

# BNP 600 and 720 Pressure Blast Cabinets



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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 of 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 600 and 720 series pressure blast cabinets with all reclaimer, dry filter and dust collector options. Supplemental manuals are provided for the Sentinel media metering valve and optional reverse pulse 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.**

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## CAUTION

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

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## CAUTION

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

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## WARNING

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

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## DANGER

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

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### 1.3 General Description

1.3.1 BNP abrasive blast cabinet encloses 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

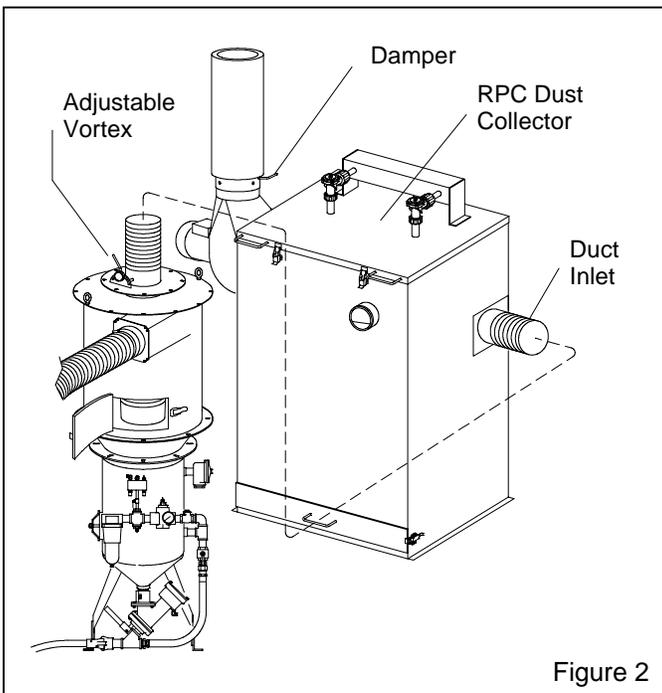
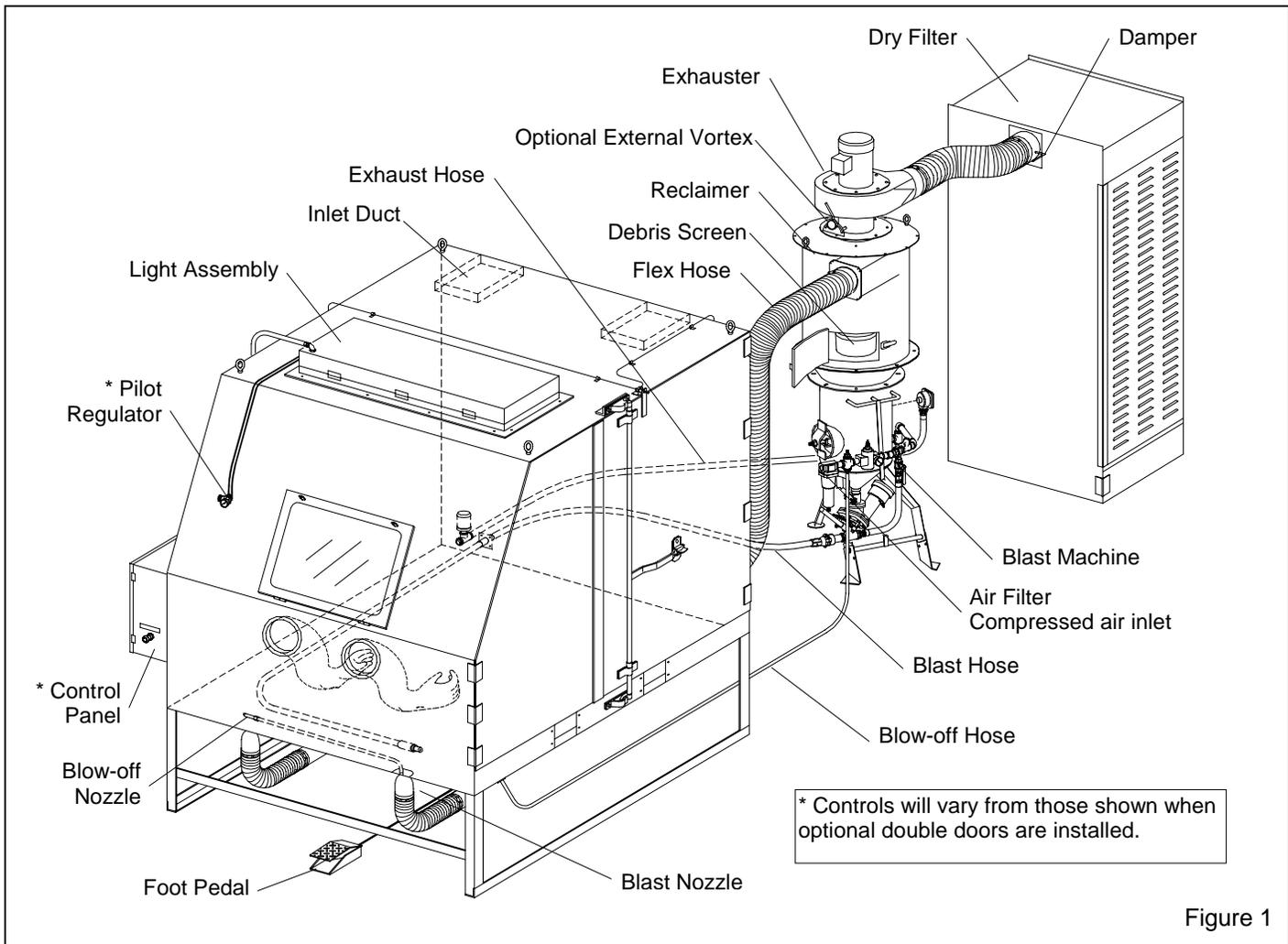
See Figure 1 for arrangement of components with a dry filter. Figure 2 shows the arrangement with a reverse pulse dust collector.

### 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. Fully depressing the foot pedal pressurizes the blast machine, and propels blast media through the blast hose and out the nozzle. After striking the object being blasted, the blast media, along with fines, dust, and by-products generated by blasting, 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 blast media. Next, the media is screened of oversize particles, and held in the reclaimer hopper for reuse. At the same time, 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 Remote 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.



**⚠ WARNING**

**Welding, grinding, or drilling on the media chamber 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 media chamber 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 media chamber to rupture. To prevent serious injury or death, do not exceed the rated pressure of the media chamber 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<sup>(1)</sup> specifications and comply with OSHA<sup>(2)</sup> 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.

<sup>(1)</sup> American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, 1989

<sup>(2)</sup> 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 media chamber is ready for actuation by the foot pedal. Pressing the foot pedal opens the normally closed inlet valve, and closes the normally open outlet valve. The incoming air pressurizes the media chamber, and blasting begins. When pressure on the foot pedal is released, the chamber depressurizes, and blasting stops.

### 1.6 Nozzle Options

**1.6.1** Unless specified at time of order, cabinets are shipped with a 3/16" orifice tungsten carbide nozzle. Optional 1/8", 1/4", and 5/16" orifice nozzles are also available. The reclaimer 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 breakdown, media flow, media size, and damper setting, and is further explained herein.

**1.6.2** 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.

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

**1.6.3** Use boron carbide nozzles when blasting with aggressive media. See Optional Accessories, Section 9.1.

### 1.7 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. Do not use dust collectors with simple cloth filters for those applications.**

**1.7.1 Dry Filter:** A push-through dry filter uses tubular filters which trap dust on their inner surfaces. A dry filter is efficient for 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.

**1.7.2 Reverse Pulse Dust Collector:** The pull-through reverse pulse dust collector is the most efficient dust collector option, and must be used with 1200 and 1800 cfm reclaimers. This type of dust collector used with the optional HEPA filter must be used in applications in which toxic dust is generated. Cartridge filters are cleaned by a periodic pulse of air. See separate manual for operation of reverse pulse dust collectors.

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 of the reclaimer. Therefore, larger nozzles decrease the maximum 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

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

## 1.8 Media

**1.8.1** BNP 600 and 720 Pressure Blast Cabinets utilize most common reusable media specifically manufactured for dry blasting. The usable media size range depends on the nozzle orifice size and reclaimer cleaning rate. Several factors affecting the reclaimer cleaning rate include: reclaimer size, 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. Using media 200 mesh and finer will usually require the addition of an optional, externally adjustable vortex cylinder. See Section 5.4. The vortex cylinder is standard on pull-through systems (cabinets with reverse pulse dust collectors).

**1.8.2 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. Cabinets can be supplied from the factory with reduced diameter conveying hose, if specified at the time of order. Field conversion requires extensive welding.

**1.8.3 Sand and Slag:** Sand should never be used because of the respiratory hazards associated with the use of using media containing free silica. Slags are not recommended because they rapidly breakdown.

**1.8.4 Aluminum Oxide, Silicon Carbide, and Garnet:** Aggressive media such as these may be used but consideration should 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 a full rubber lined reclaimer and RP dust collector. See Optional Accessories in Section 9.1.

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

**1.8.6 Fine-mesh Media:** An optional, adjustable vortex cylinder is available and 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).

**1.8.7 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).

## 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.

## 2.0 INSTALLATION

### 2.1 General Installation Notes

**2.1.1** To avoid damage to the light assembly, it is shipped inside the cabinet. Install the light assembly on the outside top of the cabinet, using the mastic seal and fasteners provided. Install the light conduit and wiring to the control panel, and wire it per the wiring schematic packed in the panel. See Section 2.13.

**2.1.2** The cabinet must be placed on a flat surface. If the surface is not flat, the cabinet could flex, causing the door alignment to shift. If that occurs, shim the leg(s) as required to realign the doors.

**2.1.3** See Figure 1 (and 2 for optional reverse pulse collector) for the general arrangement and Figure 5 for 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 reclaimers 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.

**2.1.4** Use the eyebolts on the four top corners to maneuver the cabinet. Do not lift the cabinet from the hopper or lower frame.

