

# MEDIA RECLAIMER/SEPARATOR



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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 the installation, operation, maintenance, troubleshooting, and replacement parts for 900 cfm and larger reclaimers, used with blast cabinets and pneumatic recovery systems. Drawings supplied with the system's manual apply to the specific reclaimer provided. Use the drawings along with this manual, to aid in the assembly of the reclaimer and system. The reclaimer is one part of a media reclaiming and recovery system. Before putting the reclaimer into service, all personnel involved with the operation should read this manual, plus all accessory manuals.

**1.2 Safety Alerts**

1.2.1 Clemco uses safety alert signal words, based on ANSI Z535.4-1998, to alert the user of a potentially hazardous situation that may be encountered while operating this equipment. ANSI's definitions of the signal words are as follows:



This is the safety alert symbol. It is used to alert the user of this equipment of potential personal injury hazards.

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

**CAUTION**

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

**CAUTION**

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

**WARNING**

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

**DANGER**

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

**1.3 General Description**

1.3.1 Reclaimers are divided into two primary categories: Push-thru and Pull-thru. Within those categories, the reclaimer is either a suction type or pressure type. Some of the smaller reclaimers are convertible. The operation of the reclaimer is the same for both types. Refer to Figure 1 for reclaimer type and components.

**Suction type reclaimers** are identified by the conical bottom, adapted for the attachment of BNP style media metering valve(s), or media valve manifold.

**Pressure type reclaimers** have a flanged, open bottom that bolts to a mating flange on a blast machine or storage hopper.

1.3.2 **Pull-thru:** Pull-thru reclaimers do not have an exhauster. They are used with powered (exhauster equipped) dust collectors. Pull-thru reclaimers have an outlet pipe mounted on top of the reclaimer for the attachment of the flex hose or ducting, which lead to the dust collector inlet. The vacuum for a pull-thru system is created by the exhauster assembly mounted on the clean-air side of the dust collector.

1.3.3 **Push-thru:** Exhauster mounted (push-thru) reclaimers have an exhauster assembly mounted on top of the reclaimer body. They are used with non-powered dust collectors (dry filter), cross-draft blast rooms, and in applications requiring a booster exhauster. A damper is attached to the exhauster outlet when an exhauster mounted reclaimer is used with a powered dust collector.

1.3.4 The bolt circle pattern on top of the reclaimer is the same for pull-thru and push-thru bodies. This allows for the conversion from one to the other.

**1.4 Theory of Operation**

1.4.1 The reclaimer is a cyclone separator, into which air, dust, fines, and by-products generated by the blasting process are drawn from a cabinet enclosure or blast room, 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. Air, dust, and fines are drawn through the reclaimer into the dust collection system for disposal.

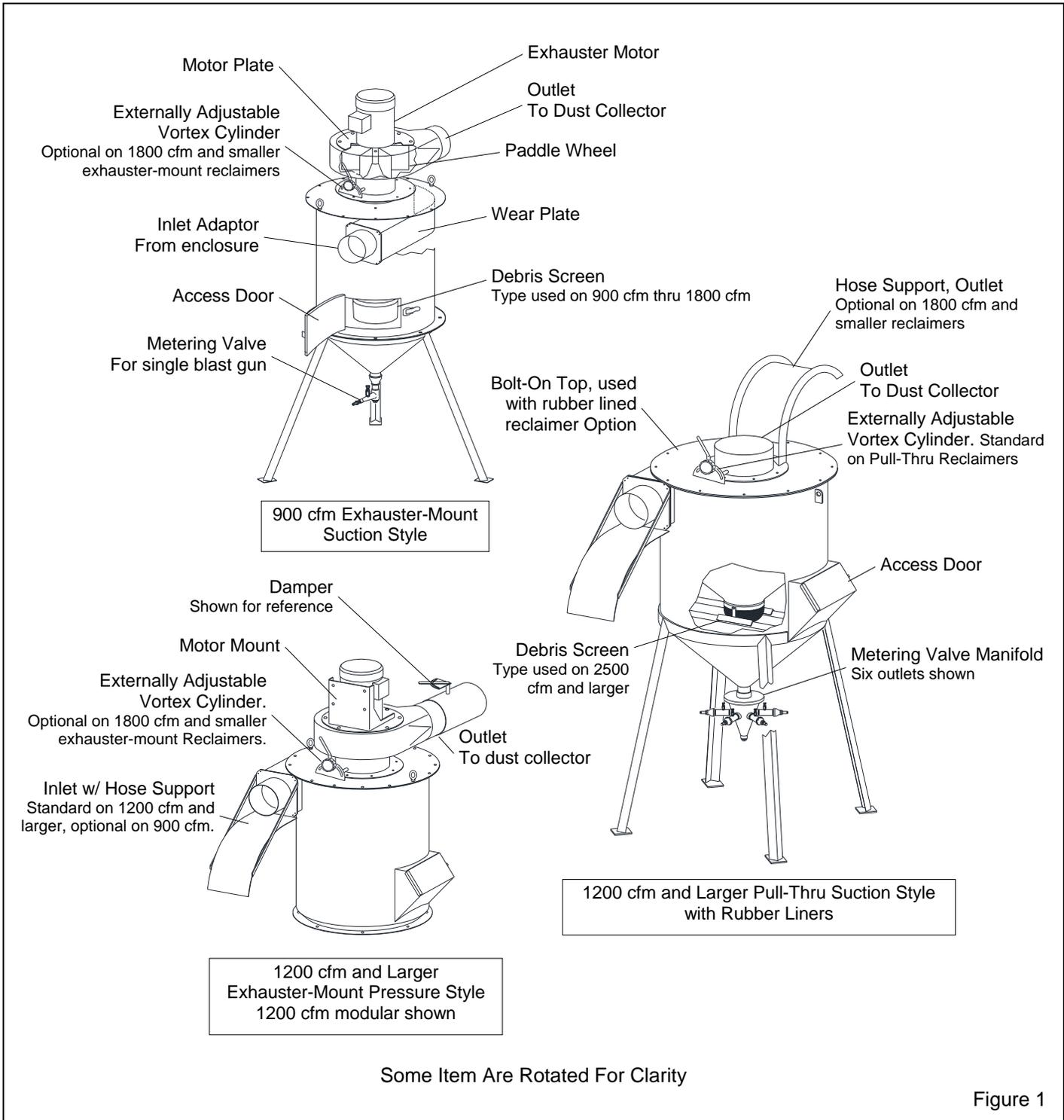


Figure 1

**1.4.2** A constant static balance is necessary for efficient separation, as the reclaimer operates by a centrifugal balance of velocity, particle weight, and size. The best way to ensure a constant air balance is by setting, and monitoring static pressure with an optional manometer. See Section 9.1.

**1.4.3** The size and style of the reclaimer is determined by the size of the enclosure, media size and weight, type of media, amount of media to be processed, and the type of dust collection system.

**1.5 Wear Plate**

**1.5.1** A replaceable wear plate protects the reclaimer inlet area from rapid wear. The wear plate is standard on all non-rubber-lined reclaimers. See Figure 1.

**1.6 Rubber Liners Option**

**1.6.1** Full, rubber-lined reclaimers are recommended when using aggressive media. This option requires a reclaimer with a bolt-on top, and must be specified when the reclaimer is ordered.

**1.7 Externally Adjustable Vortex Cylinder**

**1.7.1** The externally adjustable vortex cylinder is standard on 2500 cfm and larger exhaustor-mounted reclaimers, all project reclaimers (built around user specifications), and all pull-thru. It is optional on 1800 cfm and smaller exhaustor-mounted reclaimers.

**1.7.2** The cylinder allows for fine tuning of the reclaimer. Refer to Section 5.2.

**1.8 Blast Media**

**NOTE: This section applies to the reclaimer only. It does not address the limitations of other parts of a complete recovery system, such as blast room floors or cabinet hoppers. Any air restrictions external of the reclaimer will affect usable media size. Particular attention must be given to all other components, especially when considering the use of heavy and/or aggressive media.**

**1.8.1** Selection of blast media can play a significant part in both the productivity and maintenance of the reclaimer. Most systems with pneumatic recovery use glass bead, manufactured media, or mineral media. **DO NOT USE abrasives containing more than one percent crystalline (free) silica. Obtain a material safety data sheet (MSDS) for the blast media.**

**1.8.2** The reclaimer utilizes most common reusable media specifically manufactured for dry blasting or peening. The usable media size range depends on the recovery rate and reclaimer cleaning rate. Several factors affecting the reclaimer cleaning rate include: reclaimer size, media friability, contamination of parts being cleaned, and humidity. Media sizes shown under the media headings and in Figure 2 are guidelines only, based on average conditions.

