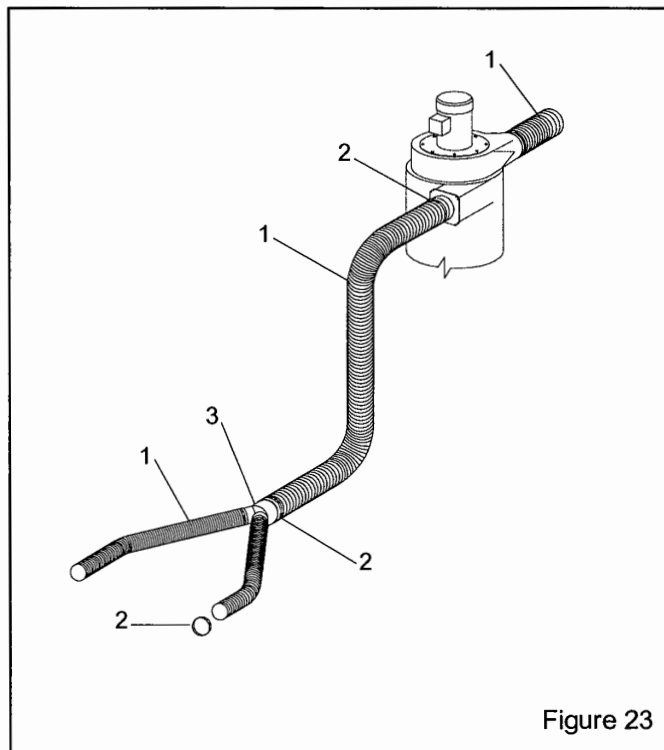


Figure 23

9.6 Plumbing Assembly, Figure 24

Item	Description	Stock No.
1.	Valve, 3-way	12202
2.	Adaptor, 1/8" NPT x 1/8" barb	11732
3.	Tubing, 1/8" ID urethane, specify ft reqd.	12475
4.	Tubing, 1/8" ID twin urethane specify feet required	19577
5.	Adaptor, straight 1/4" male NPT x 3/8" tube ..	11736
6.	Tubing, 3/8" OD poly, specify ft. required	12478
7.	Tee, 1/8" tube barb	11734
8.	Regulator, 1" pilot operated w/ gauge	12052
9.	Hose end, 1" x 1" female	11719
10.	Valve, 4-way air	12203
11.	Adaptor, elbow 1/4" male NPT x 3/8" tube	11685
12.	Valve, 1" diaphragm outlet	03371
13.	Hose end, 1" barb x 1" male NPT	11721
14.	Clamp, hose, 1-7/16" diameter	21270
15.	Bushing 1/4" x 1/8" NPT.	02010
16.	Hose, 1" Supa-T, bulk, 10 ft. required	23103
17.	Muffler, 1/4" bronze	03988
18.	Adaptor, 1/2" NPT x 1/2" male flare	11351
19.	Hose end, 1/2" barb x 1/2" female swivel	15002
20.	Hose end, 1/2" barb x 3/8" male NPT	06369
21.	Blow-off nozzle	13116
22.	Hose, 1/2" ID air, bulk, specify feet reqd.	12472
23.	Regulator, 1/8" NPT pilot	12715
24.	Gauge, pressure	01908
25.	Adaptor, 1/8" NPT elbow x 1/8" barb	11733
26.	Foot pedal assembly, less tubing	20483
27.	Metering valve, Sentinel for 50 mesh and finer media, standard	21439
	for 50 mesh and coarser media	20608
28.	Nipple, 1/4" hex	02808
29.	Tee, 1/4" brass	02025
30.	Filter, 1" w/ auto drain	22425

