The VersaBlast Cleaning System

Operation, Maintenance & Safety Manual

RBW Enterprises, Inc.
287 Millard Farmer Industrial Blvd.
Newnan, GA 30263

Phone: (770) 251-8989
Mobile: (770) 757-4944

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Hazardous Materials Safety Warning

Some surfaces may contain or be coated with Hazardous Materials. Typical examples of hazardous materials include coatings, which may contain LEAD or other toxic materials, and surface construction, which may contain Petroleum Products, Asbestos, Solvents, or other Harmful Chemicals.
During the normal operation of shot blasting equipment, surface material is removed and dust is created. When the surface material is contaminated, the dust may contain hazardous material.
It is probable that a small amount of dust will be released during the cleaning operation. If this dust contains hazardous material, there is a danger that exposure to this dust may pose a health risk. Before using the VersaBlast on any surface, the area must be inspected for possible contamination. Before beginning any project involving the removal of hazardous materials, it is the responsibility of the contractor to insure that the work site and equipment to be used have been inspected and the proper authorities have approved the proposed work. It is also the responsibility of the contractor to notify workers of any potential health risks and insure that workers are properly protected from exposure to hazardous materials. It is the contractor's responsibility to keep the VersaBlast Cleaning System in top running condition to minimize dust leakage.

All federal, state, local and plant codes and regulations must be followed when removing, handling, storing and disposing of hazardous materials.

Hazardous Products Safety Warning

The VersaBlast Cleaning System is designed to clean horizontal and vertical surfaces such as ship hulls, water tanks, oil tanks and bridges. It is the contractor's responsibility to verify the contents of the storage tank or ship hold being cleaned. Tanks or ship holds, which emit highly volatile fumes, should be emptied and the tank should be properly degassed before work proceeds.

The facility owner is responsible for making decisions as to what product fumes are considered volatile and the safety procedures to follow during the cleaning operation. If the product is flammable, the Safety Department should test the fume concentration and issue a hot work permit before work is started each day. This procedure should be followed even if the product has been removed.

It is the responsibility of the facility owner to advise the contractor when product is pumped into or out of the tank being cleaned. All operations should be shut down during the pumping process.

It is the responsibility of the contractor to review the above precautions with the facility owner and to follow the safety procedures.

FORWARD

RBW Enterprises is pleased that you have selected The VersaBlast Cleaning System for your surface preparation requirements. This self-contained surface preparation machine has been designed for abrasive blast cleaning of both horizontal and vertical surfaces.

This manual has been prepared to assist the owner and his operators and maintenance personnel in understanding the system, so it will be operated in a safe and efficient manner. It is essential; therefore, that all personnel responsible for the operation and maintenance of the machine study this manual.

Before attempting to operate or service the system, personnel should thoroughly familiarize themselves with each machine component and have a good understanding of its operation.

Operation and maintenance personnel must obey all warnings and safety precautions posted on the machine and stated throughout this manual. Serious injury or severe equipment damage may result if the warnings and precautions are not followed. No instructions, either written or verbal, can be totally effective without the use of sound judgment and good work practices. Owners should provide appropriate training and monitoring to assure that operating personnel follow good work practices.

A periodic review of the safety standards covered in this manual should be mandatory for all personnel involved in the operation and maintenance of the equipment. If you have any suggestions for improvements or additions to this manual, please call us. Changes, which occur after this manual is printed, will be made by distribution of revisions. The revisions, when received, should be inserted in the manual in accordance with instructions, which will be forwarded with them. The owner must advise his operators and maintenance personnel of all revisions.

This Operation, Maintenance, and Safety Manual should remain with the machine at all times and should be accessible to the operator for study and review.

This equipment should not be leased or loaned out to other contractors without providing a trained operator and the Operation, Maintenance, and Safety Manual.

No alterations should be made on the equipment without the written approval of RBW Enterprises. Unauthorized changes could affect or negate safety systems that are built into the equipment. Unauthorized changes can also adversely affect the efficiency of operation and create safety hazards.

Receipt of Machine-Examine the shipment carefully for possible damage in transit. If damage is noted, notify the transportation carrier immediately and advise RBW.

If you have any questions or problems in regard to the operation or capabilities of this equipment, please contact:

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287 Mallard Farmer Industrial Blvd.
Newnan, GA 30263
Phone/ Fax (770) 251-8989 –Moble (770) 757-4944

System Description

(see photos The VersaBlast System-page 8)

The **VersaBlast** is the only blast cleaning machine that can clean both horizontal and vertical surfaces, such as floors, roofs, side walls of tanks and other structures.. The VersaBlast can be converted to either the vertical or horizontal cleaning mode in less than 1 hour and can be quickly disassembled to fit through a 24" diameter opening for the internal cleaning of tanks. Due to the compact design, the unit can clean close to obstructions and bottom sole plates of tanks. This unit can also be used high speed etching of concrete surfaces. The large 16" diameter centrifugal blast wheel is powered by a 30 hp-3600 rpm motor. The unit provides a 17" wide blast pattern on horizontal surfaces and a 18" wide pattern in the vertical mode. Production rates can reach 1000 sq. ft./ hr. on steel surfaces. Concrete surfaces are processed at much higher rates.

In the vertical mode, a **Hoist System**, mounted on a powered **Fixture** at the top of the structure being cleaned, raises and lowers the **Blast Module** as the module and fixture traverse horizontally. The system can provide Spot, Sweep, Commercial, Near White or White Metal finishes. The operator controls the machine movement, hoist operation, and blast functions from the hand-held **Wireless Remote Control**. The abrasive media is contained, circulated, and cleaned within the Blast Module. A vacuum hose automatically deposits the paint and dust in a 55 gallon drum, located below the portable **KleanVac Dust Collector** on the ground. When the drum is full, it is easily removed and capped for disposal. The total disposable waste, after cleaning a typical 100' diameter tank, would be 2 to 3 drums, depending on paint thickness. This cleaning system eliminates dust emissions and operator safety concerns associated with other cleaning methods. The high cost of blasting, clean-up and disposal is reduced to only a few cents per square foot.

General Component Description

Blast Module

The Blast Module contains one (1) 30 H.P. centrifugal abrasive throwing wheel, an abrasive circulation system and an air-wash separator. The separator cleans the abrasive and removes the paint and dust. The module also incorporates a flexible seal assembly that assures dust free contact with the surface. The Blast Module is protected internally with manganese steel and easily replaceable hard faced liners. The module is driven along the surface by a variable speed DC gear motor, which rotates two traction tires. All operation functions are controlled by a wireless remote control.

Dust Collector Cart

The lightweight Dust Collector Cart is usually positioned on the ground and in the center of the cleaning path. The operator can pull the unit around the tank as the cleaning progresses. The unit houses the main electrical control panel which feeds power to the VersaBlast module, winch and fixture drive. The dust collector incorporates cartridge filters and an automatic pulse type cleaning system. A 2 CFM, 80 PSI air source is required to provide air for the pulse cleaning the filters. An air cooling system and water filter is provided to remove water from the compressed air.

Winch System

The Winch System includes two cable drums and a drive arrangement which raises and lowers the VersaBlast Module assembly. The cable drums are grooved to assure proper tracking of the cable. Two one hundred foot (100') cables are provided. The winch system operates at a speed of 20 ft. / minute. The winch assembly is mounted to a driven support fixture, which pivots from the center of the tank and moves horizontally in sync with the Blast Module.

Additional Items Supplied with Equipment

All electrical wiring between the control panel and the machine components (100')
Air line between the control panel and the machine components (100')
Power Cable from power source to control panel (200')
Vacuum Duct from dust collector to Blast Module (100')
Field Training (Operation, Safety, Maintenance)
Operation, Maintenance and Safety Manual

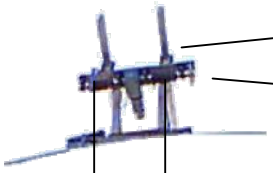
Fixtures

Our **Tank Fixtures** include component parts which bolt together to make equipment supports for cone roof and floating roof tanks. The floating roof fixture rides on the wind girder and is adjustable to cover the majority of girder configurations. Fixtures are also available for internal cleaning. Most of the fixture components and fabrications are made of aluminum to minimize weight. The fixtures are powered and are operated from the hand held remote control on the ground (See The VersaBlast System- page 8 for various fixtures).