**1.8.3** Using media 180 mesh and finer, lightweight media such as plastic, or glass bead finer than No. 12, will usually require the removal of the inlet baffle, and the addition of the externally adjustable vortex cylinder.

**1.8.4 Steel:** Steel shot and steel grit are not recommended for use with reclaimers having a standard size inlet. 900 cfm and larger reclaimers may be used with steel media if the inlet hose diameter is reduced as shown in Figure 2. Conveying hose used with steel media should have a smooth durable lining. Reclaimers can be ordered from the factory with conveying hose appropriately sized for steel grit, or they may be converted at a later date.

**1.8.5 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.

**1.8.6 Silicon Carbide, Aluminum Oxide, and Garnet:** These are the most aggressive, high volume abrasives in the blasting industry. Aggressive media such as these may be used with the reclaimer, 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, reclaimer booster exhaustor and paddle wheel, reclaimer vortex tube, reclaimer inlet adapter, hoses, and nozzle for abrasive wear.

When occasionally using aggressive abrasive, install an optional aluminum oxide kit. When routinely using these media, use a fully rubber-lined, pull through reclaimer and a reverse-pulse dust collector. Interior rubber linings on the blasting enclosures and a boron carbide nozzle are suggested to prolong service life.

**1.8.7 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.

**1.8.8 Fine-mesh Media:** When using very fine media (180 mesh and finer, #13 glass bead, or lightweight media), the inlet baffle of the reclaimer may need to be removed. Consult the factory before proceeding with this option. Reclaimers can be ordered from the factory without the inlet baffle. The adjustable vortex cylinder should be installed when using 180-mesh and finer media.

**1.8.9 Lightweight Media:** When using plastic media, and most agricultural media, the inlet baffle of the reclaimer may need to be removed. Consult the factory before proceeding with this option. Reclaimers can be ordered from the factory without the inlet baffle. The adjustable vortex cylinder should be installed when using lightweight media.

Media sizes shown below are guidelines only, and based on recovery from a single hopper or other pick-up point and average conditions, such as contamination of parts being cleaned, humidity, media friability, reclaimer loading rate, etc. Any air restrictions external of the reclaimer will affect usable media size. Media finer than those shown may decrease visibility in the blast enclosure, and at some point carryover to the dust collector. Media coarser than those shown may be too large for the reclaimer to recover from the enclosure.

RECLAIMER SIZE	MEDIA TYPE				
	STEEL GRIT	STEEL SHOT	PLASTIC	GLASS BEAD	ALUM. OXIDE
900 cfm with 5" inlet	50 to 120	S170 to S70	Do not use	Do not use	16 to 60
900 cfm with 6" inlet	Do not use	Do not use	*12 to 40	#6 to #12 * #13	46 to 180 * 180 to 240
1200 cfm with 6" inlet	50 to 120	S230 to S70	Do not use	Do not use	16 to 60
1200 cfm with 7" inlet	Do not use	Do not use	*12 to 40	#4 to #12 * #13	46 to 180 * 180 to 240
1800 cfm with 7" inlet	25 to 120	S280 to S70	Do not use	Do not use	16 to 60
1800 cfm with 8" inlet	Do not use	Do not use	*12 to 40	#4 to #12 * #13	36 to 180 * 180 to 240
2500 cfm with 8" inlet	25 to 120	S230 to S70	Do not use	Do not use	16 to 60
2500 cfm with 10" inlet	Do not use	Do not use	*12 to 40	#4 to #12 * #13	36 to 180 * 180 to 20
3200 cfm and larger	These reclaimers are furnished on project orders for specific media applications.				
Shaded rows represent reclaimers with reduced sized inlet					
Non shaded lines represent standard reclaimers					
* To utilize these size media baffle is removed from the reclaimer					

Figure 2

**2.0 INSTALLATION**

**Installation Notes:** The externally adjustable vortex cylinder and exhauster can be rotated, to align the reclaimer inlet, vortex adjustment handle, and exhauster outlet, to the most efficient positions. Determine the best location for all components, and position all segments before final assembly.

**2.1 Placement**

**2.1.1** General arrangement drawings are provided on project orders (equipment built around user specifications). Place the reclaimer as close as possible to the orientation or as shown on the floor plan of those drawings.

**2.1.2** Position the reclaimer to provide full access to load and unload media, and to service the vortex cylinder and metering valves. For optimum efficiency and minimum equipment wear, the reclaimer should be located directly behind, and as close as possible the cabinet or room enclosure.

**2.1.3** Rotate the reclaimer, to enable connection of the inlet flex hose with as few bends as possible.

**2.1.4** Rotate the externally adjustable vortex cylinder and exhauster, to align the vortex adjustment handle, and exhauster outlet, to the most efficient positions.

**2.2 Assembly of Reclaimer on Pressure System**

NOTE: The following instructions are for mounting smaller reclaimers over a storage hopper or blast machine. Most large reclaimers are furnished on project orders. For the placement and assembly of project reclaimers, refer to the general assembly drawings that are included with these printed instructions.

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

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

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

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**⚠ WARNING**

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

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**2.2.4** Support the Blast Machine: Use ropes or other means to temporarily support the blast machine and reclaimer during final assembly.

**2.2.5** When the equipment is permanently positioned 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. Larger reclaimers may need additional support from a point on the reclaimer to a near by fixed structure. Remove the temporary supports after the machine is secured.

**2.3 Inlet and Outlet Connections**

**Flex Hose Installation Note:** It is easier to slip the hose over the adaptor and to create a tighter seal if the first two or three inches of wire are removed from the inside of the hose. Use care not to damage the hose. 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. Make sure each end is securely fastened with clamps to prevent media and dust from escaping.

**2.3.1** Connect the appropriately sized flexible conveying hose or ducting from the recovery source (cabinet hopper transition, M-Section® transition, or wye pipe) and the reclaimer inlet adaptor, which is located at the upper side portion of the reclaimer. Clamp the flex hose securely with worm clamps provided.

**2.3.2** Connect the appropriately sized flexible conveying hose or ducting from the reclaimer outlet, to the dust collector inlet. Refer to Figure 1.

**2.4 Metering Valve Assembly (suction systems only)**

**2.4.1** The type of metering valve feed system is determined by the number of blast guns. The illustration in Figure 3 shows several systems. When one blast gun is used, the metering valve is attached to the pipe nipple located on the bottom of the reclaimer hopper. If two guns are used, the first metering valve is installed as stated above, and the second valve is installed under it as shown. When more than two blast guns are used, a media manifold is attached to the bottom of the reclaimer, using the same number of valves as blast guns. Marking each metering valve, hose and blast gun with a corresponding number makes adjustments and troubleshooting easier.

**2.5 Electrical Wiring**

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**⚠ WARNING**

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**Electrical power must be locked out and tagged out before continuing. Shorting electrical components could result in serious electrical shocks, or damage of equipment. 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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**2.5.1** Voltage and motor horsepower depend on the size of the reclaimer. Unless specified otherwise, 2 hp and larger motors is 230/460 volt, 3 ph, 60 Hz. Wire the entire system according to wiring diagrams when diagrams are provided. Check the amperage on initial start up. If the motor draws excessive amperage, gradually close the damper until the amperage is within the specifications shown on the motor plate. The damper is located on the inlet of dry filters, and on the exhaust outlet of reverse-pulse collectors.

