

# INEX SUCTION CABINET With 300 CFM Reclaimer



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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.

The products described in this material may be combined by the user in a variety of ways for purposes determined solely by the user. No representations are intended or made as to the suitability or engineering balance of the combination of products determined by the user in his selection, nor as to the compliance with regulations or standard practice of such combinations of components or products.

It is the responsibility of the knowledgeable, experienced users of the products mentioned in this material to familiarize themselves with the appropriate laws, regulations and safe practices that apply to these products, equipment that is connected to these products, and materials that may be used with these products.

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 INEX series suction blast cabinets with 300 cfm reclaimer and all push through dust collector options.

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 See Figure 1 for arrangement of components. INEX 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. INEX cabinets consist of three major components:

1. Cabinet Enclosure
2. Reclaimer
3. Dust Collector

### 1.4 Theory of Operation

1.4.1 When the air supply is on, and the cabinet doors are closed, the cabinet is ready for operation by actuation of the foot pedal. Fully depressing the foot pedal causes air to flow through the blast gun. Air moving through the gun draws media into the blast gun mixing chamber. The media mixes with the air and is propelled out the nozzle. After striking the object being blasted, the blast media, along with fines, dust, and byproducts 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 returned to the reclaimer hopper for reuse. Dust and fines are drawn through the reclaimer into the filter bag or dry filter dust collector, which traps the dust and discharges clean air. When the foot pedal is released, blasting stops.

### 1.5 Dust Collector Options

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## WARNING

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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.

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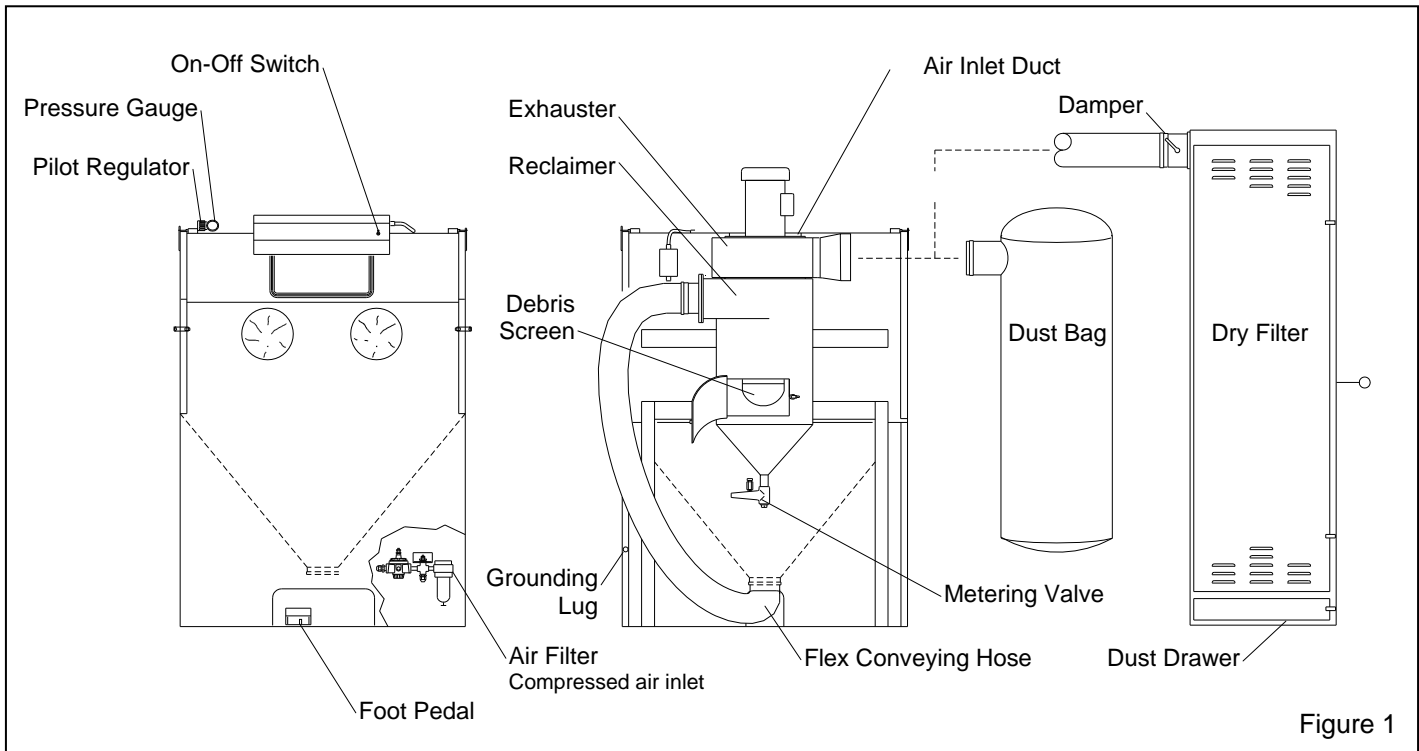


Figure 1

**1.5.1 Dust Bag:** The dust bag mounts on the reclaimer outlet. It is a single filter bag, which collects dust on its inner surface. Dust bags are adequate for occasional use. The bag must be emptied frequently. This type of dust collection must never be used in applications which generate toxic dust.

**1.5.2 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 moderate dust contamination. The filters must be shaken manually every two hours and the dust drawer emptied regularly. This type of dust collection must never be used in applications which generate toxic dust.

## 1.6 Nozzle Options

**1.6.1** Unless otherwise specified at the time of order, cabinets are shipped with a 5/16" orifice ceramic nozzle and No. 5 (5/32" orifice) air jet. Optional, more durable tungsten carbide and boron carbide nozzles are available and shown under Accessories and Replacement Parts in Sections 8.1 and 8.3. Use boron carbide nozzles when blasting with aggressive media such as aluminum oxide and silicon carbide.

## 1.7 Media

**1.7.1** BNP Suction Blast Cabinets utilize most common reusable media 25 mesh and finer, that is 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 noted are intended as guidelines only, and are based on standard 5/16" orifice nozzle (5/32" air jet) and average conditions.

As a rule, larger nozzles deliver more media, thus demand greater air movement through the cabinet and higher reclaimer cleaning rates. With larger nozzles, the maximum size of media decreases from those recommended. Media coarser than those recommended may be too dense for the reclaimer to recover from the cabinet hopper. Media finer than those recommended may decrease visibility, and increase carryover to the dust collector. Using media 200 mesh and finer usually require the addition of the optional, externally adjustable vortex cylinder. See Section 4.5.

**1.7.2 Steel:** Steel grit or shot should not be used with the INEX Cabinet. The cabinet is too small to prevent peening of the cabinet weldment, and 300 cfm reclaimers are too small to efficiently convey metallic media.

**1.7.3 Sand and Slag:** Sand should never be used because of the respiratory hazards associated with media containing free silica. Slags are not recommended because they rapidly break down.

**1.7.4 Silicon Carbide, Aluminum Oxide, and Garnet:** These are the most aggressive, high volume abrasive in the blasting industry. Aggressive media such as these may be used, but the service life will be reduced on any equipment components which come in contact with the abrasive. To avoid unscheduled down time, periodically inspect the reclaimer wear plate, exhauster housing and paddle wheel, hoses, and nozzle for abrasive wear. Nozzles lined with boron carbide are recommended to extend nozzle wear life. See Optional Accessories in Section 8.1.

**1.7.5 Glass Bead:** Most beads are treated to ensure free-flow operation even with moderately high humidity. Glass beads subjected to moisture may be reused after thorough drying and breaking up of any lumps.

**1.7.6 Fine-mesh Media:** The optional adjustable vortex cylinder should be installed when using 200-mesh and finer media. 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.

**1.8 Compressed Air Requirements**

**1.8.1** The size of the compressor required to operate the cabinet depends on the size of the air jet and blasting pressure. Unless specified otherwise, cabinets are supplied with a No. 5 (5/32" orifice) jet. See table in Figure 2 to determine cfm requirements. Consult with a compressor supplier for suggested compressor size based on the air consumption.

BNP Gun	Jet	Nozzle	CFM	PSI
No. 4	1/8"	5/16"	21	80
No. 5	5/32"	5/16"	32	80
No. 6	3/16"	3/8"	47	80
*No. 7	7/32"	7/16"	62	80
*No. 8	1/4"	1/2"	86	80

Air Consumption in cfm

\* Using this combination of jet and nozzle in applications that produce excessive dust may cause poor visibility.

Figure 2

**1.8.2** The air filter at the air inlet connection reduces condensed water from the compressed air. Its use is especially important in areas of high humidity, or when fine-mesh media are used. Moisture causes media to clot and inhibits free flow through the feed assembly. If moisture problems persist, an air dryer may be required.

**1.9 Electrical Requirements**

**1.9.1** The system requires 115-VAC, 1-Ph, 60-Hz, with 15 Amps service.

**1.9.2** A power cord is supplied. No additional wiring is required. **SEE FOLLOWING IMPORTANT WARNING.**

**⚠ WARNING**

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

**1.9.3** Observe the subsequent warning and check the rotation of the motor. To check, jog 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. Proper rotation is indicated by the arrow on the exhauster housing. The fan should rotate toward the exhauster outlet.

**⚠ WARNING**

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

**2.0 INSTALLATION**

**2.1 General Installation Notes**

**2.1.1** See Figure 1 for the general arrangement. Place all components in a convenient location where compressed air and electrical services 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. Determine the best location, and position all units before final assembly.

**2.2 Connect Conveying Hose**

**2.2.1** Connect flexible conveying hose between the cabinet hopper transition and reclaimer inlet adaptor. 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. Clamp flex hose securely in position

with worm clamps provided. NOTE: The hose wire helps dissipate static electricity 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.