Our **Ship Fixture Kit** includes a Trolley Drive System and drawings for the fabrication of two adjustable support stands and a 40' long I- beam. The support stand and I- beam assembly is self supporting from the ship deck. Quick latch safety cables are easily attached to existing structures on the deck. The beam assembly allows 35' of surface to be cleaned. The VersaBlast Winch and Trolley arrangement is pulled along the beam by a drive system which is operated from the remote control. The beam assembly and cleaning system are periodically moved along the deck by crane. (see The VersaBlast System- page 8)

The VersaBlast System

VersaBlast Vertical Cleaning Mode



Powered Fixture
0 to 30'/Min. Travel Speed

Hoist System
20'/ Min. Travel Speed

Hoist Cables (100')

Blast Module
30 HP Blast Wheel
20" Wide Blast Pattern

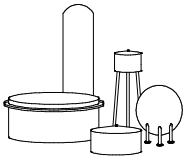
Vacuum Hose (100')

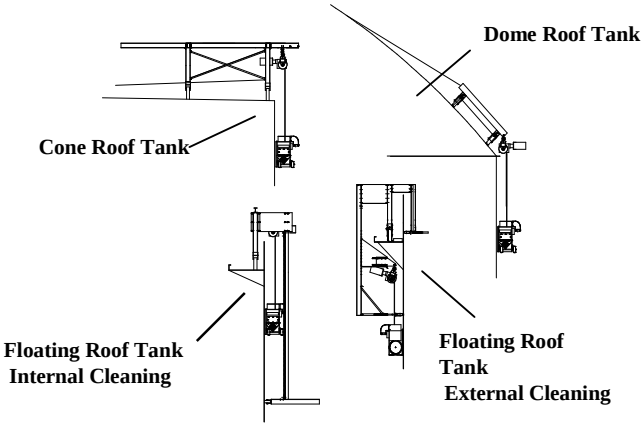
KleanVac Dust Collector
9 Torit Cartridge Filters
Automatic Air Pulse System
Air Dryer System
Blast System Control Panel
Deposits Paint and Dust into 55 Gal. drums

Hand Held Remote Control
Operates all Functions
Wireless Operation

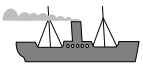
VersaBlast Horizontal Cleaning Mode

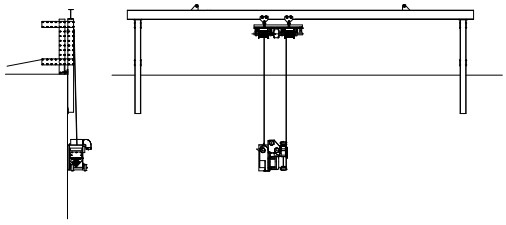
Tank Fixtures





Ship Fixture





Weights & Measures

- **BBlast Module -** 850#
  (26" wide x 48" long x 45" tall)

Hoist System - 600#
(67" long x 36" deep x 18" high)

Dust Collector - 800#
(45" wide x 67" long x 80" high)

Electrical Requirements

460 v. / 60 hz. / 3 phase
60 amp. - Total Running Load

Operation Requirements

1. 460 volt, 3 phase, 60 cycle, 60 amp. electrical service. A 75KW generator should be used. **A large amperage spike is generated when starting the blast wheel motor- A (75 KW minimum) generator is required to provide the starting current. Starter and motor damage may result if a smaller generator is used.**

2. Grounding rod for generator. **The generator must be properly grounded. Consult the generator operators manual for grounding instructions.**

3. 5 CFM @ 80 PSI air supply.

4. Personnel who are trained by an RBW Enterprises field technician for the operation and service of KleanClimber equipment.

5. All necessary blasting media. **Use only quality steel shot (S-230 to S- 390) and steel grit (G-25 to G-16). Other abrasives may cause extreme wear and machine damage. Do not use hard grit-GH or GL.**

6. **Observance of all equipment safety labels and precautions expressed in this manual.**

7. **Compliance with all Federal, State and local codes and regulations.**

8. Scheduled maintenance and repair as described in this manual or by RBW Enterprises Field Technician.

9. An inventory of "wearable parts" as outlined in this manual. See Recommended Spare Parts-page .

10. 55 gal. dust barrels with lids for dust collection refuse.

11. **All tools and accessories as listed under Tools and Safety Equipment in this manual.**

12**. All safety equipment, monitoring devices, personnel training and documentation as required by Federal, State and Local Codes and regulations.**

13. Continued employee training to assure that all operators have read and understand the Operation, Maintenance, and Safety Manual. This includes any and all updated information and revisions.

Tools and Safety Equipment

The following equipment is essential to safe operation and should be on the job site before set-up is started:

Boom truck or crane- Equipment should be capable of lifting 2,000 Lbs. to a height well above the top of the tank or ship being cleaned. (Heaviest lift, the Fixture and Hoist, is 1500 lbs.)Hook should have safety latch.

Slings or lifting cables- Slings should be in good condition and certified for loads well above weight being lifted. Slings should be long enough to assure that a proper lift angle vs. load rating ratio is maintained. (2 required)

5/8" Shackles To attach slings or lifting cables to pick up points (2 required).

Tie down straps, chocks- Equipment necessary for safe transport of system components.

Tarps or Ground Covers- 10' x 70' long to catch abrasive leakage

Hand tools: - Equipment required to maintain system components

Open End Wrenches- (2) 7/16", (2) ½", (2) 9/16", (2) ¾",(2)15/16",(1) 1 1/16",(1) 1 1/8"

Allen Wrenches- (1) 3/8", 3/16", 1/8"

Screw Drivers - (1) large Straight, (1) Small Straight, (1) Miniature Straight, (1) large Philips, (1) Small Philips

Pry Bar, Hammer, Push Broom, Flat Shovel

¾" Air Line - Air supply from air compressor to Dust Collector

Fixture Cable & Clamps - (3/8" cable)

Plastic Buckets & Scoop - For general abrasive handling

55 gal. Drums - For dust disposal

Abrasive Media - Steel shot and/ or steel grit

Weather covers - For VersaBlast, Dust Collector, and winch

Brooms & Buckets - For sweeping up abrasive after cleaning tank roofs & floors

ABC Fire extinguisher - General purpose for all types of fires

Multimeter - For Electrical Trouble Shooting

General Safety Equipment :

First Aid Kit	Safety Glasses	Steel Toed Shoes
Hard Hats	Danger Barrier Ribbon	Gloves

Equipment required by OSHA, EPA & other Federal, State, Local and plant codes.

Utilities - 460 V. 60 HZ. 3 Phase Current (100 AMP Breaker) or 75KW generator

- 5 CFM, 80 PSI. air supply

NOTE: The 30 HP. Wheel motor pulls high initial starting amperage. Use 75 KW generator or larger.

Safety Instructions

This Operator's Manual has been specifically prepared for operating and maintenance personnel working with the VersaBlast Cleaning System. The information in this manual is intended to provide an understanding of the equipment for safer operation and maintenance procedures. Maintenance and operating personnel must read and have a thorough understanding of the contents of this manual. It is extremely important that operators and maintenance personnel observe all warnings and precautions covered in this manual, the safety and warning labels posted on the machine, and the safety program established by your management.

No instructions, written or verbal, can be effective without the use of sound judgment and good work practices in the operation and maintenance of the equipment. Listed below are practices that should always be observed.

1. If irregular or hazardous behavior of the machine occurs during blasting, immediately depress the E-Stop button on the remote control and than the main disconnect switch on the main control panel on the dust collector.

2. Before operating, make certain that the machine can clear or travel around all obstructions in the work area. The work areas must be dry and cleaned of any loose debris at the start of cleaning.

3. All guards must be in place during operation. The main power must be locked out Before removing guards or performing maintenance on the machine.

4. All personnel in the immediate area of the machine must wear safety glasses with side shields whenever the machine is operating. Also, protective clothing is recommended for the operator. Never wear loose clothing when working around blast equipment. Hard hats, long-sleeve shirts, gloves and safety shoes are recommended.

5. Since abrasive impacts the work surface at high velocity, leaking abrasive can sting if it contacts unprotected skin areas. The blast module must be sealed to the work surface during operation to prevent possible injury from flying abrasive. Review the seal adjustment procedures.

6. Do not lease or loan the machine to others without providing a trained operator and The Operation, Maintenance and Safety Manual.

7. Before performing maintenance of VersaBlast equipment, a **Zero Mechanical**

State (ZMS) must be achieved in which:

a. All power source that can produce mechanical movement has been locked off.

b. The mechanical potential energy in all portions of the machine must be at their lowest practical values.

c. The kinetic energy of the machine members must be at the lowest practical values. Loose or freely movable machine members and parts must be secured against accidental movement.

EXAMPLE :

A rotating part, such as an airless blast wheel, will continue to rotate for a period of time after the electrical power has been shut off.

8. The machine and areas around the machine must be kept clean as loose shot can make surfaces slippery and dangerous.. All leaks in the blast module, seal housing and the abrasive recycling system should be repaired immediately.

9. A safety harness **MUST** be worn when operating the machine or checking fixture operation on the roof of tanks.

10. Any condition(s) that may result in further damage to the machine or cause injury to personnel, should be repaired **immediately.**

11. Do not attempt to service or adjust machine components while any part of the machine is in operation. Always lock out the power supply and the control panel disconnect switch before making adjustments or conducting maintenance.