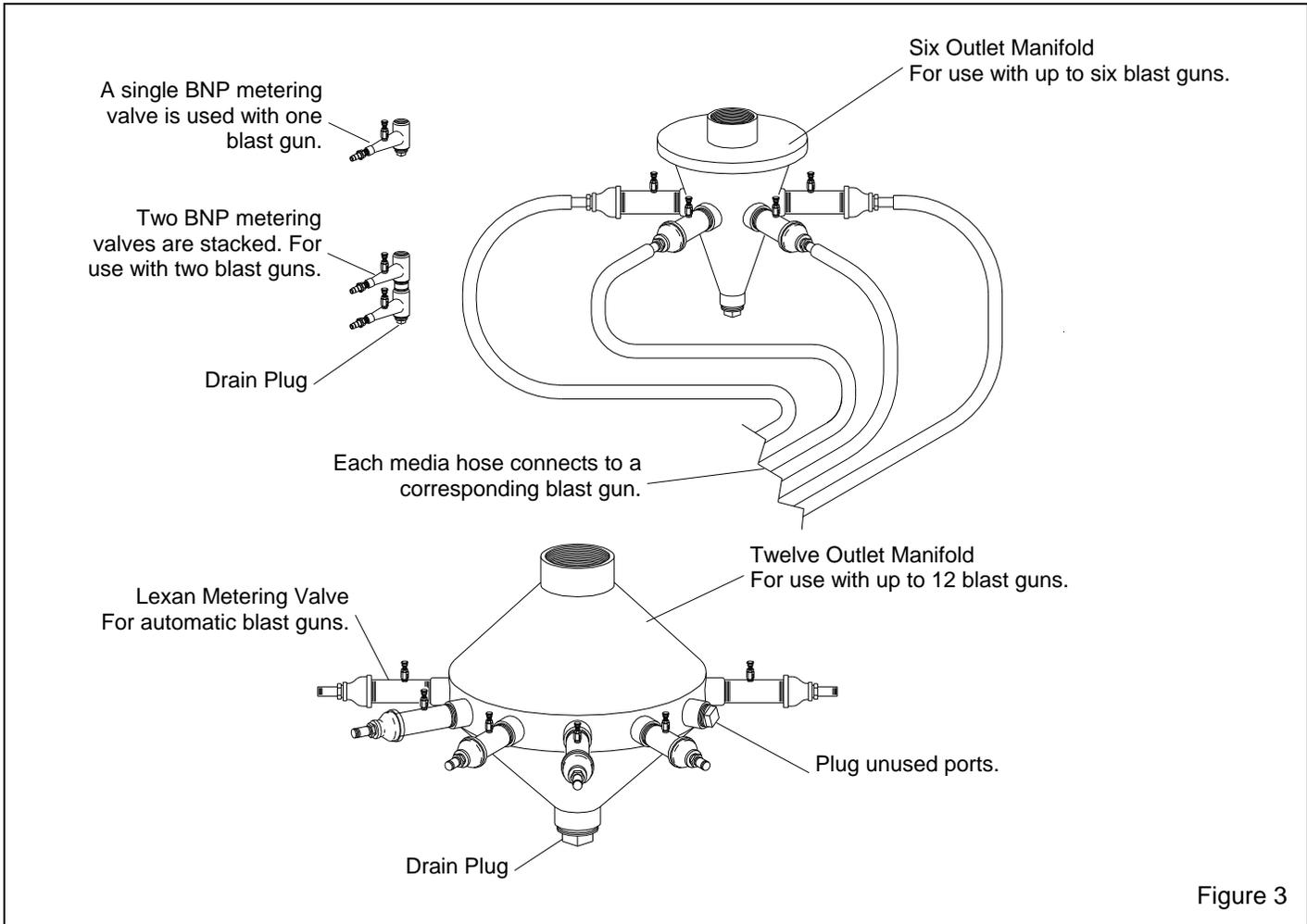


Figure 3

**3.0 OPERATION**

**3.1 Media Loading and Unloading**

**3.1.1 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 or room recovery hoppers, as overfilling may occur. Do not fill past the cone on the reclaimer. Overfilling will result in media carryover to the dust collector and possible blockage in the conveying hose. Underfilling will allow air to draw through the metering valve and feed assembly, and interfere with media flow. Refill only after all media has been recovered.

**3.1.2 Media Unloading:** To empty the reclaimer of media, allow all media to be recovered, turn off the exhauster, and place an empty container under the metering valve (or manifold). Unscrew the drain plug from the metering valve or manifold, permitting media to flow into the container. If media doesn't flow, it has caked. Open the fill door and stir media until it starts to

flow. Empty the container when full or before it is too heavy to handle, and repeat the process until the reclaimer is empty. Replace the plug when the reclaimer is empty.

**4.0 OPTIONAL ACCESSORIES**

**4.1 Manometer**

**NOTE:** The following instructions explain the use of the manometer for taking periodic and frequent static pressure readings on reclaimers. Refer to cabinet manual for using the manometer to check static pressure on cabinet enclosures. Permanent fittings should be installed when rigid ducting is used, or when the manometer installation is permanent. Use silicone sealer or other sealant to seal around the fitting to prevent leaks. The fitting should be capable of being capped to prevent leaks when the manometer tube is removed.

**4.1.1** The illustration in Figure 4 shows the manometer set-up for taking periodic and frequent static pressure readings on pull-thru and push-thru reclaimers. A permanent fitting can be installed in the reclaimer as shown, for frequent static pressure readings.

**4.1.2** Refer to directions packed with the manometer for filling and operation instructions for the manometer.

**4.1.3** Connect one end of the 3/16" ID tubing to the tubing adaptor on the manometer, by pushing it over the barbed fitting.

**4.1.4** Leaving the needle protector on the needle, insert the needle into the other end of the tubing. The ends of the tubing must fit tight on the manometer and needle; leaks will give inaccurate readings.

**4.1.5** Open both manometer valves (elbows) one full turn.

**4.1.6** Magnets on the manometer hold it in position on the reclaimer body. The manometer must be vertically plumb so the fluid is level on both sides.

**4.1.7** Adjust the slide rule to align the zero with the fluid level. Refer to Figure 5.

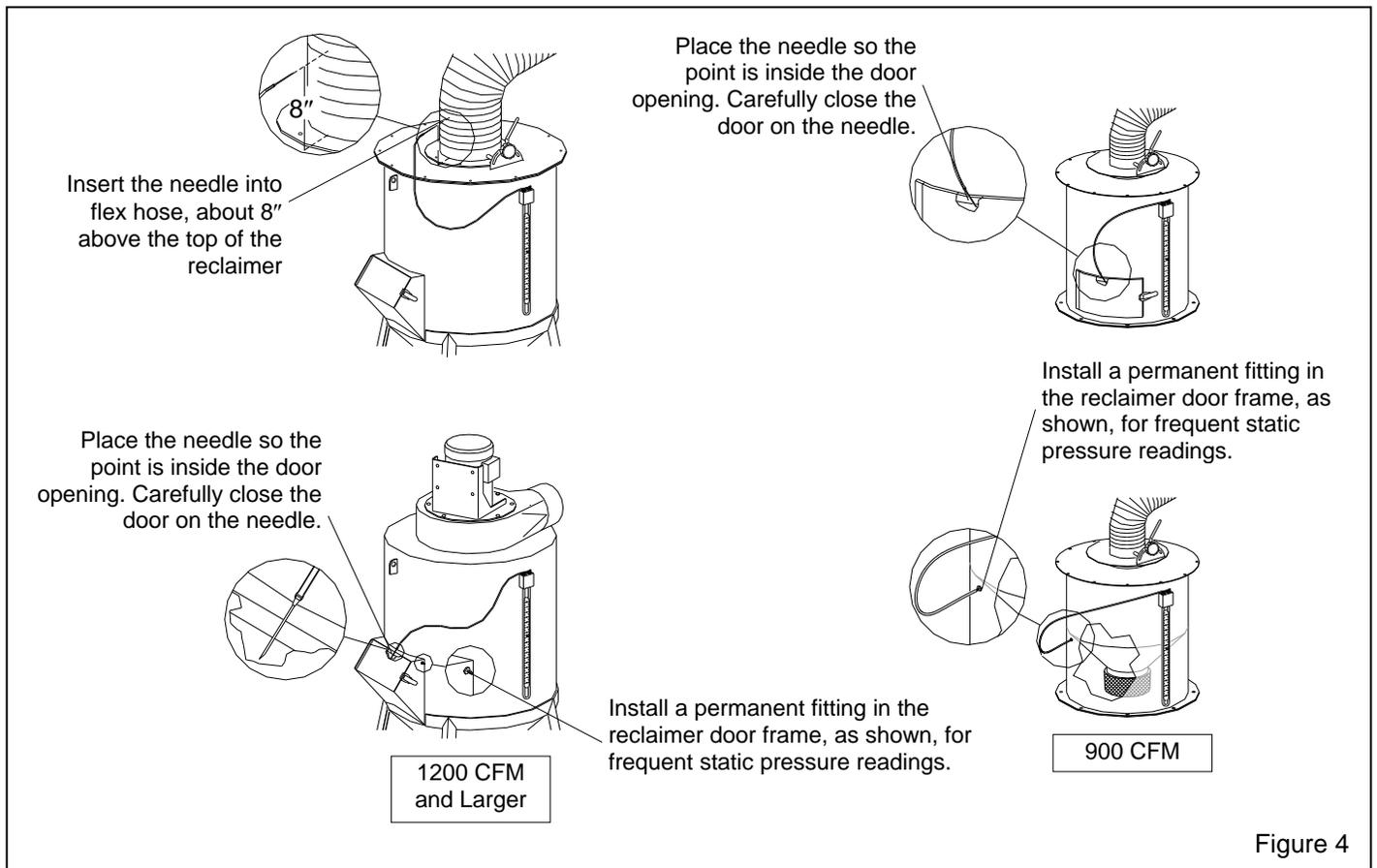
**4.1.8** Needle placement: Ref. Figure 4.