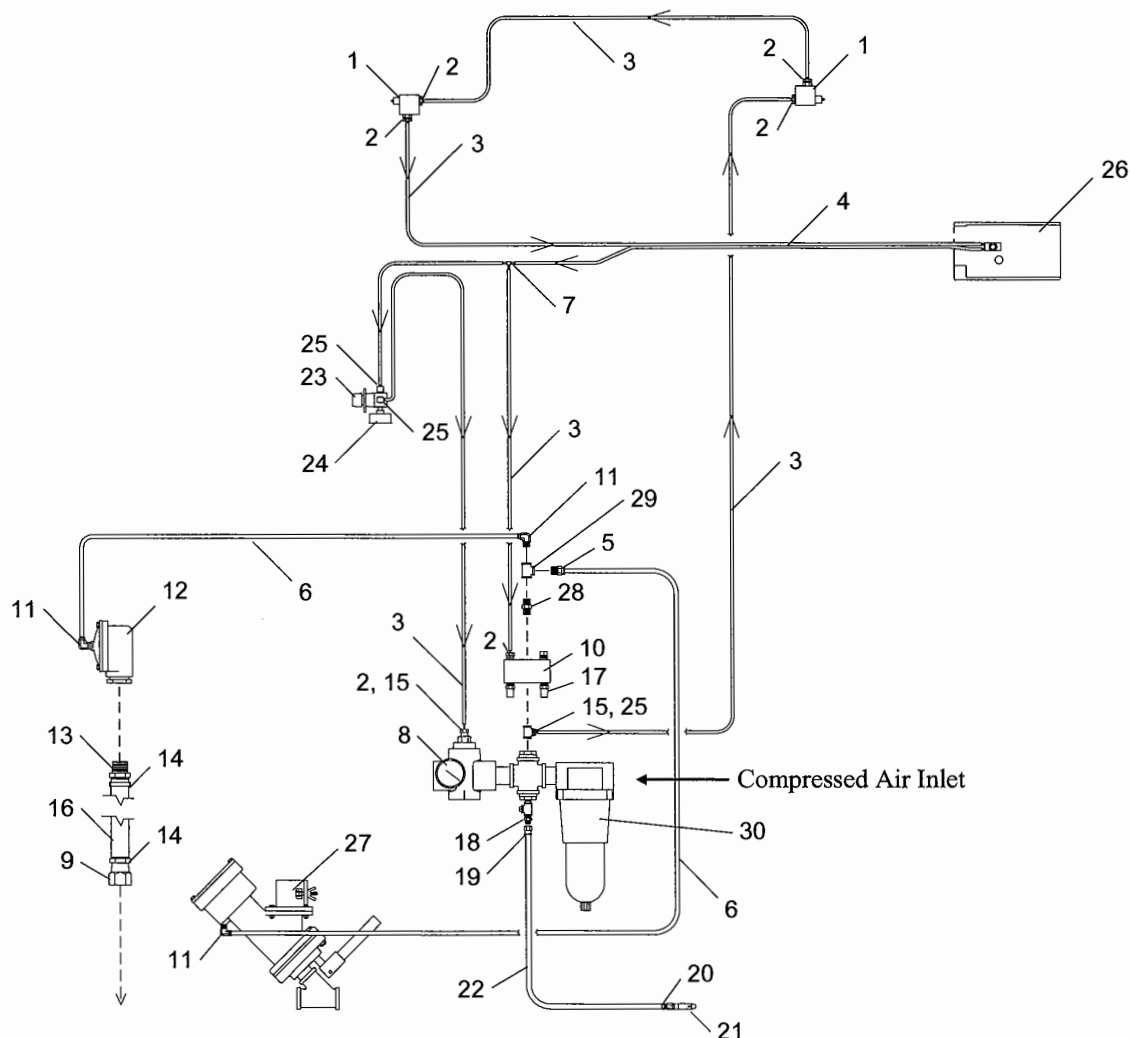


Figure 24

9.7 Blast Machine, Figure 25

Item	Description	Stock No.
(-)	Blast machine assembly, 16", 2 cu. ft. cap. ..	21135
1.	Ball valve, 1" with handle (choke valve)	02396
2.	Handle, 1" ball valve	22531
3.	Leg pad, right for 1642	20735
4.	Leg pad, left for 1642	20736
5.	Adaptor, 1" male NPT x 1" male flare	11720
6.	Hose assembly, 1" x 18" pusher line	22508
7.	CF Coupling 1-1/4" NPT	00551
8.	Media metering valve, Sentinel	
	for 50 mesh and finer media, standard	21439
	for 50 mesh and coarser media	20608
9.	Inspection door assembly, 6" x 8"	02377
10.	Gasket, 6" x 8" inspection door	02369
11.	Pop-up valve with external sleeve	03699
12.	Guide 1-1/4" x 6" toe	01722
13.	Seat, pop-up valve	02325
14.	Valve, 1" diaphragm outlet	03371
15.	Regulator, 1" pilot operated w/ gauge	12052