12. Obey all safety signs and other precaution information posted on the machine and in the areas where the machine is operated. Replace any damaged or missing safety labels.

13. **Do not operate VersaBlast machinery in the presence of rain or heavy moisture. Do not expose the abrasive supply to water or heavy moisture.**

14. Always cover the Blast Module and Dust Collector and Winch after work is completed each day. If rain is expected, it is a good idea to drain the abrasive out of the machine.

15. Do not operate the machine with the electrical panel door open. A door interlock prevents the door from opening unless the main disconnect switch or circuit breaker is off. The disconnect switch should not be turned on by over riding or bypassing the door interlock.

16. **Never use a power source other than 460v/60 cycle/3 phase current. Never apply an auxiliary power source to the 120v. machine circuit – the Source could produce dangerous currents back through the 460v to 110v transformer and cause injury or death**.

17. Never use oversize fuses or circuit breakers. Never bypass any fuse or circuit breaker. Always refer to the electrical drawings provided for proper fuse sizes.

18. Use overload coils/relays for the motor starter(s) that are rated for the amperage of the motor(s) as shown on the motor nameplate.

19. Disconnect all power sources before attempting maintenance or repair of electrical motors on the equipment.

20. Avoid contact with rotating parts of the motors, drives or driven components.

21. Before starting the motor(s), check that the correct power supply (voltage, frequency and phase) is being used and that the motor(s) are connected per the connection diagram. Check the motor(s) for the correct rotation. Sustained improper rotation of motors will cause damage to the machine components.Low voltage will damage electrical components.

22. All abrasive blast equipment must be properly ventilated to be environmentally safe. Proper ventilation benefits the operator, the machine efficiency, and minimizes wear and maintenance. Filters must be kept clean and dry. It is important that the dust drum be replaced before it becomes full. The drum should be immediately capped, sealed and stored away from the equipment operation. Dust can be easily ignited when stored in an open condition. Capping and sealing the drum will eliminate the risk of spillage and minimize the risk of fire or explosion.

23. When transporting the equipment from job site to job site, special care must be taken in securing the equipment to the deck of the transportation vehicle. Both wheel chalks and tie down straps should be used.

24. All hose section ends, dust collector inlet and the blast module outlet should be covered to eliminate dust leakage while transporting the equipment.

25. The main power supply cable and the power cable harnesses, which run from the Dust Collector to the VersaBlast Module, carry 460 Volt 3 Phase current. Extreme caution must be taken in protecting the cables from damage. **FAILURE TO DO SO, CAN RESULT IN INJURY OR DEATH.**

26. When standing water exists, plans should be made to keep equipment and power cables dry.

27. All personnel should keep clear of overhead equipment during the setup, operation and breakdown procedures. Erect a danger barrier around the operation.

28. If a coating is to be removed from the surface, samples from various areas should be tested to determine if hazardous materials exist. If hazardous materials are present, all federal, state, and local requirements must be incorporated in the operation procedure.

29 All federal, state, local and plant codes and regulations must be followed when removing, handling, storing and disposing of hazardous materials.

30. The Operation, Maintenance, and Safety Manual should remain with the machine at all times and should be protected from damage and accessible to the operator for study and review.

31. This equipment should not be leased or loaned out to other contractors without providing a trained operator and the Operation, Maintenance, and Safety Manual.

32. No alterations should be made on the equipment without the written approval of RBW Enterprises. Unauthorized changes could affect or negate safety systems that are built into the equipment. Unauthorized changes can also adversely affect the efficiency of operation and create safety hazards.

33. When power cables are run through portholes or over roof ledges, the cable should be wrapped with rubber to minimize wear from the opening or ledge. When standing water exists, plans should be made to keep equipment and power cables dry.

34. All shackles should be 5/8" with a 3 1/2 ton rating. All cables are to be attached using three cable clamps. Clamps must be 3/8" and mounted per specifications.

35. If the stand pipe used to secure the fixture support cable has no flange, a safety device should be incorporated to assure that the cable cannot slide up and off the pipe. Make sure that stand pipes and all tie points, used in securing the safety cable, are structurally sound and capable of supporting heavy loads.

36. Extreme caution must be used in attaching cables to fixtures and center hub systems:
Use 3/8" stranded steel cable with load rating of 12,000# or greater.
Use 5/8" shackles where cables can be damaged by sharp edges.
Use at least (3) 3/8" cable clamps at all connections.
Attach cable clamps as shown in the manual. Check all cable attachment points before starting work at each shift. Wire tie shackle bolts to prevent rotation.

37. Extreme care must be taken when lifting the VersaBlast or Dust Collector. Position lifting straps so the unit is level. Straps must be certified for the load, in good condition, and secured in accordance with good safety procedures.

38. Make sure that the path is clear for the hoses and electrical cable when operating the machine. Know in advance where vents or obstructions are that could interfere with the cables. Additional personnel should be assigned to watch the cables and hoses when obstructions are present.

39. The 30 HP blast wheel motor pulls high amperage when starting. The power source must be capable of supplying continuous 60 amp 460 v. 3 phase current. A 75 kilowatt generator is recommended due to the large starting current. The power source must have ground fault protection and be properly grounded.

40. The electric power generator must be properly grounded. Consult the generator's operation manual for grounding instructions.

41. When the machine is temporarily idle, de-energize the remote control by pressing the E-Stop button. If a button is accidentally activated, nothing will happen. To reactivate the remote control, press and hold the reset button on the main panel.

42. When cleaning roofs of tanks, make sure that the safety cable is attached to the center stand-pipe and to the blast module. The cable length must be set so the unit cannot roll off of the roof.

43. When the dust collector is placed on the roof, it must be tied down securely to the center stand pipe, hand railing or other structure.

44. Caution- The dust collector is top heavy . The dust collector should not be rolled down inclines such as ramps or hills, or over pot holes which might cause the equipment to tip over.

Job Site Set-Up

Transporting Equipment

When transporting the equipment from job site to job site, special care must be taken in securing the units to the deck of the transportation vehicle. Both wheel chalks and tie down straps should be used. When securing the components to a transportation vehicle deck, the blast module and dust collector should be strapped from the top as well as from the support base. Each component has designated lift points. These lift points should be used in conjunction with overhead cranes, hoists, or fork lifts, which are the best methods in loading and unloading the equipment (see Lift Points page 60). Caution- The dust collector is top heavy . The dust collector should not be rolled down inclines such as ramps or hills, or over pot holes which might cause the equipment to tip over.
Should it be necessary to use a trailer ramp, the ramp extensions should be long enough to minimize the incline angle. The flexible duct hoses should be emptied of all residual dust before leaving the job site. **All hose section ends, dust collector inlet and the blast module outlet should be capped before transporting the equipment. A clean dust drum should be in place and secured before transporting the equipment.** This procedure eliminates the possibility of dust spillage during transportation. **Electrical cables and control devices should be protected from load shifts or constant rubbing from vibration of movement.**

Site Preparation

Any supplies, equipment, or debris that interferes with the movement of the Dust Collector Cart, electrical supply cables or dust hoses, should be removed. A plan for safely negotiating around obstructions on the surface to be cleaned should be established in advance. Personnel, in addition to the operator, should be assigned to watch the power cables and hoses when negotiating around protrusions or obstructions. **The main power supply cable and the power cable, which connects the Dust Collector to the Blast Module and hoist, carry 460 Volt 3 Phase current. Extreme caution must be taken in protecting the cables from damage. FAILURE TO DO SO, CAN RESULT IN INJURY OR DEATH.** A cable can be stressed or broken if it hangs up on protrusions or obstacles as the Blast Module travels along the surface. If other equipment is driven across or set on top of the cables, damage may occur. Keep cables clear and protected. **When power cables are run through portholes or over roof ledges, the cable should be wrapped with rubber to minimize wear from the opening or ledge**. **When standing water exists, plans should be made to keep equipment and power cables dry.** Advise other contractors to keep clear of the operating area. All personnel should keep clear of overhead equipment during the setup, operation and breakdown procedures. Erect a danger barrier around the operation.
If a coating is to be removed from the surface, samples from various areas should be tested to determine if hazardous materials exist. **If hazardous materials are present all Federal, state, and local requirements must be incorporated in the operation procedure.**

Machine Setup
Cone Roof Tank Walls

First make sure that all components required for operation are on the job site.(See Component Check List-page 59).

Make sure that the cone roof fixture is assembled properly and that the 150' long fixture support cable is rolled up and securely mounted to the fixture. Check the winch mounting and make sure that the shackles are tight and wire tied so they cannot back out (see Cone Roof Fixture Assembly-page 30-31). Make sure that the VersaBlast is assembled in the vertical cleaning mode (see Vertical Mode Conversion-page 50-55).

Determine where you want to start cleaning on the tank. It is usually best to start cleaning from the stairway platform, moving around the tank and finishing up above the stairs. Areas below the stair treads cannot be cleaned by the VersaBlast. Select a 70' wide section to clean and position the VersaBlast on the ground close to the tank and at the mid point of the cleaning area.

