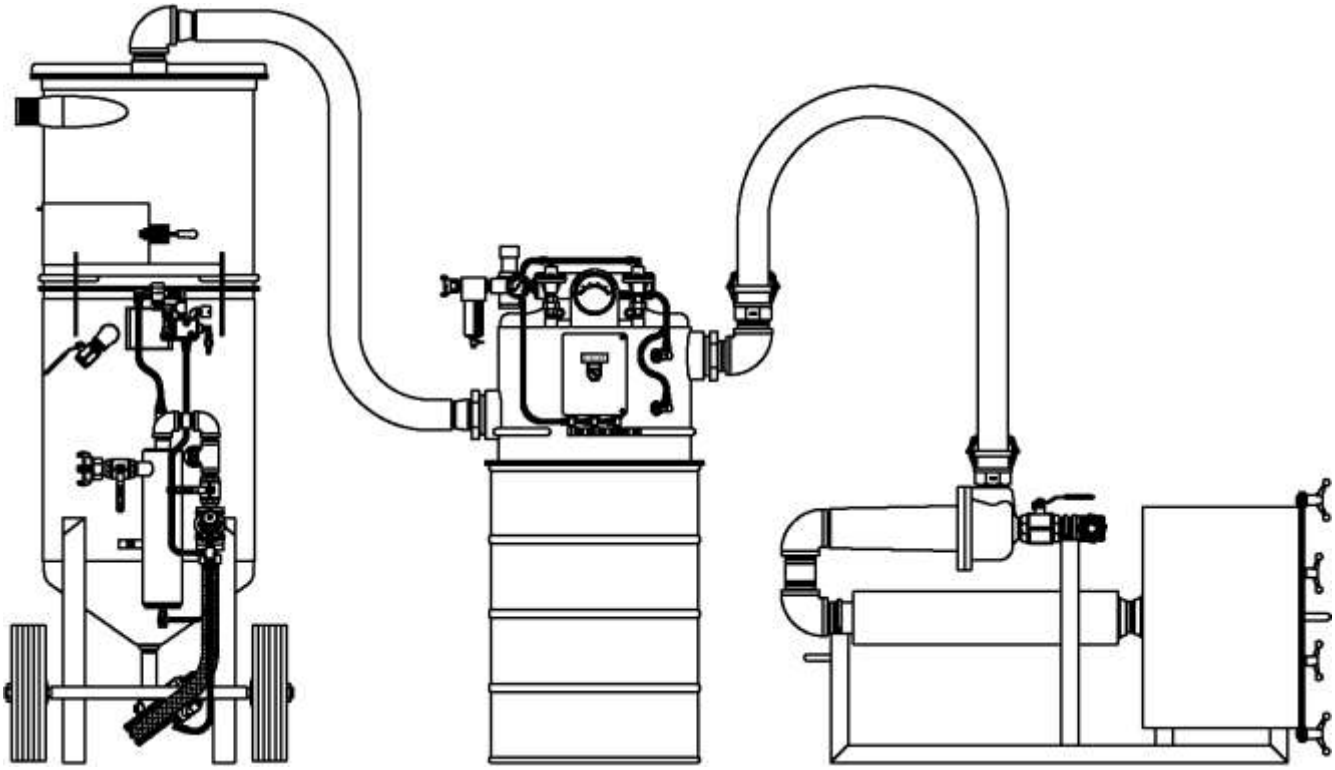
MODULAR BLAST AND RECOVERY SYSTEM

OPERATION AND MAINTENANCE MANUAL

APRIL 2010



SCHMIDT®

SAVE THIS MANUAL AND MAKE AVAILABLE
TO ALL USERS OF THIS EQUIPMENT!

Manual Part Number 7200-340

AXXIOM MANUFACTURING, INC.
engineered abrasive systems

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WARNING

1. **Any person intending to operate this equipment or any person intending to be in the vicinity during its operation must receive proper training from his/her supervisor, employer and/or supplier. If this equipment is to be leased or rented, the supplier must assure that the lessee or renter has received proper training before the lessee or renter takes possession of the equipment. Consult Axxiom Manufacturing, Inc.**

2. **Any person authorized to operate this equipment or any person intending to be in the vicinity during its operation and who is not capable of reading and understanding this manual must be fully trained regarding all operating procedures and must be aware of all the Dangers, Warnings and cautions identified herein. Consult Axxiom Manufacturing, Inc.**

3. **Do Not operate abrasive blaster or blast equipment before reading and completely understanding all the warnings, operating procedures and instructions contained in this manual.**

4. **Do Not perform any maintenance on any abrasive blaster or blast equipment while it is pressurized. Always depressurize the abrasive blaster vessel before loading abrasive or performing any maintenance.**

5. **Do Not use abrasives containing free silica. Silica can cause silicosis or other related respiratory damage. You must wear personal protective equipment for all abrasive blasting operations. Observe all applicable local, state and federal safety regulations in conjunction with airline filters and respiratory protection. Reference OSHA 29 CFR 1910.134.**

6. **Do Not enter areas during abrasive blasting operations without breathing protection. All personnel in the vicinity of abrasive blasting operations should wear NIOSH approved air fed respirators, hoods or helmets.**

7. **Do Not modify or alter any abrasive blaster, blast equipment or controls thereof without written consent from Axxiom Manufacturing, Inc.**

8. **Do Not use bleeder type deadman valves on any Schmidt® abrasive blaster. The use of A-BEC, Clemco or a similar bleeder type deadman valve can cause unintentional start-up without warning, which can result in serious personal injury.**

9. **Do Not sell, rent, or operate abrasive blasters without remote controls. OSHA regulations require remote controls on all blast machines. Failure to use remote controls can cause serious injury or death to the operator(s) or other personnel in the blasting area. Reference OSHA 29 CFR 1910.244(b).**

10. **Do Not repair or replace any portion of Schmidt® equipment using components that are not Schmidt® original factory replacement parts. Use of replacement components that are not Schmidt® original factory replacement parts may result in equipment failure which can result in serious personal injury and in addition will void all warranties.**

TABLE OF CONTENTS

1.0 THEORY OF OPERATION

The function of the modular BRS is to be used along with a Schmidt abrasive blaster to blast and vacuum recover abrasive. The modular BRS is designed to blast, vacuum, or blast and vacuum simultaneously. The abrasive is contained in the pressure vessel for blasting. After blasting, abrasive is recovered in the abrasive reclaimer by means of a pneumatic vacuum pump. Small particles are carried by the vacuum air stream into the dust collector. The abrasive and large particles (paint chips, cigarette butts, etc) drop to the bottom of the abrasive reclaimer. The abrasive is reloaded at atmospheric condition from the reclaimer into the pressure vessel after passing through a screen.