## CAUTION

**Do not use a forklift to lift the cabinet from the hoppers or lower frame. The cabinet hopper is not designed to support the weight of the cabinet. The lower frame is designed to support distributed weight. Using a forklift on the hoppers or frame may cause damage.**

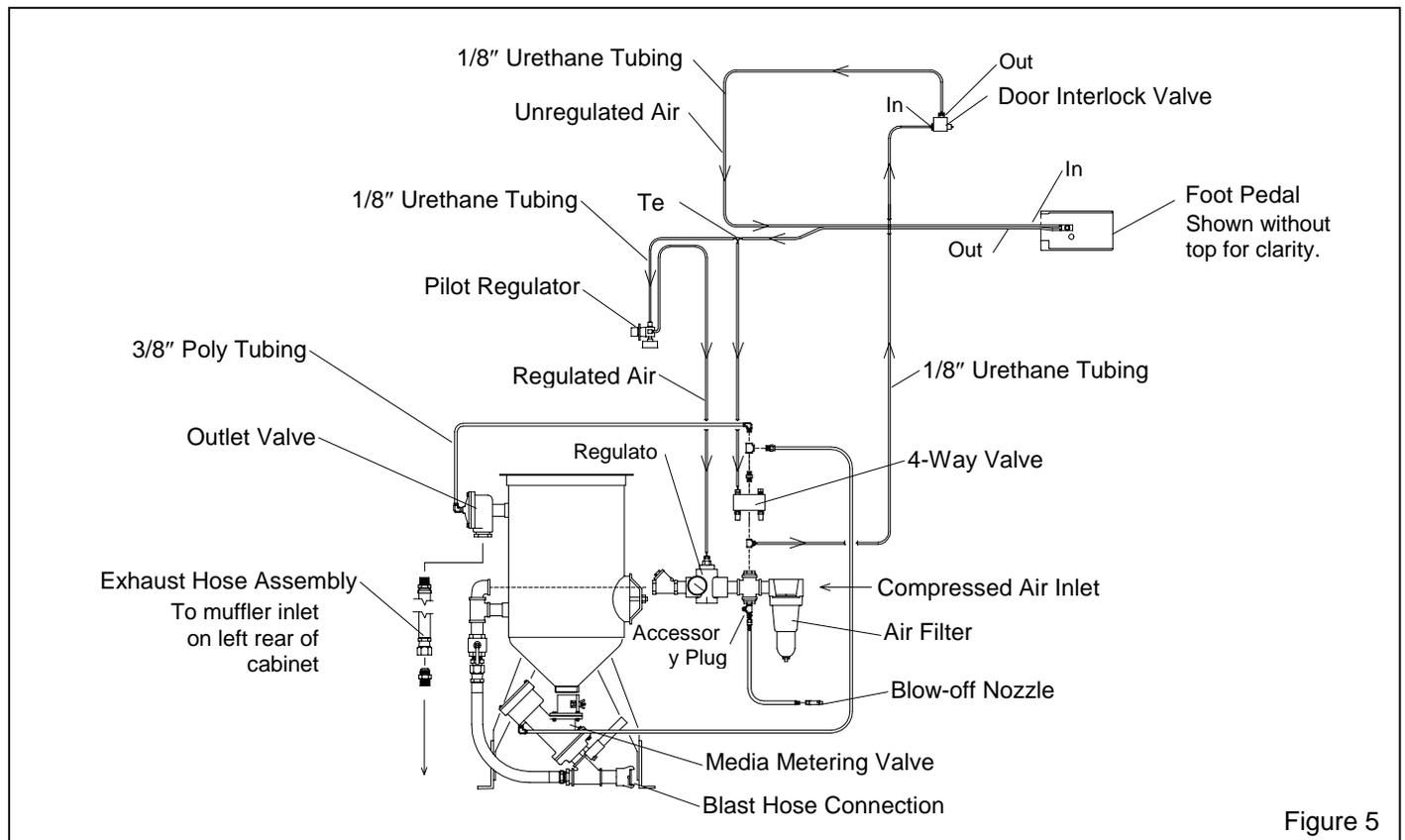


Figure 5

## 2.2 Air Requirements

**2.2.1** The size of the compressor required to operate the cabinet depends on the size of the nozzle and blasting pressure. See the Air Consumption Table in Figure 6.

NOTE: A separate air line is required for the optional RP dust collector.

Nozzle size	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

Air Consumption in cfm

Figure 6

**2.2.2** The chart 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. Check with a compressor supplier for a suggested compressor size based on the air consumption.

**2.2.3** The air filter at the blast machine air 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 clot and inhibits free flow through the feed assembly. If moisture problems persist, an air dryer may be required.

## 2.3 Electrical Requirements

**2.3.1** All 600 and 720 reclaimer motors are 230/460 volt, 60 Hz, 3-Phase. A starter is mounted in the control panel. Power from the user's disconnect has to be wired to it. Additional wiring information is in Section 2.13.

## 2.4 Assemble Blast Machine and Reclaimer

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

**2.4.2** If the optional storage segment is used, place it 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 2.4.1.

**2.4.3** 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 media chamber.**

## 2.5 Support the Blast Machine

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

## 2.6 Connect Conveying Hose, Figure 7

**2.6.1** Connect two of the smaller diameter flexible conveying hose between the cabinet hopper transition and wye pipe adaptor. Connect the middle diameter flex hose (the largest diameter hose attaches to the reclaimer outlet, that connection will be made later) between the center leg on the wye pipe to the reclaimer inlet adaptor. It may be easier to slip the hose over the adaptors and 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 in the conveying hose, and helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

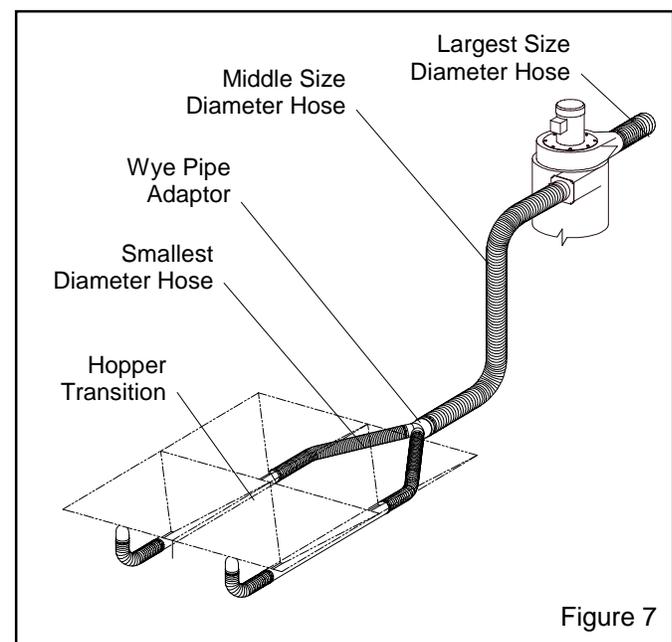


Figure 7

**2.6.2** Clamp the flex hose securely in position with worm clamps provided.

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## 2.7 Connect Blow-Off Hose

**2.7.1** Attach the 1/2" blow-off hose coming from the front right cabinet hopper, to the compatible fitting on the blast machine piping, between the air filter and regulator. See the schematic in Figure 5.

## 2.8 Connect Blast Hose

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### 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.**

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**2.8.1** Connect the blast hose from the lower left side of the rear cabinet wall, 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.

## 2.9 Attach Air Exhaust Hose

**2.9.1** Screw the male end of the exhaust hose into the 1" coupling in the lower left side of the rear cabinet wall. Connect the female swivel end to the adaptor on the blast machine outlet valve.

## 2.10 Connect Urethane Control Tubing

**2.10.1** Uncoil the 1/8" urethane control tubing, from under the cabinet. The end of each tubing is numbered 1, 2, 3 or 4. 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 5 to confirm the connections.

## 2.11 Connect Compressed Air Supply Line(s)

**2.11.1** Connect a 1" ID or larger air line from the air source to the air filter inlet on the blast machine. A smaller diameter hose may reduce blasting efficiency. An isolation valve should be installed at the air source to enable depressurization for service. NOTE: A separate air line is required for the optional RP dust collector.

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### 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.**

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## 2.12 Ground Cabinet

**2.12.1** To prevent static electricity build-up, attach an external earth-ground wire to the grounding lug on the left rear leg.

## 2.13 Connect Electrical Service

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### WARNING

**Shorting electrical components could result in death, serious electrical shocks, or equipment damage. All electrical work, or any work done inside an electrical panel, must be performed by a qualified electrician, and comply with applicable codes.**

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NOTE: A wiring schematic is supplied with the cabinet, and is packed in the control 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 control panel for wiring 900 cfm reclaimer motors when used with dry filter collectors. Reverse pulse collectors are usually too far from the cabinet to use flex. Conduit and wiring for RP Collectors must be provided by the user. Wiring from the user's disconnect to the cabinet control panel must also be provided by the user.

**2.13.1** Where possible, all wiring has been completed at the factory. The electrician only needs to provide service to the motor starter in the control panel mounted on the side of the cabinet, connect the light leads, 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 RP Collectors.

**2.13.2** 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 control panel mounted on the side of the cabinet.

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

## **⚠ WARNING**

**Electrical power must be locked out and tagged out before continuing. Failure to do so could result in serious injury or death from electrical shock.**

**2.13.4** Open the control panel cover.

**2.13.5** Supply service from the user's disconnect to the control panel.

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

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

## **⚠ WARNING**

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

**2.13.8** Check motor rotation by bumping the starter (momentarily push switch on and off). The motor will slowly turn. Check the rotation of the motor fan (**NOT THE EXHAUSTER PADDLE WHEEL**). The motor should be rotating toward the exhaust outlet.

**2.14 Dry Filter Dust Collector (900 cfm only). See separate manual for Reverse Pulse Dust Collector.**

**2.14.1** 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.

**2.14.2** Connect the flexible exhaust hose between the reclaiming outlet and dry filter inlet adaptor. It may be easier to slip the hose over the adaptors, and 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. Secure the hose with worm clamps.