16.	Gauge, 1/4" cbm	11830
17.	Filter, 1" w/ auto drain	22425
18.	Check valve, 1" swing	12187
19.	Gasket, CQG, pkg of 10	00850
20.	Coupling, 1/2" ID hose, CQA-1/2	00599
21.	Valve, 4-way air	12203
22.	Nozzle holder, CHE-1/2	00577
23.	Blast hose, 1/2" ID x 16 ft. coupled, includes items 20 & 22	01251
24.	Nozzle, tungsten carbide	
	CT-2, 1/8" orifice	01351
	CT-3, 3/16" orifice, standard	01352
	CT-4, 1/4" orifice	01353
25.	Nozzle washer, NW-1, pkg. of 10	21580
26.	Hose end, 1" barb x 1" male	11721
27.	Clamp, hose, 1-7/16" diameter	21270
28.	Hose end, 1" barb x 1" female	11719
29.	Hose, 1" Supa-T, bulk 10 feet required	23103
30.	Lock pin, coupling (package of 25)	11203
31.	Adaptor, elbow 1/4" male NPT x 3/8" tube ...	11685
32.	Adaptor, straight 1/4" male NPT x 3/8" tube	11736
33.	Muffler, 1/4" bronze	03988

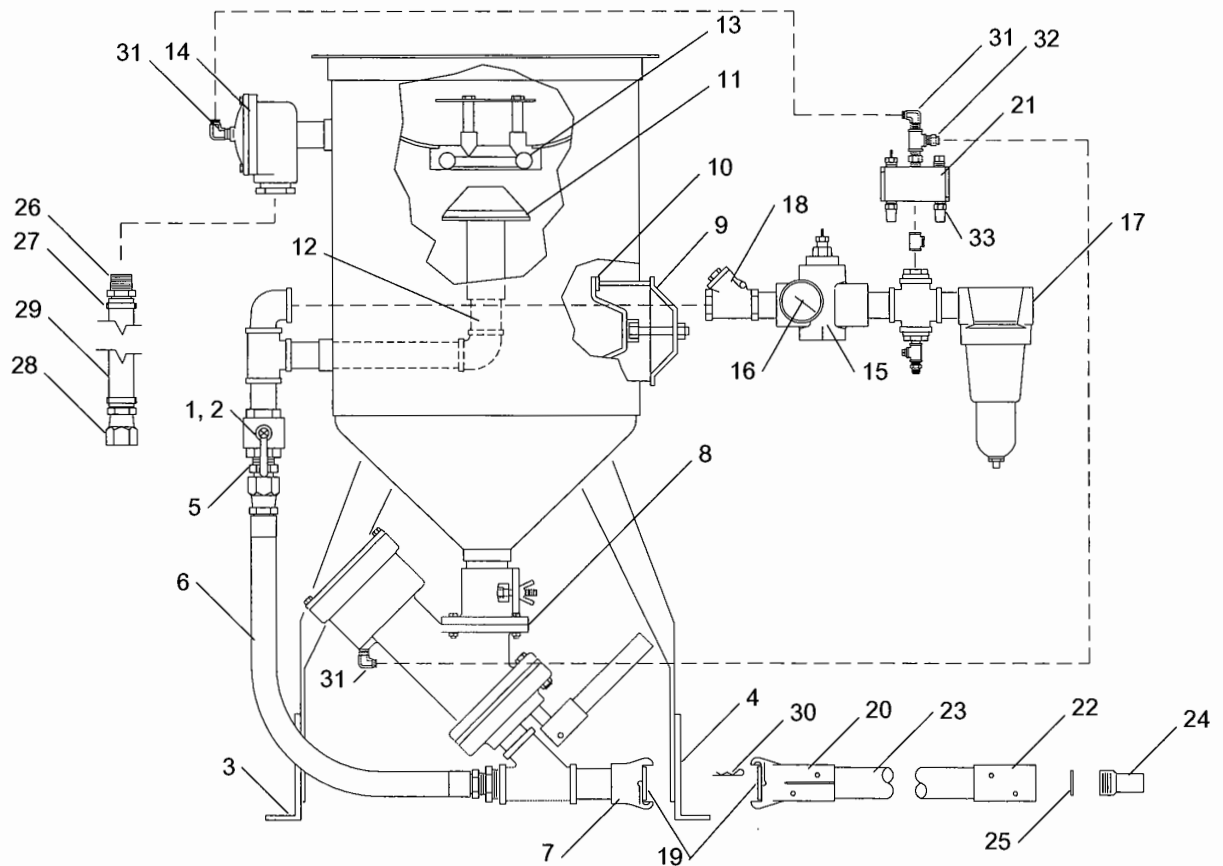