**4.1.8.1** Pull-thru system (reclaimer without exhauster): Remove the needle protector, and insert the needle into the flex hose approximately 8" from the top of the reclaimer.

**4.1.8.2** Push-thru system (reclaimer with exhauster): Open the reclaimer fill door, remove the needle protector and place the needle so the point is inside the door opening. Carefully close the door on the needle. The side of the needle will embed into the rubber, allowing the door to seal. Static pressure readings at the door are generally .5" to 1" lower than those taken above the reclaimer.

Readings on systems with no fill door (usually used with a classifier), may be taken at the flex hose connection under the reclaimer. Static pressure is generally .5" to 1" lower than that taken above the reclaimer.

Systems with airlocks, that prevent readings from being taken at the discharge to the reclaimer, may be taken at the reclaimer inlet. When the reclaimer is running to capacity, these readings are generally 1" to 2" lower than those taken at the reclaimer outlet.



4.1.9 Turn the exhauster ON. The negative (static) pressure will move fluid in the tube.

**NOTE: Readings must be taken with the enclosure doors (cabinet or blast room) open, and with the exhauster running.**

4.1.10 Obtain the static pressure by adding the number of inches the fluid travels up one column to the inches the fluid travels down the other column. Refer to the example in Figure 5.

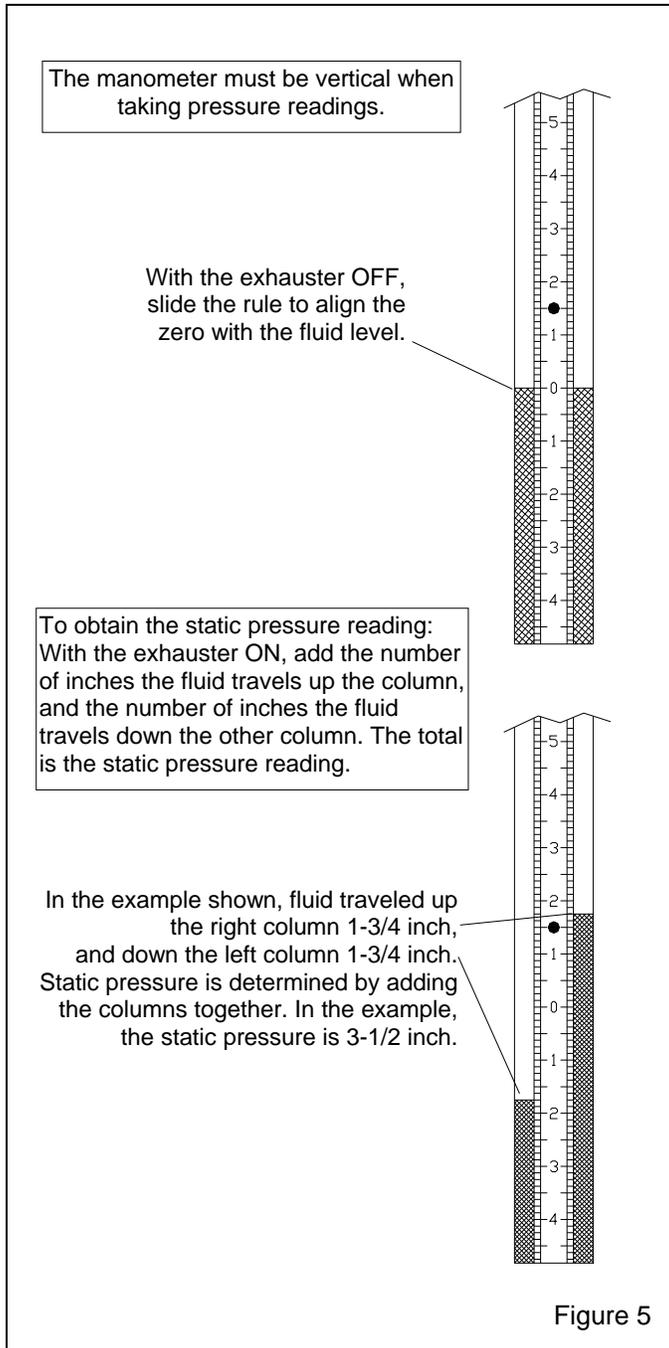


Figure 5

4.1.11 After the readings are taken, replace the needle protector. Close the manometer valves and store the

manometer in the original container in a clean area. Note: If the manometer installation is permanent, the manometer may remain on the reclaimer body after the valves are closed.

5.0 ADJUSTMENTS

5.1 Static pressure

5.1.1 A manometer is useful for adjusting or monitoring static pressure. Manometers are listed under Optional Accessories in Section 9.1. Correct static pressure varies with the size of the reclaimer and the size, weight and type of media. Use the table in Figure 6 to establish a static pressure starting point for given media.

Media	Size	Static Pressure
Glass Bead	8 to 13	3 to 3.5 inches
Al. Oxide	46 to 60	4 to 5 inches
Al. Oxide	80 to 180	3 to 4 inches
Plastic	All *	2-1/2 to 3 inches
Steel Grit	**	6 to 7 inches

\* Non-Aerolyte reclaimers require modification. Consult the factory.  
 \*\* Size is limited, and determined by the system's application.

Figure 6

5.1.2 Adjust static pressure by opening and closing the damper. The damper is located on the inlet of dry filters, and on the exhauster outlet of reverse-pulse collectors and reclaimers with a booster exhauster. Operate the system until the media has gone through several cycles before making additional adjustments. The objective is to obtain a balance of maximum dust removal without media carryover.

5.1.3 **Dusty media:** If the damper is not opened far enough, the reclaimer will not remove all fines, resulting in dusty media, poor visibility, and possible media blockage in the conveying hose. Open the damper enough to increase static pressure by 1/4 inch. After the media has gone through several cycles, check media and adjust the damper as required.

5.1.4 **Media carryover:** If the damper is opened too far, it may cause carryover (usable media carried into the dust collector) and result in excessive media consumption. Close the damper enough to decrease static pressure by 1/4 inch. After the media has gone

through several cycles, check dust container for good media and adjust the damper as required.

**5.1.5** If the damper has been adjusted and carryover or excessive dust in the media continues to be a problem, adjusting the vortex cylinder may help retain media. The vortex cylinders do not usually require adjustment unless 180 mesh and finer media, or lightweight media is used. See Section 5.2 and 5.3, depending on the style of vortex cylinder.

**5.2 Externally Adjustable Vortex Cylinder** (Standard on 900 cfm and larger project order reclaimers, 1200, 2500 cfm and larger on standard exhaustor-mount reclaimers, and all pull-thru reclaimers).

Note: Before adjusting the vortex cylinder, adjust the damper on the dust collector per Section 5.1. After the static pressure has been adjusted, adjust the cylinder as follows.

**5.2.1** The adjusting lever for the vortex cylinder is mounted on the outlet pipe on top of the reclaimer or the spacer between the reclaimer body and exhaustor housing depending upon which system is provided.

**5.2.2** Adjustments are made by loosening the handle's locking knob and moving the handle to achieve the correct setting. When the correct setting is established, tighten the locking knob to prevent movement.

**5.2.3** Start with the lever slightly to the right (about one o'clock) of the vertical position.

**5.2.4 To Remove More Fines:** (Too much dust in media) 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 that further adjustment is required.

**5.2.5 To Remove Less Fines:** (Excessive 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.

**5.2.6** When using very fine media (180 mesh and finer or plastic media), the inlet baffle of the reclaimer may also need to be removed. Consult the factory before proceeding with this option.

**5.3 Internally Adjusted Vortex Cylinder**

Used with exhaustor mount reclaimer on sizes noted, when not equipped with the optional externally adjustable vortex.

Note: Before adjusting the vortex cylinder, adjust the damper per Section 5.1. After the static pressure has been adjusted, adjust the cylinder as follows.

**5.3.1** Remove the flex hose from the outlet pipe or remove the exhaustor assembly, depending on the reclaimer style.

**5.3.2** The internal cylinder is visible by looking into the reclaimer from the top. The cylinder is held in position with three bolts.

**5.3.3** Adjustments are made by loosening the bolts, and moving the cylinder up or down to achieve the correct setting. When the correct setting is established, tighten the bolts to prevent movement.

**5.3.4** Start with overall length of the internal tube and cylinder, when measured from the top of the reclaimer to the bottom of the inner cylinder equaling the distance shown in Figure 7. If the reclaimer is rubber lined, add 1/4" to the starting point depth.

Reclaimer Size	Starting Point Depth
1800 cfm .....	20 1/2 Inches
3200 cfm .....	24 1/2 Inches
3600 cfm .....	25 1/2 Inches

Figure 7

**5.3.5 To Remove More Fines:** (Too much dust in media) To increase media consumption, raise the cylinder in 1/4" increments. It may take a few cycles to remove the fines; allow the media to go through several cycles before further adjustment.