**2.3 Connect Compressed Air Supply Line(s)**

**2.3.1** See the table in Figure 3 to determine the minimum ID of air supply line to the cabinet air inlet. A smaller diameter hose may reduce blasting efficiency.

Air Line Length	Jet Size		
	No. 4	No. 5	No. 6
25 feet	3/4"	3/4"	1"
50 feet	3/4"	3/4"	1"
75 feet	3/4"	1"	1"
100 feet	3/4"	1"	1"
Minimum compressed air line ID			

Figure 3

**2.3.2** Install an isolation valve at the air source to enable depressurization for service, and connect the air line from the air source to the air filter inlet located on the inside of the cabinet skirt.

**⚠ 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.**

**2.4 Ground Cabinet**

**2.4.1** 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.

**2.5 Dust Bag and Dry Filter Dust Collector.**

**2.5.1 Dust Bag**

**2.5.1.1** Attach the bag to the reclaimer outlet. Install the bag vertically with the zipper facing down. Use worm clamp to secure.

**2.5.2 Dry Filter Dust Collector**

**2.5.2.1** Connect the flexible exhaust hose between the reclaimer outlet and dry filter inlet adaptor. 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 helps ground each segment. In order for the hose wire to dissipate static electricity, the wire must touch the metal of each segment.

**2.6 Final Assembly**

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

**2.6.2** 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 5.4. When the cover lens becomes pitted or frosted, replace it.

**3.0 OPERATION**

**3.1 Media Loading and Unloading**

**3.1.1 Media Loading:** With the exhauster off, pour clean dry media into the reclaimer hopper through the reclaimer door. Do not fill past the cone on the reclaimer. **Do not pour media directly into the cabinet hopper, as overfilling may occur.** Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose. Refill only after all media has been recovered from the cabinet. The minimum amount of media to charge the system is approximately 10 Lbs.

**3.1.2 Media Unloading:** To empty the cabinet and reclaimer of media, allow all media to be recovered from the cabinet, then turn off the exhauster and place an empty container under the metering valve. Unscrew the plastic plug from the metering valve, permitting media to flow into the container. If media does not flow, it has caked. Open the fill door and stir media until it starts to flow. Replace the plug when the reclaimer is empty.

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### 3.2 Loading and Unloading Parts

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#### 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.**

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3.2.1 Load and unload parts through either door.

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

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

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

### 3.3 Blasting Operation

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#### 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 doors are opened, or exhauster is switched off.**
  - **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.**
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3.3.1 Slowly open the air valve on the air supply hose to the cabinet. Check for air leaks.

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

3.3.3 Adjust the pilot-pressure regulator located atop the cabinet, to the required blast pressure per Section 4.1.

3.3.4 Load parts.

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

3.3.6 Insert hands into gloves.

3.3.7 To blast; hold the gun firmly and apply pressure to the foot pedal; blasting will begin immediately.

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#### WARNING

**Shut down the cabinet immediately if dust discharges from the collector or bag. 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 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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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.

3.3.8 When blasting very small parts, place an appropriately sized screen over the grate to prevent parts from falling into the hopper. Should an object fall through the grate, stop blasting immediately and retrieve it.

### 3.4 Stop Blasting

3.4.1 To stop blasting, remove pressure on the foot pedal.

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

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

**3.5 Blasting Technique**

**3.5.1** 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 3" to 6" from the surface of the part.

**4.0 ADJUSTMENTS**

**4.1 Blasting Pressure**

**4.1.1** The pilot regulator located on the top, left side of the cabinet, enables the user to adjust blasting pressure to suit the application. The suitable pressure for most purposes is 80 psi. Lower pressures may be used for delicate work. In all cases, highest production can be achieved only when pressure is carefully monitored.

**4.1.2** To adjust, unlock the knob, and turn it clockwise to increase pressure or counter-clockwise to decrease pressure. Pressure will usually drop from closed-line pressure when blasting is started. Once operating pressure is set, lock the knob to maintain the setting.

**4.2 Air Jet Adjustment**

**4.2.1** The air jet should be screwed 4-1/2 to 5 full turns into the gun body. Doing so will leave 3-1/2 to 4 threads exposed past the lock nut. Tighten the lock nut to hold the jet in place. See Section 8.1 or 8.3 for optional adjusting tool.

**4.3 Media/Air Mixture, Figure 4**

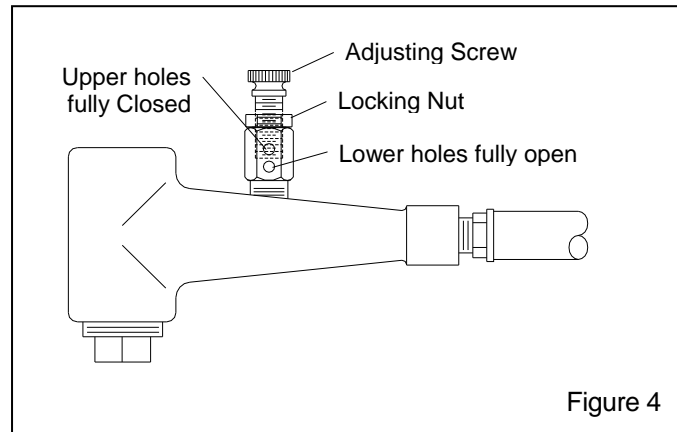
**4.3.1** Check the media stream for correct media/air mixture; media flow is smooth and appears as a light mist coming from the nozzle.

**4.3.2** If media does not flow smoothly, loosen the locking nut, and adjust the metering screw until the upper holes in the metering stem are closed-off, and the lower holes are fully open. See Figure 4. This adjustment is a starting point.

**4.3.3** If pulsation occurs in the media hose, either media is damp and caked, or not enough air is entering the media stream. While blasting, loosen the locking nut and slowly turn the adjusting screw out (counterclockwise when viewed from the top) until the media flows smoothly. Tighten the locking nut finger-tight to maintain the setting.

**4.3.4** If media flow is too light, decrease air in the mixture by turning the metering screw in (clockwise when

viewed from the top) covering more of the holes so less air enters the media hose. Tighten the locking nut finger-tight to maintain the setting.



**4.4 Static Pressure (dry filter models only)**

**4.4.1** Correct static pressure requirements vary with size, weight and type of media.

**4.4.2** Adjust static pressure by opening (handle horizontal) or closing (handle vertical) the damper. The damper is located on the inlet on dry. 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.

**4.4.3** A manometer is useful when adjusting or monitoring static pressure. The optional manometer kit is listed under Optional Accessories in Section 8.1. 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"

**4.4.4** 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 4.5, and Accessories in Section 8.1.

**4.5 Optional Externally Adjustable Vortex Cylinder**

**4.5.1** The adjusting lever for the vortex cylinder is mounted on the spacer between the reclaimer body and exhauster 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 4.4. Once the damper has been adjusted, adjust the cylinder as follows.

**4.5.2** **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 further adjustment is required.

**4.5.3** **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.

**4.5.4** 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.

**4.6 Door Interlocks, Figure 5**

**⚠ WARNING**

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

**4.6.1** The door interlocks disable the blasting control circuit when the doors are open. To enable blasting, the door interlock switches 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.

**4.6.2** Close cabinet doors.

**4.6.3** 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.

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

**4.6.5** 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.

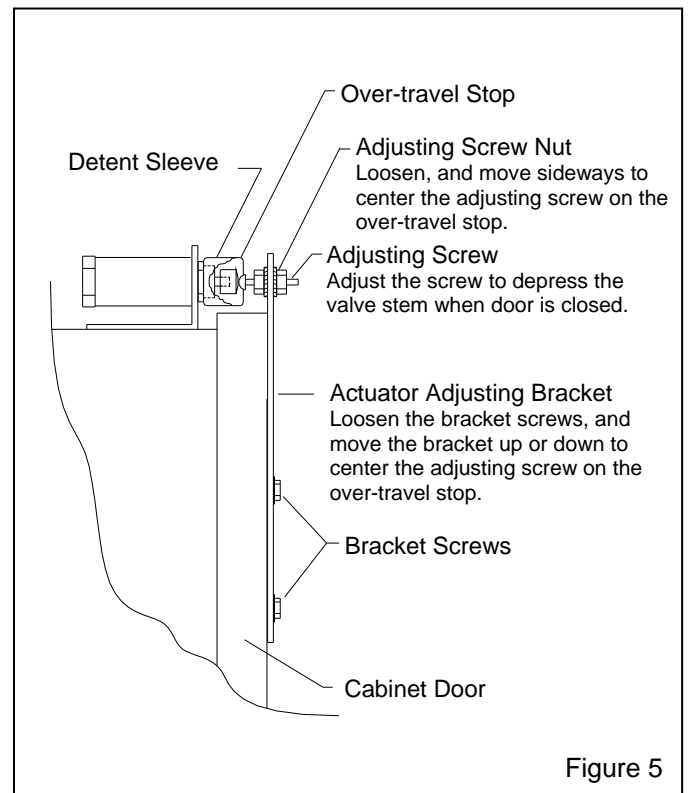


Figure 5

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## 5.0 PREVENTIVE MAINTENANCE

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### 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 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. 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.

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

#### 5.1. BNP Gun Assembly

5.1.1 Inspect the BNP gun for wear. Inspection and replacement of the air jet cover before it wears through will prolong the life of the jet.

#### 5.2 Dust Bag

5.2.1 The bag collects dust on its inner surface. A high dust level in the cabinet indicates a dirty bag. Empty as frequently as necessary to maintain visibility in the cabinet, and before the weight of dust prevents full inflation of the bag. A zipper opening is located in the bottom of the bag for emptying. NOTE: Poor visibility and frequent emptying of the bag could indicate the need to upgrade to a dry filter dust collector.

