AWAC AIR-WASH
ABRASIVE CLEANER
O. M. 20547

DATE OF ISSUE: 05/94
REVISION: D, 07/15

⚠ WARNING

Do not use this equipment until you have READ this MANUAL and YOU UNDERSTAND its contents. *

These WARNINGS are included for the health and safety of the operator and those in the immediate vicinity.

***If you are using a Clemco Distributor Maintenance and Parts Guide, refer to the orange warnings insert preceding the Index before continuing with the enclosed instructions.**

Electronic files include a Preface containing important information.

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INDUSTRIAL
Blast Facilities
by Clemco Industries Corp.

1.0 INTRODUCTION

1.1 Scope

1.1.1 This manual covers the set-up, operation, maintenance, troubleshooting and the replacement parts for the Clemco Blast Room Air-wash Abrasive Cleaner.

1.1.2 These instructions contain important safety information. All operators and personnel involved with the abrasive blast process must read and understand the contents of these instructions, including the orange cover. It is equally important that the operator is trained and qualified to safely operate the blast machine, remote controls, and all other equipment used with this product.

1.1.3 All personnel involved with the abrasive blasting process must be made aware of the hazards associated with abrasive blasting. The Clemco booklet ″Abrasive Blasting Safety Practices″ is included with every blast machine, and contains important safety information about abrasive blasting that may not be included in equipment operation manuals. To order additional copies, visit www.clemcoindustries.com or email info@clemcoindustries.com.

1.2 Safety Alerts

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

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

NOTICE

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

⚠ CAUTION

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

⚠ WARNING

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

⚠ DANGER

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

1.3 Description

1.3.1 The AWAC is an air-wash abrasive cleaner. The air-wash is an even curtain of recovered abrasive passing through an adjustable, inner channel of moving air. Larger dense particles (reusable abrasive) pass through the air channel, while lighter fines (abrasive worn too small for most cleaning applications) are drawn out to the dust collector.

1.3.2 Abrasive cleaners are available in right-hand or left-hand models. The difference is on which side the drive motor and inlet chute are located. When facing the cleaner's duct connection, right-hand cleaners have the drive motor on the right side and left-hand units have the drive motor on the left side. The illustrations in this manual show a right hand cleaner. The choice enables its placement conveniently around the bucket elevator while positioning the duct connection toward the dust collector allowing for fewest duct bends as possible.

1.3.3 The abrasive cleaner is designed for heavy, continuous usage in industrial blast rooms. It removes oversized particles and fines from reusable abrasive. An integral storage area holds cleaned abrasive before it returns to the blast machine for reuse. The components of the abrasive cleaner are shown in Figure 1.

1.4 Operating Principles

1.4.1 The abrasive cleaner mounts atop the blast machine(s). A bucket elevator lifts abrasive from the recovery floor and discharges it into the abrasive cleaner's inlet via a flexible transfer hose. As recovered abrasive enters the cleaner, oversized materials and debris that get mixed with the abrasive during the blast process, are removed and automatically discharged into the debris chute. Next abrasive cascades though an adjustable air wash that removes fines and any remaining dust. Fines are discharged into the fines chute and dust is carried to the dust collector. Cleaned, reusable abrasive is retained and held in the storage section. Stored abrasive automatically refills the blast machine each time the machine is depressurized.