**5.3.6 To Remove Less Fines:** (Excessive usable media is being carried to the dust collector) To decrease media consumption, lower the vortex cylinder in 1/4" increments. NOTE: If the cylinder is lowered too far, usable media will carryover, and cause abnormally high static pressure.

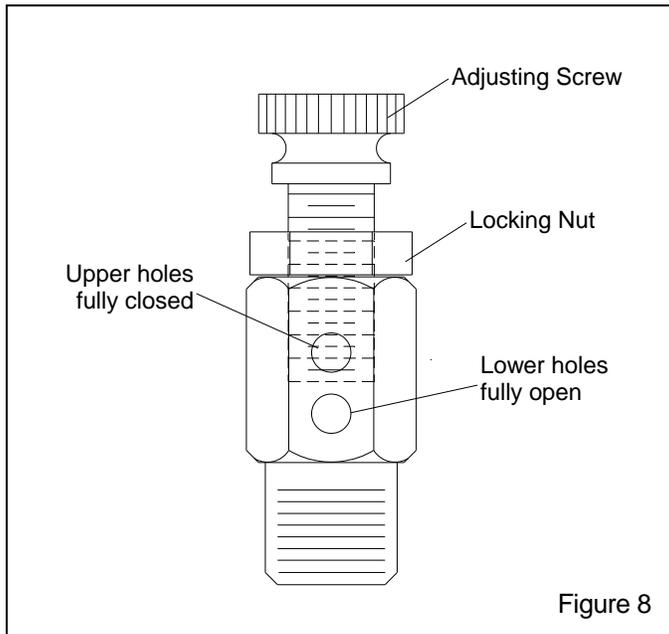
**5.3.7** When using very fine media (180 mesh and finer or plastic media), the inlet baffle of the reclaimer may need to be removed. Consult the factory before proceeding with this option.

**5.4 Metering Valve Adjustment, Figure 8**

**5.4.1** While blasting, check the media stream through the blast nozzle, or through each, clear, metering valve tube. With the correct media/air mixture, media will flow smoothly through the tube and nozzle.

**5.4.2** 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 8. This adjustment is a starting point.

**5.4.3** 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.



**5.4.4** 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.

**6.0 PREVENTIVE MAINTENANCE**

**6.1** Clean the debris screen daily: To clean, turn the exhauster off, open the media fill door and remove screen. Empty the screen and replace it, making sure it is securely re-attached to the inner cone.

**6.2** Check metering valves for obstructions: This is especially important on reclaimers used with automated shot peening equipment, where the nozzle flow may not be seen. Check flow through the clear, metering valve tube. Blockage occurs in this area if the debris screen is improperly installed or is detached, or when the metering valve needs adjusting.

**6.3** Periodically check media hose for soft spots. Replace the hose as soon as soft spots are noted. Worn hose could collapse, and restrict media flow.

**6.4** Periodically check the reclaimer inlet and outlet pipes, flex hose, and ducting for wear, and replace as required.

**6.5** Check optional rubber liners. Replace liners that have worn through the rubber.

**7.0 SERVICE MAINTENANCE**

**7.1 Replacing Wear Plate**

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

**7.1.2** Angle the new wear plate into reclaimer inlet until it is in position with the straight end at the reclaimer inlet. Insert a board or similar object for leverage and pry the wear plate against the inner wall and top of the reclaimer. While forcing the wear plate against the reclaimer, secure it with self-drilling screws, through each existing screw hole in the weldment. Caulk any gaps or voids around the wear plate to prevent rapid wear in those areas.

**7.2 Replacing Optional Rubber Liners, Figure 9**

**Installation Note:** When installing the liners, ensure that seams are aligned. The final assembly must be smooth and free of protrusions, edges, and gaps. Any edges will disrupt the air flow, causing wear, and affect the reclaimer's media cleaning efficiency.

**7.2.1** Remove the inlet and outlet flex hoses.

**7.2.2** Remove the baffle bolts located next to the inlet adaptor that secure the end of the inlet baffle to the reclaimer weldment.

**7.2.3** Remove the socket head screw that secures the inlet-top liner to the reclaimer top.

**7.2.4** Remove the bolts securing the reclaimer top, and remove the top, top liner and inlet baffle. **NOTE:** All but 900 and 1200 reclaimer Inlet baffles are tack-welded to the inner tube. Before removing the baffle, make an alignment mark along the reclaimer top plate (not the top liner) to make sure the new baffle will be correctly aligned. When replacing the baffle, align the baffle mounting holes, the wall liner, the top liner, and the top plate. When aligned, mark each part, and tack the baffle tube to the inner tube. **NOTE: The baffle and tube on 900 and 1200 reclaimers are two-piece; the installation is covered in Paragraph 7.2.14.**

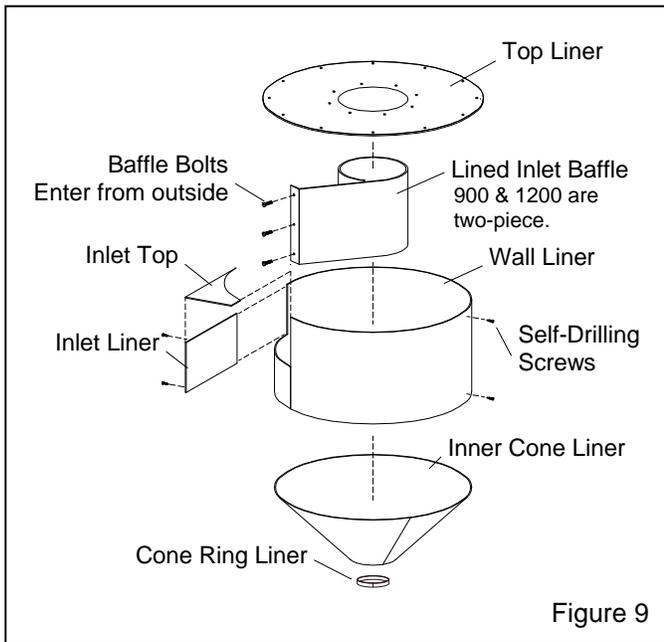


Figure 9

**7.2.5** Inspect all the liners. Replace any that have worn through or if the rubber is getting thin.

**7.2.6** Wall and inlet-side liners are held in place by self-drilling screws. From the outside of the reclaimer, remove the screws, and remove the liners.

**7.2.7** The inner cone liner is glued to the inner cone with contact cement. Peel the old liner out and remove all residue from the cone.

**7.2.8** Place the cone liner in the inner cone with the fabric side down, and check the fit. Apply medium-set contact cement, and install the cone liner.

**7.2.9** Install the cone liner ring with contact cement.

**7.2.10** Clamp the wall liner in place, making sure it is flush with the top of the reclaimer body and aligned with the inlet. Mark the wall liner at the three bolt-hole locations for the inlet baffle. Remove the liner and drill

the bolt holes. Reinstall the wall liner. Align the three bolt-holes and temporarily place bolts through the holes to hold it in place. Clamp the liner, and while pushing the liner against the weldment, secure it with self-drilling screws, through each screw hole in the weldment.

**7.2.11** Align the inlet-side liner and clamp it in place. Use self-drilling screw at each hole location in the weldment, to install the inlet liner.

**7.2.12** Use silicone caulking to seal all seams and where liners meet; all around the inlet-side liner and reclaimer weldment, between the inlet liner and side liner, between the side liner and cone liner, between the cone liner and cone ring liner, and on the cone liner, side liner and cone ring seams. Wipe the caulking smooth.

### CAUTION

**All seams between each liner must be sealed, and all seams between the liners and reclaimer weldment must be sealed. Voids will cause premature wear.**

**7.2.13** After the inlet baffle is aligned, and tacked to the inner tube (As noted in Section 7.2.4), align the top liner and top, and apply caulking to the seam around the baffle and top liner. Refer to Paragraph 7.2.14 for 900 cfm and 1200 cfm reclaimers.

**7.2.14** 900 and 1200 baffle and tube liner installation: Use worm clamps to clamp tube liner to the inner tube; align so seam is on the downward side of the baffle (between the baffle and reclaimer inlet.) tack the tube liner to inner tube at the bottom in three or four places. Apply caulking to the tube liner seam and the seam around the tube liner and top liner. Install the baffle, leaving the bolts somewhat loose.

**7.2.15** Apply caulking around the top edge of the side liner and inlet liner, and install the top assembly. Secure the top bolts and inlet baffle bolts.

**7.2.16** Working through the reclaimer inlet, wipe the caulking smooth. Apply additional caulking to seams between the baffle and side liner. Re-caulk any voids.