Figure 25

9.8 Sentinel Valve Replacement Parts

Refer to the Sentinel valve owner's manual for replacement parts.

9.9 1" Diaphragm Outlet Valve, Figure 26

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

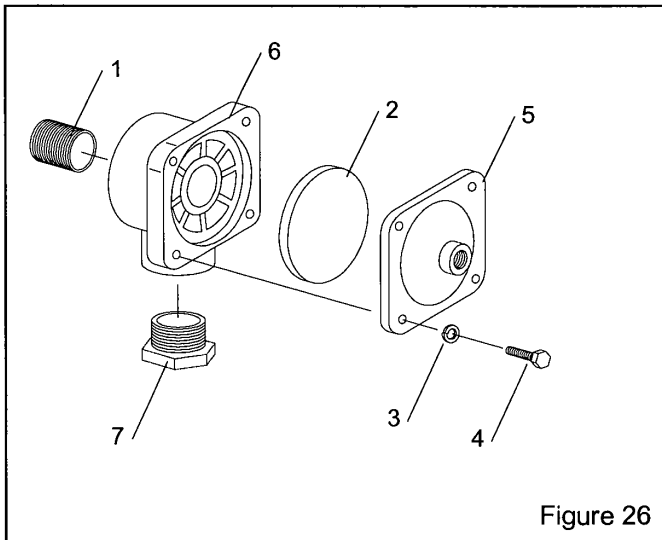


Figure 26

9.10 Abrasive Trap, Figure 27, Optional

Item	Description	Stock No.
(-)	Abrasive trap, complete	02011
1.	Screen	02012
2.	O-Ring	02013
3.	Cap	02014
4.	Body	02015
5.	Lock bar	02016
6.	Screw, 3/8" x 1" thumb	03289
7.	Shoulder screw, 3/8" x 3/8"	03291
8.	Gasket, screen	02434
9.	Decal	02129
(-)	Service kit (items 1, 2, 8 & 9)	01925

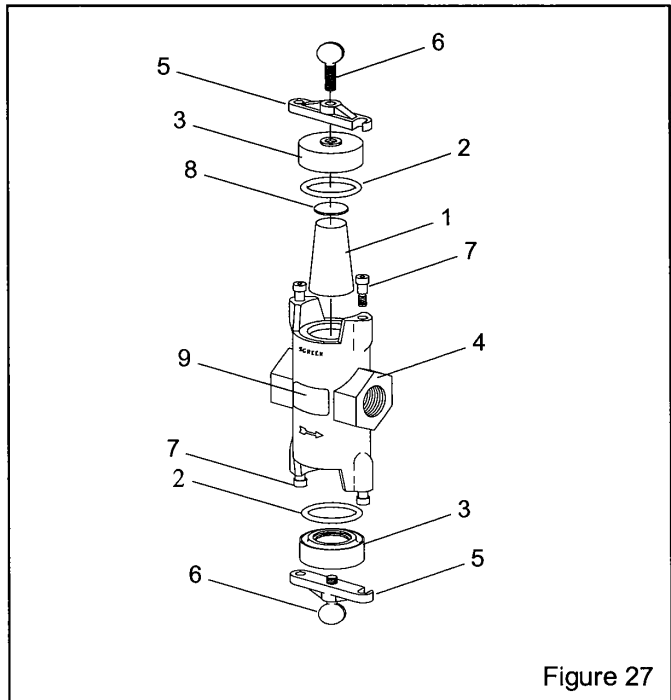


Figure 27

9.11 Reclaimer, Figure 28

Note: Exhauster components, Items 1 - 4, are not shown for 1200 and 1800 cfm reclaimers, because exhauster-equipped reverse-pulse dust collectors are recommended for those reclaimers.