**2.15 Anchor Blast Machine**

**2.15.1** When the permanent position of the machines are known, 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.

**2.16** Position the foot pedal on the floor at the front of the cabinet.

**2.17** 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 6.3. 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 at a later date. The Alox Kit consists of rubber curtains (for front, back, left side, and door) with eyelets and curtain hardware, boron carbide nozzle, and lined flex hose. Refer to Section 3.2 for curtain installation.

### **3.2 Curtain Installation, Figure 8**

**3.2.1** Match the curtains to the corresponding wall and door as shown in Figure 8. Hook the curtains to the J-Hooks welded along the top of the front, back, and side walls. Cut openings for the hoses on the lower left rear wall.

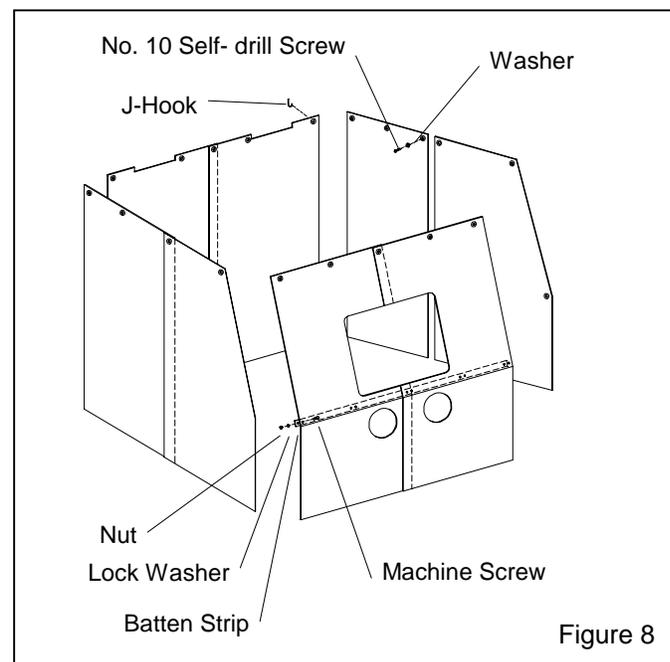


Figure 8

**3.2.2** Using protectors against the curtains and outer doors, clamp the door curtains in place. 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 attach the door curtains.

**3.2.3** For front walls, place the batten strip over the curtain, and clamp it in position on the front slope above the break as shown in Figure 8. Match drill .187" (3/16") diameter holes through the rubber and cabinet front at each batten hole. To install the batten insert #10-24 x 1" round head machine screws through the cabinet front, curtain and batten. Install lock washers and nuts from inside the cabinet and tighten securely.

### 3.3 Manometer

**3.3.1** A constant static pressure balance is necessary for precise separation, as the reclaimers 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 manometer kit is listed in Section 9.1.

## 3.4 Track and Extension

### 3.4.1 Description

**3.4.1.1** These instructions cover field installation for 500 lb. capacity workcar and track assemblies. If the track was ordered with the cabinet, it is partially assembled at the factory. Disregard the instructions that do not apply. See Figure 9 for arrangement of the major components.

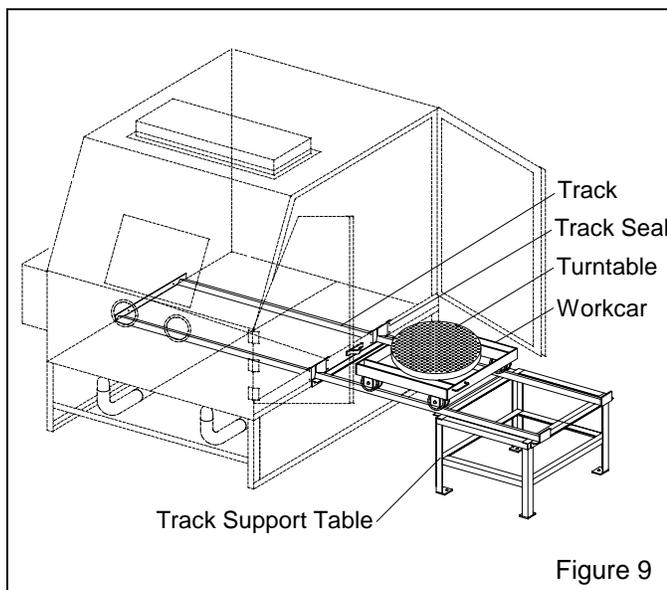


Figure 9

### 3.4.2 Track Seals

**3.4.2.1** Remove both track opening cover plates, and replace them with track seals as shown in Figure 10.

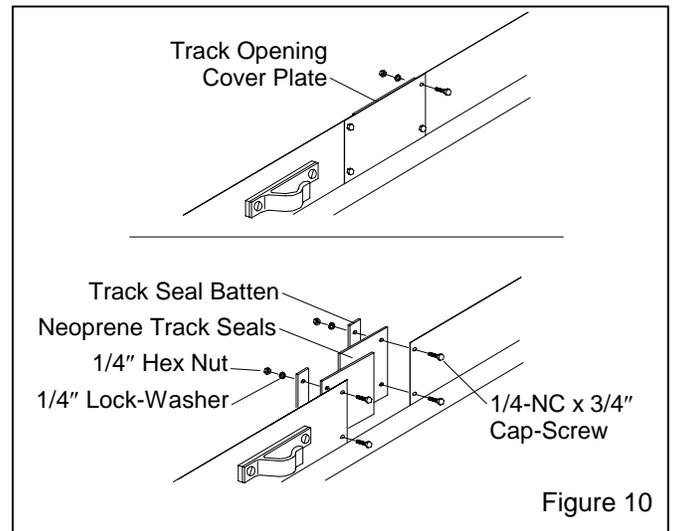


Figure 10

### 3.4.3 Track Assembly

**3.4.3.1** Position the track support table so that one side with mounting holes faces the cabinet. The sides with holes are identical, so it does not matter which side is toward the cabinet.

**3.4.3.2** Being careful not to damage the track seals, lay the track assembly in the cabinet as shown in Figure 9. Align the mounting holes in the track support table with the track cross supports as shown in Figure 11. Secure with 3/8-NC x 1" cap-screws, lock-washers, and nuts.

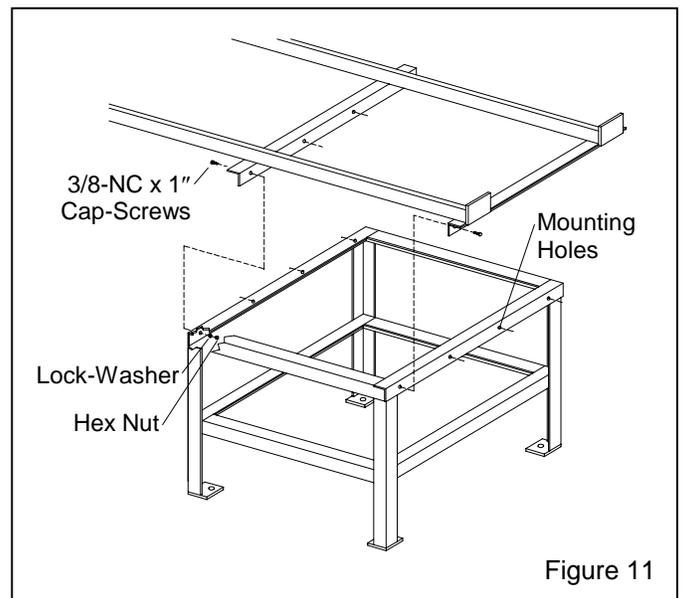


Figure 11

**3.4.3.3** Push the track assembly to its final position; the end support bracket should be against the inside cabinet wall, and the middle bracket against the outside wall under the door opening, as shown in Figure 12.

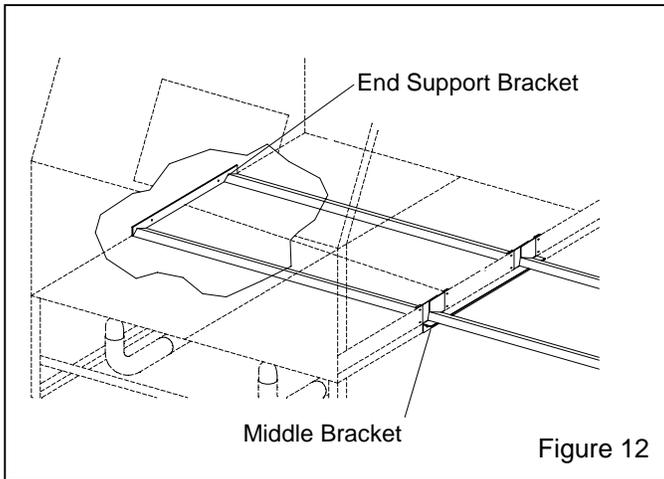


Figure 12

**3.4.3.4** Match drill 9/32" holes through the cabinet wall, at the two holes in the end support bracket. If necessary, mark the hole locations and move the track for drilling.

**3.4.3.5** Match drill 13/64" holes through the cabinet frame, at the four holes in the middle support bracket. Use a 1/4-NC tap to thread the four holes in the cabinet. If necessary, mark the hole locations and move the track for drilling.

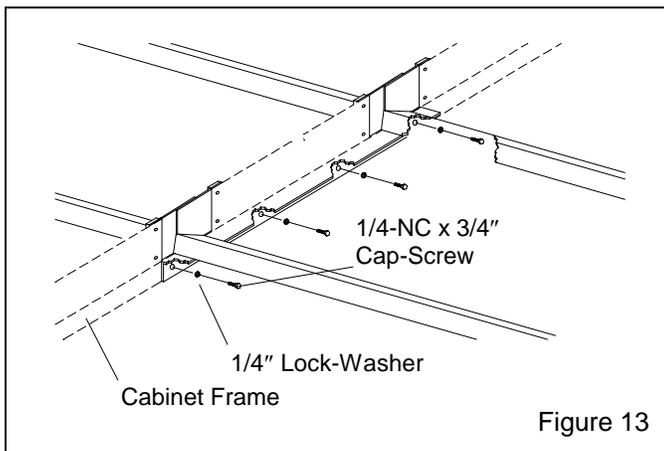


Figure 13

**3.4.3.6** Realign the track assembly. Secure the end bracket with 1/4-NC x 3/4" cap-screws, lock-washers, and hex nuts. Secure the middle bracket using 1/4-NC x 3/4" cap-screws and lock-washers through the bracket, and into the cabinet frame as shown in Figure 13.