#### 5.3 Dry Filter Dust Collector

5.3.1 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 dust from the filters. Every two hours, turn off the exhaustor and shake the filters vigorously.

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### CAUTION

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

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5.3.2 Empty the dust collector drawer regularly. Begin by checking the drawer daily and adjust frequency based

on usage and breakdown rate of media. Dump the contents into a suitable disposal container.

### CAUTION

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

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NOTE: Blast media is usually non-toxic, however, some materials removed by the process may be toxic. **Do not use the INEX cabinet for blasting toxic materials.** Use cabinets with reverse pulse dust collectors and HEPA filters for those applications.

#### 5.4 View Window Cover Lens

5.4.1 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.

5.4.2 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, peel it off and replace it.

#### 5.5 Reclaimer Debris Screen

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

#### 5.6 Air Filter

5.6.1 The cabinet is equipped with a manual drain air filter. Drain the filter at least once a day, and more often if water is present. Moist air inhibits the flow of media. If moisture continues to be a problem, a dryer or after cooler may be required in the air supply line.

#### 5.7 Media Hose

5.7.1 To avoid unscheduled down-time, periodically inspect the media hose for thin spots, by pinching it every 6 to 12 inches. Replace the hose when it becomes soft.

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## 6.0 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 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.

### 6.1 Gloves

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

**6.1.2** 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.

### 6.2 Nozzle

**6.2.1** Replace the nozzle when its diameter has increased by 1/16", or when suction diminishes noticeably. To change the nozzle, unscrew the holding nut from the gun end, and pull the nozzle from the gun. Inspect the nozzle O-ring and replace if worn or damaged. Insert a new nozzle, placing the tapered end toward the jet. Screw the holding nut onto the gun.

### 6.3 View Window Replacement

### **⚠ WARNING**

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

**6.3.1** Swing the light-shield up and tie it in place, as shown in Figure 6.

**6.3.2** Remove the filler strip by pulling it out of the window molding, as shown in Figure 6.

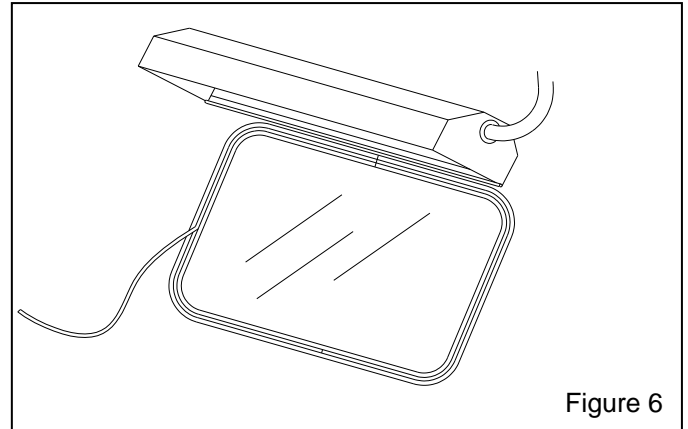


Figure 6

**6.3.3** Place an arm into a glove, and push the bottom edge of the window out of the molding, as shown in Figure 7, while supporting the top of the window with the other hand.

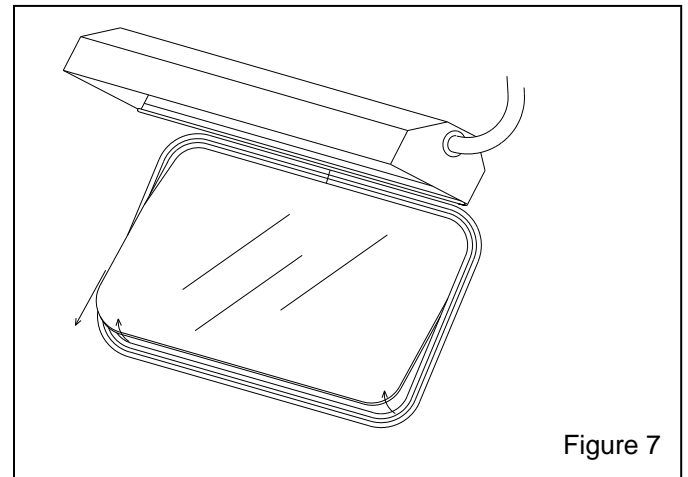


Figure 7

**6.3.4** Pull the window downward to remove the window from the molding, as shown in Figure 8.

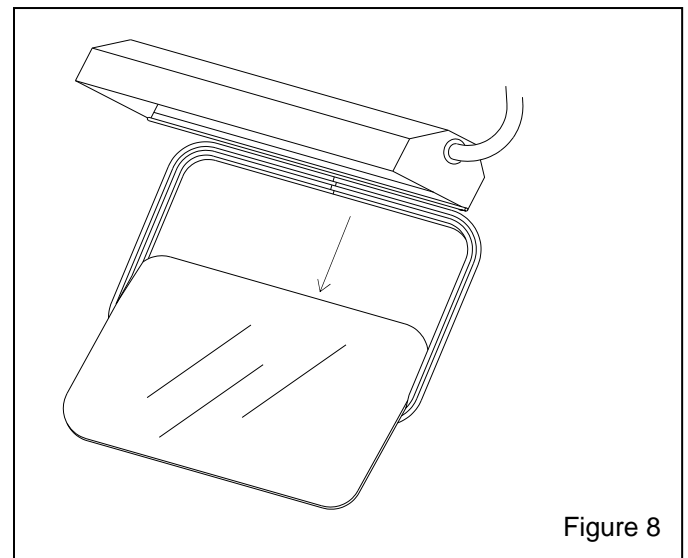


Figure 8

**6.3.5** If the window molding needs replacing, replace it in the same order as the old; the narrow channel fits over the metal edge of the opening, as shown in Figure 9. The molding ends should meet in the middle of the top, straight section of the opening. Molding should be compressed so the ends are tightly sealed.

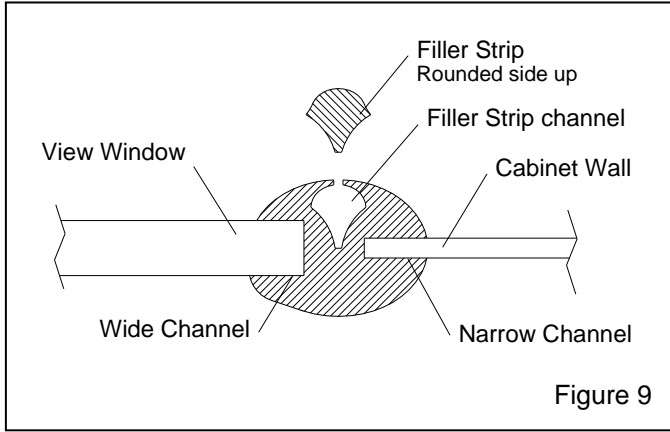


Figure 9

**6.3.6** Spray silicone lubricant into the window channel (wide channel) on the molding, and slide the window into the channel, as shown in Figure 10. Place an arm into a glove to support the top edge of the bottom side of the window with one hand, while guiding the top edge into the molding with the other.

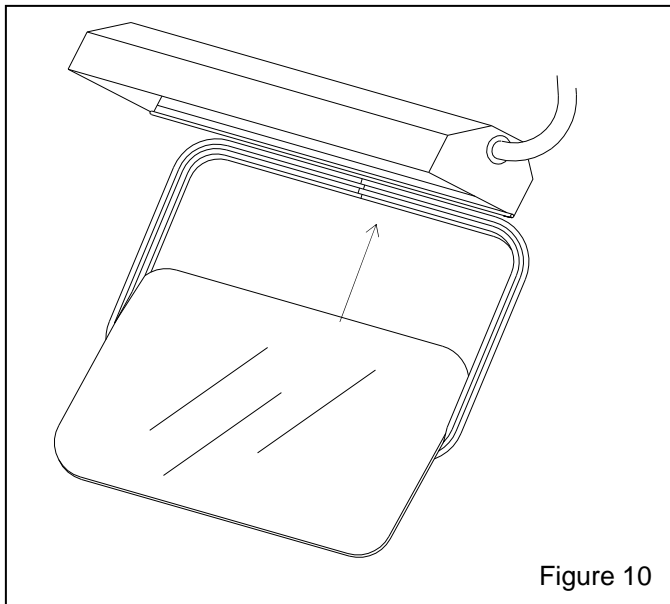


Figure 10

**6.3.7** Use a nylon window stick, Stock No. 22933, as shown in Figure 11, and work the window channel lip over the glass. When this is done, the window should be entirely within the molding's window channel.

**6.3.8** Wipe, or spray the filler strip with silicone lubricant to reduce friction. Thread about half of the strip into the installation tool, Stock No. 12176.

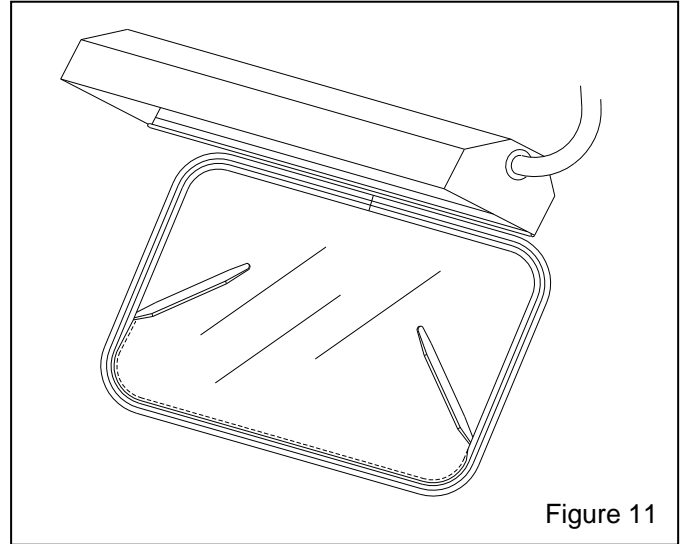


Figure 11

**6.3.9** Insert the end of the installation tool and filler strip into the filler strip channel of the molding, about two inches to the left of the window molding ends, as shown in Figure 12. The rounded side of the filler strip faces up.