This manual contains part identification numbers (#) within the text that are found on the drawings in section 4.0, page 12 thru 16. Refer to these drawings as needed while reading this manual. **Note:** Also refer to the operation and maintenance manual for the abrasive blaster to be used with the Modular BRS System.

1.1 AIR SUPPLY

Compressed air is supplied through a hose connected to the pneumatic vacuum pump (#26) at the inlet crowfoot (#24) and to the dust collector at the crowfoot (#17) on the pulse reservoir inlet.

1.2 VACUUM SYSTEM

1.2.1 Pneumatic Vacuum Pump (Eductor)

The vacuum system is used for abrasive recovery during closed blasting (simultaneous blasting and recovery), or when solely vacuuming abrasive. The principal component of the vacuum system is the pneumatic vacuum pump (#26). The vacuum pump is powered by a minimum of 150 CFM of compressed air at 100 psig. To activate the vacuum system open the ball valve (#25). The vacuum generated by the vacuum pump can be regulated by the supply ball valve (#25). When closed blasting it may be necessary to reduce the vacuum to prevent warping of thin materials. To reduce the level of vacuum, slightly close the ball valve (#25) to obtain the desired vacuum. The vacuum pump exhausts air through a muffler (#28) and into the HEPA filter box (#29) which further cleans and muffles the exhaust. For varying vacuum applications the pneumatic vacuum pump (#26) can be equipped with a 150, 225, 350, or 440 CFM nozzle (#27) (Refer to section 2.3.2 for procedure to determine the nozzle size).

1.2.2 Abrasive Reclaimer

The function of the abrasive reclaimer (#1) is to receive the abrasive recovered by vacuuming. The abrasive and other debris enter the reclaimer at the tangential inlet which creates a cyclonic action on the incoming flow. Large heavier particles spiral on the outer extreme and are carried to the bottom of the abrasive reclaimer. Small lighter particles remain in the air stream and are carried from the abrasive reclaimer into the dust collector (#8). At the bottom of the abrasive reclaimer there is a screen (#4) that prevents debris (paint chips, cigarette butts, etc.) from passing into the pressure vessel. When blasting is stopped, the pressure vessel is depressurized to open the pop-up valve and allow the abrasive accumulated in the reclaimer to fall through the screen and enter the pressure vessel. The screen should be inspected and cleaned periodically. It can be accessed through the access door (#3) of the abrasive reclaimer. **Note:** It may be necessary to turn off the vacuum system to allow the pressure vessel popup to fall open.

1.2.3 Dust collector

The dust-filled vacuum air stream from the abrasive reclaimer enters the dust collector (#8) where the dust particles are filtered out by dry filtration. Dry filtration utilizes pleated filters that fit in the dust collector. The dry filters (#10) is installed through the bottom of the dust collector (#8) after it has been removed from the 55 gallon drum and placed on its side. The filters are held in position by the threaded filter knobs (#11) that seal them against the bottom of the tube sheet section of the dust collector. The dry filters must be pulsed regularly during operation to prevent clogging (see section 1.3). In addition the filters must be periodically cleaned to insure long life (see section 3.2.2). The clean vacuum air stream is pulled from the dust collector through the vacuum pump (#26).

1.2.4 HEPA filtration

When particulate free exhaust air is required, the optional HEPA (High Efficiency Particulate Air) filter box (#29) must be used. The HEPA filter (#33) is tested by DOP method to be 99.97% efficient on particles 0.3 microns in size or larger. In this arrangement the air passes through the dry filter (#10) in the dust collector (#8), then passes through the HEPA filter (#33) in the HEPA filter box (#29) before exhausting. To install the HEPA filter, first remove the threaded knobs (#31) and then remove the door (#30) from the HEPA filter box (#29).Slide the HEPA filter (#33) under the two brackets attached to the door (#30) and tighten the threaded filter knobs (#32) until the HEPA filter seals against the door (#30). The door can then be installed on the HEPA filter box (#29) by tightening the threaded knobs (#31) around the door until the gasket seals. The dry filter (#10) must be used in conjunction with the HEPA filter.

1.3 AUTOMATIC PULSE JET SYSTEM

The function of the pulse jet system is to prevent clogging of the dry filter (#10) by periodically providing a burst of air inside the filter to loosen dust particles from the pleated surface. The periodic pulsing is controlled by the automatic pulse jet controls. The required interval between pulses is determined by the blasting conditions. As the particles begin to clog the filter the vacuum pressure within the dust collector will increase. This increase can be detected on the differential pressure gauge (#12). The pulsing air supply utilizes a reservoir to prevent pressure drops at the blast nozzle. The automatic pulse system provides operator-free pulsing of the air filters and operates continuously when activated. The automatic pulse is controlled by an electronic circuit board (#19) located in the pulse control box (#18). Upstream of the pulse air reservoir is an air filter (#16) and an adjustable air regulator (#14), which are installed to maintain the clean air, of a maximum of 80 psig, required by the pulse controls. The pulse air control box sends a signal to the pulse air valve (#13), via the pulse control valve (#20), which opens providing the burst of air necessary to unclog the air filters (#10). The adjustment of the pulse air control box is dictated by the blasting conditions. The interval between pulses is adjusted by the “OFF TIME” knob on the circuit board (#19). The pulse length is adjusted by the “ON TIME” knob. The pulse effect can be seen by a decrease in the vacuum reading on the differential pressure gauge (#12). The automatic pulse jet controls can be disabled by turning the switch on the front of the pulse control box to the “OFF” position. **Caution:** An excessive “On Time” will cause the pulse air to overpower the vacuum resulting in reduced abrasive recovery capabilities.