**3.4.3.7** Trim the track seals as necessary to attain tight seal against the track rails.

### 3.4.4 Turntable and Workcar

**3.4.4.1** Set the workcar on the track; the grooves in the wheels are designed to ride on the track rails.

**3.4.4.2** Slide the turntable shaft through the rubber bearing protector, bearing collar and bearing. When the turntable shaft is fully seated in the bearing, use a hex key to tighten the collar on the shaft.

## 4.0 OPERATION

### 4.1 Media Loading and Unloading

**4.1.1 Media Capacity:** Media capacity is 2 cubic feet. Full capacity will be when media is at the level of the opening of the pop-up valve. Overfilling will result in media carryover to the dust collector and possibly blockage in the conveying hose.

**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 over filling or blockage may occur.** 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, reduce pressure to 40 psi. Place an empty container, such as a bucket, on the cabinet grating. 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 turntable with tracks.**

4.2.1 Load and unload through the door.

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

4.2.3 When blasting very small parts, place a screen over the crate to prevent parts from falling into the hopper. If an object should fall through the grate, stop blasting immediately and retrieve it.

4.2.4 Close doors. Be certain doors are sealed securely, or door interlock system will prevent blasting.

### 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. (On the initial start up check for air leaks).

4.3.2 Turn on the lights and exhauster. The push-button switch located on the face of the control panel performs both functions.

4.3.3 Insert hands into rubber gloves.

4.3.4 Firmly grasp the nozzle and step on the foot pedal. Blasting will begin almost immediately.

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 from resisting blast pressure. Whenever possible avoid holding small parts that require blasting into the glove.

#### WARNING

**Shut down the cabinet immediately if dust discharges from the 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.**

4.3.5 Adjust the pilot pressure regulator, to the required operating pressure, per Section 5.1.

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

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

4.3.8 Use the blow-off nozzle to blow media off cleaned parts before opening the door.

4.3.9 When finished blasting, allow the exhauster to clear the cabinet of airborne dust before turning the lights and exhauster off.

4.3.10 Unload part, shut off the air supply valve, and drain the air line.

### 4.4 Blasting Technique

4.4.1 Generally, blasting technique is similar to spray painting. Smooth continuous strokes are most effective. The distance from the part affects size of blast pattern. Normal practice places 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 above the control panel on the left side 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 break down. 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 left side of the cabinet face.

**5.1.4** To adjust, unlock the knob, and turn it clockwise to increase pressure or counter-clockwise to decrease pressure. 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 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 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 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 Optional 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 between the reclaimer body and exhaustor housing. 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 has been 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 14

### **⚠ WARNING**

**Never 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 door is open. To enable blasting, the door interlock switch must be engaged when the doors are closed. The interlock is set at the factory and does not usually require field adjustment unless parts are replaced. When adjustment is required, proceed as follows.

**5.5.2** Close cabinet doors.

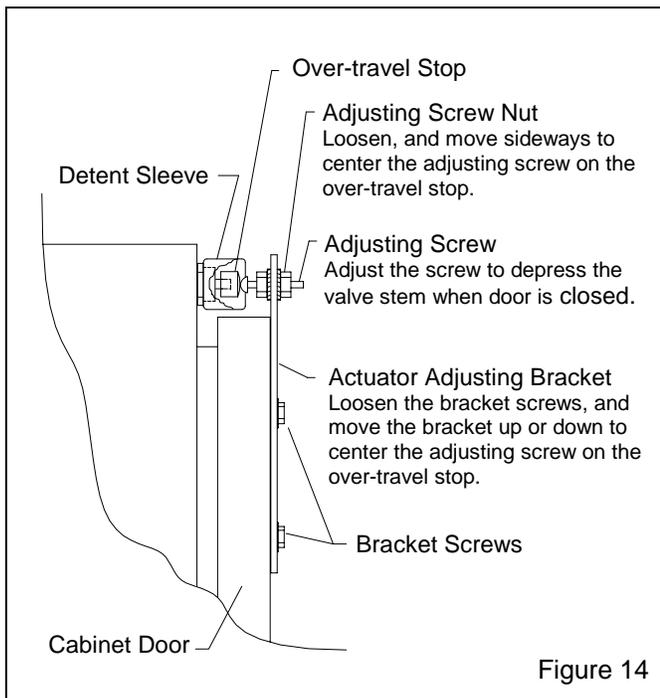


Figure 14

**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 exhauster on.

## 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

**Refer to the Reverse Pulse Dust Collector Manual for maintenance of the RP Collector**

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

### **CAUTION**

**Do not shake the filters when the exhauster is on. Doing so will accelerate wear on the filters around the shaker assembly, but 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 break down rate of media. Dump the contents into a suitable disposal container.

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## CAUTION

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**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.**

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NOTE: Blast media is not usually toxic, however, some materials removed by the process may be. Check with proper authorities for disposal restrictions.

### 6.2 Air Inlet Ducts

**6.2.1** Air inlet ducts, located on the back of the cabinet toward the top, allow air to be drawn into the cabinet. The air is required for ventilation, conveying media, and visibility. The ducts must be kept open and free of obstruction at all times.

### 6.3 View Window Cover Lens

**6.3.1** 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.

**6.3.2** 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.

**6.3.3** 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.

### 6.4 Reclaimer Debris Screen

**6.4.1** 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.

### 6.5 Air Filter

**6.5.1** The cabinet is equipped with an 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.

### 6.6 Abrasive Trap (optional)

Recommended for 40 mesh and coarser media.

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

### 6.7 Blast Hose And Couplings

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

### 6.8 Sentinel Metering Valve

**6.8.1** Refer to the Sentinel valve owners manual for maintenance

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## 7.0 SERVICE MAINTENANCE

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## WARNING

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**Failure to wear approved respirators and eye protection when servicing dust-laden areas of the cabinet and dust collector, and when emptying the dust bag or 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.**

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### 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 6.3.

**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 15

**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 gasket, and adhere the gasket to the center of the top edge of the window opening as shown in Figure 15. Peel additional backing as needed, and work the strip around the radius of each corner, pressing it tightly to bond. Trim the gasket to fit and compress the ends to seal.

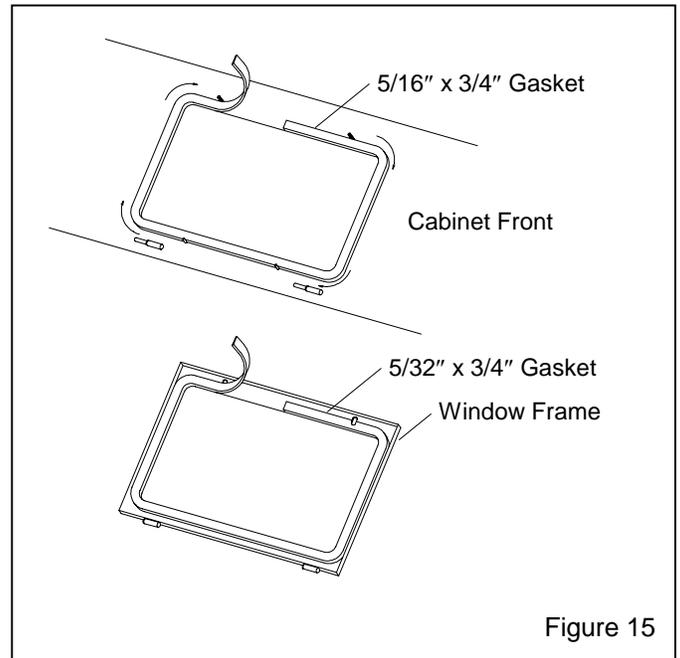


Figure 15

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

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

### 7.5 Window Frame Removal, Figure 16

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

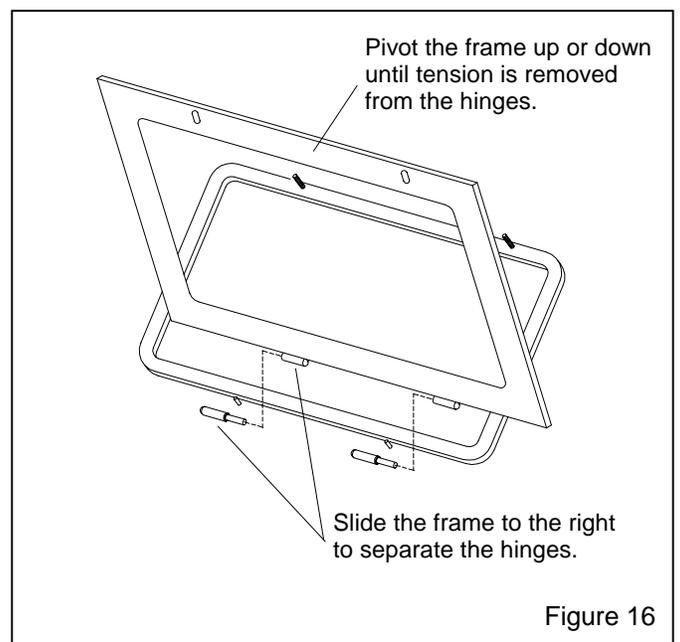


Figure 16

**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 16.

**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 Dry Filter Tube Replacement

### **⚠ 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.**

**7.6.1** 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 17.

**7.6.2** The tubular filter is held firmly by a spring ring above and below the perimeter of the hole in the plate. The other end of the filter is similarly installed in the lower 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.