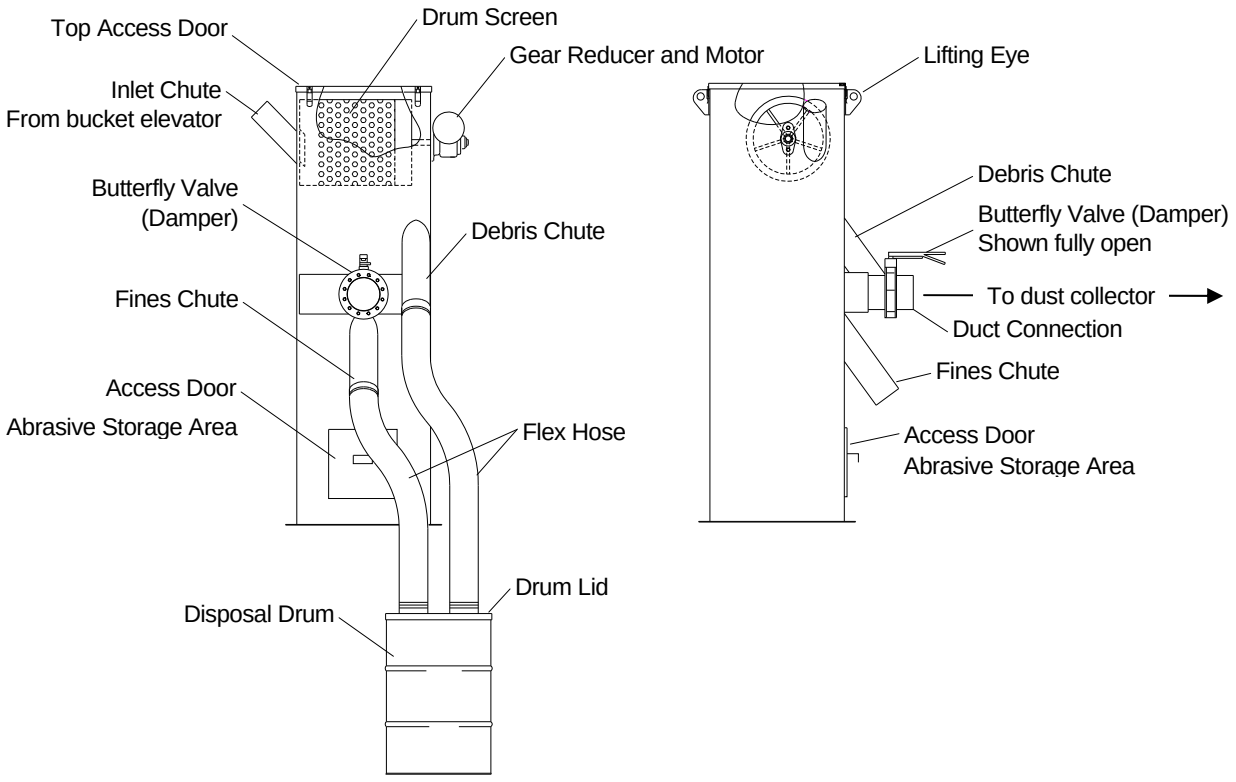

Figure 1

Note: Dust removal and a **substantial** amount of abrasive cleaning should take place in the blast room ventilation and dust collection system. Should the abrasive to be cleaned by this equipment contain **excessive concentrations of dust or fines due to the absence of an efficient ventilation and dust collection system**, this cleaning process may not be able to remove all fines in a single pass.

1.4.2 Typical abrasive cleaner set-ups are shown in Figures 2 and 3. Figure 2 shows an abrasive cleaner mounted over a single blast machine. Figure 3 shows a cleaner over two machines using a 2-pot stand assembly.

1.4.3 Standard abrasive cleaners mount atop a 24-inch diameter blast machine. When the blast machine is provided with a system, it includes a welded-on mounting flange that bolts to the flange at the bottom of the abrasive cleaner. A bolt-on mounting flange is used when the blast machine does not have an attached flange. Note: Welding is not permitted on a blast machine unless it is performed by certified welders, at a shop holding a National Board R Stamp. Adaptor plates are available to attach the cleaner to 30-inch and 36-inch diameter blast machines.