A boom truck is required to place the fixture on the roof and is also utilized to set the dust collector and blast machine in place on the ground. Make sure that the crane is capable of lifting 2500# and that the boom reach is long enough to set the fixture on top of the roof near the edge of the tank. The lifting strap lengths must be considered when determining the boom height capabilities.

Step 1. Lift the fixture into position on the roof of the tank. Use two lifting straps located as shown (see Lifting Points-page 60). Caution- Straps must be rated and certified to carry the load. Place the front tires of the fixture about 6" from the edge of the roof. Square the fixture so the back end of the unit is pointed toward the center of the tank. **Caution**- Connect the fixture support cable to the center stand-pipe before the boom truck lifting straps are disconnected (see Fixture Setup-page 32-34).

Step 2. Using the boom truck, place the Dust Collector on the ground below the fixture about 10 to15' out from the tank. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60).

Step 3. Lift the VersaBlast from the transport vehicle with the boom truck. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60). Place the VersaBlast on the ground directly below the fixture within a foot or two of the tank wall with the seals facing the tank. The VersaBlast is self supporting when sitting on level ground. If necessary place blocks under the machine base to provide a level surface.

Step 4. Connect the 100' long, 6" diameter exhaust hose between the dust collector and the KleanClimber with hose clamps provided (see Power Cable & Hose Connections- page 71-72). **Caution**- The exhaust hose inter surface must be smooth to minimize pressure loss and optimize the efficiency of the machine- do not substitute hoses. Do not exceed 150' of exhaust hose. **Caution**- Streach the hose out before making the connection. Make

sure that there are no kinks or loops in the hose. Kinks and loops cause pressure loss and lower the efficiency of the dust collection system.

Step 5. Connect the the VersaBlast power cable wiring harness to the control panel on the dust collector (see Power Cable & Hose Connections-page 71-72). **Caution- the strain relief straps must be connected to keep the wires from being pulled loose from the plugs. Make sure there is plenty of slack between the strain relief and the plugs.**

Step 6. Do not connect the air line in the wiring harness. The air line is provided for future options which may be operated by air..

Step 7. Connect the 100' power cable harness from the Fixture to the control panel on the dust collector. Make sure to attach the strain relief (see Power Cable & Hose Connections-page 71-72).

Step 8. Connect the 200' main power cable from the dust collector to the generator or power source. **Caution- the power source must be 460V/3 Phase/ 60 Hz and capable of handling 60 amp. running load and starting a 30 HP motor. If a generator is used, 75 KW minimum is recommended. The power source must be properly grounded- follow the generator manufacturer and local code requirements for grounding**. **Power connections, cable splicing etc. should be made by an authorized electrician. The power cable must be protected from sharp edges where it drapes over the roof or around protrusions. Wrap the cable with a rubber protector at all points where the cable is subjected to sharp objects.**
Connect the red, white, and black wires to L1, L2, and L3 terminals at the generator. Connect the green wire to the neutral terminal or ground. Replace all safety covers over the generator terminal box.

Step 9. Before starting the generator, make sure the generator circuit breaker is off and that the disconnect switch at the dust collector is turned off (see Control Panels Operation- page 56-58).

Step 10. Start the generator and make sure that the power gages are on 460 to 480Volts and 60 Hz. **Caution- if the voltage is incorrect the equipment electrical system can be damaged**.

Step 11. Check for proper motor rotation. Turn on the circuit breaker at the generator or power source. Turn on the main disconnect switch at the dust collector control panel. Turn the exhaust fan switch on then off. If the fan doesn't come on, your machine may have the new Phase Monitor installed. The phase monitor is a square yellow module located in the main control panel. The monitor makes sure that the phase is correct so all motors turn in the proper rotation. If the phase is incorrect the red light on the monitor will be on when the power is on. If the green light is on the phase connections are ok. The fan on the dust collector should start and coast to a stop as you check to make sure that the fan is rotating in the proper direction. The fan should rotate clockwise when looking at the end of the motor.

If the exhaust fan is running in the proper direction, all outer motors will run in the right direction. If the fan is running backward or if the phase monitor won't allow the fan to start, shut off the main disconnect switch at the dust collector and the circuit breaker at the generator and shut down the generator. Swap any two wires going to L1, L2 or L3 terminals at the generator. This will reverse the rotation. Start the generator and test again for proper rotation.

Step 12. Charge the machine with abrasive. Pour (4) 50 lb. bags of abrasive into the shot adding chute located on the front of the machine**. Caution**- the rubber flap that covers the chute must be closed for operation. **Caution**- use only quality steel shot or grit in the machine. Use only G type grit shot-**Do not use hard grit (GH or GL)**

Step 13. Make sure that all personnel is wearing safety glasses with side shields and that the work area is in compliance with all Federal, State, Local, and Plant safety regulations.

Step 14. Make sure that the switches on the main control panel are in the proper position. The e-stop switch is pulled out, the mode selector switch is in the vertical position and the operation switch is in remote position.

Step 15. Turn on the main disconnect switch on the electrical panel.

Step 16. Lower the hoist cables using the hoist down switch on the remote control.

Step 17. Connect the cables to the VersaBlast using 5/8" shackles provided.

Step 18. Make sure that each cable is secured with (three) 3/8" cable clamps. Tighten each clamp.

Step 19. Lift the VersaBlast off the ground and onto the tank wall using the hoist up switch on the remote control. Adjust the seal and magnet relation to the tank wall by adjusting the turnbuckle.

Step 20. Check out all machine functions (see Machine Startup Procedure- page 27).

Note: For instructions on setting up special fixtures for floating roof tanks, dome roof tanks, and knuckle roofs Call RBW Enterprises- (770) 251-8989.

Machine Setup
Tank Roofs

First make sure that the VersaBlast is assembled in the horizontal cleaning mode (see Horizontal Mode Conversion – page 45-49).

Make sure that all components required for operation are on the job site.(See Component Check List-page 59).

A boom truck is required to place the dust collector and blast machine on the roof. Make sure that the crane is capable of lifting 2500# and that the boom reach is long enough to set the dust collector on the roof and away from the edge of the tank. The lifting strap lengths must be considered when determining the boom height capabilities.

Step 1. Lift the dust collector onto the roof of the tank. Use two lifting straps located as shown (see Lifting Points-page 60). Caution- Straps must be rated and certified to carry the load. Place the collector as far onto the roof and away from the edge as possible. **Caution**- the dust collector is free rolling- have at least three men on the roof to hold the collector and to remove the hoist straps. Pull the collector up to the center of the tank and tie it off securely to the center stand pipe.

Step 2. Lift the VersaBlast up to the roof with the boom truck. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60). Place the VersaBlast as far onto the roof and away from the edge as possible. The VersaBlast will stay in place and will not move without power.

Step 3. Lift the 100' exhaust hose, abrasive, brooms and buckets to the roof before dismissing the boom truck.

Step 4. Connect the 100' long, 6" diameter exhaust hose between the dust collector and the KleanClimber with hose clamps provided (see Power Cable & Hose Connections- page 71-72). **Caution**- the exhaust hose inter surface must be smooth to minimize pressure loss and optimize the efficiency of the machine- do not substitute hoses. Do not exceed 150' of exhaust hose. **Caution**- stretch the hose out before making the connections. Make sure that there are no kinks or loops in the hose. Kinks and loops cause pressure loss and lower the efficiency of the dust collection system.

Step 5. Connect the the VersaBlast power cable wiring harness to the control panel on the dust collector (see Power Cable & Hose Connections-page 71-72). **Caution- the strain relief straps must be connected to keep the wires from being pulled loose from the plugs. Make sure there is plenty of slack between the strain relief and the plugs.**

Step 6. Do not connect the air line in the wiring harness. The air line is provided for future options which may be operated by air..

Step 7. Connect the 200' main power cable from the dust collector to the generator or power source. **Caution- the power source must be 460V/3 Phase/ 60 Hz and capable of handling 60 amp. running load and starting a 30 HP motor. If a generator is used, 75 KW minimum is recommended. The power source must be properly grounded- follow the generator manufacturer and local code requirements for grounding**. **Power connections, cable splicing etc. should be made by an authorized electrician. The power cable must be protected from sharp edges where it drapes over the roof or around protrusions. Wrap the cable with a rubber protector at all points where the cable is subjected to sharp objects.**
Connect the red, white, and black wires to L1, L2, and L3 terminals at the generator. Connect the green wire to the neutral terminal or ground. Replace all safety covers over the generator terminal box.

Step 8. Before starting the generator, make sure the generator circuit breaker is off and that the disconnect switch at the dust collector is turned off (see Control Panels Operation- page 56-58).