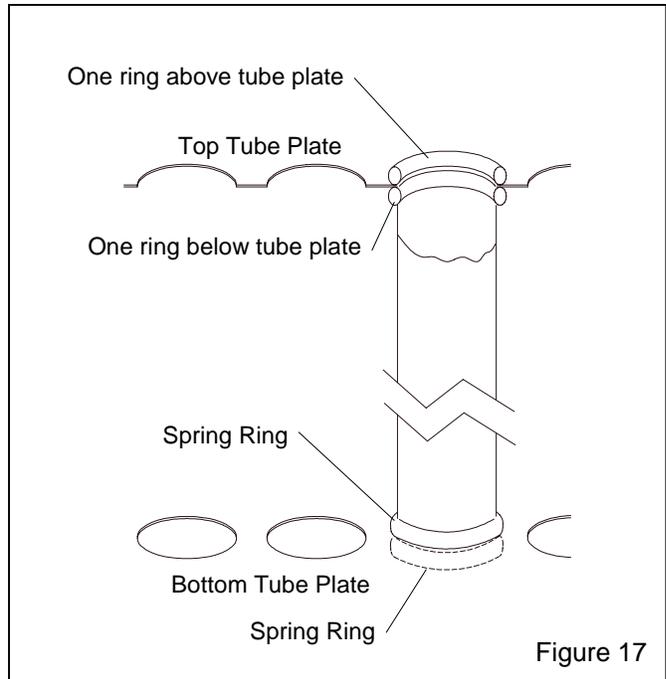


Figure 17

## 7.7 Pop-up Valve Replacement

**7.7.1** Empty the machine of media as described in Section 4.1.3.

**7.7.2** 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 media chamber**
- **Lock out and tag out the compressed air supply.**
- **Bleed the air supply line to the media chamber.**

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

**7.7.4** Using a small pipe wrench unscrew the pop-up valve guide (Figure 21, 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.

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

### **7.8 Pop-up Valve Seat Replacement**

**7.8.1** 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 7.7, and empty the machine and bleed the air supply line. Remove the inspection door assembly and work through the opening.

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

**7.8.3** 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 rubber seat and allow it to "pop" into position.

### **7.9 Reclaimer Wear-Plate Replacement**

**7.9.1** Remove reclaimer inlet adaptor and old wear plate.

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

### **7.10 Reverse-Pulse Dust Collector**

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

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## **8.0 TROUBLESHOOTING**

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### **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 Neither Media Nor Air Comes Out The Nozzle When The Foot Pedal Is Pressed.**

**8.1.1** Depressurize the blast machine, and check the nozzle to see if it is plugged.

**8.1.2** Check that the blast machine pressurizes when the foot pedal is pressed. If it does not, see Section 8.8.

**8.1.3** Check that the media metering valve and the choke valve are open.

### **8.2 Air Only (no media) Comes Out The Nozzle.**

**8.2.1** Check that the machine is not empty of media.

**8.2.2** Check that the media metering valve is not closed.

**8.2.3** Check for minor blockage in the metering valve by fully opening the metering valve, and closing the choke valve. Activate foot pedal to blow out obstructions. If this procedure fails, depressurize the machine, open the metering valve clean-out cap and check for foreign objects.

**8.2.4** 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.

**8.2.5** Check the 4-way valve as follows:

**8.2.5.1** 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.

**8.2.6** Metering valve requires service. Refer to the media metering valve owner's manual.

### **8.3 Heavy Media Flow**

**8.3.1** Check that the choke valve is open.

**8.3.2** Media metering valve may be open too far. Adjust per Section 5.2. If adjusting the media valve does not regulate media flow, empty the machine of media, depressurize the machine and shut-off the air supply, and inspect the internal parts of the valve for wear.

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

**8.4.1** Heavy media flow. Adjust per Section 5.2.

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

## **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 Abnormally High Media Consumption**

**8.6.1** Access door on reclaimer not in place, improper fit or worn gasket. Air entering reclaimer at this point will cause media to be carried into the dust collector. DO NOT operate system unless the door is closed.

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

**8.6.3** Media may be too fine or worn-out.

**8.6.4** Using friable media that rapidly breaks down.

**8.6.5** Nozzle pressure too high for media, causing media to break down.

**8.6.6** Dust collector damper open too far. See Adjusting Static Pressure in Section 5.3.

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

**8.6.8** 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.

## **8.7 Plugged Nozzle**

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

## **8.8 Blast Machine Will Not Pressurize**

**8.8.1** Check that the compressor is on and air supply valve is open.

**8.8.2** Check that the pressure regulator is not turned too low. Minimum pressure is 40 psi.

**8.8.3** Door interlocks not engaging. Check door interlock adjustment per Section 5.5.

**8.8.4** Check diaphragm in outlet valve for wear.

**8.8.5** Check pop-up valve and seat for wear and misalignment.

**8.8.6** Blocked or leaking control lines. Check all fittings and urethane tubing for blockage or leaks.

**8.8.7** Foot pedal 3 way valve defective or not engaging. Check foot pedal alignment, and inlet and outlet lines for pressure.

**8.8.8** Check that lines are not reversed on the foot pedal or pilot regulator. See schematic in Figure 5.

**8.8.9** Check the 4-way valve per Sections 8.2.4 and 8.2.5.

**8.8.10** Inspect the check valve for obstruction or broken flap.

## **8.9 Blast Machine Will Not Depressurize Or Depressurizes Too Slowly**

**8.9.1** Check for blockage in the 4-way valve mufflers.

**8.9.2** Check that the foot pedal 3-way valve exhausts air when pedal is released. If it does not, replace the switch.

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

**8.9.4** Check 4-way air valve for jamming. See Section 8.2.4 and 8.2.5.

**8.9.5** Check for blockage in the screen in the optional abrasive trap.

**8.10 Reduction In Blast Cleaning Rate**

**8.10.1** Low media level reducing media flow. Check and fill if low.

**8.10.2** Incorrect metering valve adjustment. Adjust per Section 5.2.

**8.10.3** 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.

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

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

**8.11 Poor Visibility**

**8.11.1** Poor visibility may be due to dirty tube filters or filter cartridge. Shake tube filters, and empty dust drawer regularly. Ref. RP Dust Collector Manual for pulse pressure and sequence.

**8.11.2** Check motor rotation. 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 2.13.

**8.11.3** Using soft media that rapidly breaks down, or using media that is too fine or worn out can cause poor visibility.

**8.11.4** Outlet damper closed too far restricting air flow in cabinet. Adjust static pressure per Section 5.3.

**8.11.5** Exhauster motor not operating. Exhauster must be on operation before blasting begins.

**8.11.6** Blocked intake. A blocked air intake restricts incoming air and reduces air movement in the cabinet below the minimum level.

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

**8.11.8** Reclaimer door open.

**8.11.9** Check for obstruction in flex hose between the cabinet hopper and reclaimer inlet.

**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 2.6.1 and 2.12. If shocks persist, attach a small ground wire (such as a wrist strap) from the operator to the cabinet.

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

**8.13 Dust Leaking from Dust Collector**

**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.

**8.13.4** See RP Dust Collector Owners Manual.

**9.0 ACCESSORIES AND REPLACEMENT PARTS**

**9.1 Optional Accessories**

<b>Description</b>	<b>Stock No.</b>
Conversion kits, Sentinel metering valve	
To convert from fine mesh media to coarse .....	22848
To convert from coarse mesh media to fine .....	22849
Stationary Turntable, 500 lb Capacity	
30" diameter.....	14138
48" diameter, for BNP 720 only .....	13845
500 lb. capacity turntable mounted on workcar with 6 ft. track extension	
30" diameter for BNP 600 .....	12524
30" diameter for BNP 720 .....	14139
48" diameter for BNP 720 only .....	12523
2000 lb. capacity turntable mounted on workcar with 6 ft. track extension,	
30" Turntable, for BNP-600 and BNP-720 .....	14140
48" Turntable, for BNP-720 .....	14141

Rubber curtain set, black	
for 600 .....	22373
for 720 .....	22374
Rubber curtain set, white	
for 600 .....	23528
for 720 .....	23529

Storage segment, 16": Fits between the reclaimer and blast machine. Provides nearly 2 additional cubic feet of media storage .....21128

Flex hose, heavy lined, for heavy usage with aluminum oxide. Available in 15' lengths only	
4" ID. for 900 cfm .....	12473
5" ID. for 1200 cfm .....	12465
6" ID. for 900 cfm .....	12457
7" ID. for 1200 cfm .....	12459

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

Aluminum oxide kit: Includes 3/16" boron carbide nozzle, heavy lined flex hose, black rubber curtains with eyelets and curtain hardware. NOTE: Reclaimer wear plates are standard on current reclaimers. If the aluminum oxide kit is for an old cabinet or if the wear plate is worn, order a separate wear plate listed under this section.

600 w/ 900 cfm .....	21104
600 w/ 1200 cfm .....	21811
720 w/ 900 cfm .....	21105
720 w/1200 cfm .....	21813

Wear plate kit	
for 900 cfm reclaimer .....	14055
for 1200 cfm reclaimer .....	19223
for 1800 cfm reclaimer .....	23028

Rubber lined reclaimer:  
 900 cfm ..... special order, consult local distributor  
 1200 cfm ..... special order, consult local distributor  
 1800 cfm ..... special order, consult local distributor

Vortex cylinder assembly, externally adjustable for use with fine-mesh or lightweight media.  
 for 900 cfm exhauster mounted reclaimer .....23047

Lock pins (package of 25)for twist-on type hose couplings ..... 11203

Safety cable, 1/2" hose .....	15012
Manometer kit .....	12528
Abrasive trap .....	02011

Supa hose, 3/4" ID x 25 feet, uncoupled .....21121  
 NOTE: Supa hose requires the use of contractor thread nozzle holder and nozzle.