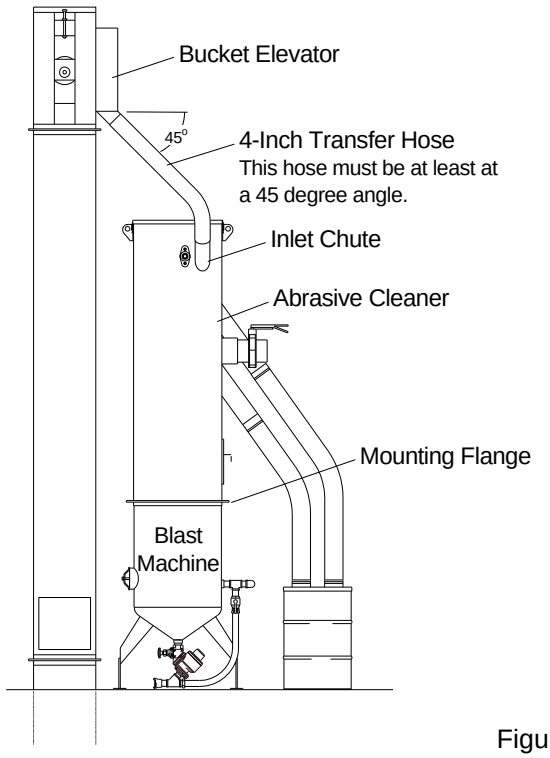

Figure 2

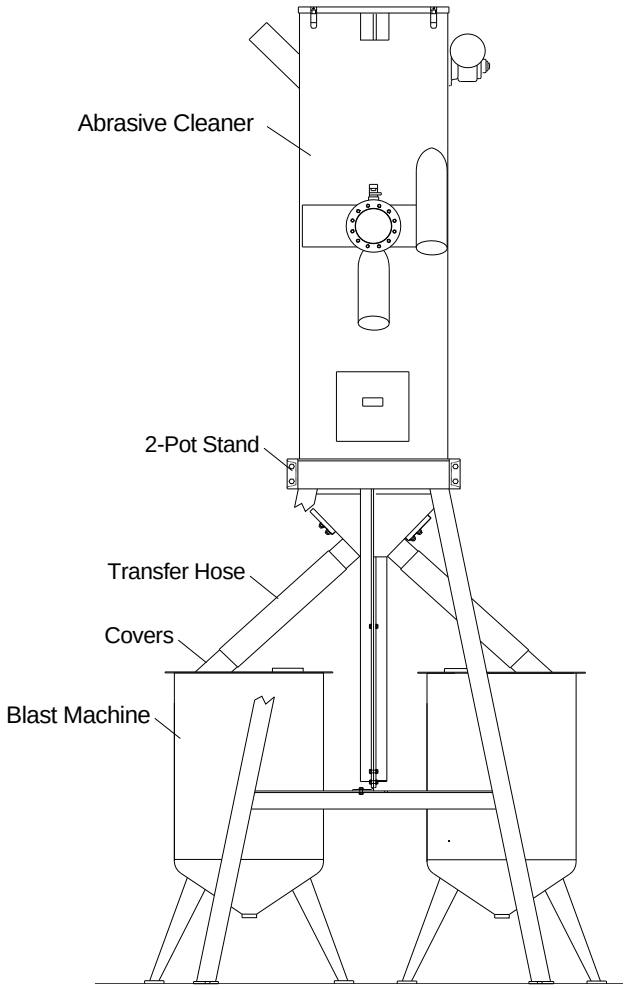

Figure 3

2.0 INSTALLATION

⚠ WARNING

The blast machine and abrasive cleaner must be installed on a flat, level surface. The abrasive cleaner must be mounted atop a stationary, fixed-leg blast machine; do not mount atop a blast machine with rubber tires. The blast machine and cleaner must be adequately supported to ensure stability when the cleaner is loaded with abrasive. Failure to secure the blast machine and cleaner could permit them to topple, resulting in death or serious injury.

NOTICE

An umbrella must be installed over the blast machine pop-up opening. If an umbrella is not installed, as shown in Figure 4, the weight of the abrasive will prevent the pop-up valve from sealing and could cause extensive damage to the blast machine around the pop-up opening.

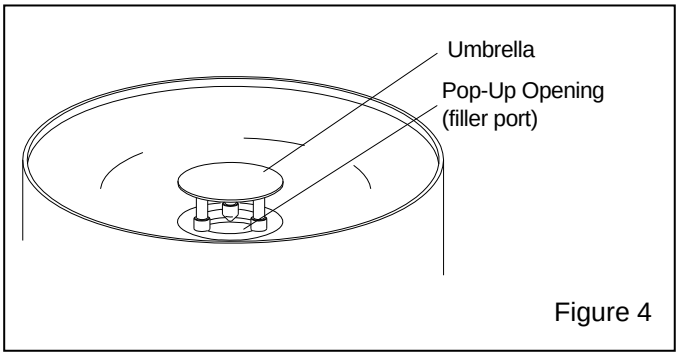

Figure 4

2.1 Set-Up

2.1.1 Position the blast machine so the blast hose connection is pointing toward the blast room's hose entry point.

2.1.2 Uncrate the cleaner in close proximity to the blast machine.

2.1.3 Position the abrasive cleaner so that when it is placed on the blast machine, the inlet chute will be toward the bucket elevator discharge and provide at least a 45 degree angle between the elevator discharge and abrasive cleaner inlet, and the 6" diameter dust collector duct connection is facing toward the dust collector ducting, with the fewest bends possible to the ducting. If needed reposition the blast machine to maintain the 45-degree angle.

2.1.4 For installation instructions, refer to the section with the mounting as noted below:

- 24" blast machine with mounting flange.....Section 2.2
- 24" blast machine w/o mounting flange .....Section 2.3
- 30" & 36" dia. blast machine w/attach. kit ..Section 2.4
- Mounting on a 2-pot stand .....Section 2.5

2.2 Installation on a 24-inch Diameter Blast Machine with Flange, Refer to Figure 5.

2.2.1 Install the 5/16" adhesive-backed strip gasket to the inside of the blast machine flange ring. Punch out the gasket material to clear covered bolt holes.