1.4 BLAST HOSE ASSEMBLY

The size of the blast hose is determined by the size nozzle to be used. Generally the blast hose inside diameter should be three times the nozzle throat diameter. For open cycle blasting (without vacuum recovery) conditions and preference dictate the size nozzle (#37)/hose (#35) combination to be used. However, to utilize closed cycle blasting which requires the BRS vacuum head (#39), only a 3/4" blast hose assembly can be used. This is due to the limitations inherent to this type of blasting which require size constraints designed into the BRS vacuum head (#39). The use of a 3/4" blast hose (#35) implies that the largest size nozzle (#37) that can be used during closed cycle blasting is a #4 (1/4"), but a #5 (5/16") can also be used effectively.

1.5 BLAST NOZZLE

While blasting, the blast air/abrasive mixture flows through the blast hose (#35) to the blast nozzle (#37). The blast nozzle throat diameter directly affects the air flow rate, abrasive flow rate, and surface removal rate. Nozzles (#37) come in several sizes which can be identified by a small number visible on the nozzle. This number represents the nozzle throat diameter size in sixteenths of an inch; for example, a #5 nozzle has a throat diameter of 5/16". The best nozzle size for a particular application can be determined by several factors:

i. How much compressed air is available? Refer to section 5.0, table 1 for the approximate air consumption for each size blast nozzle

ii. Will blasting be done open cycle (w/o vacuum recovery) or closed cycle (w/simultaneous vacuum recovery)? When closed blasting, the blast air flow must not be greater than the vacuum pump (#26) capacity. This will prevent blast air and dust from blowing out around the nozzle brushes on the BRS vacuum head (#39). The recommended blast nozzle size to be used in closed blasting varies depending on the length and diameter of the vacuum hose (#38). Use the following general guidelines for reference:

BLAST PRESSURE	NOZZLE SIZE
15 psi or less	#7 Nozzle
30 psi or less	#6 Nozzle
50 psi or less	#5 Nozzle
100 psi or less	#4 Nozzle

Open blasting (w/o vacuum recovery) can be done with any size nozzle, but for higher production a #8 (1/2") nozzle is most commonly used.

iii. What type of surface is being blasted? Blasting small or intricate parts is usually done with a smaller nozzle.

1.6 BRS VACUUM HEAD

The vacuum head (#39) is used when operating in the closed blasting mode (blasting with simultaneous vacuum recovery). The blast abrasive is contained within the vacuum head (#39) where from it is recovered by the vacuum system. The blast nozzle (#37) screws into the nozzle holder of the blast hose assembly (#35), which in turn fits into the BRS vacuum head (#39). Then the suction hose (#38) attaches to the side of the vacuum head. The vacuum hose to BRS head is usually a tight fit, so no further seal is required at that joint. All other joints in the vacuum line are sealed with hose clamps. There are two styles of vacuum heads that are used with the BRS (refer to the drawing on page 16), each is equipped with brushes and a center wear tube that attach to the working end of the head. The brushes and center tube are wear components and should be inspected and replaced periodically. When operating in the closed blasting mode requiring the use of a vacuum head assembly (#39), it is important to remember that this limits the size of blast nozzle (#37) that can be used due to limitations created by the blast head (#39) and the available compressed air volume. Refer to section 2.3 to determine compressed air requirements.

2.0 OPERATING PROCEDURE

This section contains part identification numbers (#) within the text that are found on the drawings in section 4.0, pages 13 thru 16. Refer to these drawings as needed while reading this manual. Prior to operating the modular BRS unit, carefully read the safety warnings in section 0.0. **Note:** Also follow all recommended procedures in the operation and maintenance manual for the abrasive blaster to be used with the Modular BRS System.

2.1 OPEN CYCLE BLASTING (blasting without vacuum recovery)

2.1.1 Unit Set Up:

2.1.1.1. To prevent static electricity shocks to operating personnel, the abrasive blaster and the modular BRS must be grounded.

2.1.1.2. Close the air inlet ball valve on the abrasive blaster and the pneumatic vacuum pump ball valve (#25).

2.1.1.3. Make sure the handway on the abrasive blaster is closed and tightened.

2.1.1.4. Remove BRS vacuum head (#39) from blast hose assembly (#35).

2.1.1.5. Screw a standard long venturi nozzle (#37) into the nozzle holder of the blast hose assembly (#35).

2.1.1.6. Connect the blast hose (#35) to the coupling on the metering valve underneath the abrasive blaster and install safety clips (#40) to prevent accidental disconnection during operation.

2.1.1.7. Connect the twinline hose quick connects or extension cord plug to the mating quick connects or plug on the abrasive blaster control valve(s).

2.1.1.8. Connect the vacuum hose assembly (#38) to the vacuum inlet of the abrasive reclaimer (#1).

2.1.1.9. Connect air supply hoses to the air inlet crowfoot on the abrasive blaster, crowfoot on the pneumatic vacuum pump (#24) and the crowfoot for the automatic pulse controls (#17) then install safety clips (#40) to prevent accidental disconnection during operation. Refer to section 2.3 to determine the compressed air requirements. Note that the pneumatic vacuum pump (#26) consumes air in addition to the air requirements of the blast nozzle (#37). The amount of air consumed by the pump depends on the vacuum pump nozzle (#27) size (150, 225, 350 or 440 CFM). Refer to section 2.3.2 to determine the nozzle size.