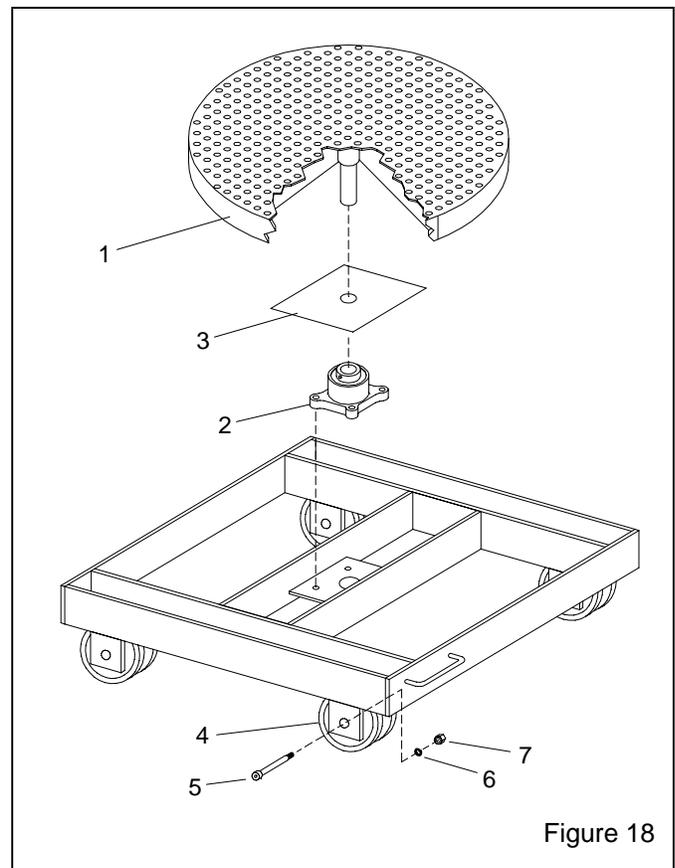
Nozzle holder w/contr. thread, for 3/4" Supa hose ..	11398
Coupling, for 3/4" Supa hose .....	11395
Gasket, coupling for 3/4" Supa hose .....	08415

Nozzle, short venturi for use with Supa hose	
SYR-3, 3/16" orifice .....	04574
SYR-4, 1/4" orifice .....	04575
SYR-5, 5/16" orifice .....	04576

**500 Lb. Capacity Workcar and Track, Figure 18**

Item	Description	Stock No.
1.	Turntable, 500 lb. capacity 30" diameter for BNP-600 .....	21390
	48" diameter for BNP-720 .....	21400
2.	Bearing, 1-1/2" bore, 2 reqd. with 48" table ...	11517
3.	Protector, bearing .....	13479
4.	Wheel, 6" V groove .....	12220
5.	Bolt, 1/2" shoulder .....	13477
6.	Lock-washer, 1/2" .....	03516
7.	Nut, 1/2" hex .....	03511

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



9.2 Cabinet Replacement Parts, Figure 19

Item	Description	Stock No.
1.	Gasket, door, adhesive backed 600 requires 21 ft., 720 requires 25 ft. ....	21236
2.	Light assembly .....	22670
3.	Window glass, 20" x 30" .....	12213
4.	Gasket, 5/16" x 3/4", applied to cabinet per foot, 9 feet required .....	00189
5.	Gasket, 5/32" x 3/4", applied to window frame per foot, 9 feet required .....	00192
6.	Cover lens, 20" x 30", pkg. of 5 .....	23232
7.	Nut, plastic, window frame, 2 required .....	23035
8.	Grate, slotted front for 600 .....	11824
	for 720 .....	12971
9.	Grate, unslotted for 600 .....	11825
	for 720 (3 required) .....	12970

10.	Glove set .....	11215
11.	Glove, left hand only .....	12710
12.	Glove, right hand only .....	12711
13.	Clamp .....	11576
14.	Grommet, blow off hose .....	11798
15.	Support adaptor, blast hose .....	16554
16.	Foot pedal assembly, less tubing .....	20483
17.	Muffler, outlet .....	05068
18.	Actuator bracket, adj., door interlock .....	19152
19.	Over-travel stop, door interlock .....	20004
20.	Detent sleeve, door interlock .....	15042
21.	Air valve, 3 way, door interlock .....	12202
22.	Eyebolt, 5/8" .....	13421
23.	Cover, track opening .....	12972
24.	Regulator, 1/8" NPT pilot .....	12715
25.	Gauge, pressure .....	01908
26.	Mastic seal, 11 feet required .....	06105

Refer to the electrical schematic for electrical parts

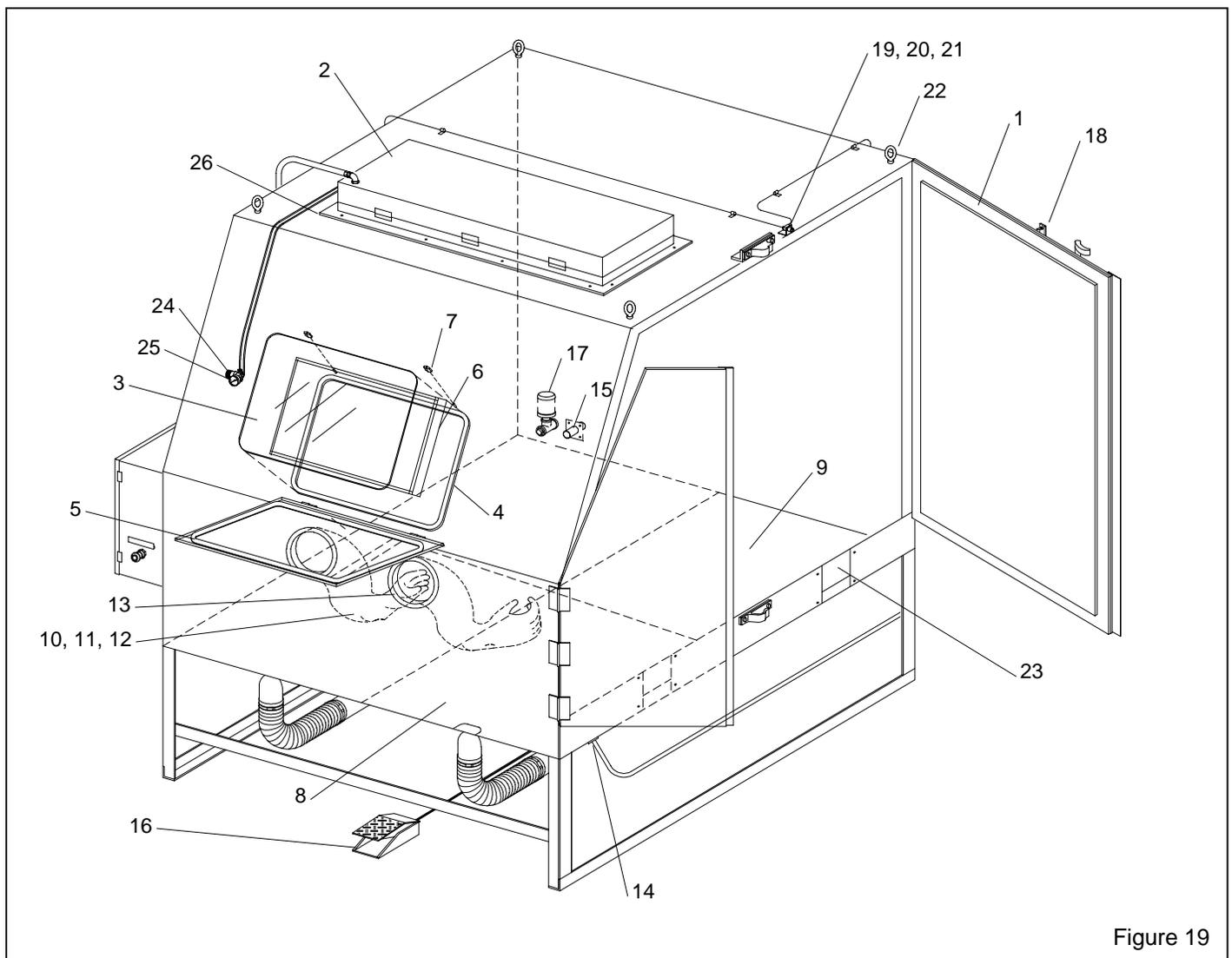


Figure 19

9.3 Plumbing Assembly, Figure 20

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 feet required	12478
7.	Tee, 1/8" tube barb	11734
8.	Hose end, 1" barb x 1" female	11719
9.	Adaptor, 1" male NPT x 1" male flare	11720
10.	Valve, 4-way air	12203
11.	Adaptor, elbow 1/4" male NPT x 3/8 tube	11685
12.	Valve, diaphragm outlet	03371
13.	Hose end, 1" barb x 1" male	11721
14.	Clamp, hose, 1-7/16" dia.	21270

15.	Bushing 1/4"x 1/8" NPT	02010
16.	Hose, 1" Supa-T, bulk, 10 feet required	23104
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, specify feet required	12472
23.	Regulator 1/8", 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.	Media metering valve, Sentinel for 50 mesh and finer media	21439
	for 50 mesh and coarser media	20608
28.	Regulator, 1" pilot operated w/ gauge	12052
29.	Tee, 1/4" brass	02025
30.	Nipple, 1/4" Hex	02808
31.	Filter, 1" w/ auto drain	22425