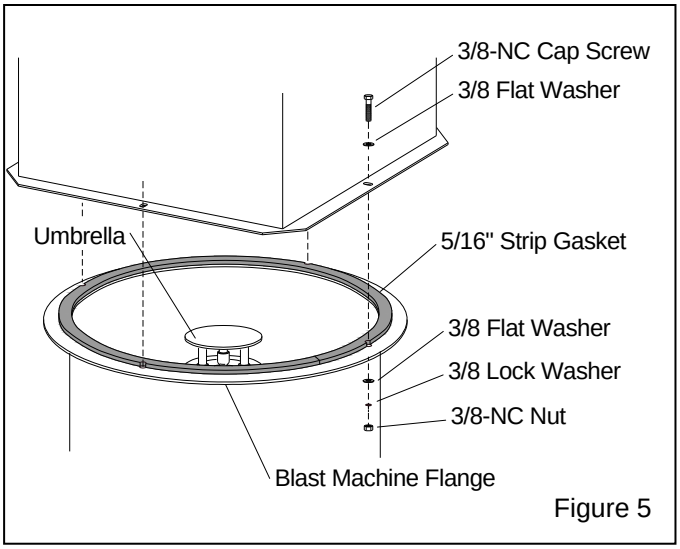

Figure 5

2.2.2 Proceed to Section 2.6.

2.3 Installation on a 24-inch Diameter Blast Machine without Flange, Refer to Figure 6.

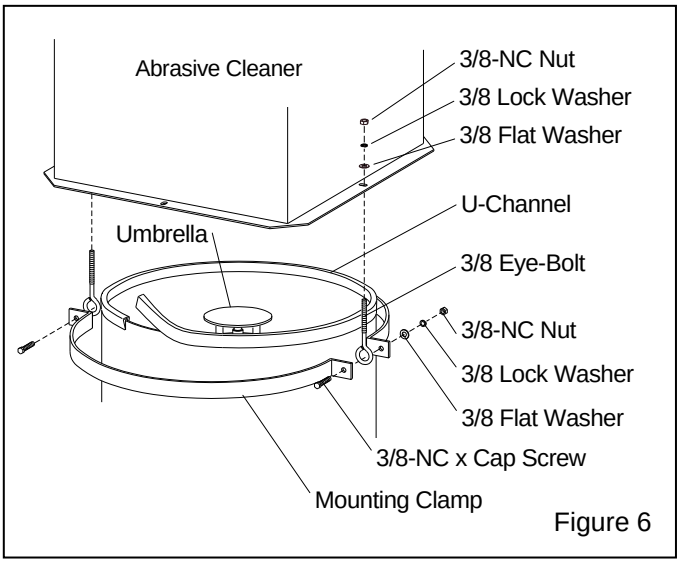

Figure 6

2.3.1 Loosely attach the mounting clamps to the blast machine, placing the eye-bolts between the clamps as shown in Figure 6. The top of the clamps should be approximately 2" to 3" from the top of the blast machine. Do not tighten the bolts at this time. The abrasive cleaner connections must line up with their connecting components before securing the mounting clamps.

2.3.2 Place the rubber u-channel extrusion over the rim of the blast machine. To obtain a tight seal, the ends of the extrusion must be square-cut and tightly compressed. Use rubber adhesive to hold the extrusion in place during assembly.

2.3.3 Proceed to Section 2.6.

2.4 Installation on 30-inch and 36-inch Diameter Blast Machines, Refer to Figures 7 and 9.

2.4.1 Apply mastic seal around the bolt circle as shown in Figure 7.

2.4.2 Place the adaptor plate on wooden planks or other supports that are only high enough to access the fasteners used to attach the cleaner to the plate.

2.4.3 Connect a cable or chain to the cleaner's lifting eyes and hoist the cleaner above the adaptor plate. **Do not work under the abrasive cleaner.**

⚠ WARNING

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

2.4.4 Use the cap screws or a drift pin to make sure the bolt holes are aligned as the cleaner is lowered straight down onto the adaptor plate. Realigning the cleaner when it is in place could damage the mastic seal. Install fasteners on all four sides of the cleaner's flange, as shown in Figure 7.

2.4.5 Place the rubber u-channel extrusion over the rim of the blast machine, as shown in Figure 9. To obtain a tight seal the ends of the extrusion must be square-cut and tightly compressed. Use rubber adhesive to hold the extrusion in place during assembly.

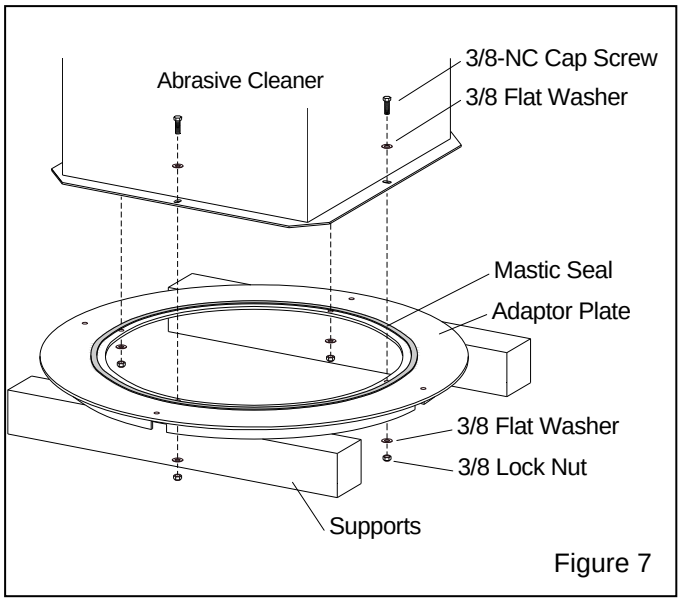

Figure 7

2.4.6 Proceed to Section 2.6.

2.5 Installation on 2-Pot Stand
Refer to Figure 8.

2.5.1 Refer to the 2-pot stand manual to assemble the stand.

2.5.2 Apply mastic to the center of the top frame channels and on the inward side of the bolt holes, as shown in Figure 8.

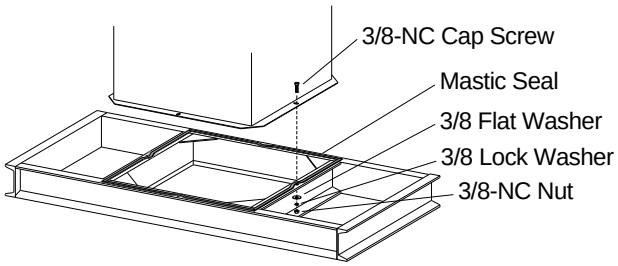

Figure 8

2.6 Common Connections

2.6.1 Make sure the blast machine and cleaner will be oriented correctly when the cleaner is installed on the machine.

2.6.2 Connect a cable or chain to the cleaner's lifting eyes and hoist the cleaner above the blast machine (or 2-pot stand). The abrasive cleaner weighs approximately 600 lbs.

⚠ WARNING

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

2.6.3 Make sure the bolt holes are aligned as the cleaner is lowered straight down onto the blast machine. Realigning the cleaner when it is in place could damage the seal between the cleaner and blast machine. Do not secure with washers and nuts yet.