2.1.1.10. If the abrasive blaster is already full of abrasive skip to section 2.1.2. To fill the abrasive blaster, disconnect the vacuum hose (#38) from the BRS vacuum head (#39).

2.1.1.11. Make sure the handway on the abrasive blaster, the door (#3) on the abrasive reclaimer and the door (#30) on the HEPA filter box are closed tight.

2.1.1.12. Close the abrasive blaster inlet ball valve and choke ball valve.

2.1.1.13. Turn on air supply then open valve (#25) to turn on vacuum pump (#26).

2.1.1.14. Vacuum desired amount of abrasive into the abrasive blaster. Do not overfill, for this will cause abrasive overflow into the dust collector (#8). If the abrasive being used is low density, it may be necessary to reduce the vacuum to prevent carryover of new abrasive into the dust collector (#8). The vacuum generated by the vacuum pump (#26) can be regulated by the supply ball valve (#25). To reduce the level of vacuum, slightly close the ball valve (#25).

2.1.1.15. Close valve (#25) to turn off vacuum pump (#26).

2.1.2 Open Cycle Blasting Operation:

Follow operating procedures in Abrasive Blasters 1.5-20 cu. ft Operation and Maintenance Manual.

2.2 CLOSED CYCLE BLASTING (blasting with vacuum recovery)

This section contains part identification numbers (#) within the text that are found on the drawings in section 4.0, pages 13 thru 16. Refer to these drawings as needed while reading this manual. Prior to operating the BRS unit, carefully read the safety warnings in section 0.0. **Note:** Also follow all recommended procedures in the operation and maintenance manual for the abrasive blaster to be used with the Modular BRS System.

2.2.1 Unit Set Up:

2.2.1.1. To prevent static electricity shocks to operating personnel, the Modular BRS must be grounded.

2.2.1.2. Remove the dust collector (#8) from on top of the 55 gallon drum and place it on its side on the ground.

2.2.1.3. Empty dust from 55 gallon drum.

2.2.1.4. Install the dry filters (#10) in the bottom of the dust collector (#8) and secure in position with the threaded filter knobs (#11). Replace dust collector on top of drum.

2.2.1.5. Open the door (#30) on the HEPA filter box (#29) by removing the threaded door knobs (#31). Install the HEPA filter (#33). Reinstall door by tightening threaded door knobs (#31).

2.2.1.6. Close the air inlet ball valve on the abrasive blaster and the pneumatic vacuum pump ball valve (#25).

2.2.1.7. Make sure the handway on the abrasive blaster is closed and tightened.

2.2.1.8. Screw a standard long venturi nozzle (#37) into the nozzle holder of the hose

assembly (#35).

2.2.1.9. Connect the BRS vacuum head (#39) to the nozzle holder of the blast hose assembly (#35). Refer to drawing on page 14.

2.2.1.10. Connect the blast hose (#35) to the coupling on the metering valve and install safety clips (#40) to prevent accidental disconnection during operation.

2.2.1.11. Connect the twinline hose quick connects or extension cord plug to the mating quick connects or plug on the abrasive blaster control valve(s).

2.2.1.12. Connect the vacuum hose assembly (#38) to the vacuum inlet of the abrasive reclaimer (#1).

2.2.1.13. Connect air supply hoses to the air inlet crowfoot on the abrasive blaster, crowfoot (#24) on the pneumatic vacuum pump (#26) and the crowfoot (#17) for the automatic pulse controls then install safety clips (#40) to prevent accidental disconnection during operation. Refer to section 2.3 to determine the compressed air requirements. Note that the pneumatic vacuum pump (#26) consumes air in addition to the air requirements of the blast nozzle (#37). The amount of air consumed by the pump depends on the vacuum pump nozzle (#27) size (150, 225, 350 or 440 CFM). Refer to section 2.3.2 to determine the nozzle size (#27).

2.2.1.14. If the abrasive blaster is already full of abrasive, skip to section 2.2.2. To fill the abrasive blaster, disconnect the vacuum hose (#38) from the vacuum head (#39).

2.2.1.15. Make sure the handway on the abrasive blaster, the door (#3) on the abrasive reclaimer and the door (#30) on the HEPA filter box are closed tight.

2.2.1.16. Close the abrasive blaster inlet ball valve and choke ball valve.

2.2.1.17. Turn on air supply then open valve (#25) to turn on vacuum pump (#26).

2.2.1.18. Vacuum desired amount of abrasive into the abrasive blaster. Do not overfill, for this will cause abrasive overflow into the dust collector while blasting with vacuum recovery. If the abrasive being used is low density, it may be necessary to reduce the vacuum to prevent carryover of new abrasive into the dust collector. The vacuum generated by the vacuum pump (#26) can be regulated by the supply ball valve (#25). To reduce the level of the vacuum, slightly close the ball valve (#25).

2.2.1.19. Close valve (#25) to turn off vacuum pump (#26).

2.2.1.20. Re-attach vacuum hose (#38) to the BRS vacuum head (#39).

2.2.2 Closed Cycle Blasting Operation

2.2.2.1. After completion of the procedures in section 2.2.1, the modular BRS unit is now ready for closed cycle blasting (blasting with simultaneous vacuum recovery).

2.2.2.2. Open air inlet ball valve and the choke ball valve on abrasive blaster.

2.2.2.3. Open the metering valve slightly. The best setting for this valve differs from one situation to another; therefore, it may take more than one adjustment to achieve the desired air/abrasive mixture. Turn the metering valve knob clockwise to decrease abrasive flow or counterclockwise to increase abrasive flow.

2.2.2.4. Open valve (#25) to turn on vacuum pump.

2.2.2.5. Before blasting, inspect the brushes on the BRS vacuum head and replace any that are worn or damaged.

2.2.2.6. Set the automatic pulse to the desired level (refer to section 1.3). The optimum setting varies depending on blast conditions therefore further adjustment may be needed.

2.2.2.7. Place the BRS vacuum head (#39) against the surface to be blasted until the brushes seal against the blasting surface.