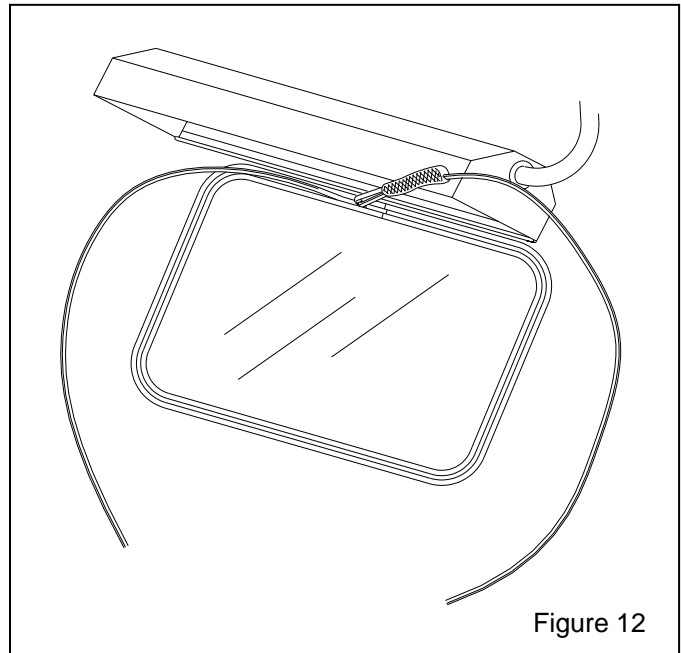


Figure 12

**6.3.10** Feed the filler strip while pulling the tool through the top of the channel, down the side and across the bottom until that end of the strip is in place. Ref. Figure 13.

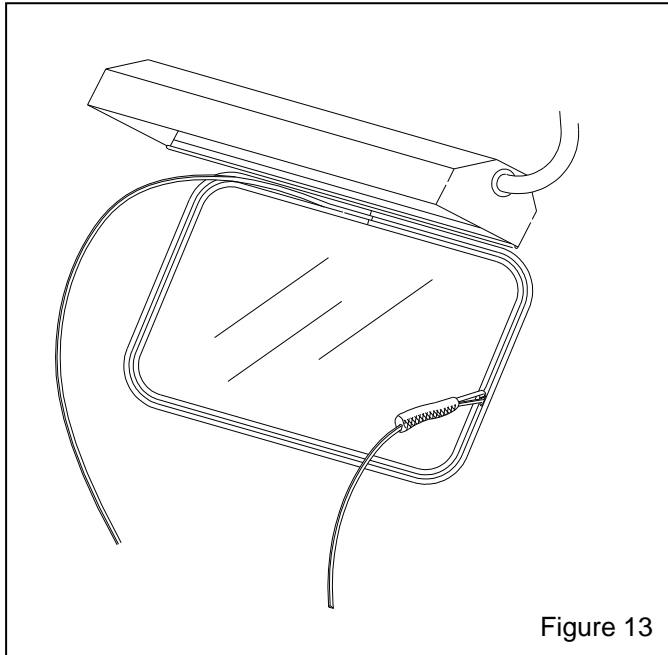


Figure 13

**6.3.11** Repeat steps 6.3.9 and 6.3.10 on the other end of the filler strip. Use the window stick to push the filler strip into the molding at any spot the strip is not fully seated. Place the light-shield in its normal position.

#### 6.4 Dry Filter Tube Replacement, Figure 14

### 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.

**6.4.1** 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 14.

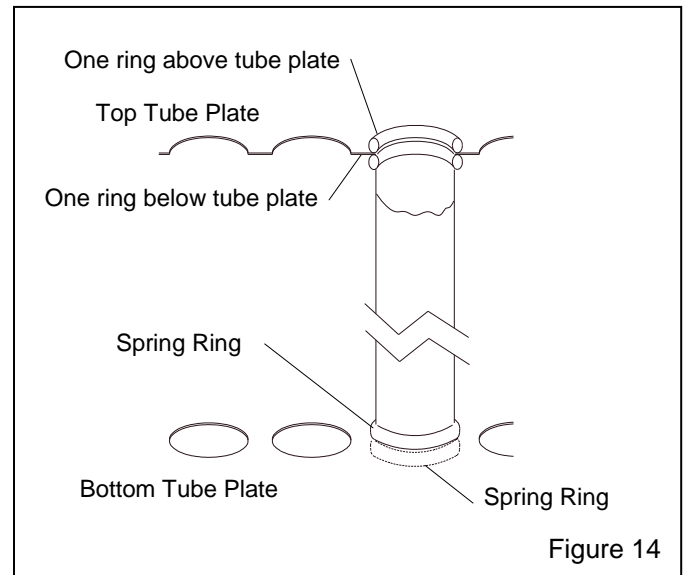


Figure 14

**6.4.2** The tubular filter is held firmly by spring rings above and below the perimeter of the hole in the top and bottom tube plate. The filters fit tight to prevent dust leakage. 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.

#### 6.5 Dust Bag

**6.5.1** Replace the bag at first sign of dust leak, or as necessary to maintain visibility in the cabinet. If visibility is poor, periodic washing may restore the porosity of the cloth and increase ventilation through the cabinet.

#### 6.6 Reclaimer Wearplate Replacement

**6.6.1** Remove the reclaimer inlet adaptor and old wearplate. The wearplate is held in place by screws attached from the outside of the reclaimer.

**6.6.2** Angle the new wearplate into the 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 wearplate against the inner wall of the reclaimer and install sheet metal screws to hold in place. Caulk any gaps or voids around the wearplate to prevent rapid wear in those areas.

## 7.0 TROUBLESHOOTING

### WARNING

To avoid serious injury, observe the following when troubleshooting.

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

### 7.1 Poor Visibility

**7.1.1** Dirty filter bag or tube filters. Shake tube filters, and empty dust drawer regularly.

**7.1.2** Motor rotating backwards. The motor should rotate as indicated by the arrow on the housing. If it does not rotate in the proper direction, **lockout and tagout power** and switch the motor leads as shown on the motor plate. See Section 1.9.3.

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

**7.1.4** Dust collector damper closed too far restricting air movement in cabinet. Adjust static pressure per Section 4.4.

**7.1.5** Blocked air inlet duct. Blockage in the air intake ducts restricts incoming air and reduces air movement in the cabinet.

**7.1.6** Hole worn in flex hose between cabinet hopper and reclaimer inlet. Replace hose and route it with as few bends as possible to prevent wear.

**7.1.7** Reclaimer door open.

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

**7.1.9** Paddle wheel worn. Check wheel for wear.

### 7.2 Abnormally High Media Consumption

**7.2.1** Door on reclaimer open, or improper fit or worn door gasket. Air entering the reclaimer at this point will

cause media to be carried into the dust collector. DO NOT operate unless all doors are closed.

**7.2.2** Dust collector damper open too far. Adjust static pressure per Section 4.4.

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

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

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

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

**7.2.7** 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.

**7.2.8** Optional externally adjustable vortex cylinder out of adjustment. See Section 4.5.

### 7.3 Reduction In Blast Cleaning Rate

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

**7.3.2** Incorrect metering valve adjustment. Adjust per Section 4.3.

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

**7.3.4** Blockage in media line or gun. Blockage may occur as a result of a missing debris screen, or incorrect metering valve adjustment permitting heavy media flow. See Section 4.3.

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

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

**7.3.7** Air jet in gun out of adjustment. Check adjustment per Section 4.2.

**7.3.8** Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. See Section 7.5.

## 7.4 Plugged Nozzle

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

**7.4.2** Media mixture too rich. Adjust media/air mixture per Section 4.3.

## 7.5 Media Bridging

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

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

**7.5.3** Moist compressed air. This can be caused by 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, or from high humidity. Drain the air filter and receiver tank regularly. If the problem persists, it may be necessary to change media more often, or install an aftercooler or air dryer.

**7.5.4** 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.

**7.5.5** A vibrator attached to the reclaimer cone or media metering valve may help prevent bridging of fine-mesh media.

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

**7.6.1** Door interlocks not engaging. Check adjustment per Section 4.6.

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

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

**7.6.4** Check that lines are not reversed on the foot pedal or pilot regulator. See schematic in Figure 21.

**7.6.5** Pressure regulator may be turned down or off. Check pressure on pilot regulator.

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

**7.6.7** Check the nozzle to see if it is plugged. See Section 7.4.

## 7.7 Blasting Does Not Stop When The Foot Pedal Is Released

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

## 7.8 Blockage In Media Hose

**7.8.1** Media obstructions. Usually caused when the media mixture is too rich. Adjust media/air mixture per Section 4.3.