- To attach to 24-inch mounting flange or a 2-pot stand, use a drift pin or similar rod to make sure the bolt holes line-up as the cleaner is lowered straight down onto the flange.
- To attach to a 24-inch pot attachment clamp, as the cleaner is lowered onto the blast machine, guide the eyebolts into the holes on the cleaner's flange.
- To attach to a 30-inch or 36-inch adaptor, refer to Figure 9 and align the notches in the adaptor flange with the two blast machine's lifting eyes, and place J-hooks into the eyes. As the cleaner is lowered onto the blast machine, guide the hooks into the holes on the adaptor plate.

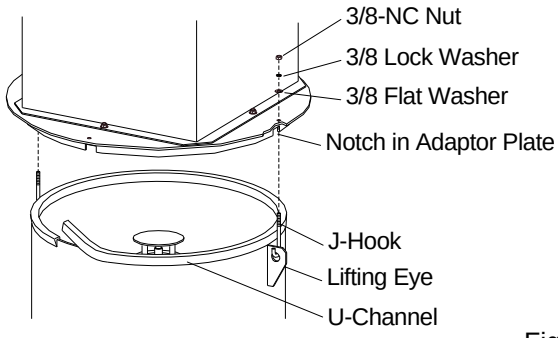

Figure 9

2.6.4 Check the angle between the elevator discharge and abrasive cleaner inlet. The discharge hose must have at least a 45-degree angle to ensure abrasive flow.

2.6.5 Recheck orientation of the blast machine and the abrasive cleaner inlet chute and ducting port. When satisfied that all are correctly positioned, use fasteners provided to secure the cleaner to the blast machine flange, mounting clamp, or 2-pot stand, as shown in Figures 5, 6, 8, and 9. When using a 2-pot stand, refer to the 2-pot stand manual for placement of the blast machine and covers. Make sure all fasteners are tight.

2.6.6 Anchor the blast machine (and 2-pot stand) to the floor.

2.6.7 After the components are firmly anchored, remove the lifting chains/cables from the abrasive cleaner.

2.6.8 Connect a 4" ID discharge (duct) hose from the bucket elevator to the abrasive cleaner inlet. If required, clamp an angle or other a stiffener to the bottom side of the hose to prevent it from sagging under the load of abrasive. **Note: The 4" ID hose is not provided with the abrasive cleaner; it is provided with a Clemco bucket elevator. 4-inch duct hose is shown under accessories in Section 7.1.**

2.6.9 Connect a 6" diameter duct (provided by user) from the duct connection on the cleaner to the dust collector or dust collector ducting. The abrasive cleaner requires 600 cfm of air at 4" static pressure. A straight line duct to the dust collector is ideal. Avoid 90-degree bends where possible.

2.6.10 Place the 30-gallon disposal drum at its permanent location.

2.6.11 Place the lid on the drum and tighten the cap screws to secure.

NOTICE

During operation, the cleaner operates under negative pressure; leaks will decrease the cleaner's efficiency. The abrasive cleaner cover and disposal drum cover must be secure, and flex hoses must be tight.

2.6.12 Place two worm clamps over the 5-inch x 60-inch flex hose and attach it between the debris chute (upper chute) and one collar on the disposal drum cover. Tighten the clamps to secure.

2.6.13 Place two worm clamps over the 5-inch x 49-inch flex hose and connect it between the fines chute (lower chute) and the unused collar on the disposal drum cover. Tighten clamps to secure.

2.6.14 Connect wiring to the motor. Motor is 1/4 HP, 230/460 V. 3 PH, 60 HZ, unless specified otherwise by user.

NOTE: Unless controls are provided with the system or purchased as an option, all wiring and motor controls are provided by the user.

When used in conjunction with a recovery system and dust collector, motors should start sequentially beginning farthest from the recovery point. For example: the dust collectors should start first and independent of others, next the abrasive cleaner, followed by the bucket elevator and the recovery floor last.

⚠ WARNING

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

2.6.15 Check the gear reducer oil level. Refer to the gear reducer manual for recommended lubricants and lubrication schedule.

2.6.16 Jog the motor to check the rotation of the drum screen, compare it to the rotation decal on the side of the cleaner. NOTE: If there is any doubt that the drum is rotating correctly, remove the inlet hose and drop a bolt into the inlet chute. If the drum is rotating correctly, the bolt will be discharged through the trash chute within a few seconds. If the drum is not rotating correctly, the bolt will bounce around in the drum, and not be discharged.

3.0 ABRASIVE

3.1 Abrasive Selection

⚠ WARNING

Obtain a safety data sheet (SDS) for the blast abrasive. Abrasive blasting with sands containing crystalline (free) silica can lead to serious or fatal respiratory disease. As OSHA recommends, do not use abrasives containing more than trace amounts (more than one percent) free silica.

3.1.1 Use only abrasives specifically manufactured for blast cleaning, that are compatible with the surface being blasted. Abrasive produced for other applications may be inconsistent in size and shape, and contain particles that could jam the abrasive metering valve, or cause irregular wear.

3.1.2 Blasting abrasive can adversely affect the health of the operator, productivity, and maintenance of the blast machine. DO NOT USE abrasives containing more than one percent crystalline (free) silica because of respiratory diseases associated with silica abrasives. Obtain safety data sheets (SDS) for the blasting abrasive prior to blasting, paying particular attention to the health risks and presence of any hazardous/toxic substances.