Item	Description	Stock No.
(-)	Reclaimer body assembly, 900 cfm, 16" flange, less exhauster or vortex	21252
(-)	Reclaimer assembly, 900 cfm, 16" flange, w/ exhauster assembly	21253
(-)	Reclaimer assembly, 900 cfm, 16" flange pull-through type with adj. vortex.....	21293
(-)	Reclaimer body assembly, 1200 cfm, 16" flange less exhauster or vortex	22834
(-)	Reclaimer body assembly, 1800 cfm, Consult local distributor	
1.	Motor, exhauster for 900 cfm reclaimer, 2 HP, 3-PH	12309
2.	Plate, motor mount 900 cfm	12005
3.	Housing, 900 cfm exhauster	12271
4.	Paddle wheel 900 cfm	12335
5.	Gasket, 5/16" x 1" adhesive backed, specify feet required	00187

6.	Inlet pipe adaptor 900 cfm, 6"	12363
7.	Gasket, inlet adaptor 900 cfm	11759
	1200 cfm	11767
	1800 cfm	11765
8.	Wear plate 900 cfm	14055
	1200 cfm	19223
	1800 cfm	23028
9.	Screen assembly	21265
10.	Gasket, door 900 cfm	11745
	1200 cfm and 1800 cfm	11766
11.	Spring latch assembly	12263
12.	Gasket, 2" adhesive backed, specify ft. required	13089
13.	Hose support, inlet 900 cfm, 6", optional	16887
	1200 cfm, 7"	20596
	1800 cfm, 8"	20597
14.	Vortex cylinder assembly, for 900 cfm exhauster mounted reclaimer (optional)	23047
15.	Vortex cylinder assembly, adjustable, standard with pull-through reclaimer	
	900 cfm	23046
	1200 cfm	19087
	1800 cfm	19090

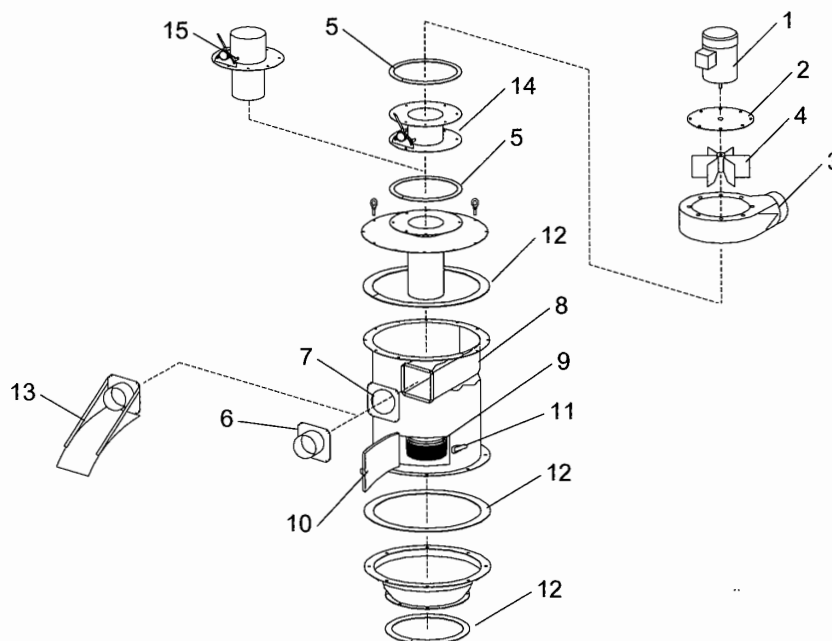


Figure 28

9.12 Dry Filter Dust Collector, Figure 29

Item	Description	Stock No.
(-)	Dry filter, 900 cfm	12701
1.	Inlet adaptor w/ damper, 7"	14273
2.	Gasket, inlet adaptor	11763
3.	Gasket, dust drawer	11771
4.	Spring latch assembly	12263
5.	Drawer, dust	14276
6.	Plate, inlet cover	14278
7.	Tubular filter, each, requires 40	11503
8.	Shaker, tube filter	12415
9.	Handle, shaker	12899