Step 9. Start the generator and make sure that the power gages are on 460 to 480Volts and 60 Hz. **Caution- if the voltage is incorrect the equipment electrical system can be damaged**.

Step 10. Check for proper motor rotation. Turn on the circuit breaker at the generator or power source. Turn on the main disconnect switch at the dust collector control panel. Turn the exhaust fan switch on then off. If the fan doesn't come on, your machine may have the new Phase Monitor installed. The phase monitor is a square yellow module located in the main control panel. The monitor makes sure that the phase is correct so all motors turn in the proper rotation. If the phase is incorrect the red light on the monitor will be on when the power is on. If the green light is on the phase connections are ok. The fan on the dust collector should start and coast to a stop as you check to make sure that the fan is rotating in the proper direction. The fan should rotate clockwise when looking at the end of the motor. If the exhaust fan is running in the proper direction, all outer motors will run in the right direction. If the fan is running backward or if the phase monitor won't allow the fan to start, shut off the main disconnect switch at the dust collector and the circuit breaker at the generator and shut down the generator. Swap any two wires going to L1, L2 or L3 terminals at the generator. This will reverse the rotation. Start the generator and test again for proper rotation.

Step 11. Charge the machine with abrasive. Pour (4) 50 lb. bags of abrasive into the shot adding chute located on the front of the machine**. Caution**- the rubber flap that covers the chute must be closed for operation. **Caution**- use only quality steel shot or grit in the machine. Use only G type grit shot-**Do not use hard grit (GH or GL)**

Step 12. Make sure that all personnel is wearing safety glasses with side shields and that the work area is in compliance with all Federal, State, Local, and Plant safety regulations.

Step 13. Make sure that the switches on the main control panel are in the proper position. The e-stop switch is pulled out, the mode selector switch is in the horizontal position and the operation switch is in the remote position.

Step 14. **Caution**-connect a 3/8" safety cable between the machine and the center stand pipe. Measure the distance from the center to the edge of the tank and adjust the cable so the machine could not run out beyond the edge of the tank.

Step 15. Check out all machine functions (see Machine Startup Procedure- page 24-26).

Machine Setup

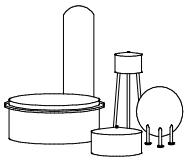
Special Applications

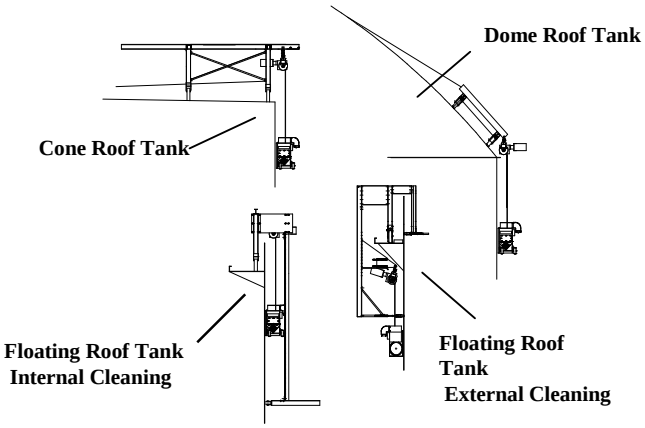
Setup Procedures vary on different types of tanks. Fixtures are available for , floating roof tanks where the fixture rides on the wind girder, dome roof tanks, internal wall cleaning where a trolley drive and I-beam is used, ship hull cleaning, etc.

If you have a special application, call RBW Enterprises. We will provide the proper fixture system and the proper setup instructions for the application.

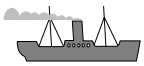
Caution- do not attempt to hang the VersaBlast machine on unauthorized fixtures. Fixtures must be approved by RBW Enterprises. 770-251-8989.

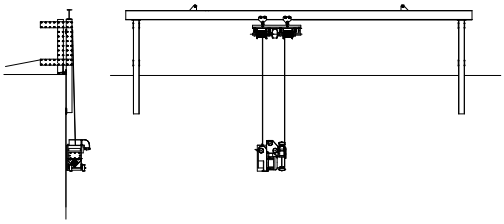
Tank Fixtures





Ship Fixture





Machine Start-up, Operation, and Shut Down Procedures
Horizontal Mode

Caution- do not attempt to operate the VersaBlast until you have thoroughly reviewed this manual and have gone through proper training. Before starting this procedure, make sure that all equipment is set-up properly as described in Machine Setup (see Machine Set-up-page 20-22).

First review the operating functions of each switch on the main control panel on the dust collector, the panel on the machine and the hand held remote control (see Controls Operation- pages-56-58). Make sure that the main disconnect switch on the main control panel is off. Check to make sure that the power cable is properly connected at the generator or power source and that the generator or power source is properly grounded. Make sure that the generator is set for 460 Volt/3 Phase/60 Cycle operation and that the circuit breaker is off.

If the machine has been assembled for the vertical cleaning mode, it will need to be converted to the horizontal mode (see Horizontal Mode Conversion-page-45-49)

1. Make sure that the Power Cable for the VersaBlast is properly connected and the cable strain sling is secured to the dust collector (see Cable Connections-page-71-72). If connections need to be made, make sure that the disconnect switch is in the off position. Make sure that the safety cable is in place and properly connected if the system is on a roof.

2. Make sure that the ¾" air supply line is connected, the air compressor is running, and all air valves are turned on.

3. Check the exhaust hose for proper connection at the dust collector, at the VersaBlast machine and at any splice points.

4. Check the dust drum under the Dust Collector- The drum should be replaced if it is over ¾ full. Rap on the drum with a hammer or other metal object to determine the dust level. When replacing and handling waste drums, take all precautions for protection from hazardous dust as required by federal, state and local codes.

5. Make sure that shot has been added to the machine.

6. Start the generator- check the generator voltmeter - if needed, adjust the voltage to 460 volts. Switch on the circuit breaker at the generator. Turn on the main disconnect switch on the control panel at the Dust Collector.

7. Bump the dust collector fan switch on and off and check for proper blower rotation. The blower motor fan on the back of the blower motor must rotate clockwise. Caution- do not assume the motor rotation is proper if air is blowing out of the fan- it will blow out in either direction.

8. A phase controller is used on newer systems to make sure that the motors run in the right direction. If the fan won't start- Shut down the generator or shut of the power supply and swap any two wires L1,L2,or L3, at the generator power terminals. Do not swap the ground wire. Restart the generator and check the fan rotation.

9. Make sure that the mode switches on the main control panel are set on "Horizontal" and "Remote".

10. Check the blast wheel rotation by looking at the cooling fan on the back of the blast motor. Press the "Blast on/off" button to start the motor and then press it again to shut it off. Let the fan slow down and observe the direction of rotation. It should be rotating clockwise when looking from the back of the motor. Caution- the motor must run clockwise, do not operate the machine if the motor is running counterclockwise. If the dust collector fan is running clockwise and the blast wheel is running counterclockwise, wiring changes must be made- call RBW.

11. Check the forward and reverse movement of the VersaBlast. First turn the speed knob on the machine panel to 3. Press the "Forward" button on the remote control and hold it for 2 seconds then let up. The machine should start moving forward. Adjust the speed knob up and down to check out the speed adjustment. Push the "Forward" button again to stop. Use the same procedure to check out the Reverse movement by pressing the "Reverse" button.

12. Next test the steering operation. Press the steering left button and let up. The drive wheel should turn to the right, steering the machine to the left. Try steering right by pressing the right button. Practice steering the machine before you start blasting. Learn to just bump the button for minor steering corrections. Remember, at the end of each pass you do not have to turn the machine around, just reverse the direction. This machine will blast going in both directions.

13. Before testing the blast, make sure that the control cage is in the proper position for floor cleaning. The arrow should be set at 10:00. To adjust the control cage see (Control Cage Adjustment-page 70).

15. Now that the control cage is set, run a blast test. Turn on the dust collector fan and start the blast wheel.

16. Start the machine moving forward at slow speed (2 to 3 on the speed knob).

17. Next pull out the abrasive valve knob on the front of the machine. Observe the amperage increase on the ammeter. Pull out the knob until the amperage increases to 35 to 40 Amps. If the amperage goes too high, move the knob back in slightly. Monitor the ammeter closely during the cleaning operation. If the amperage drops below 30, the cleaning quality will drop. As the amperage drops, pull out the knob more. When the amperage is low and the knob is all the way out, it is time to add shot. Note: the first time you blast, it will take more abrasive to fill up all the voids in the machine. Keep adding shot until the amperage remains constant at 35 to 40 amps. Caution- Never run the machine higher than 40 amps.- the blast motor can burn out and the machine will get too hot.

18. Check the blast pattern- it may have to be adjusted. The machine will always clean better on the right hand side (side opposite the exhaust hose) since the blast wheel turns clockwise. The blasted path will have a clean sharp edge on the right side and a rough edge on the left. The best setting is to move the pattern to the left as far as possible without loosing the sharp edge on the right side. To move the pattern to the left, turn the control cage counterclockwise. To move the pattern to the right, rotate the control cage clockwise.