3.1.3 Abrasive plays a significant part in both the productivity and maintenance of the blast facility. Metallic abrasives, such as steel or iron grit are favored because of their low break down rate. Mineral abrasive in general are not recommended for an air-wash abrasive cleaner due to the rapid breakdown rate.

3.2 Abrasive Size

3.2.1 Abrasive size impacts the desired profile, cleaning rate, nozzle size and necessity of clean dry air. Generally, larger and denser abrasives provide a deeper profile, while smaller abrasives clean faster. Most abrasive blasting is done with abrasive sizes between 16 and 80 mesh. Larger sizes may be used if the nozzle orifice is large enough to allow multiple abrasive particles to pass

through the nozzle without jamming. Finer abrasives are especially sensitive to moisture and require dry air to prevent bridging in the metering valve.

3.2.2 The "working mix" of the abrasive is important to the blasting operation. When first charging the system, the abrasive mesh size should be the size which produces the desired production rate for the type of material being removed from the part, as well as the desired surface profile (etch). As the abrasive breaks down, each particle becomes a smaller mesh size. To compensate for the breakdown, an abrasive size larger than the original charge size is often added when abrasive replenishment is required. This working mix averages out to produce the required profile and production rate. Establishing the working mix is largely by trial and error as it depends upon the breakdown rate of the abrasive used, the nature of the surface being blasted, and the desired results.

3.3 Abrasive Capacity

3.3.1 Calculate the storage capacity of each component except the blast machine. A Clemco 6-cubic foot (cu ft) blast machine holds roughly 1500 lbs. of steel or iron grit or 600 lbs. of non-metallic abrasive. The abrasive cleaner holds 10 cu ft (2500 lbs. of metallic or 1000 lbs. of non-metallic abrasive that has the density of slag or aluminum oxide).

3.3.2 If there is not an additional storage hopper, the recovery system should not be filled with more than a total of 10 cu ft (2500 lbs. of metallic abrasive). Ten cubic feet of abrasive fills a Clemco 6-cubic-foot blast machine and abrasive cleaner to about 12 inches above the bottom of the abrasive cleaner, or half way up the access door, providing 6 cu ft in the machine and 4 cu ft in the abrasive cleaner.

NOTICE

During blasting, the pop-up valve (blast machine filling port) is sealed, preventing abrasive from re-entering the blast machine. As abrasive is recovered, the abrasive level in the abrasive cleaner rises. By the time the blast machine is empty, the abrasive cleaner will be nearly filled to its full capacity of 10 cubic feet. When the operator stops blasting, the pop-up valve automatically drops, permitting stored abrasive to refill the blast machine.

3.3.3 The only time more than 10 cu ft of abrasive may be loaded into a system, is when an optional storage hopper increases the abrasive storage capacity per the size (cubic feet) of the hopper, when a 2-pot stand is used (refer to Paragraph 3.3.4), or when a sweep-in (partial floor area recovery, not a full recovery floor) conveyor is used, and recovery does not take place until the operator stops blasting to recover the abrasive. Sweep-in system may be loaded with 16 cu ft of abrasive, which is the capacity of a 6-cubic foot machine and the abrasive cleaner.

3.3.4 A 2-pot stand holds an additional 3.5 cu ft, making the total abrasive capacity of the stand and abrasive cleaner 13.5 cu ft. Each blast machine holds 6 cu ft; two machines have the capacity of 12 cu ft. With the additional 3.5 cu ft of the stand, the 2-pot stand and the two machines are at full capacity when abrasive reaches the 4" fill hose on the blast machine cover plates.

3.4 Loading Abrasive

3.4.1 Abrasive should be loaded in accordance with instructions provided with the recovery system.

NOTICE

If your purchase includes a start-up technician, do not load abrasive until instructed to do so by the technician.

NOTICE

- **Do not load abrasive until motor rotation is checked and operational on all recovery components.**
- **Never load abrasive unless all recovery components are operating. Overfilling, blockage, and possible damage will occur requiring extensive cleaning or repair.**
- **Some abrasive will remain in non-recoverable areas. This filler abrasive should be compensated for only after running the system for a couple of days. Do not increase the initial charge, as it could overload the system.**
- **NEVER add new abrasive unless all recoverable abrasive has been returned to the blast machine and abrasive cleaner. Doing so will overfill the cleaner.**

3.4.2 When initially loading the system with abrasive, use only about six cubic feet, and thoroughly check the operation of the recovery and blast system; observe the movement of abrasive on the conveyor(s), flow into the elevator inlet chute, through the bucket elevator, and into the abrasive cleaner.

3.4.3 Check operation of the blast machine to ensure it is operating correctly.

3.4.4 After confirming that the system is operating correctly, add the remaining abrasive.

NOTICE

Never attempt to charge the system unless all recovery components are operating. Overfilling and blockage will occur, requiring extensive system cleaning, and may cause damage.

3.4.5 Some abrasive will remain in non-recoverable areas between the vanes and floor, grating bars, and corners. This filler abrasive should be compensated for only after running the system for a couple of days. Do not increase the initial charge, as it could overload the system.

3.5 Unloading Abrasive

Refer to the 2-pot stand manual for shutting the slide-gates to the blast machines.