**7.8.2** Wet or damp media. See Section 7.5.

## 7.9 Media Surge

**7.9.1** Heavy media flow. Adjust per Section 4.3.

## 7.10 Poor Suction In Media Hose

**7.10.1** Inadequate air supply. Check the tables in Figures 2 and 3.

**7.10.2** Air jet needs adjustment. Check adjustment per Section 4.2.

**7.10.3** Nozzle is worn. Replace if worn 1/16" or more.

**7.10.4** Blockage in media hose or nozzle. See Section 7.4 and 7.8.

**7.10.5** Wrong size combination of air jet and nozzle. See table in Figure 2.

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

## 7.11 Blow-Back Through Media Hose

**7.11.1** Blockage in nozzle. Remove the nozzle and check blockage.

7.11.2 Air jet may be too large for nozzle. See table in Figure 2.

7.12 Static Shocks

7.12.1 Cabinet and/or operator not grounded. Abrasive blasting generates static electricity. The cabinet must be grounded to prevent static buildup. See Section 2.4. If shocks persist, the operator may be building up static. Attach a small ground wire (such as a wrist strap), from the operator to the cabinet.

7.12.2 Avoid holding parts off the grate. Static will buildup in the part if not dissipated through the metal cabinet.

7.13 Dust Leaking From Dust Collector

7.13.1 Check for damaged or loose filters.

7.13.2 Check for a faulty seal on the dust drawer.

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

8.0 ACCESSORIES AND REPLACEMENT PARTS

8.1 Optional Accessories

Description	Stock No.
Tungsten carbide nozzle	
No. 5 .....	13118
No. 7 .....	12882
No. 8 .....	11942
Boron carbide nozzle	
No. 5 .....	11935
No. 6 .....	11936
No. 7 .....	11937
No. 8 .....	12894
Wide spray nozzle	
Tungsten carbide	
No. 6 .....	11947
Boron carbide	
No. 6 .....	11934
No. 8 .....	11944
NOTE: Wide spray nozzles require the following accessories:	
Wide spray nozzle nut .....	11916
Wide spray retaining ring .....	12038
Wide spray nozzle guard .....	12295

Hose, light lined flex, 4" ID for aggressive media  
7 ft required .....12466

Vortex cylinder assembly, externally adjustable for exhauster mounted reclaimers. For use with fine-mesh or lightweight media.  
for 300 cfm reclaimer .....19059

Lock pins (pkg of 25) for twist-on hose couplings ...11203  
Adjusting tool, air jet (orifice) .....19041  
Manometer kit .....12528

Optional Extension Nozzles, Figure 15

Item Description	Stock No.
1. 3" Straight extension nozzle	
No. 5, 5/16" orifice .....	11921
No. 6, 3/8" orifice .....	11922
No. 7, 7/16" orifice .....	11923
2. 6" Straight extension nozzle	
No. 5, 5/16" orifice .....	11927
No. 6, 3/8" orifice .....	11928
No. 7, 7/16" orifice .....	11929
3. 9" Straight extension nozzle	
No. 5, 5/16" orifice .....	11924
No. 6, 3/8" orifice .....	11925
No. 7, 7/16" orifice .....	11926
4. 4" Side angle extension nozzle, complete	
5/16" orifice, includes item 7, 8 & 9 .....	21311
5. 6" Side angle extension nozzle, complete	
5/16" orifice, includes item 7, 8 & 9 .....	12374
6. 9" Side angle extension nozzle, complete,	
5/16" orifice, includes item 7, 8 & 9 .....	12373
7. Tip, side angle extension .....	12173
8. Snap ring, side angle extension .....	12040
9. O-Ring, side angle extension .....	08977

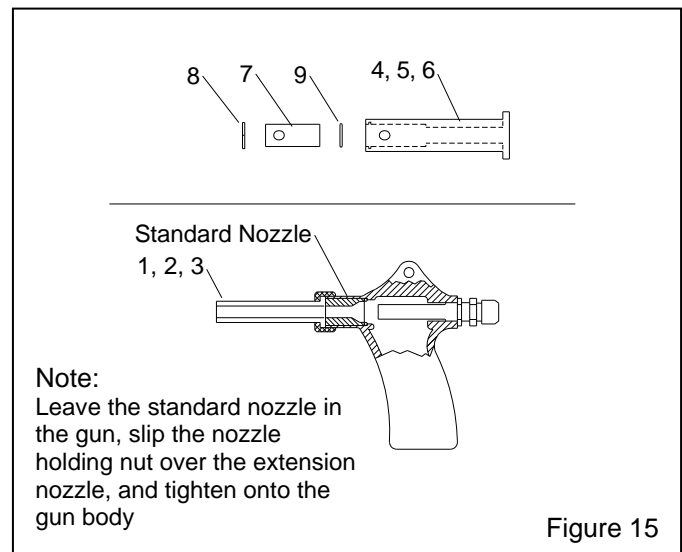


Figure 15

8.2 Cabinet Replacement Parts, Figure 16

Item	Description	Stock No.
1.	Gasket, door, adhesive backed, 10 ft. per door, specify feet required	00187
2.	Light shield assembly with switch	11601
3.	Window glass, 12.5" x 19.5"	12212
4.	Gasket, window, 6 ft. required	12435
5.	Filler strip, window gasket, 6 ft. required	12436
6.	Cover lens, pkg. of 5	06190
7.	Grate, 3048	10761
8.	Latch assembly, door	10908
9.	Glove set	11215
10.	Glove, left hand only	12710

11.	Glove, right hand only	12711
12.	Clamp, glove	11576
13.	Hose, 4" ID flex 7 ft required	12447
14.	Clamp, 4" flex hose	11577
15.	Grommet, media/air hose	11798
16.	Actuator, door interlock	19152
17.	Over-travel stop, door interlock	20004
18.	Detent sleeve, door interlock	15042
19.	Air valve, 3 way, door interlock	12202
20.	Regulator, 1/8" NPT pilot	12715
21.	Gauge, pressure, 1/8" NPT cbm	01908
22.	Foot pedal assembly, less tubing	20483

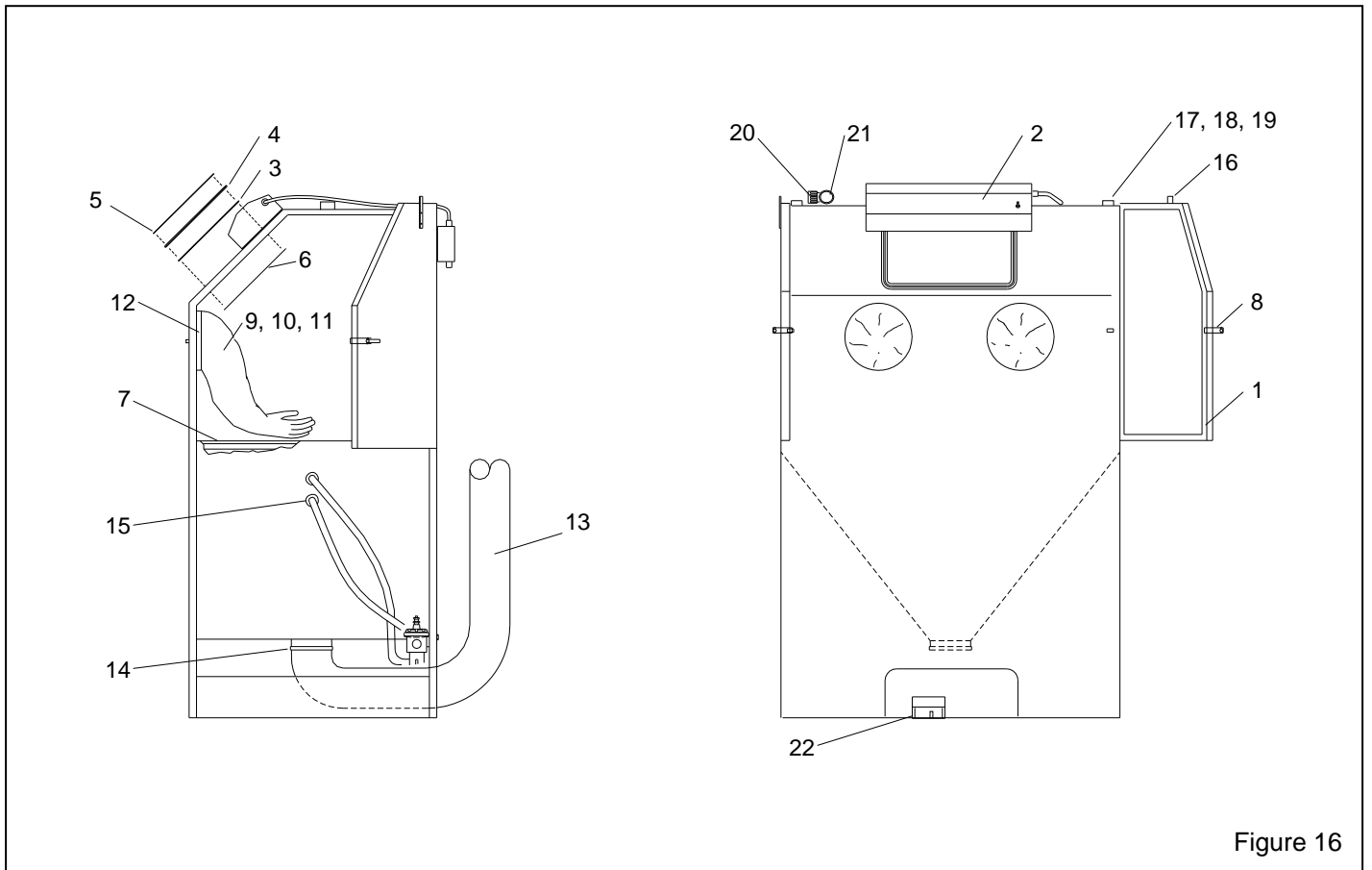


Figure 16

8.3 BNP Gun and Feed Assembly, Figure 17

Item	Description	Stock No.
(-)	BNP Gun assemblies less nozzle, includes items 1 (brass) through 7	
	No. 4 Gun	12301
	No. 5 Gun	12302
	No. 6 Gun	12303
	No. 7 Gun	12304
	No. 8 Gun	12305
1.	Nut, nozzle holding	
	Standard, knurled brass	11914
	Urethane covered	11574
2.	O-Ring	08975
3.	Gun body	11802
4.	Lock nut, air jet	11913
5.	Rubber sleeve	12097
6.	Air jet assembly w/ Item 5	
	No. 4	12342
	No. 5	12343
	No. 6	12344
	No. 7	12345
	No. 8	12346
7.	Fitting, hose, 3/8" NPT x 1/2" barb	06369
8.	Hose end, 1/2" barb x 1/2" fem. swivel	15002