    Another way to set the pattern is to find the hotspot of the blast by running a short distance at higher speed. You will see a very narrow cleaned pattern, this is the hot spot of the blast pattern. If you adjust the control gage to get this narrow pattern in the middle of the full width pattern, the setting should be proper for normal cleaning speeds. Once the cage is set, bolt down the locking arm so the cage can't move out of position. Mark the cage position so you will always know the proper setting

    The proper cleaning speed will vary depending on the type and thickness of the coating being removed and the cleaning requirements. Speeds in the range of 2 to 4 cover most applications.

19. Practice cleaning until you get a feel of the machine operation. You will leave abrasive on the floor as you pass over weld seams and dips in the surface. This shot should be swept over to the next path- the machine will pick it up. If you get confused or something happens, you can shut down the machine by pushing the E-Stop button on the remote control. To reactivate the remote control, you must push in and hold the reset button on the main control panel. The button must be held in for 10 seconds.

20. For normal shut down, stop the machine movement, pull the shot valve out to stop abrasive flow to the blast wheel, shut off the blast motor, and turn off the main disconnect switch on the main panel.

Machine Start-up, Operation, and Shut Down Procedures
Vertical Mode

Caution- do not attempt to operate the VersaBlast until you have thoroughly reviewed this manual and have gone through proper training. Before starting this procedure, make sure that all equipment is set-up properly as described in Machine Setup (see Machine Set-up-page 17-19).

First review the operating functions of each switch on the main control panel on the dust collector, the panel on the machine and the hand held remote control (see Controls Operation- pages-56-58). Make sure that the main disconnect switch on the main control panel is off. Check to make sure that the power cable is properly connected at the generator or power source and that the generator or power source is properly grounded. Make sure that the generator is set for 460 Volt/3 Phase/60 Cycle operation and that the circuit breaker is off.

If the machine has been assembled for the horizontal cleaning mode, it will need to be converted to the Vertical mode (see Vertical Mode Conversion-page-50-55).

Make sure that the roof fixture has been assembled properly(see Cone Roof Fixture Assembly-page 30-31) and is properly positioned on the roof and secured to the center stand pipe (see Cone Roof Fixture Setup-page 32-34)

1. Make sure that the Power Cable for the VersaBlast machine and the power cable for the hoist and fixture drive is properly connected and the cable strain slings are secured to the dust collector (see Cable Connections-page 71-72). If connections need to be made, make sure that the disconnect switch is in the off position.

2. Make sure that the ¾" air supply line is connected, the air compressor is running, and all air valves are turned on.

3. Check the exhaust hose for proper connection at the dust collector, at the VersaBlast machine and at any splice points.

4. Check the dust drum under the Dust Collector- The drum should be replaced if it is over ¾ full. Rap on the drum with a hammer or other metal object to determine the dust level. When replacing and handling waste drums, take all precautions for protection from hazardous dust as required by federal, state and local codes.

5. Make sure that shot has been added to the machine.

6. Start the generator- check the generator voltmeter - if needed, adjust the voltage to 460 volts. Switch on the circuit breaker at the generator. Turn on the main disconnect switch on the control panel at the Dust Collector.

7. Bump the dust collector fan switch on and off and check for proper blower rotation. The blower motor fan on the back of the blower motor must rotate clockwise. Caution- do not assume the motor rotation is proper if air is blowing out of the fan- it will blow out in either direction.

8. A phase controller is used on newer systems to make sure that the motors run in the right direction. If the fan won't start- Shut down the generator or shut of the power supply and swap any two wires L1,L2,or L3, at the generator power terminals. Do not swap the ground wire. Restart the generator and check the fan rotation.

9. Make sure that the mode switches on the main control panel are set on "Vertical" and "Remote".

10. Lower the hoist cables and connect them to the machine. Lift the VersaBlast off the ground and onto the tank wall using the hoist up switch on the remote control. Adjust the seal and magnet relation to the tank wall by adjusting the turnbuckle. Run the turnbuckle in or out to square the seal to the wall, then lock it in place with the lock nut.

11. Check the blast wheel rotation by looking at the cooling fan on the back of the blast motor. Press the "blast on/off" button and the steering "left" button to start the motor and then press the "blast on/off" button again to shut it off. Let the fan slow down and observe the direction of rotation. It should be rotating clockwise when looking from the back of the motor. Caution- the motor must run clockwise, do not operate the machine if the motor is running counterclockwise. If the dust collector fan is running clockwise and the blast wheel is running counterclockwise, wiring changes must be made- call RBW.

12. Check the left and right movement of the VersaBlast. First turn the speed knobs for the machine and the fixture on the control panel to 3. Press the "left" button on the remote control and hold it for 2 seconds then let up. The machine and fixture should start moving to the left. Adjust the speed knob up and down to check out the speed adjustment. Push the "left" button again to stop. Use the same procedure to check out the right movement by pressing the "Right" button. Adjust the speed of the fixture and machine so both move at approximately the same speed. It is often best to run the fixture slightly faster so it stays a little ahead of the machine. This tends to help the machine to stay tight to the wall.

13. Before testing the blast, make sure that the control cage is in the proper position for vertical cleaning. The arrow should be set at 3:00. To adjust the control cage see (Control Cage Adjustment-page 70).

14. Now that the control cage is set, run a blast test. Turn on the dust collector fan and start the blast wheel.

15. Start the blast wheel and start machine moving left or right at slow speed (2 to 3 on the speed knob).

16. Next pull out the abrasive valve knob on the front of the machine. Observe the amperage increase on the ammeter. Pull out the knob until the amperage increases to 35 to 40 Amps. If the amperage goes too high, move the knob back in slightly. Monitor the ammeter closely during the cleaning operation. If the amperage drops below 30, the cleaning quality will drop. As the amperage drops, pull out the knob more. When the amperage is low and the knob is all the way out, it is time to add shot. Note: the first time you blast, it will take more abrasive to fill up all the voids in the machine. Keep adding shot until the amperage remains constant at 35 to 40 amps. Caution- Never run the machine higher than 40 amps.- the blast motor can burn out and the machine will get too hot.

17. Check the blast pattern- it may have to be adjusted. To set the pattern, find the hotspot of the blast by running a short distance at higher speed. You will see a very narrow cleaned pattern, this is the hot spot of the blast pattern. If you adjust the control gage to get this narrow pattern in the middle of the full width pattern, the setting should be proper for normal cleaning speeds. Once the cage is set, bolt down the locking arm so the cage can't move out of position. Mark the cage position so you will always know the proper setting

    The proper cleaning speed will vary depending on the type and thickness of the coating being removed and the cleaning requirements. Speeds in the range of 2 to 4 cover most applications.

18. Practice cleaning until you get a feel of the machine operation. You will leave abrasive on the floor as you pass over weld seams and dips in the surface. This shot should be swept over to the next path- the machine will pick it up. If you get confused or something happens, you can shut down the machine by pushing the E-Stop button on the remote control. To reactivate the remote control, you must push in and hold the reset button on the main control panel. The button must be held in for 10 seconds.

19. For normal shut down, stop the machine movement, shut off the blast motor, and turn off the main disconnect switch on the main panel. You do not have to pull the shot valve out to stop abrasive flow when the machine is in the vertical mode. The valve will already be set for start-up.

Cone Roof Fixture Assembly (Step 1)

Front Base (1)
(Part # 546)

Bolt the two Front Vertical Beams(72”long) to the Front Base with 5/8” bolts (8 per beam). Make sure that the beam flange face with 4 holes for the Catch Bracket and the Base face with the turnbuckle tabs are on the same side.

Drive Wheel Assy. (1)
(Part # 547)

Bolt one Drive Wheel Assy. and one Idler Wheel Assy. to the Front Base With 5/8” pivot bolt.

Front Vertical Beam (2)
(Part # 548)

Bolt two Catch Brackets to the Front Vertical Beams with 5/8” bolts. (4 per bracket)

Catch Bracket (2)
(Part # 549)

Idler Wheel Assy. (3)
(Part # 550)

Bolt the two Rear Vertical Beams(60”long) to the Rear Base with 5/8” bolts (8 per beam).

Rear Base (1)
(Part # 551)

Bolt two Idler Wheel Assemblies to the Rear Base with 5/8” pivot bolt.

Rear Vertical Beam (2)
(Part # 552)

Horizontal Angle Support (4) (Part # 553)

Bolt two Horizontal Angle Supports to each set of vertical beams. One on each side of the front beams, And one on each side of the rear beams.
Place the two Hoist Support Beams on top of the Horizontal Support Angles.Place the flange with Only 8 holes down, and bolt in place with 5/8” bolts. (4 bolts at each of the four vertical beams) Use the first 4 holes at the rear end of the Hoist Support Beam. Note: The hoist support beams should extend 7 ¾” back from the rear vertical beams and 39 ¾” beyond the front vertical beams.