3.5.1 To empty the blast machine and hopper of abrasive, reduce pressure to 40 psi. Place an empty container, such as a drum, in the blast room. Close the choke valve and begin blasting, and direct abrasive flow into the container. Empty the container when full or before it is too heavy to handle, and repeat the process until the machine is empty. If complete purging of abrasive is necessary, use a vacuum to remove abrasive from the recovery floor, hopper, and blast machine head.

4.0 ADJUSTMENTS

4.1 Damper Setting

4.1.1 Initially, the damper should be fully open. Fully open is when the valve handle is in line with the outlet as shown in Figure 1.

4.1.2 After the abrasive cleaner has been operational for one hour under actual conditions, check the disposal container for abrasive. If a large amount of abrasive (small amounts are normal) is in the container, close the damper by one notch. Continue to close the damper a notch at a time and check the drum periodically until approximately 1/8 cup of good media accumulates after 4 to 8 hours of operation.

5.0 MAINTENANCE SCHEDULE

5.1 Daily

5.1.1 Disposal drum

5.1.1.1 With the system OFF, loosen the bolts and remove the disposal drum lid and check debris level daily until the collection rate is determined. At that time, setup a program to empty the drum before it is 1/3 full or too heavy to easily empty. If excessive usable abrasive is in the container, adjust the damper per Section 4.1.

5.1.1.2 Dump the contents into a suitable disposal container. Replace the lid and snug the bolts to hold it in place.

NOTE: Blasting abrasive is usually non-toxic; however, some materials being removed by blasting may be toxic. Check with proper authorities for disposal restrictions.

⚠ WARNING

No dust is safe to breath. Failure to wear approved respirator and eye protection when emptying the disposal container 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 that is being removed by blasting, and obtain a safety data sheet (SDS) for the blast media.

5.1.2 Check abrasive level

5.1.2.1 Check abrasive level in abrasive cleaner or optional storage hopper daily. Adjust intervals based on abrasive consumption and refill as necessary.

5.2 Weekly

5.2.1 Check gear reducer lubricant level

5.2.1.1 During the first month of operation check oil level in gear reducer weekly. Refer to the gear reducer manual for recommended lubricants. *Lubricant is also shown on the reducer's nameplate.*

5.3 Monthly

5.3.1 Inspect rotating screen

5.3.1.1 Open abrasive cleaner top access door and inspect screen, remove all foreign material.

5.3.2 Check gear reducer lubricant level

5.3.2.1 Check oil level in gear reducer. Refer to the gear reducer manual for recommended lubricants. *Lubricant is also shown on the reducer's nameplate.*

5.4 Semiannually

5.4.1 Idler Bearing

5.4.1.1 The idler bearing is factory lubricated; under normal conditions this bearing requires no further lubrication. If conditions are abnormal due to extremely high temperature (180 degrees operating temperature), dirty conditions, or very high humidity; lubricate every six months with good quality No. 2 bearing grease until a thin bead of fresh grease is visible at the seal lip.

5.5 Gear Reducer

5.5.1 Refer to the gear reducer manual for recommended maintenance.

6.0 TROUBLESHOOTING

6.1 Trash build-up on rotating drum screen

6.1.1 Drum rotating backwards. Check drum rotation per paragraph 2.6.16.

6.1.2 Screen blinded. Remove top access cover and inspect screen. Clean as needed.

6.1.3 Debris chute blocked with foreign material. Remove flex hose and inspect hose and debris chute for blockage.

6.2 Too much usable abrasive in disposal drum

6.2.1 Damper open too far allowing excessive air through the air wash. Adjust damper per Section 4.1.

6.3 Too many fines in recovered abrasive

6.3.1 Damper closed too far restricting air through the air wash. Adjust damper per Section 4.1.

6.3.2 Insufficient ventilation through blast room. Check dust collector differential pressure.

7.0 REPLACEMENT PARTS

7.1 Accessories, Figure 10

Item	Description	Stock No.
(-)	Attachment Kits	
	(A) 24" machine with flange	06855
	(B) 24" machine without flange	10289
	(C) 30" machine without flange	06856
	(D) 36" machine without flange	06857
(-)	Cover assembly for 2-pot stand	
	(E) 24" blast machine with a flange	03104
	(F) 24" blast machine without a flange	02582
1.	Gasket, 5/16" x 1" strip, per foot	00187
2.	Seal, extr'd u-channel 3/4" x 1", per foot	19071
3.	Mastic seal, per foot	06105
4.	Seal, extr'd u-channel 15/16" x 1-3/8", per ft.	07505
5.	Hose, 4" duct, per foot (2-ft per cover)	00716
6.	Clamp, hose, 4-1/2"	02806
7.	Clamp, air inlet filter (each)	00251
8.	Filter, 3-1/2 x 7 air inlet	27051
9.	Gasket, 7/16" x 1" strip, per foot	00190
10.	Gasket, 5/16" x 3/4" strip, per foot	00189
*	All fasteners are 3/8-NC	