**7.2.17** Install flex hoses.

**7.2.18** Allow time for the caulking and cone liner cement to cure before putting the reclaimer in service.

**8.0 TROUBLESHOOTING**

**8.1 Excessive Media Carryover**

**8.1.1** Dust collector damper open too far. Adjust static pressure per Section 5.1.

**8.1.2** Vortex cylinder out of adjustment. Adjust vortex cylinder per Section 5.2 or 5.3, depending on the cylinder style.

**8.1.3** Reclaimer door open or leaking. Check reclaimer door and gasket for leaks. Air entering the reclaimer at this point will cause media to be carried into the dust collector. DO NOT operate unless all doors are closed.

**8.1.4** Leak in reclaimer weldment. Check entire reclaimer for leaks.

**8.1.5** Media level too high.

**Suction Reclaimer:** Do not fill past cone. Load media only through fill door.

**Pressure Reclaimer:** Do not fill above pop-up valve. Load media only through fill door.

**8.1.6 Suction Reclaimer:** Media level too low, causing air to be drawn in through metering valves. Check level and fill if low.

**8.1.7** If using very fine media (180 mesh and finer), the inlet baffle may need to be removed. Consult the Clemco before proceeding with this option.

**8.1.8** Reclaimer debris screen clogged with debris. Check screen basket daily.

**8.2 Reclaimer not Recovering Media**

**8.2.1** Exhauster motor rotating backwards. The motor should rotate as indicated by the arrow on the exhauster housing. If it does not rotate in the proper direction, LOCK OUT AND TAG OUT ELECTRICAL POWER and switch the motor leads as shown on the motor plate. Refer to the system's wiring schematic.

**8.2.2** Dust collector damper closed too far restricting air movement in cabinet. Adjust static pressure per Section 5.1.

**8.2.3** Blocked air inlet duct in cabinet enclosure or room recovery segments. Blockage in the air intake ducts restricts incoming air and reduces air movement. Check for blockages.

**8.2.4** Hole worn in flex hose between cabinet or recovery transitions and reclaimer inlet (if reverse-pulse collector is used, also check hose between the reclaimer outlet and dust collector inlet). Replace hoses and route it with as few bends as possible to prevent wear.

**8.2.5** Reclaimer door open. DO NOT operate unless door is closed.

**8.2.6** Obstruction in flex hose between cabinet or recovery transitions and reclaimer inlet. Remove hose and check for blockage.

**8.2.7** Exhauster paddle wheel worn. Check wheel for wear.

**8.2.8** Do not load media through cabinet door. Loading media faster than recovery rate will cause an obstruction by blocking air movement in the flex hose

**8.3 Excessively High Media Consumption**

**8.3.1** Excessive carryover, see Section 8.1

**8.3.2** Media may be too fine or worn-out. Replace media as necessary.

**8.3.3** Using media that rapidly breaks down. If the application allows for it, change to durable media.

**8.3.4** Blast pressure too high for the media, causing media to breakdown. Lower blast pressure if application allows it.

**8.4 Reduction in Blast Cleaning Rate**

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

**8.4.2** Incorrect metering valve adjustment.

**Suction Reclaimer:** Adjust metering valve air mixture per Section 5.4.

**Pressure Reclaimer:** Adjust media metering valve as noted in cabinet or blast machine owner's manual.

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

**8.4.4** Blockage in media hose or blast gun. Blockage may occur as a result of a missing debris screen or

incorrect metering valve adjustment permitting heavy media flow. See Section 5.4.

**8.4.5 Suction Reclaimer:** Worn blast gun parts. Inspect gun body, nozzle, and air jet. Refer to the appropriate parts list, and replace all worn parts.

**8.4.6 Suction Reclaimer:** Worn media hose. Check hose for leaks and soft spots. Replace worn or damaged hose.

**8.4.7 Suction Reclaimer:** Air jet in gun out of adjustment. Refer to blast equipment instructions to check adjustment.

**8.4.8** Moist media. Frequent bridges or blockage in the area of the metering valve can be caused by moisture. Refer to Section 8.6.

**8.5 Plugged Blast Nozzle**

**8.5.1** Damaged or missing debris screen. When the filter screen is damaged or not in place, all media and blast cleaning by-products, such as paint chips, scale etc. pass directly into the metering valve area, blocking the metering valve or nozzle. Check placement of the debris screen.

**8.5.2** Media mixture too rich.

**Suction Reclaimer:** Adjust metering valve air mixture per Section 5.4.

**Pressure Reclaimer:** Adjust media metering valve as noted in cabinet or blast machine owner's manual.

**8.6 Media Bridging**

**8.6.1** Frequent bridging or blockages 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.

**8.6.2** 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.

**8.6.3** 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, or from humidity. Drain the moisture separator and receiver tank regularly. If the

problem persists, it may be necessary to change media more often or install an aftercooler or air dryer.

**8.6.4** 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.

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

**8.7 Blockage in Media Hose**

**8.7.1** Media obstructions. Usually caused when the media mixture is too rich. Adjust the metering valve air mixture per Section 5.4.

**8.7.2** Wet or damp media. See Section 8.6.

**8.7.3** Reclaimer debris screen clogged with debris. Check screen basket daily.

**8.8 Media Surge**

**8.8.1** Heavy media flow.

**Suction Reclaimer:** Adjust metering valve air mixture per Section 5.4.

**Pressure Reclaimer:** Adjust media metering valve as noted in cabinet or blast machine owner's manual.

**8.9 Dust not separating from media**

**8.9.1** Dust collector damper not open enough. Adjust static pressure per Section 5.1.

**8.9.2** Vortex cylinder out of adjustment. Adjust vortex cylinder per Section 5.2 or 5.3.

**8.9.3** Exhauster motor rotating backwards. The motor should rotate as indicated by the arrow on the exhauster housing. If it does not rotate in the proper direction, LOCKOUT AND TAGOUT ELECTRICAL POWER and switch the motor leads as shown on the motor plate. Refer to the system's wiring schematic.

**9.0 REPLACEMENT PARTS**

When ordering replacement parts for equipment built and sold on project orders, include the project number, stock number, description, and drawing number.

3200 cfm and larger reclaimers are furnished on projects orders; refer to the assembly drawings furnished with the equipment for replacement parts for those reclaimers.

**9.1 Optional Accessories**

Item	Description	Stock No.
(-)	Manometer kit .....	12528
(-)	Rubber liners, Refer to Section 9.3	

**9.2 Replacement Reclaimer Assemblies**

Any reclaimers not listed are normally furnished as projects. Refer to the project manual furnished with the equipment for the replacement reclaimer assembly.

Item	Description	Stock No.
(-)	Reclaimer assembly, push-thru w/exhauster	
	Suction type	
	900 cfm, 2 HP .....	12398
	1200 cfm, 5 HP .....	24058
	1800 cfm, 7.5 HP .....	14155
	2500 cfm, 10 HP .....	14154
	Pressure type	
	900 cfm, for 14" blast machine .....	21194
	900 cfm, for 16" blast machine .....	21253
	900 cfm, for 24" blast machine .....	14269
	1200 cfm, for 16", 2 cf blast mach. ....	24064
	1200 cfm, for 16", 2 cf Aerolyte mach. ....	24065
	1200 cfm, for 24" blast machine .....	24061
(-)	Reclaimer assembly, push-thru less exhauster	
	Suction type	
	900 cfm .....	12399
	1200 cfm .....	24059
	1800 cfm .....	14152
	2500 cfm .....	14153
	Pressure type	
	900 cfm, for 14" blast machine .....	21193
	900 cfm, for 16" blast machine .....	21252
	900 cfm, for 24" blast machine .....	21823
	1200 cfm, for 16", 2 cf blast mach. ....	24068
	1200 cfm, for 16", 2 cf Aerolyte mach. ....	24069
	1200 cfm, for 24" blast machine .....	24062
	1800 cfm for 24" blast machine .....	25010
(-)	Reclaimer assembly, pull-thru	
	Suction type	
	900 cfm .....	21305
	1200 cfm .....	24060
	1800 cfm .....	21307
	Pressure type	
	900 cfm, for 16" blast machine .....	21293
	900 cfm, for 24" blast machine .....	24206
	1200 cfm, for 16", 2 cf blast mach. ....	24066
	1200 cfm, for 16", 2 cf Aerolyte mach. ....	24067
	1200 cfm, for 24" .....	24051

**9.3 Rubber Liners, Figure 10**

Reclaimer must be designed for liners and have a bolt-on top.