Hoist Support Beam (2) (Part # 554)

Cross Brace Angle (4) (Part # 555)

Bolt the two sets of Cross Brace Angles in place Between the vertical beams with ½” bolts. Bolt each set of brace angles together where they cross With ½” bolts.

Cone Roof Fixture Assembly (Step 2)

Cable Eye (2) (Part # 556)

Bolt the two cable eyes in place using the back outer 5/8” bolt that bolts the horizontal support angle to the Support beam.

Attach the two turnbuckles to the two tabs on the Front Base. Use the pin and cotter supplied. Attach the 3/8” 200’ long Tie Back Cable to one of the turnbuckles. Use three 3/8” cable clamps. Run the other end of the cable through the Cable Eye at the rear of the fixture. Temporally attach three 3/8” cable clamps to the end of the cable for later use. Roll the cable up and wire tie it to the fixture assembly. The cable will used later to run around the tank stand pipe and back to the other side of the fixture.

¾” Turnbuckle (2) (Part # 557)

3/8” Cable clamp (6) (Part # 534)

Cable Eye (2) (Part # 556)

Hoist Support Bracket (2) (Part # 544)

5/8” Shackle (2) (Part # 535)

Place a 5/8” shackle in each of the the two Hoist Support Brackets and slide the brackets onto the beams (you cannot insert the shackle after the bracket is mounted). Bolt the brackets to the beams with 5/8” bolts (2 in each beam). Locate the two holes in the front angle of the bracket at the closest set of holes to the front vertical beams. This places the hoist as close to the vertical beams as possible. Attach the Hoist Assembly to the Hoist support Brackets with the two 5/8” Shackles. Wire tie the shackle bolts so they can’t unscrew.

Hoist Assembly (Part # 545)

Connect the power cable from the Drive Wheel Assembly To the power supply cable from the hoist. The power supply is 15’ long- the extra length is required when used on the floating roof fixture. Roll up the excess cable and tie secure it to the fixture frame.

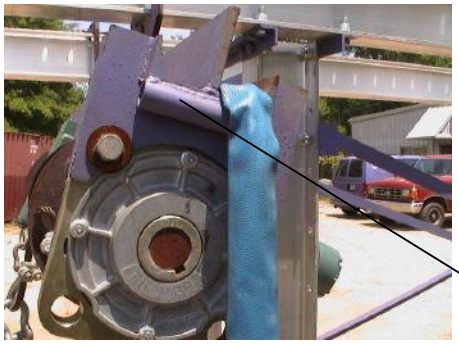
The hoist motor extends inside the fixture frame.

Cone Roof Fixture Setup (Step 1)

Unroll the power cable so it is free to uncoil as the fixture is lifted to the tank roof.

Cord Grips

Make sure that the cord grip loops are secured to the hoist frame so the cables cannot be pulled loose at the motors.



Make sure that the cable harness is laying in the channel and is laying over the round tube. The smooth tube keeps the harness from being damaged from the sharp edge.

Round Tube

Make sure that the cable wraps On the hoist drums are straight And smooth across the drum.

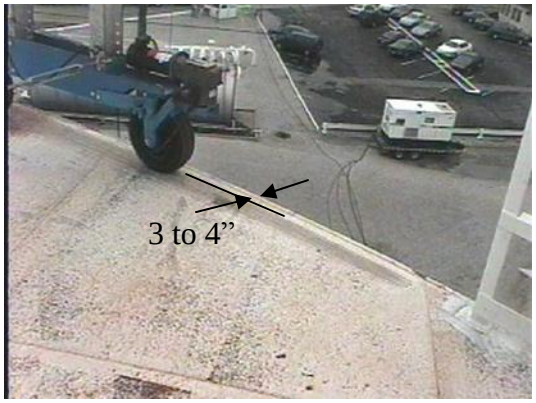
Caution-Make sure that there are at least (4) 3/8" cable clamps on each cable and that hey are extremely tight.

Hoist Support Brackets

Make sure that the hoist support brackets are mounted as close to the front tires and vertical support beams as possible. Additional holes are provided in case the hoist has to be moved out further from the tank wall so the cables can clear vents are other obstructions. When the hoist is moved out, addition counter weights will have to be added to the back end of the fixture. Bolt the brackets down to the beam with (4) 5/8" grade 5 bolts.

Cone Roof Fixture Setup (Step 2)

Use two straps to lift the fixture- one on each beam. Locate the straps about two foot back from the front vertical beams. Double wrap each strap so it won't slide along the beam during the lift. Pick the fixture off the ground, if it tips either way, readjust the straps so the unit picks up level. Caution- make sure the crane and straps are sized properly for the load. The fixture and the hoist weighs around 2000 lbs.



Place the fixture on the roof of the tank with the front tires about 3 to 4" from the edge of the tank. Make sure that the fixture is sitting square and that the rear of the fixture is pointed toward the center of the tank.

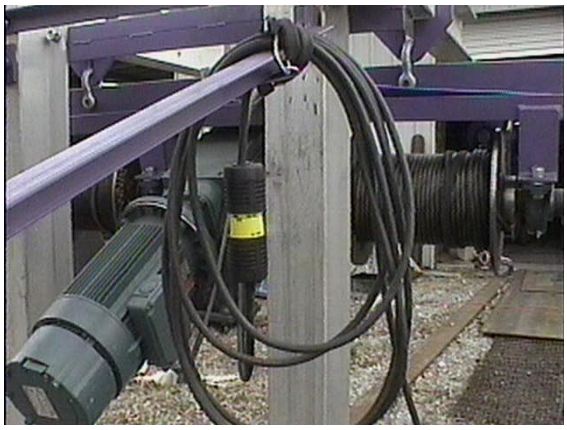
Adjust the ¾" turnbuckles so they will have equal adjustment in both directions. This will allow for final adjustment after the tie back cable is in place.

Run the cable from the turnbuckle through the rear eye and around the tanks center stand pipe. Run the cable back through the other rear eye and connect it to the opposite turnbuckle using at least two 3/8" cable clamps. Pull the cable tight as possible before clamping. Next pull the two cables together and place a single clamp about two foot from the stand pipe. This will keep the fixture running square to the tank.

Single 3/8" clamp

Caution- The center stand pipe must be structurally sound and capable of handling 1000 lb. pull at the base. The standpipe must be located in the center of the tank. If it isn't special cable connections must be made. Call RBW for help in set-up.

Cone Roof Fixture Setup (Step 3)



Connect the power cable for the fixture drive to the power cable from the hoist wiring harness. The cable is required to be long for floating roof applications. Roll up the extra cable and secure it to the fixture. **Caution- Make sure that all cables are clear of any pinch points and cannot be Damaged during operation.**

Make sure that the wheels are straight in line with each other Rather than turned to match the radius of the tank.

Tighten pivot bolts after alignment. **Caution- bolts must be very tight to keep the tire from turning during operation.**

Align wheels straight and in line.

Caution- Stand-pipes are rarely exactly in the center of the tank. Therefore, it is important to check out the movement of the fixture over the quadrant you are planning to clean to make sure that the fixture will not roll off of the edge of the tank or roll back too far on the roof of the tank. This check must be made for each quadrant you clean.

Make sure you have connected the fixture drive cables to the dust collector control panel and that You have read the machine start-up section before operating the fixture.

Using the remote control from on top of the tank, run the fixture back and forth along the quadrant path and observe the tire distance to the edge of the tank. If the leading tire gets within 1" from the edge, back up until the leading cable becomes slightly slack and then adjust the turnbuckle to take up some slack. Adjust the cables in this way until the fixture will move the full quadrant without getting to close to the edge. Ideally, the leading tire should fluctuate no more than 1" to 4" from the edge of the tank. If the fluctuation is greater select a shorter quadrant of cleaning. If the fixture is allowed to move back away from the edge too far, the machine weight will tend to tip the fixture up at the back end. **Caution-it is important to keep the front and back sets of tires positioned straight in line with one another, rather than turned to match the tank curvature. This keeps the fixture tracking as close to the edge as the cables will allow and keeps the cables stretched tight. If the fixture were to track away from the edge allowing the cables to become slack, the fixture could tip up in back due to the weight of the machine. On small diameter tanks, it may be necessary to turn the front wheels slightly more in line with the curvature of the tank. The rear wheels, however, should always be straight and in line.**

After the fixture quadrant test is completed, align the fixture over the machine and lower the hoist Cables with the remote control.