2.2.2.8. Depress the deadman lever to begin blasting. Keep the BRS vacuum head against the surface to maintain vacuum recovery and to prevent abrasive from escaping.

2.2.2.9. Release the deadman lever to stop blasting. The reclaimed abrasive will remain in the abrasive reclaimer (#1) or automatically fall back into the blaster if it is equipped with a Combo Valve® automatic depressurization. **Note:** It may be necessary to turn off the vacuum system to allow the pressure vessel popup to fall open.

2.3 COMPRESSED AIR REQUIREMENTS

2.3.1 Blast nozzle

One of the primary air expenditures is by the blast nozzle (#37). This expenditure can vary greatly depending upon the nozzle size and the blast pressure. See section 5.0 table 1 for air consumption by nozzle size at various pressures.

2.3.2 Pneumatic vacuum pump nozzle

The modular BRS unit uses a pneumatic vacuum pump (#26) in its recovery system. The amount of air consumed by the pneumatic vacuum pump (#26) is determined by the vacuum pump nozzle size. The pneumatic vacuum pump nozzle (#27) can be one of four different sizes (150, 225, 350, or 440 CFM). At the time of manufacturing, a decal is placed on the exhaust muffler (#28) that identifies the size of the vacuum pump nozzle (#27). If the decal is not present on the unit, the vacuum pump nozzle size can be found stamped on the flange of the nozzle (#27). The nozzle can be removed by removing the ball valve (#25) located at the vacuum pump air inlet

2.3.3 Air compressor size

The air compressor must be large enough to supply:

i. Blast air for the largest nozzle (#37) and the highest pressure that will be used (see section 6.0 table 1).

ii. The air requirement dictated by the pneumatic vacuum pump nozzle size (#27).

iii. The 12 CFM breathing air supplied to the blast hood when open blasting.

3.0 NORMAL MAINTENANCE

This section covers maintenance that should be performed at regular intervals to insure proper operation of the modular BRS unit. All the procedures discussed in this section should be performed with the abrasive blaster completely depressurized and the air supply hose disconnected. Refer to the drawings in section 4.0 to aid in the completion of any maintenance. **Note:** Also follow all recommended procedures in the operation and maintenance manual for the abrasive blaster to be used with the Modular BRS System.

3.1 Abrasive reclaimer

The abrasive screen (#4) inside the abrasive reclaimer (#1) can accumulate debris therefore it should be periodically checked and cleaned. It can be accessed through the access door (#3).

3.2 Dust collector

3.2.1 Dry filtration

When operating with dry filtration the used abrasive accumulates in the 55 gallon drum under the dust collector (#8), therefore it must be emptied periodically. Remove the dust collector (#8) from the top of the drum and then empty.

3.2.2 Dry filter cleaning

To achieve the longest life of the dry filter (#10) it is important that they be serviced regularly. The following methods are recommendations to assist in cleaning dry filters (#10).

3.2.2.1 Vacuuming method

The first cleaning method to utilize is vacuuming. A commercial duty vacuum cleaner is recommended, but a common household type may also be used. Vacuum the filter (#10) from the air intake (contaminated) side only. This procedure will remove the majority of the large particles and surface contaminants that have accumulated and may be sufficient for the first cleaning of the filter (#10). This step should also be performed prior to progressing to any subsequent cleaning method.

3.2.2.2 Compressed air method

The second cleaning step is by use of compressed air. The air flow must be directed from the opposite direction of the normal air flow through the filter (#10). The air flow should be directed up and down the pleats. Do not direct the flow in a criss-crossing pattern across the direction of the pleats this could cause damage to the filter elements and decrease cleaning efficiency.

3.2.2.3 Washing method (polyester element filter only)

The washing process is for polyester element filters only. The final cleaning process may be necessary to reduce the static pressure to an acceptable level when the filter (#10) has fine particles that have become imbedded in the filter element. For this procedure a mild low sudsing detergent should be used with clean warm water. Soak the filter (#10) for 5-10 minutes then gently agitate the filter (#10) for several minutes. The filter (#10) should then be thoroughly rinsed with clean water to remove the detergent. It may require a second or third washing to obtain satisfactory filtration. However, the dirt holding capacity of the filter (#10) decreases after each washing.

Critical: Do not attempt to wash dry filters (#10) with paper elements, this will render them useless. If you are not certain of the type of element seek assistance.
Note: Polyester element filters (#10) can be washed and reused under proper conditions. However, Axxiom Manufacturing, Inc. has no control over the washing process and cannot guarentee that it has been performed properly and effectively, therefore our warranty does not apply to washed filters.

3.2.2.4 Inspection

Inspecting the filter (#10) after each cleaning is vital. A simple method of inspection is to use a light bulb. Light passing through the filter will reveal fatigued paper or dirt accumulations. Inspection should also include the end plates to check for possible damages during handling. Inspect for damage that could allow contaminated air to bypass the filter element.

3.3 Vacuum Head

As the inner and outer brushes of the vacuum head (#39) wear they will lose their sealing capabilities, therefore they should be replaced after approximately 25 hours of use. In addition, the vacuum head (#39) contains an inner wear tube to prevent the abrasive from wearing through the body of the vacuum head (#39). This wear tube should be inspected periodically and replaced after approximately 25 hours of use. Refer to drawings on page 16.