9.	Nozzle, ceramic	
	No. 5	11930
	No. 6	11931
	No. 7	11932
	Nozzle, boron carbide	
	No. 5	11935
	No. 6	11936
	No. 7	11937
	No. 8	12894
	Nozzle, tungsten carbide	
	No. 5	13118
	No. 7	12882
	No. 8	11942
10.	Hose, 1/2" air, six feet required	12472
11.	Hose, media, clear urethane, six feet required	12476
12.	Wide spray nozzle	
	Tungsten carbide, No. 6	11947
	Boron carbide	
	No. 6	11934
	No. 8	11944
13.	Wide spray nozzle nut	
	Knurled brass	11916
	Urethane covered	12906
14.	Wide spray retaining ring	12038
15.	Wide spray nozzle guard	12295
16.	Orifice adjusting tool	19041

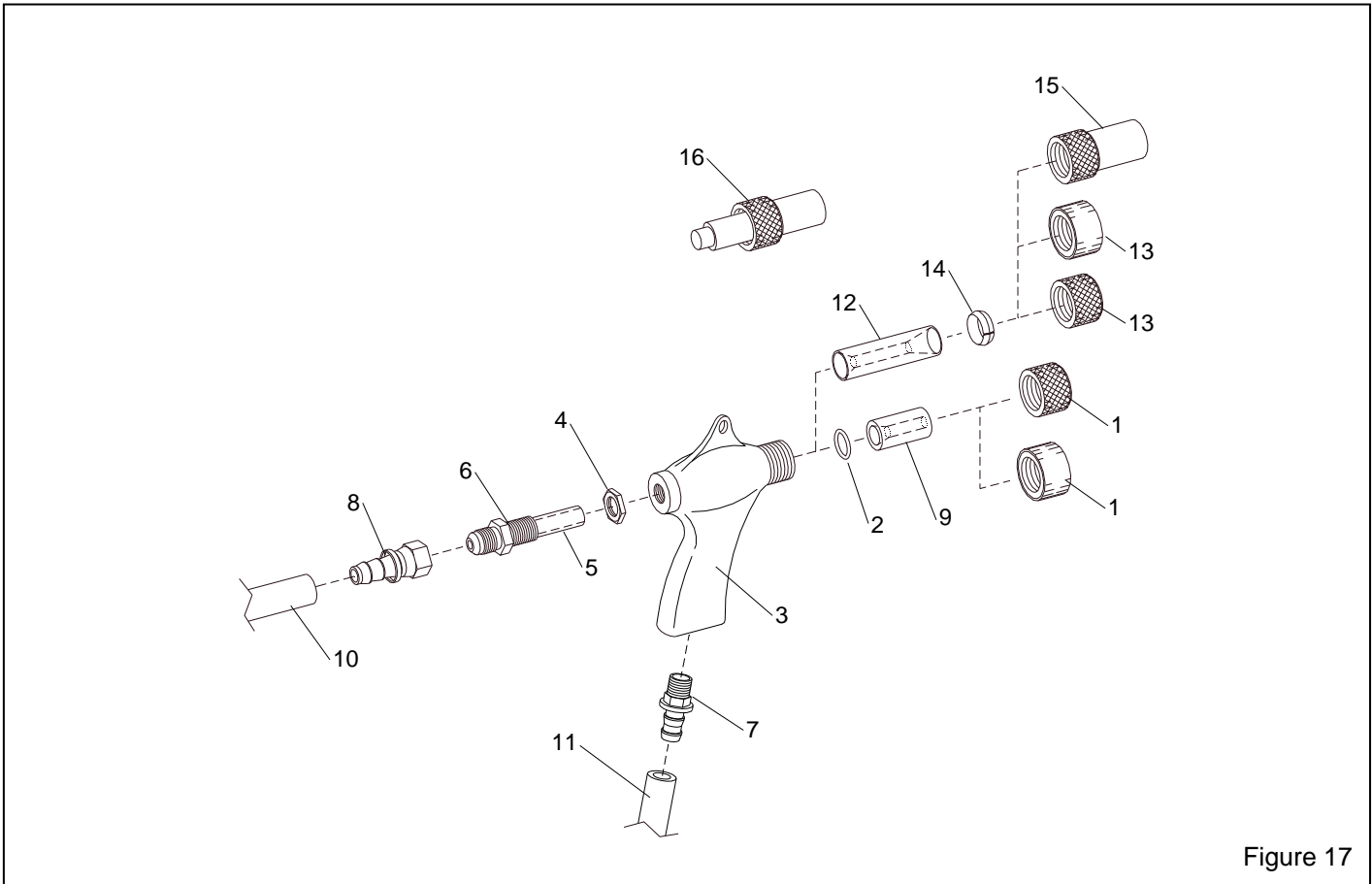


Figure 17

8.4 Foot Pedal Assembly, Figure 18

Item	Description	Stock No.
(-)	Foot pedal assembly, less tubing	20483
1.	Top, foot pedal	20017
2.	Base, foot pedal	19991
3.	Valve, 10-32, 3 way n/c	20026
4.	Drive pin, grooved	20109
5.	Screw, sh 1/4 NF x 3/4"	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

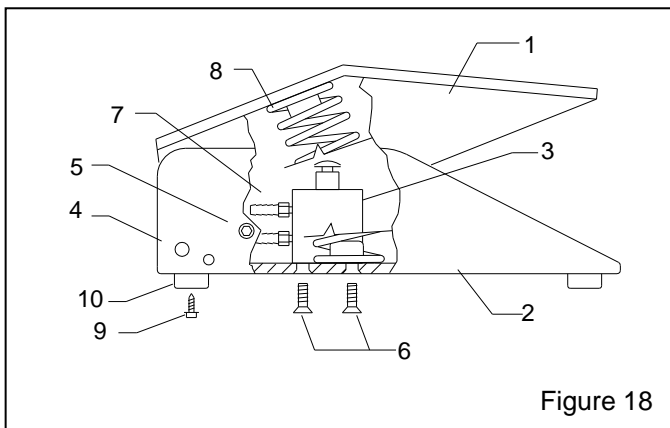


Figure 18

8.5 Metering valve assembly, Figure 19

Item	Description	Stock No.
(-)	Metering valve assembly	12417
(-)	Metering stem assembly (items 1, 2, & 3)	23889
1.	Stem, metering adjusting	23097
2.	Screw, adjusting	23098
3.	Nut, adjusting stem lock	23099
4.	Body, metering valve	11532
5.	Fitting, hose, 3/8" NPT x 1/2" barb	06369
6.	Plug, metering valve	12011

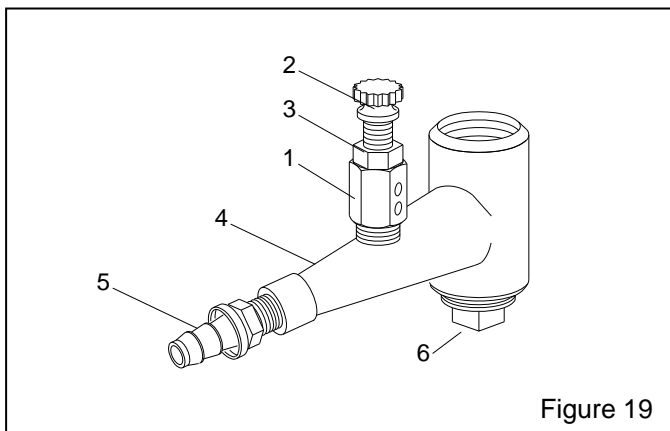


Figure 19

8.6 Light Shield Assembly, Figure 20

Item	Description	Stock No.
(-)	Light shield assembly with switch	11601
1.	Ballast	11553
2.	Lamp holder	11843
3.	Starter holder	12163
4.	Starter	12156
5.	Lamp, 15 watt	11872
6.	Connector, poly straight	02929
7.	Base plate, light shield	11561
8.	Trim edge, 2 ft. required	18460
9.	Switch, on-off	12127