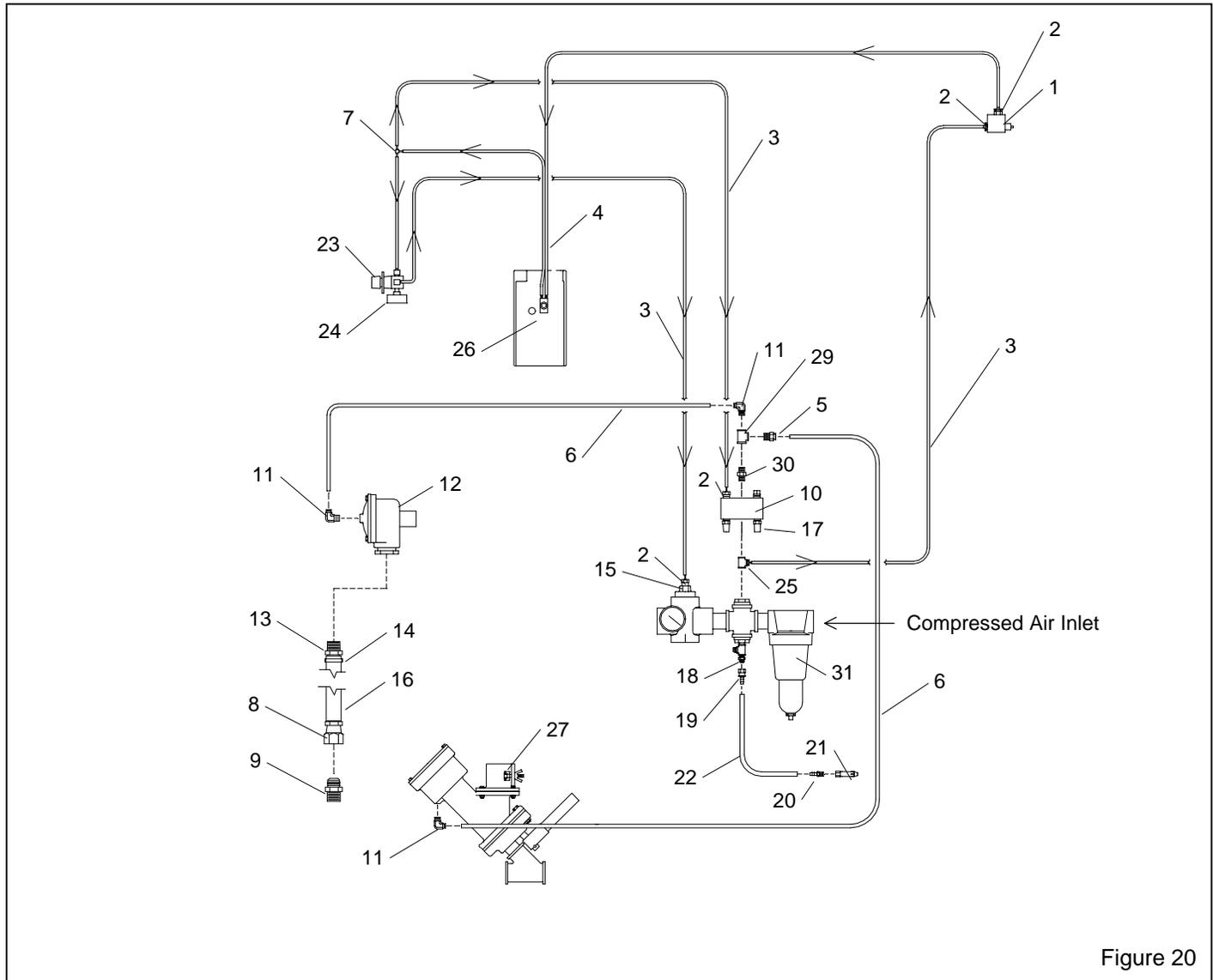


Figure 20

9.4 Blast Machine, Figure 21

Item	Description	Stock No.
(-)	Blast Machine Assembly, 2 cu. ft. capacity, Complete	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, pusher line	22508
7.	CF Coupling, 1-1/4"	00551
8.	Media metering valve, Sentinel for 50 mesh and finer media	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.	Outlet valve, 1" diaphragm	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" blast hose, CQA-1/2	00599
21.	Valve, 4-way air	12203
22.	Nozzle holder, CHE-1/2	00577
23.	Blast hose, 1/2" x 16' coupled includes items 20, and 22	01251
24.	Nozzle, tungsten carbide CT-2, 1/8" orifice	01351
	CT-3, 3/16" orifice, std.	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" dia.	21270
28.	Hose end, 1" barb x 1" female	11719
29.	Hose, 1" Supa-T, bulk 10 feet required	23104
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

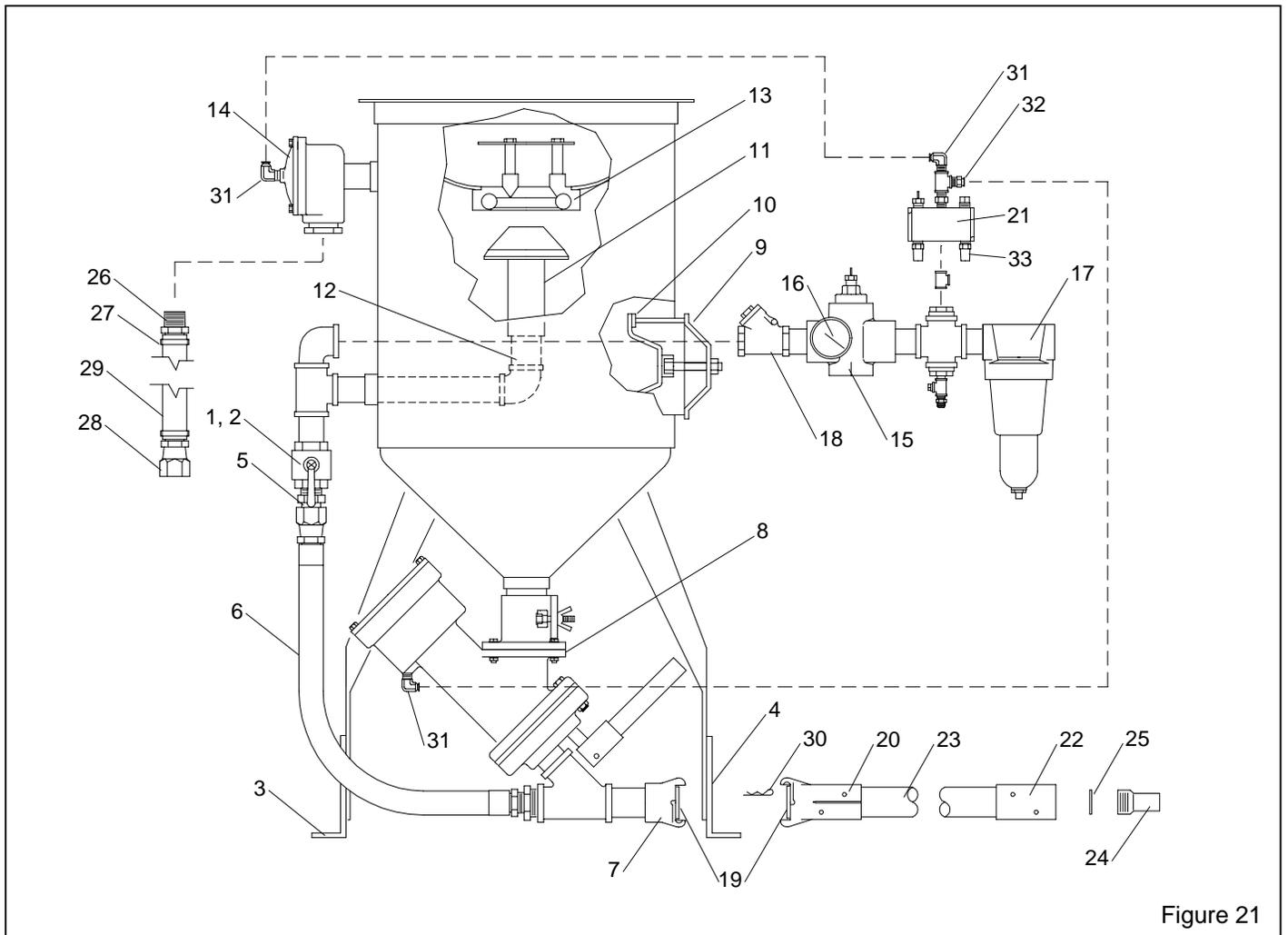


Figure 21

9.5 Sentinel Valve Replacement Parts

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

9.6 1" Diaphragm Outlet Valve, Figure 22

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

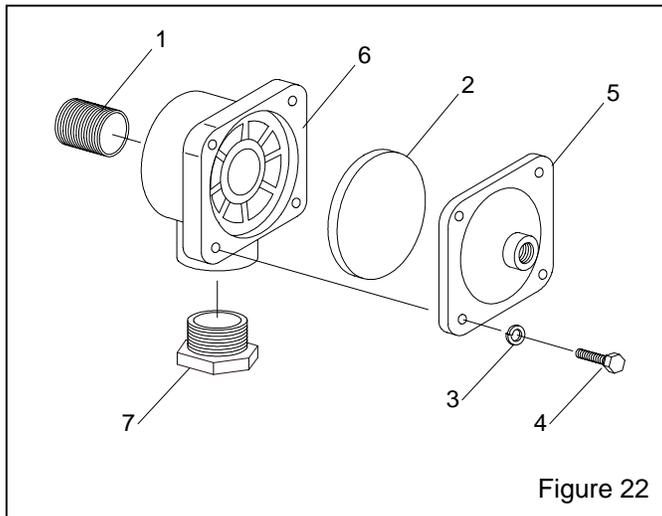


Figure 22

9.7 Abrasive Trap, Figure 23, 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 and 9)	01925

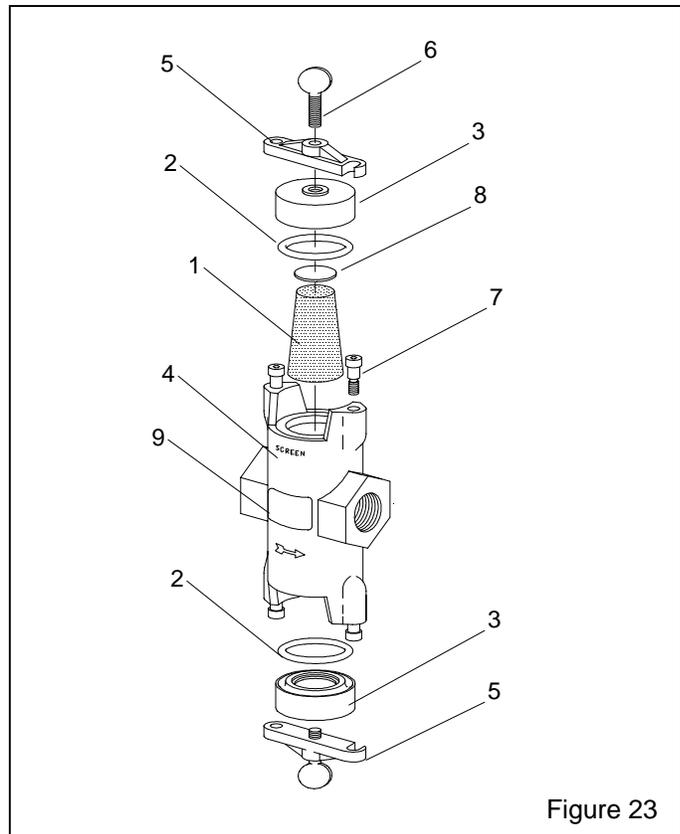


Figure 23

9.8 Foot Pedal Assembly, Figure 24

Item	Description	Stock No.
(-)	Foot pedal assembly, less tubing	20483
1.	Top, foot pedal	20017
2.	Base, foot pedal	19991
3.	Valve, 3 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 cut	11389
10.	Bumper, rubber	21522