3.4 Remaining Components

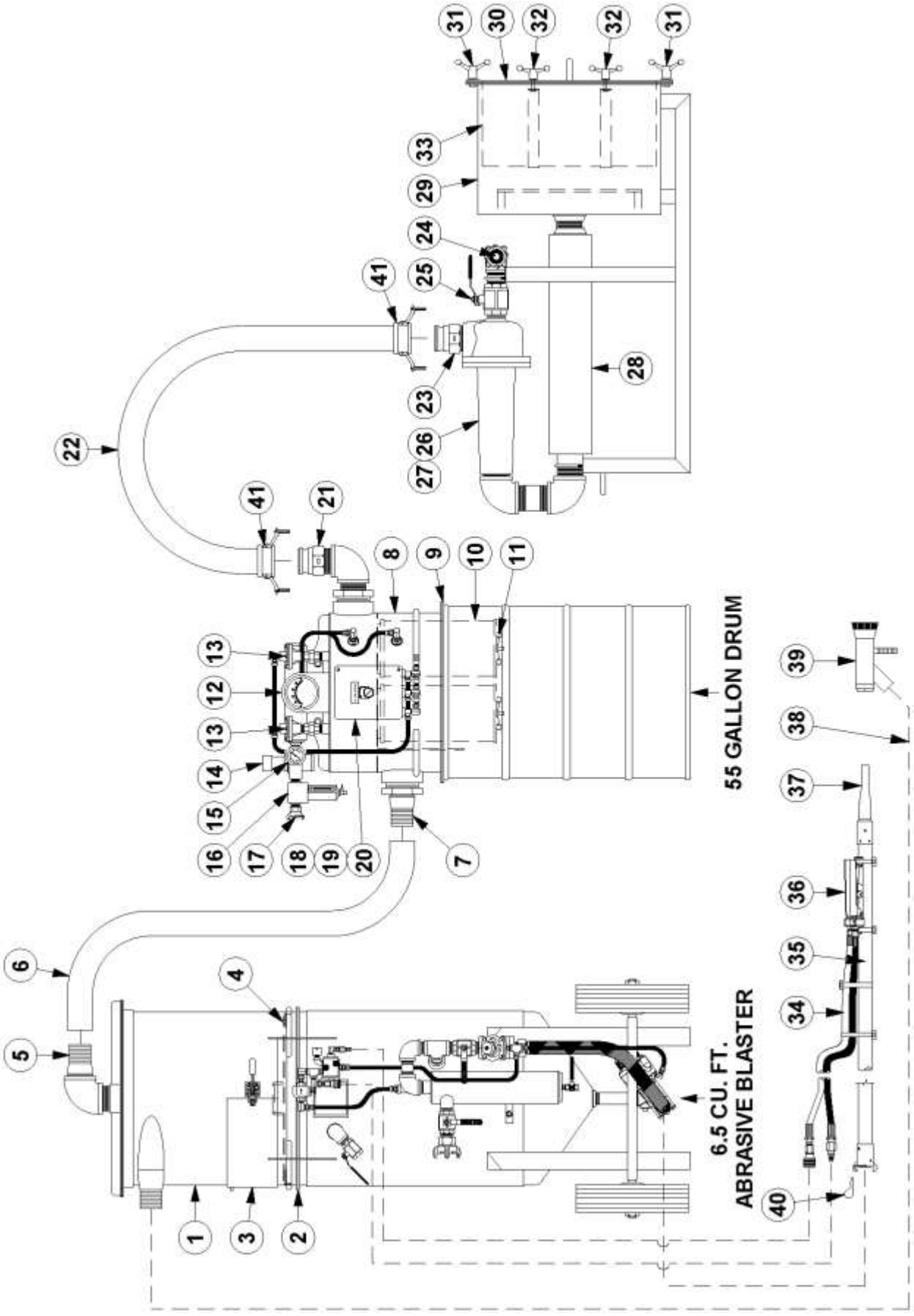
Most of the modular BRS components are subject to wear and therefore it is expected that they will eventually require maintenance, but those not mentioned above should not need to be part of a periodic maintenance program.

4.0 PARTS LIST

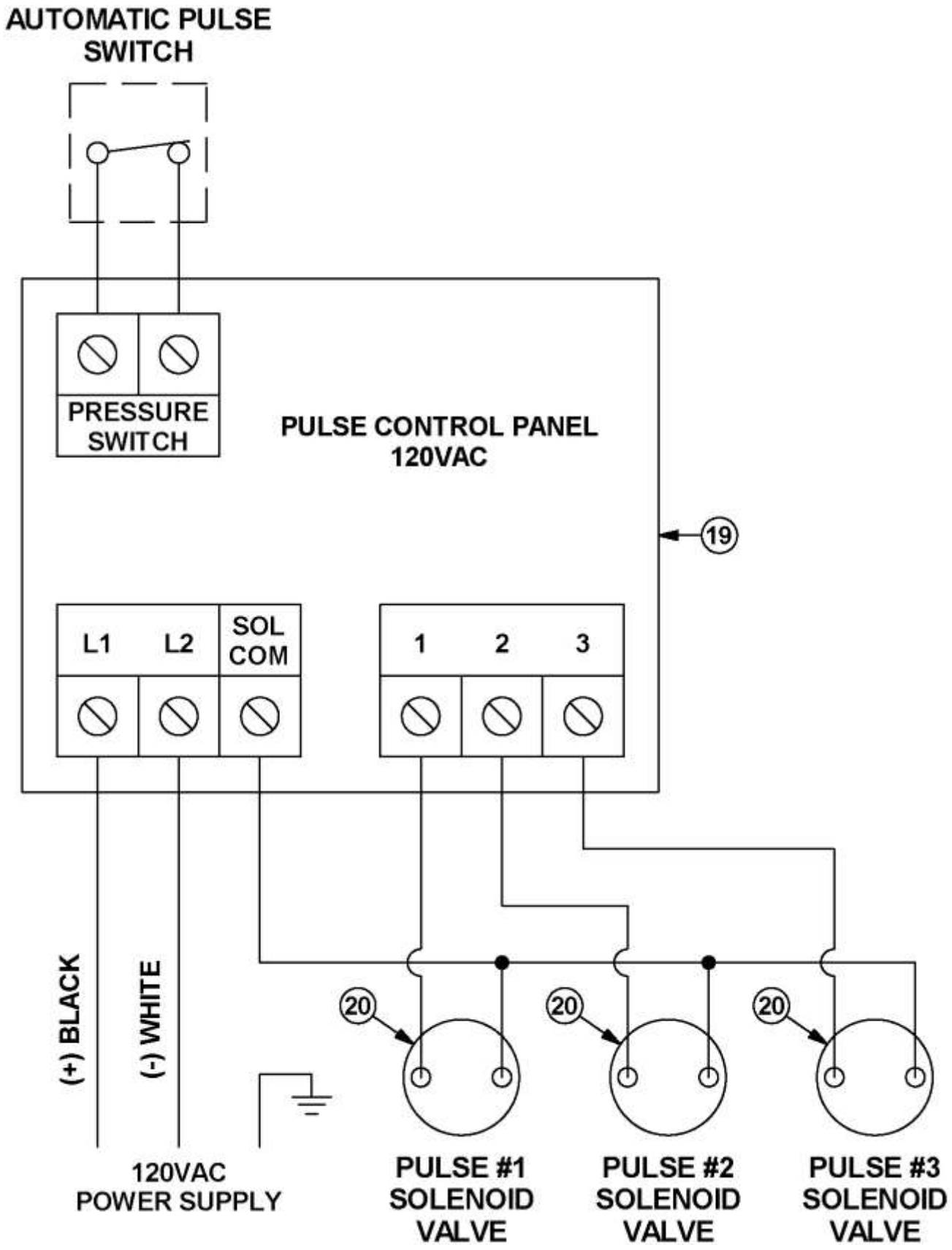
This section contains a parts breakdown covering all the major components which may require maintenance during operation of the modular BRS. The major items identified in the parts list are found on the drawings on pages 14 thru 16. Refer to these drawings as needed while reading this manual. In addition, repair kits to rebuild these items are identified and drawings are provided to aid in disassembly and installation of the new parts.