Item	Description	Stock No.
(-)	Rubber liner sets	
	900 cfm .....	23151
	1200 cfm, Ref Fig. 11 to identify model pre January 2010 .....	23152
	modular style since Jan. 2010 .....	25439
	1800 cfm .....	23153
	2500 cfm .....	23154
1.	Top plate liner	
	900 cfm .....	23059
	1200 cfm .....	22689
	1800 cfm .....	22695
	2500 cfm .....	22700
2.	Baffle, lined	
	900 cfm (2-piece) .....	23416
	1200 cfm, pre to 2010 (1-piece) .....	22691
	modular style (2-piece) .....	24654
	1800 cfm .....	22696
	2500 cfm .....	22701
3.	Wall liner, reclaimer body	
	900 cfm .....	17008
	1200 cfm, pre to January 2010, 14" long .....	22692
	1200 cfm, modular style 15-1/4" long .....	25436
	1800 cfm .....	22697
	2500 cfm .....	22702
4.	Inlet side liner	
	900 cfm .....	12830
	1200 cfm .....	22693
	1800 cfm .....	22698
	2500 cfm .....	22703
5.	Sump liner	
	900 cfm .....	16070
	1200 cfm .....	22694
	1800 cfm .....	22699
	2500 cfm .....	22704
6.	Inlet top	
	900 cfm .....	22827
	1200 cfm .....	24031
	1800 cfm .....	24032
	2500 cfm .....	24033
7.	Screw, self-drilling, 10-16 x 3/4" .....	12722

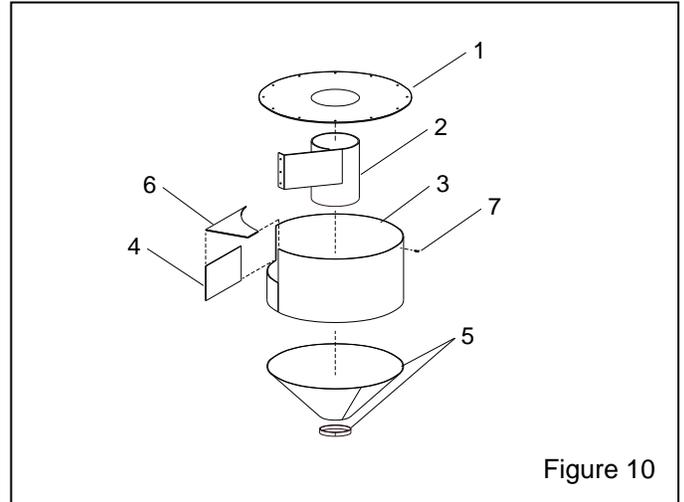


Figure 10

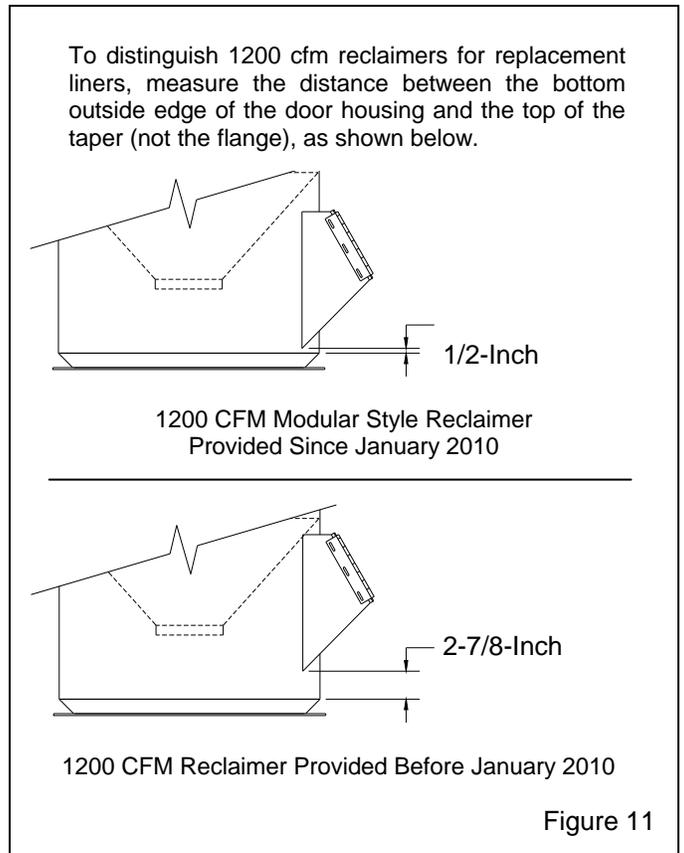


Figure 11

9.4 Exhauster Assembly, Figure 12

Item	Description	Stock No.
1.	Motor	
	900 cfm, 2 HP, 3 PH .....	12309
	1200 cfm, 5 HP, 3 PH .....	19156
	1800 cfm, 7.5 HP, 3 PH .....	12761
	2500 cfm, 10 HP, 3 PH .....	19169
2.	Mount, motor	
	900 cfm, plate, 2 HP .....	12005
	1200 cfm, 5 HP .....	17030
	1200/1800 cfm 7.5 HP .....	12002
	2500 cfm, 10 HP .....	17669
3.	Housing, exhauster	
	900 cfm .....	12271
	1200 & 1800 cfm .....	12270
	2500 cfm .....	12274
4.	Paddle wheel	
	900 cfm, 2 HP .....	12335
	1200 cfm, 5 HP .....	17617
	1200/1800 cfm, 7.5 HP .....	12336
	2500 cfm, 10 HP .....	17671
5.	Gasket, 5/16" x 1" adhesive backed, specify ft. required .....	00187

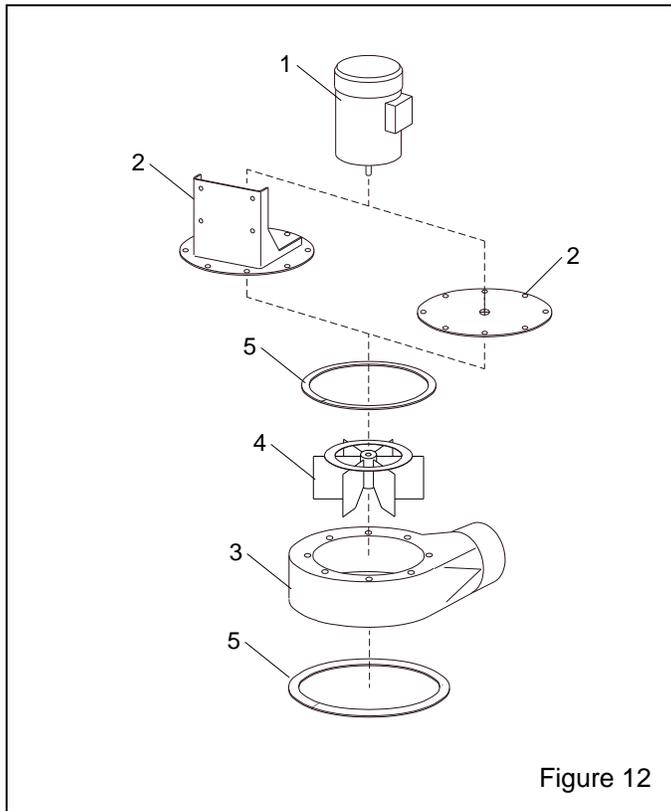


Figure 12

9.5 Metering Assemblies, Suction Systems  
Figure 13

Item	Description	Stock No.
1.	Metering valve assembly, BNP .....	12417
2.	Stem, metering adjusting .....	23097
3.	Screw, adjusting .....	23098
4.	Nut, adjusting stem lock .....	23099
5.	Plug, 1" plastic .....	12011
6.	Fitting, hose, 3/8" NPT x 1/2" barb .....	06369
7.	Nipple 1" x close .....	01701
8.	Metering valve assembly, Lexan .....	12420
9.	Manifold, multiple metering valve, 2" inlet for use with up to 6 blast guns .....	12322
10.	Manifold, multiple metering valve, 3" inlet for use with up to 12 blast guns .....	16202
11.	Metering stem assembly (items 2, 3, & 4) .....	23889