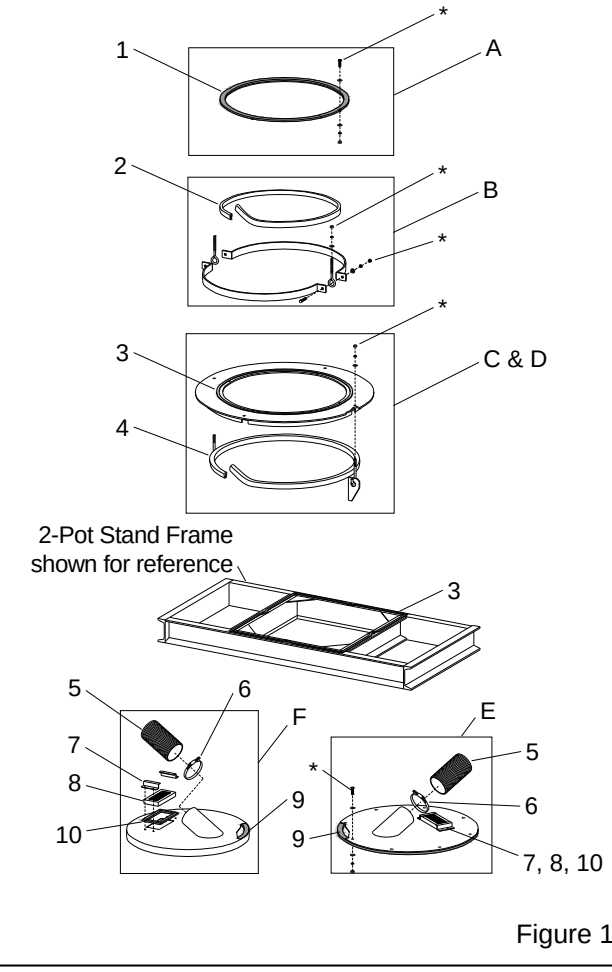

Figure 10

7.2 Abrasive Cleaner, Figure 11

Item	Description	Stock No.
(-)	AWAC Abrasive Cleaner Assembly	
	w/30 gal. drum, right hand	21354
	w/30 gal. drum, left hand	21282
1.	Drum screen,	
	Standard w/ 3/16" holes	21290
	Optional w/ 1/8" holes	21353
2.	Shaft, drum	06805
3.	Bearing, 1" idler	06812
4.	Gear reducer, 60:1	06811
5.	Motor, 1/4-hp 230/460-V, 3-ph, 60-hz	02980
6.	Hose, 5" light lined flex, per foot specify length required	12467
7.	Gasket, adhesive backed, 5/16" x 1" strip specify length required in feet	00187
8.	Clamp, 6-1/2" hose	00750
9.	Latch, each	10290
10.	Gasket, 5" butterfly valve, each	21455
11.	Valve, 5" butterfly	21289
12.	Adaptor pipe, 6"	21287
13.	Lid assembly, double inlet 30-gallon drum includes item 7 and four 3/8-NC bolts	28631
14.	Drum, 30-gallon disposal	15668

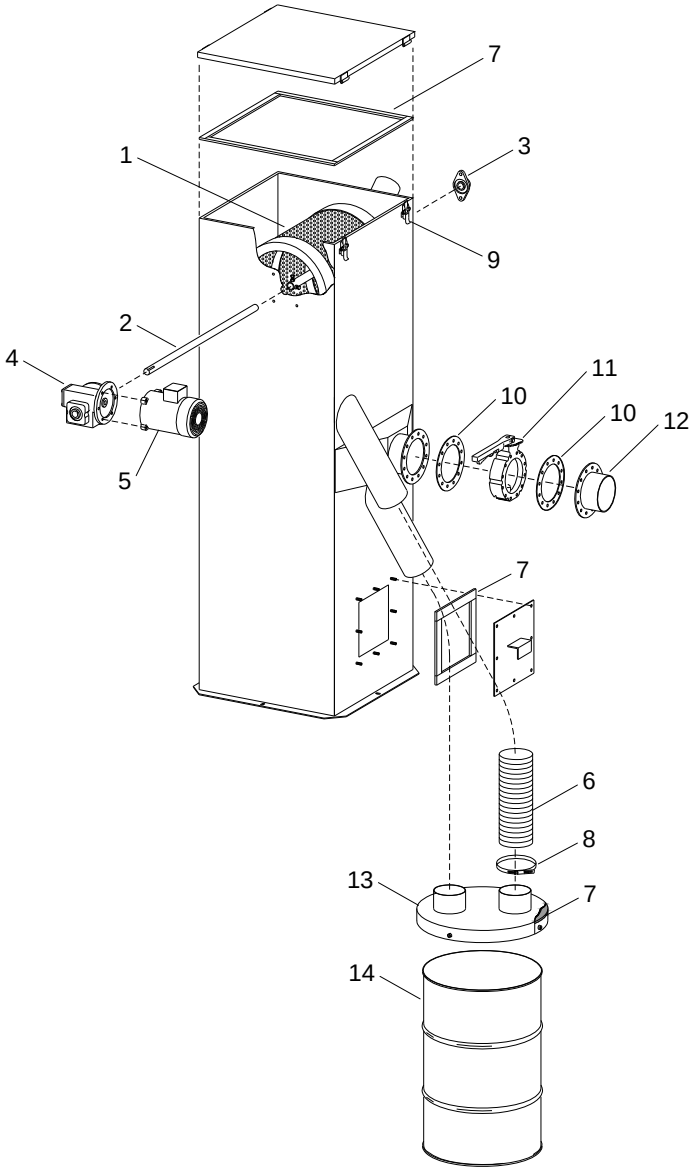

Figure 11