ITEM	PART NUMBER	DESCRIPTION
1.	8407-000-51	Modular Reclaim Hopper
2.	8402-000-86	Modular Reclaimer Hopper Gasket
3.	8031-000-94	Modular Reclaimer Hopper Door Gasket
4.	9001-002	Abrasive Screen
	8031-000-91	BRS Vibrating Screen Rubber Trim
5.	4212-011	K.C. Nipple, 3”
6.	4107-011	Vacuum Hose, 3”(specify length)
7.	4212-011	K.C. Nipple, 3”
8.	8407-000-52	Modular Dust Collector
9.	8407-000-56	Modular Dust Collector Gasket
10.	8403-281-31	Dry Filter, Polyester
11.	8031-001-11	Dry Filter Knob
12.	2010-013-10	Differential Pressure Gauge
13.	8032-000-66	Pulse Valve, 3/4”
14.	2003-005	Regulator, 3/4”
15.	2010-010	Pressure Gauge, 0-160 psi
16.	2302-205-50	Air Filter, 3/4” 40 micron
17.	4208-105	Crowfoot, 3/4” 2-Lug w/Gasket
	4209-999	Crowfoot Gasket
18.	8407-000-57	Pulse Control Box
19.	7135-018	Timer Board, 120 Vac
20.	8032-000-45	Pulse Control Valve, 120 Vac
21.	4222-411	Camlock, 3” Type F
22.	4107-011	Vacuum Hose, 3”(specify length)
23.	4217-411	Camlock, 3” Type A
24.	4211-109	Crowfoot, 2” 4-Lug w/Gasket
	4211-999	Crowfoot Gasket
25.	2401-509	Ball Valve, 2” Full-Port
26.	2018-011	Eductor, urethane 3"
27.	2018-111-01	Eductor nozzle, 150 cfm
	2018-211-01	Eductor nozzle, 225 cfm
	2018-311-01	Eductor nozzle, 350 cfm
	2018-411-01	Eductor nozzle, 440 cfm
28.	2011-011	Muffler assembly, 3"
29.	8407-000-53	HEPA Filter Box
30.	8407-000-55	HEPA Filter Box Gasket
31.	8032-000-13	HEPA Filter Box Door Knob
32.	8031-001-11	Filter Knob
33.	8407-000-54	HEPA Filter, 24” x 24” x 11-1/2”
34.	4100-501	Twinline Hose Assembly, 55 Ft.
35.	4104-40x-0x	Blast Hose (Specify Size And Length)
	8031-000-32	BRS Threaded Nozzle Holder
36.	2263-002	Deadman, G2 Pneumatic
37.	5000-xxx	Blast Nozzle (Specify Size)
38.	4107-011-50	Vacuum Hose, 3”
39.	8031-000-36	BRS Vacuum Workhead, 3” Style II
	8031-000-37	BRS Vacuum Workhead Outer Brush, 3”
	8031-000-43	Vacuum Workhead Sleeve, 2” Lg.
	8031-000-44	Vacuum Workhead Sleeve, 3” Lg.
	8031-000-45	Vacuum Workhead Sleeve, 4” Lg.
40.	7119-002	Safety Pin, Air/Blast Hose Coupling
41.	4219-411	Camlock, 3” Type C