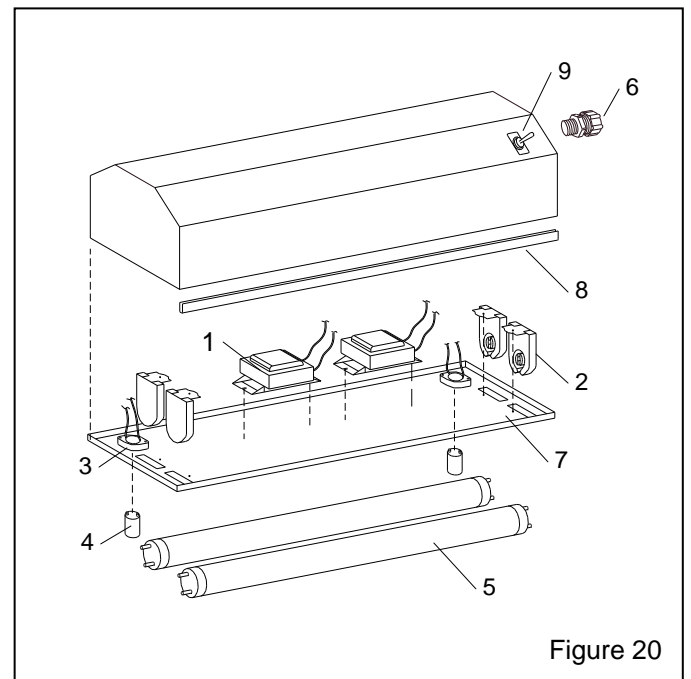


Figure 20

8.7 Cabinet Plumbing Assembly, Figure 21

Item	Description	Stock No.
1.	Valve, 3 way	12202
2.	Adaptor, 1/8" NPT x 1/8" barb	11732
3.	Tubing, 1/8" urethane, specify ft. required	12475
4.	Tubing, twin urethane, specify ft. required	19577
5.	Foot pedal assembly, less tubing	20483
6.	Fitting, 1/8" NPT elbow x 1/8" barb	11733
7.	Bushing 1/2"x 1/8" NPT	11350
8.	Bushing 1/4"x 1/8" NPT	02010
9.	Bracket, mounting	19231

10.	Filter, 1/2" air	01308
11.	Adaptor, 1/2" NPT x 1/2" flare	11351
12.	Hose end, 1/2" barb x 1/2" female swivel	15002
13.	Hose end, 1/2" barb x 3/8" male NPT	06369
14.	Blow-off nozzle	13116
15.	Air hose, 1/2", specify ft. required	12472
16.	Gun assembly, BNP No. 5	12302
17.	Hose, clear urethane, specify ft. required	12476
18.	Regulator, 1/2" pilot operated	11345
19.	Regulator, 1/8" pilot	12715
20.	Gauge, pressure, 1/8" NPT cbm	01908
21.	Metering valve assembly	12417

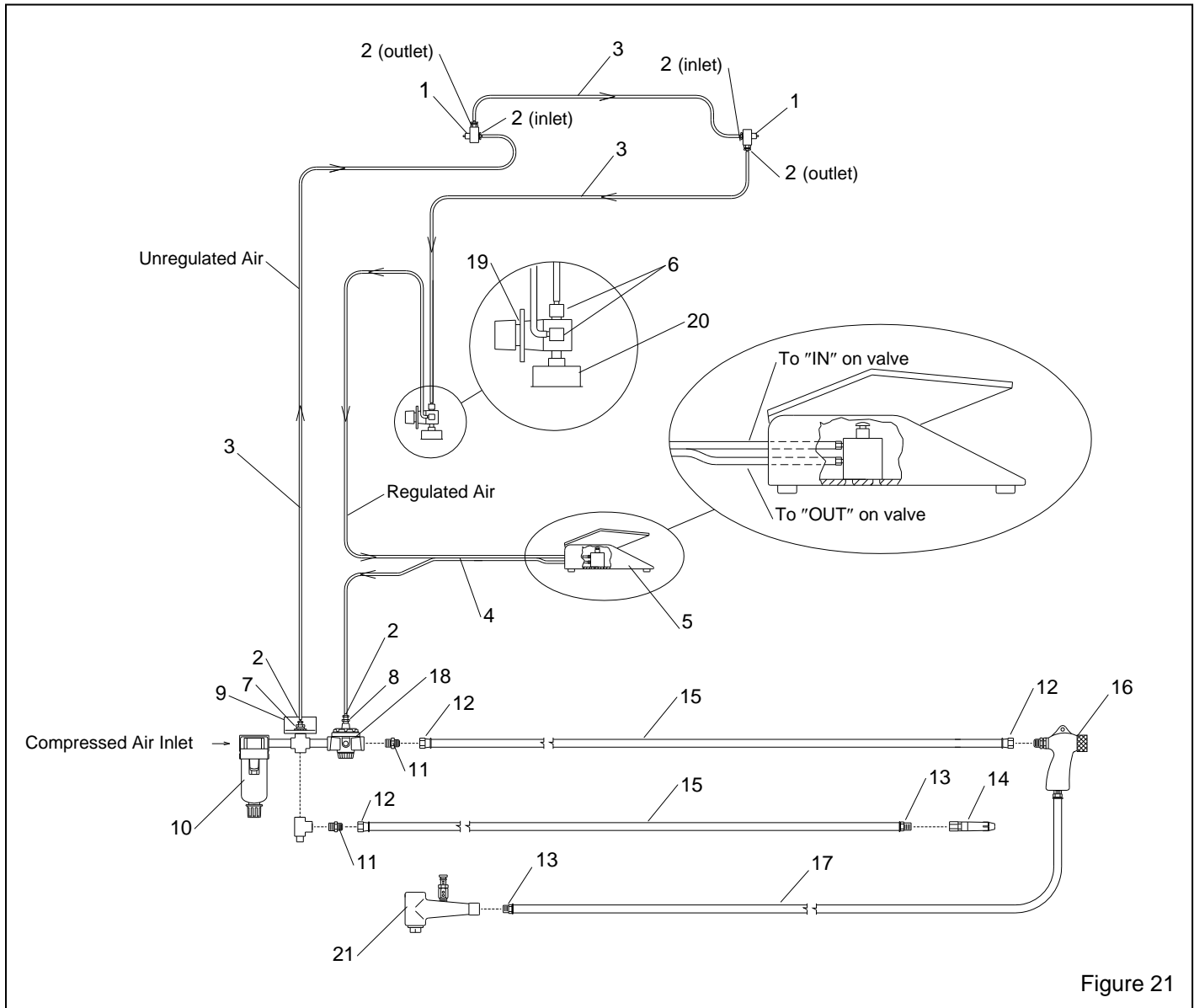


Figure 21

8.8 Reclaimer, Figure 22

Item	Description	Stock No.
(-)	Reclaimer assembly, 300 cfm, complete, w/ exhauster .....	12402
	less exhauster assembly .....	12403
1.	Motor, exhauster, 1/2 HP, 115/230, 1-PH ...	12308
2.	Plate, motor mount, 300 cfm .....	12003
3.	Housing, exhauster, 300 cfm .....	12273
4.	Gasket, 5/16" x 1" adhesive backed, 4 ft. required for each location .....	00187
5.	Paddle wheel, 300 cfm .....	12333
6.	Inlet pipe adaptor, 300 cfm, 4" .....	12365
7.	Gasket, inlet adaptor .....	11746
8.	Wearplate, 300 cfm .....	14060
9.	Clamp, hose, 4-1/2" .....	11577
10.	Screen assembly .....	21265
11.	Gasket, door .....	11745
12.	Hose, 4" ID flex, 7 feet required .....	12447
13.	Spring latch assembly .....	12263
14.	Vortex cylinder assembly, adjustable, for exhauster mounted reclaimer (optional) 300 cfm .....	19059