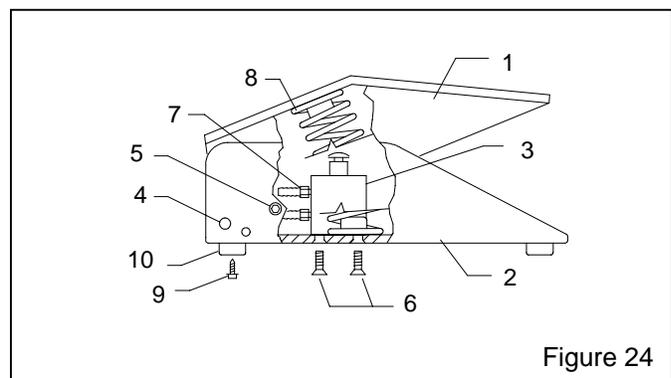


Figure 24

9.9 Reclaimer, Figure 25

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.	Hose support, inlet 900 cfm, 6", optional .....	16887
	1200 cfm 7" .....	20596
	1800 cfm, 8" .....	20597
13.	Vortex cylinder assembly, for 900 cfm exhauster mounted reclaimer (optional) .....	23047
14.	Vortex cylinder assembly, adjustable, standard with pull-through reclaimer 900 cfm .....	23046
	1200 cfm .....	19087
	1800 cfm .....	19090
15.	Gasket, 2" adhesive backed, specify feet required .....	13089

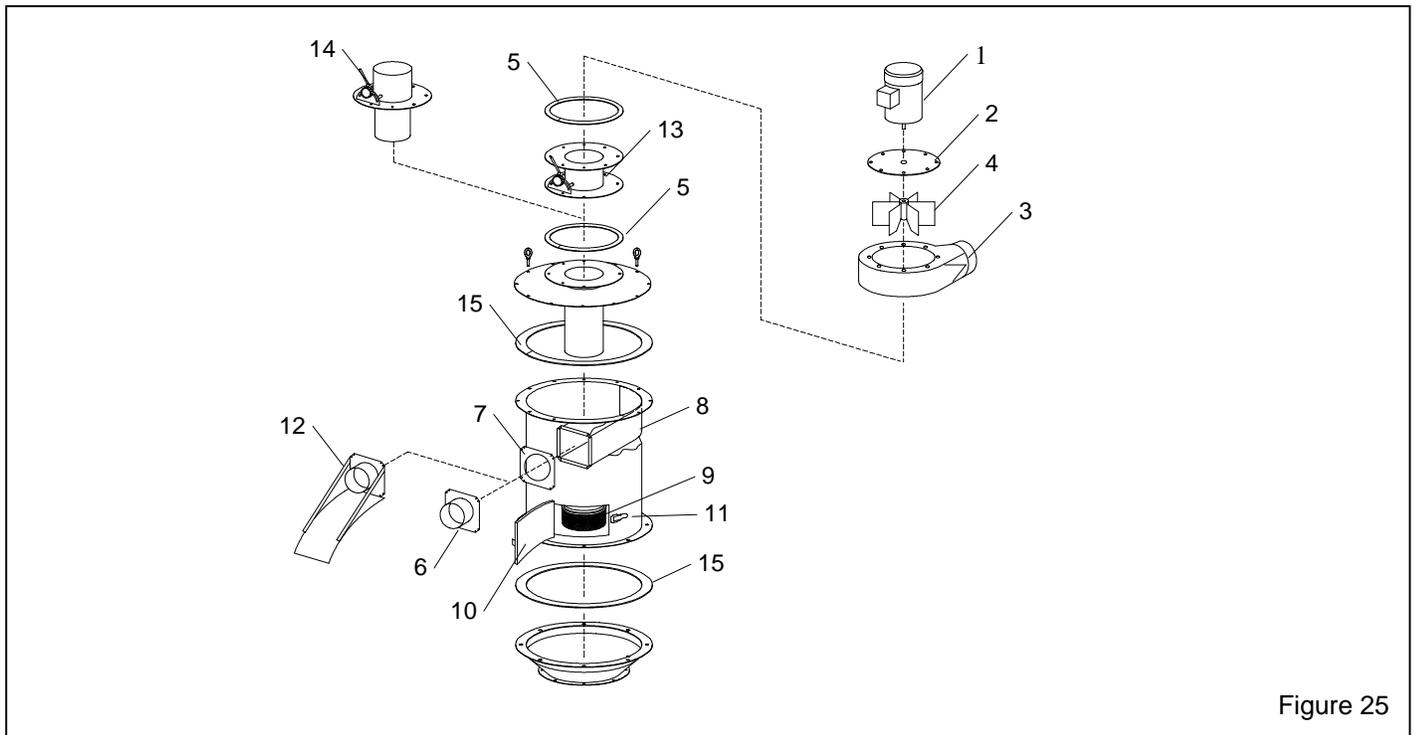


Figure 25

9.10 Flex Hose & Wye Adaptor, Figure 26

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 Pipe adaptor	
	two 4" x one 6" .....	12379
	two 5" x one 7" .....	16939
	Consult local distributor for larger sizes	

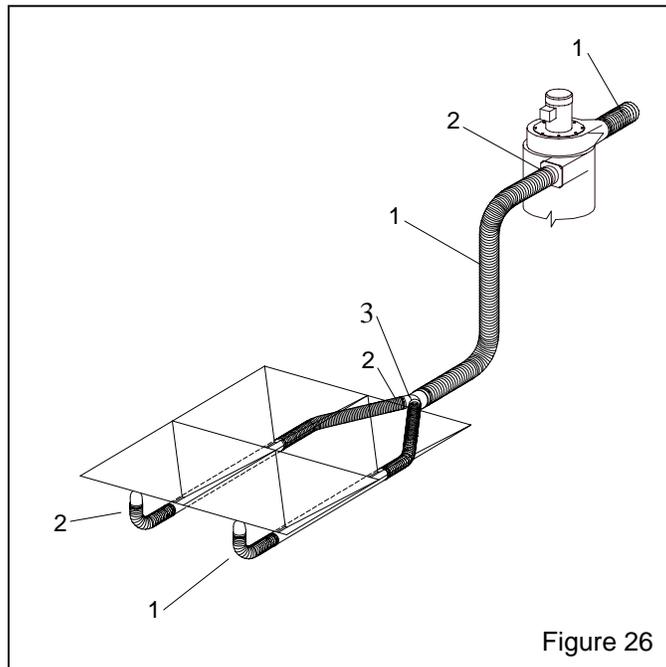


Figure 26

9.11 Dry Filter Dust Collector, Figure 27

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

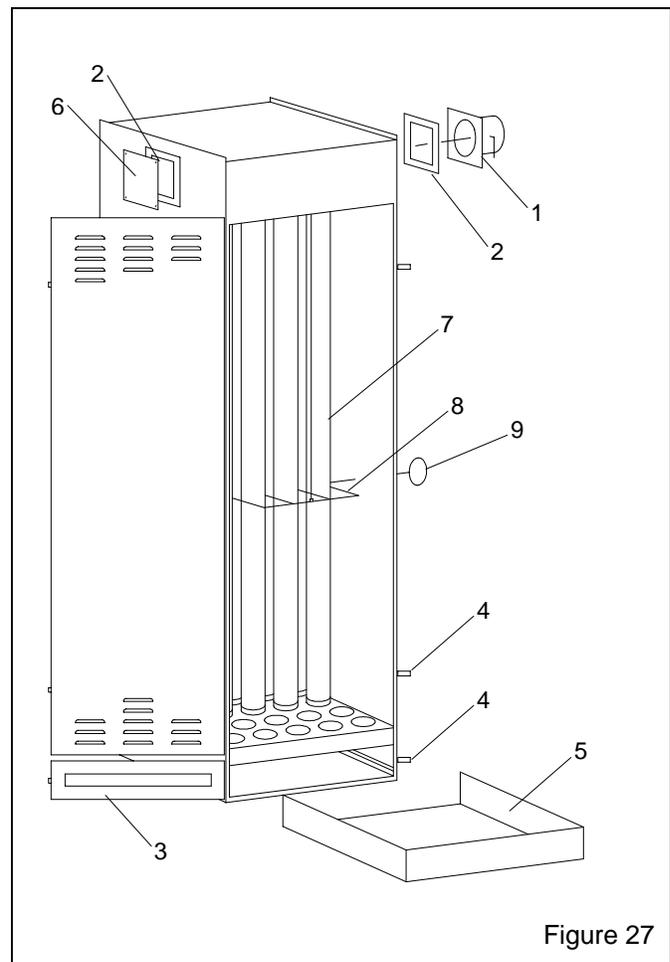


Figure 27