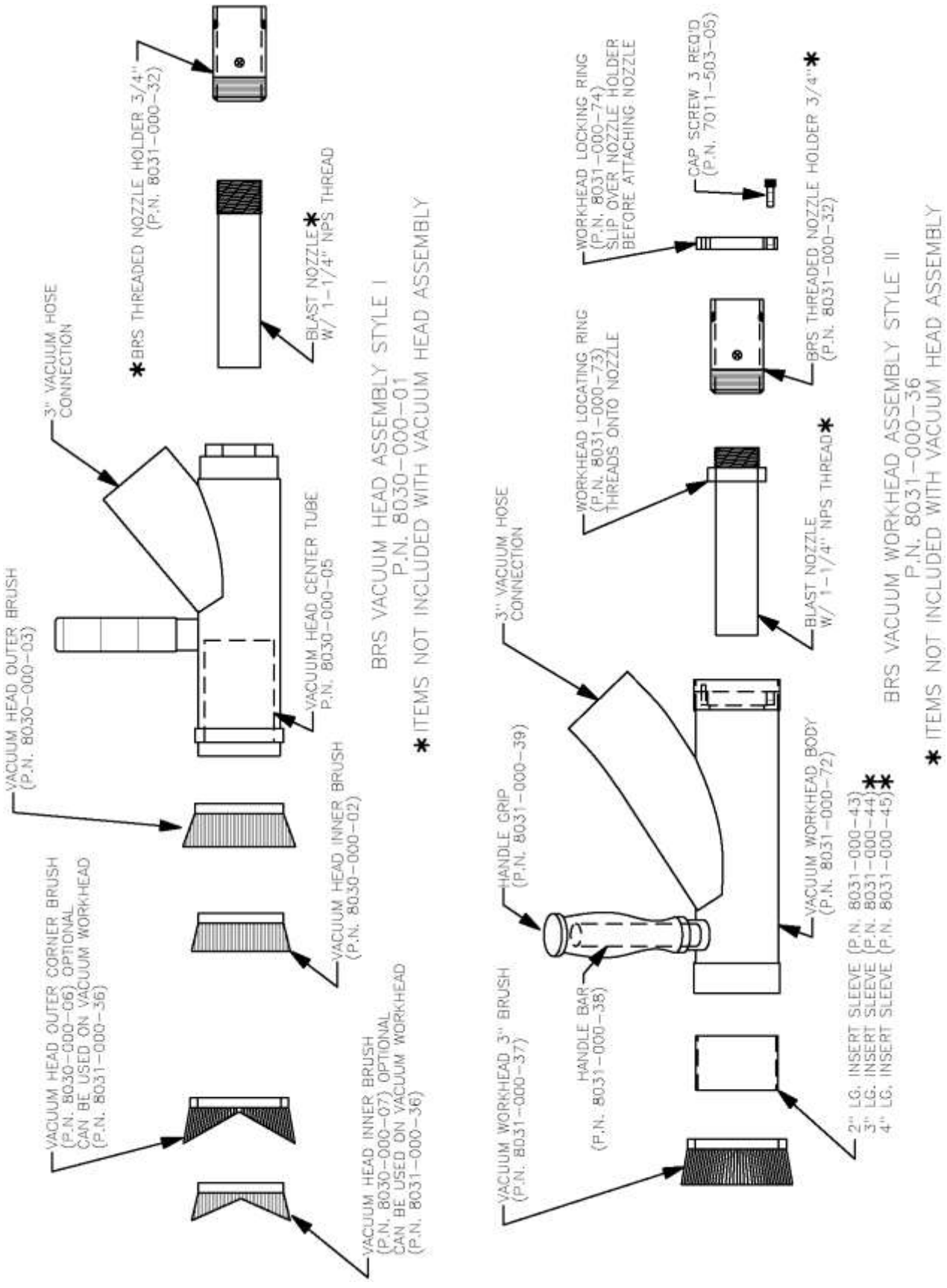
4.1 Modular Blast and Recovery System



4.2 Modular Blast and Recovery System Electrical Schematic



4.3 Vacuum Head Assembly



5.0 Blasting Data

5.1 Table 1 Approximate Air Consumption (cfm) Per Blast Nozzle

	NOZZLE PRESSURE						
NOZZLE SIZE	**60 psi**	**70 psi**	**80 psi**	**90 psi**	**100 psi**	**120 psi**	**140 psi**
No.2 1/8"	14	16	18	20	22	26	30
No.3 3/16"	32	36	41	45	49	58	66
No.4 1/4"	57	65	72	80	90	105	121
No.5 5/16"	90	101	113	125	140	160	185
No.6 3/8"	126	145	163	182	200	235	270
No.7 7/16"	170	193	215	240	270	315	360
No.8 1/2"	230	260	290	320	350	410	470
No.10 5/8"	360	406	454	500	550	640	740
No.12 3/4"	518	585	652	720	790	925	1060

5.2 Table 2 Abrasive Consumption (lbs. per hour) Per Blast Nozzle

	NOZZLE PRESSURE						
NOZZLE SIZE	**60 psi**	**70 psi**	**80 psi**	**90 psi**	**100 psi**	**120 psi**	**140 psi**
No.2 1/8"	90	105	115	130	140	165	190
No 3 3/16"	205	230	260	290	320	375	430
No.4 1/4"	365	420	460	500	560	660	760
No.5 5/16"	575	650	725	825	900	1050	1200
No.6 3/8"	840	945	1050	1155	1260	1475	1700
No.7 7/16"	1150	1300	1450	1600	1750	2050	2350
No.8 1/2"	1460	1660	1850	2000	2250	2650	3000
No.10 5/8"	2290	2600	2900	3125	3520	4100	4750
No.12 3/4"	3300	3750	4180	4500	5060	5950	6800

5.3 Table 3 Hose Selection Guide (blasting @ 100 Psi)

NOZZLE SIZE	**No.4 1/4"**	**No.5 5/16"**	**No.6 3/8"**	**No.7 7/16"**	**No.8 1/2"**
CFM @ 100psi	90	140	200	270	350
AIR HOSE	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"
BLAST HOSE	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"
ABRASIVE (lbs per hr)	560	900	1260	1750	2250

5.4 Additional Information on Blasting Productivity

Air volume and pressure are very important. The blasting production rate will increase with higher blasting pressures and decrease with lower blasting pressures. The National Association of Corrosion Engineers' data suggests that for each 1 psi reduction in nozzle pressure, there is a 1.5% production loss. Pressure drop through a Schmidt® blast unit is normally less than 1 psi, while blast units manufactured by some of our competitors have pressure losses as high as 12 psi resulting in an 18% loss of production. Air pressure loss can also be avoided by using the shortest possible hose of adequate size. The inside diameter of both the blast hose (other than whip hose) and the air hose should be approximately three times the diameter of the orifice in the blast nozzle.

Standard Schmidt blast units are rated for a maximum pressure of 125 psi although high pressure units rated for 150 psi are available on request.