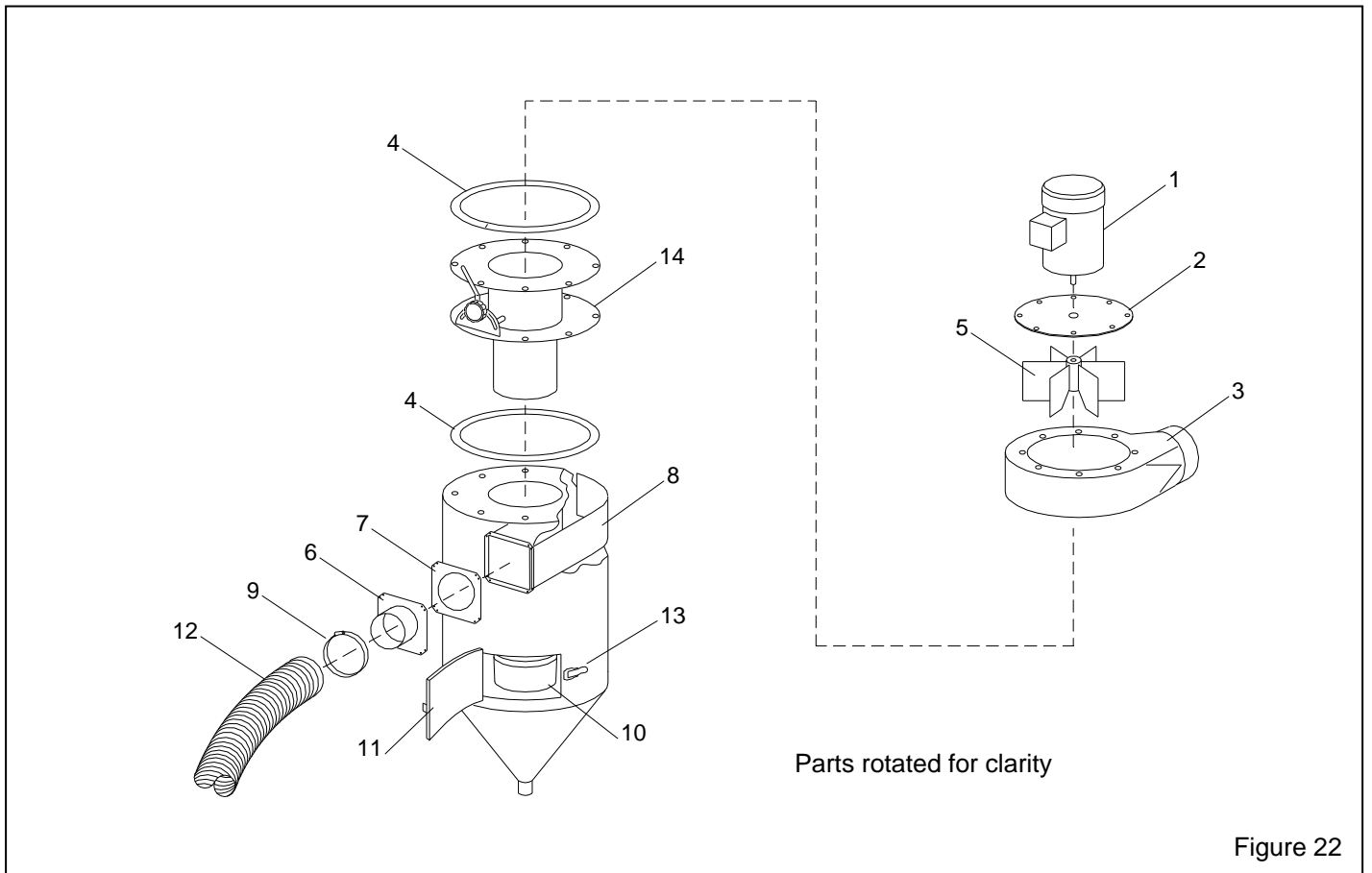


Figure 22

8.9 Dry Filter Dust Collector and Dust Bags,  
Figure 23

Item	Description	Stock No.
(-)	Dry filter, complete, 300 cfm .....	12699
1.	Hose, flex, specify length, 5 feet is standard. 5" for 300 cfm .....	12449
2.	Inlet adaptor w/ damper 5" for 300 cfm .....	21232
3.	Gasket, inlet adaptor, 300 cfm .....	21233

4.	Gasket, dust drawer .....	11771
5.	Clamp, hose 5-1/2 .....	11578
6.	Spring latch assembly .....	12263
7.	Drawer, dust, 300 cfm .....	14274
8.	Tubular filter, each 300 cfm requires 15.....	11503
9.	Shaker, tube filter, 300 cfm .....	12413
10.	Handle, shaker .....	12899
11.	Dust bag, 300 cfm .....	11501

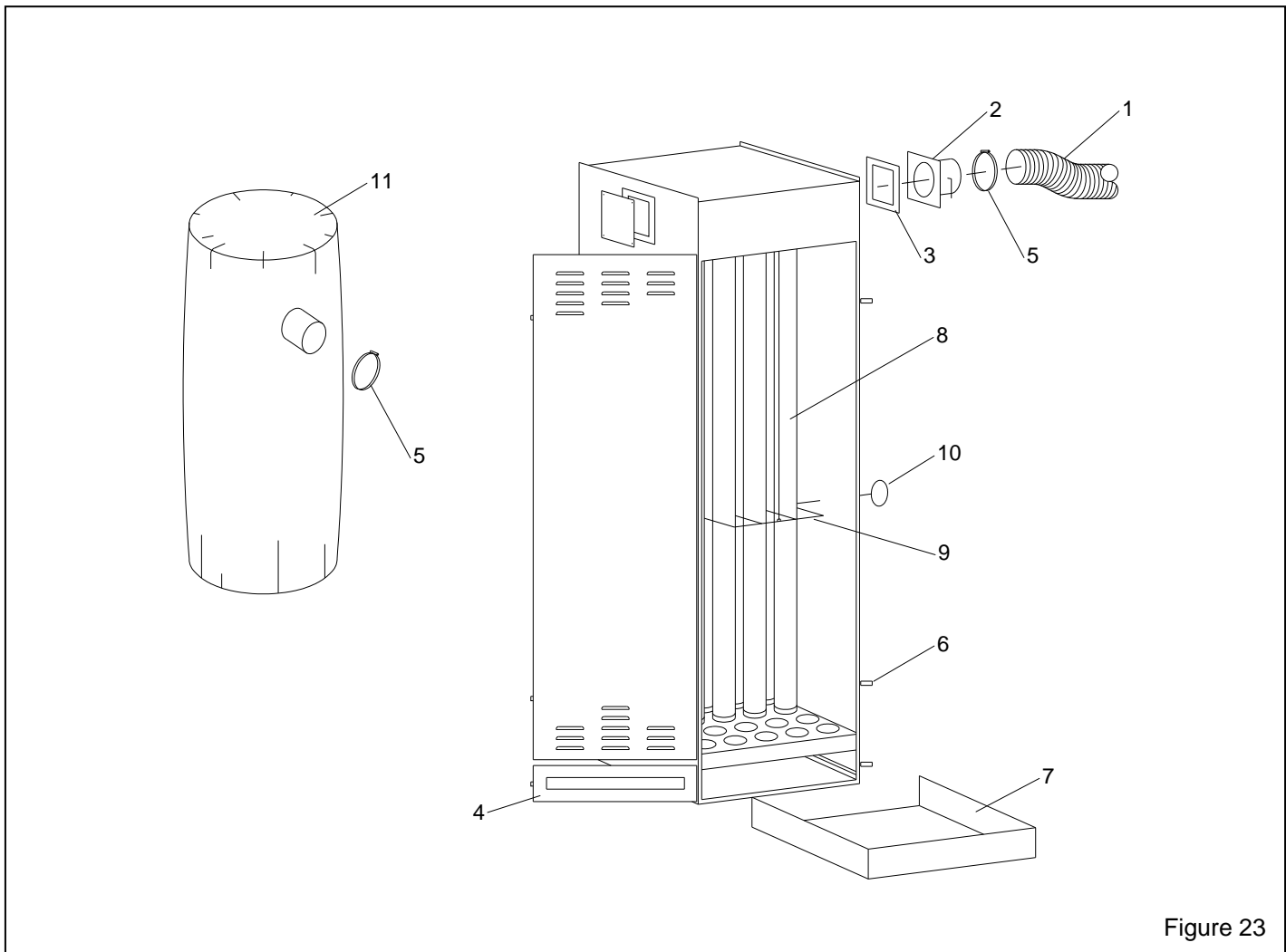


Figure 23

8.10 Wiring Schematic, Figure 24

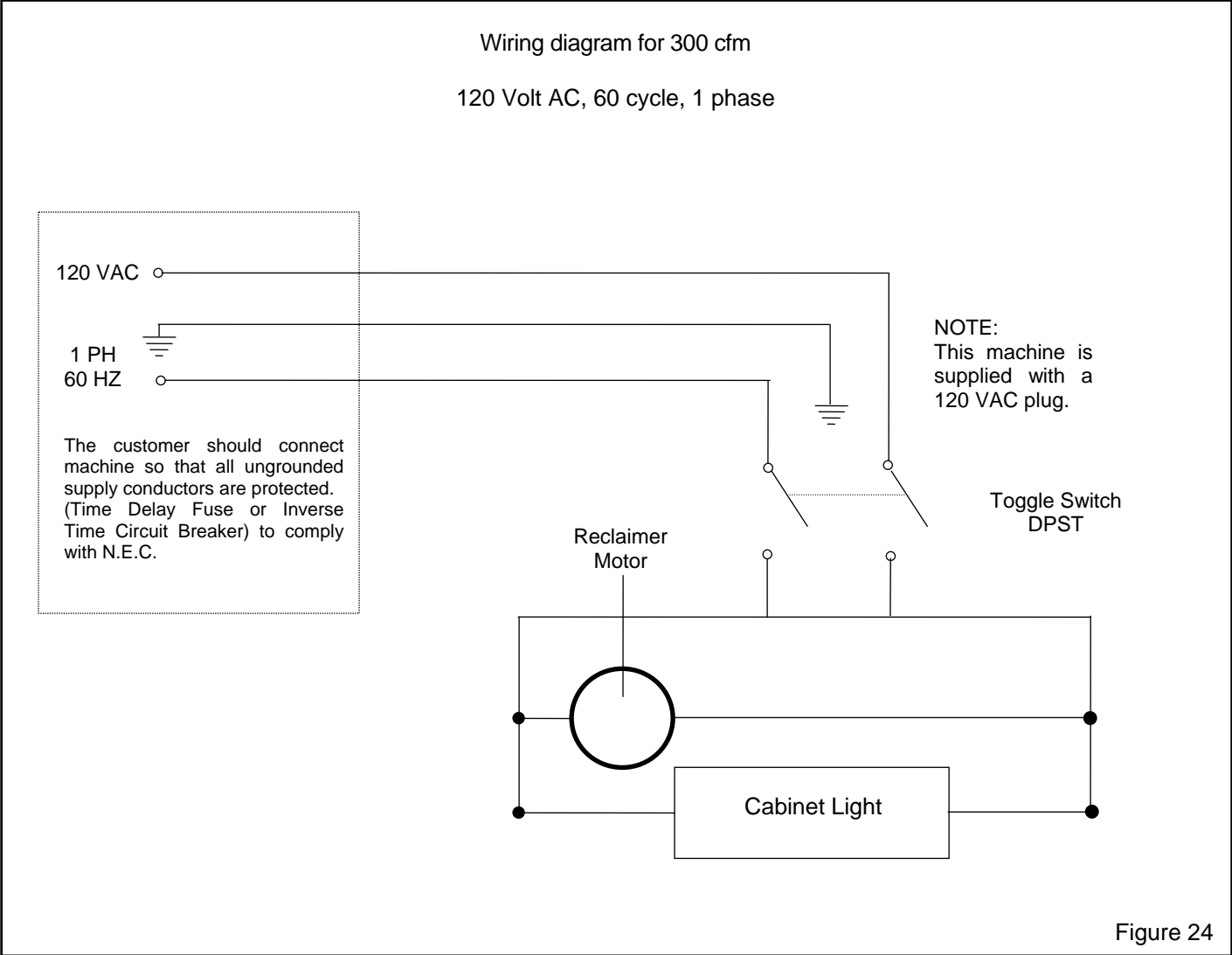


Figure 24