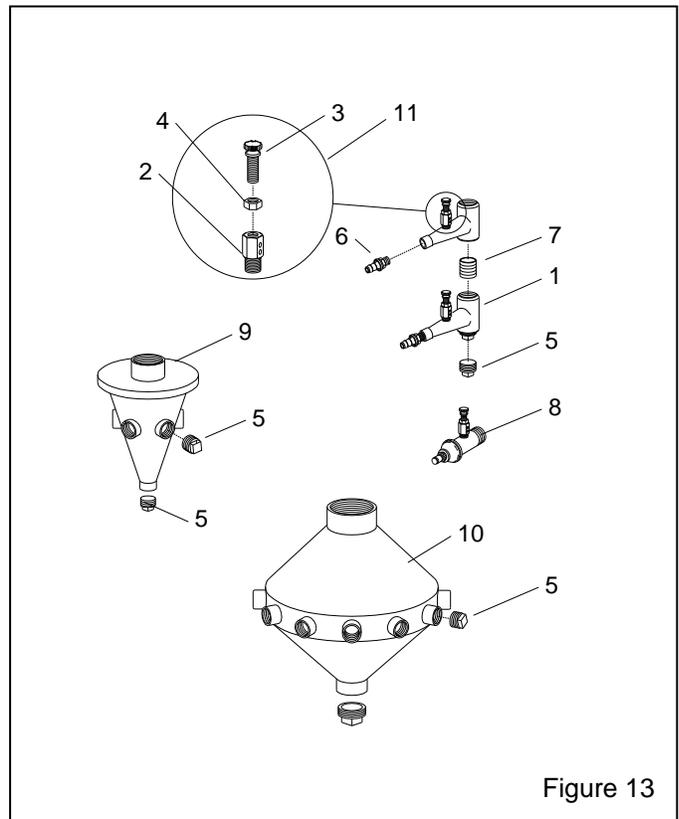


Figure 13

9.6 Reclaimer Parts, Figure 14

Item	Description	Stock No.
1.	Inlet pipe adaptor 900 cfm, 6" less support (standard) ..... 12363 900 cfm, 6" with support (option) ..... 16887 1200 cfm, 7" with support (standard) .... 20596 1200 cfm, 6" with support (option) ..... 22729 1800 cfm, 8" with support..... 20597 2500 cfm, 10" with support..... 20598	
2.	Gasket, inlet adaptor 900 cfm ..... 11759 1200 cfm ..... 11767 1800 cfm ..... 11765 2500 cfm ..... 11768	
3.	Wear plate, field installed 900 cfm for reclaimers with solid top ..... 14055 for reclaimers with removable top ..... 25071 1200 cfm ..... 19223 1800 cfm ..... 23028 2500 cfm ..... 23029	
4.	Gasket, 5/16" x 1" adhesive backed, specify ft. required ..... 00187	
5.	Gasket, door 900 cfm ..... 11745 1200, 1800 and 2500 cfm ..... 11766	
6.	Spring latch assembly ..... 12263	
7.	Screen assembly Standard mesh for 900, 1200, and 1800 cfm..... 21265 for 2500 cfm ..... 21272 4.5 mesh Aerolyte for 900, 1200, and 1800 cfm..... 21275	
8.	Vortex assembly, externally adjustable, push-thru for exhauster mounted reclaimer 900 cfm, optional ..... 23047 1200 cfm, optional, Refer to Page 18, Figure 15..... 25434 1800 cfm, optional ..... 19072 2500 cfm, standard ..... 19075	
9.	Vortex assembly, externally adjustable, for pull-thru reclaimer 900 cfm ..... 23046 1200 cfm, Refer to Page 18, Fig. 15 ..... 25432 1800 cfm ..... 19090 2500 cfm ..... 19093	
10.	Hose support, outlet, pull-thru 900 cfm, optional ..... 20619 1200/1800 cfm, optional ..... 20730 2500 cfm, standard ..... 20731	
11.	Gasket, 1/8" x 2" adhesive backed, specify ft. required ..... 13089	
12.	Top plate 900 cfm ..... 23040 1200 cfm ..... 24057	

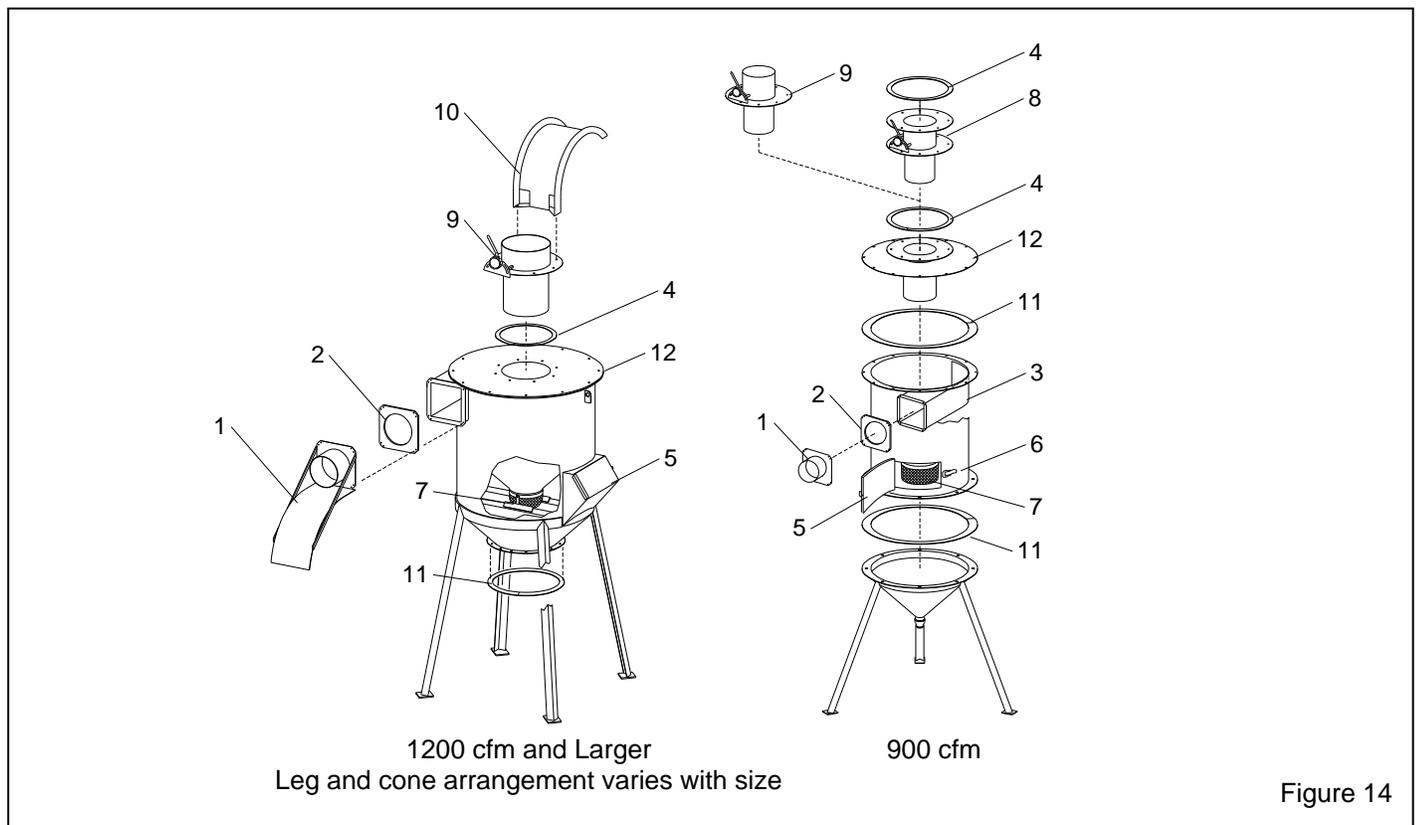
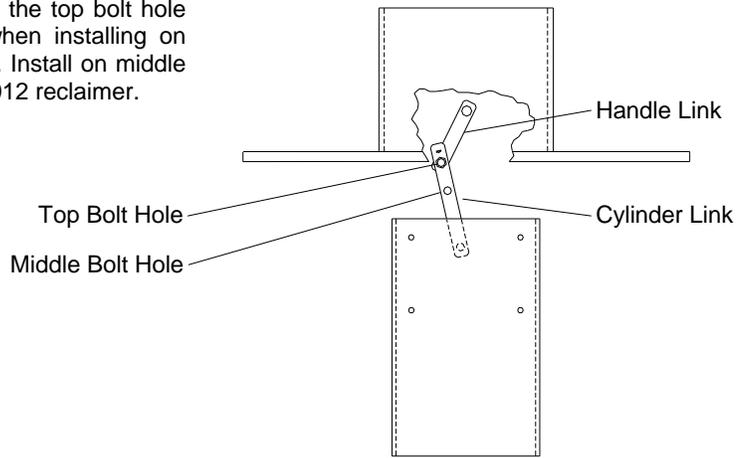


Figure 14

INSTALLATION ADJUSTMENT  
1200 CFM ADJUSTABLE VORTEX ASSEMBLY

Bolt handle link to the top bolt hole on cylinder link when installing on modular reclaimer. Install on middle bolt hole for pre 2012 reclaimer.



Pull-Thru Vortex shown; assemble same way when using Push-Thru Vortex

Figure 15