Trouble Shooting Guide-Electrical

Problem- Nothing Operates on the machine

1. Check the generator output gage- Make sure that the generator is putting out 460 to 480 volts.
2. Check the circuit breaker at the generator or power source.
3. Check power source fuses.
4. Make sure that the machine power harness is plugged into the main control panel. If operating in the vertical mode make sure that the hoist and fixture power harness is plugged into the main panel.
5. Make sure that the disconnect switch on the main panel is "on" and that the E-Stop at the panel and on the remote control has not been pushed.
6. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
7. Make sure that the remote/manual switch is in the remote position.
8. If you are in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1"). If the hoist won't operate proceed to step 9.
9. Check the primary and secondary circuit breakers in the main panel.
10. Check or replace the 9v. battery in the hand held remote control. Be careful with the small wires that connect the battery. Check the wire connections to the battery snap terminal to make sure they are not broken.
11. Check the remote control antenna. Make sure that the wires are properly connected to the magnetic base and are properly connected to the receiver in the main panel.
12. Remove the cover on the remote control receiver in the main control panel. Turn on the power with the door open. **Caution High Voltage** do not touch anything in the panel. Check to see if the power LED light is on on the receiver circuit board. If the light is on, operate each function with the hand held transmitter. LED lights across the top of the circuit board should come on for each operation. If the lights come on, the problem is not in the remote control system. If the power light is on and the operation lights don't come on, call Microtronics and ask for technical assistance for trouble shooting the receiver problem.
13. If the power LED light is not on, the problem may be in the 24v. power supply. Check the 24v. Power Supply Transformer. Voltage in should be 110v. and voltage out should be 24v. If 24v. is present at the power transformer output, check the connections of wire # running from the power transformer to the remote control receiver. If the power transformer has 110v. coming in but is not putting out 24v., the transformer may need to be replaced. Call RBW for replacement (770-251-8989).

Trouble Shooting Guide-Electrical

Problem- Dust Collector Fan won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Check the fan over load circuit breaker. If the over load is tripped, reset by pushing in the black button. If the over load trips again, increase the amperage setting until the fan will start. If the fan still trips off, there is a short or loose connection in the wiring, or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Problem- Blast Motor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. If you are in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Check the blast motor over load circuit breaker. If the over load is tripped, reset by turning the trip switch clockwise until it resets in the vertical position. If the over load trips again, increase the amperage setting until the motor runs without tripping. If the motor still trips off, there is a short in the wiring or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Problem- Hoist Motor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Check the hoist motor over load circuit breaker. If the over load is tripped, reset by pushing in the black button. If the over load trips again, increase the amperage setting until the motor runs without tripping. If the motor still trips, there is a short in the wiring or the over load circuit breaker may need to be replaced.Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Trouble Shooting Guide-Electrical

Problem- Screw Conveyor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel.
5. Make sure that the red coded male and female plugs are properly connected at the machine.
6. The machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Check the screw motor over load circuit breaker. If the over load is tripped, reset by flipping the trip switch back to the up position. If the over load trips again, there is a short in the wiring or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
6. If the motor runs, but the screw doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprockets.

Problem- Machine Travel Drive won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel.
5. Make sure that the Blue coded male and female plugs are properly connected at the machine.
6. If you are operating in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine travel drive, fixture travel drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").

Trouble Shooting Guide-Electrical

5. Make sure that the speed pot on the main panel is turned up.
6. Check the Dart Board Drive fuse. Replace with 15amp fuse, if required.
7. If the drive still won't operate, there is a short or loose connection in the wiring or the Dart Board may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
8. If the motor runs, but the drive wheel doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprockets.

Problem- Fixture Travel Drive won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel. Make sure that the hoist and fixture power harness is plugged into the main panel.
5. If you are operating in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine travel drive, fixture travel drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Make sure that the speed pot on the main panel is turned up.
6. Check the Dart Board Drive fuse. Replace with 15amp fuse, if required.
7. If the drive still won't operate, there is a short or loose connection in the wiring or the Dart Board may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
8. If the motor runs, but the fixture drive wheel doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprocket.

Trouble Shooting Guide-Operation

Problem- Can't get blast amperage up to 30 amps.

1. Adjust abrasive valve in until amperage is achieved.
2. The abrasive hopper, abrasive valve, control cage, or impeller may be clogged with foreign material such as paint chips, rubber seal fragments, duct tape, or abrasive bag material. Some paints can also gum up due to the heat of the abrasive and stick to the blast wheel components. Remove the hopper cover and the control cage and remove the foreign material. Remove any built up paint from all components. The paint can be removed with a scraper screw driver and hammer. **Caution- Lock out all power sources before beginning maintenance work.**
3. The dust collector filters may be clogged. Poor vacuum will effect the blast amperage. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off.

Problem- I add shot and the machine runs at good amperage for a short time but soon drops down to low amperage.

1. The expansion chamber is probably filling up due to the drain hose being plugged. Air is drawn out of the blast cabinet by the dust collector to remove the paint and dust. The air travels through the air duct to the expansion chamber. Some good shot is also pulled out to the expansion chamber. This shot drops to the bottom of the expansion chamber and the lighter dust and paint is pulled to the top of the chamber and out the exhaust hose to the dust collector. The shot must return to the blast cabinet through the drain hose. If the drain hose plugs up, the abrasive will fill up in the expansion chamber and be sucked out to the dust collector. The drain hole in the chamber may be plugged with foreign material or the abrasive may be clumped due to condensation or damp abrasive. Remove the drain hose and clear the opening with a screw driver. If the drain plugs up again, remove the cover plate on the expansion chamber and and clean out any clumped shot, paint, or foreign material.
2. If you are operating in the vertical mode, the dribble valve rubber flap may be held open allowing air to suck up the drain hose restricting the flow of abrasive. The dribble valve allows the shot to flow into the reclaim screw trough without loosing vacuum . The rubber flap is held shut by the system vacuum- as shot builds up in the hose and gets heavy enough the flap will be forced open and allow some abrasive to drop into the screw trough. Check the valve during operation to see if it is functioning properly. Remove any restrictions or replace the flap if required.
3. If you are operating in the horizontal mode it is possible that the lower hose connection box is plugged due to foreign material, condensation or wet shot. Remove the drain hose and clean out the connection box.

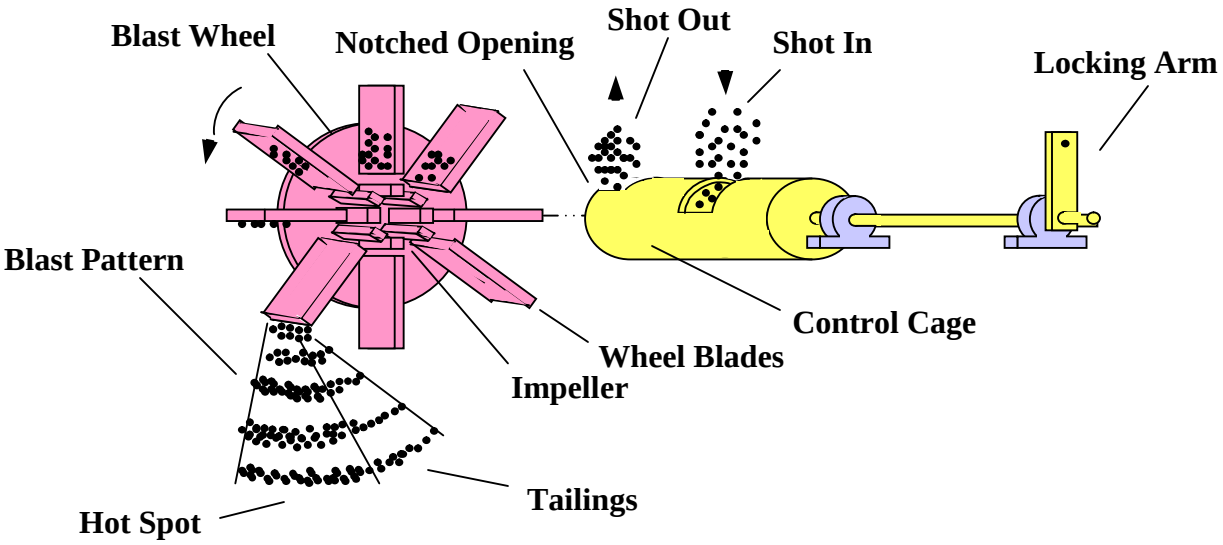
3. The dust collector filters may be clogged. Poor vacuum will effect the blast amperage. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off.

Problem- The exhaust hose to the dust collector is filling up with excessive amounts of shot

1. The expansion chamber is probably filling up due to the drain hose being plugged. Air is drawn out of the blast cabinet by the dust collector to remove the paint and dust. The air travels through the air duct to the expansion chamber. Some good shot is also pulled out to the expansion chamber. This shot drops to the bottom of the expansion chamber and the lighter dust and paint is pulled to the top of the chamber and out the exhaust hose to the dust collector. The shot must return to the blast cabinet through the drain hose. If the drain hose plugs up, the abrasive will fill up in the expansion chamber and be sucked out to the dust collector. The drain hole in the chamber may be plugged with foreign material or the abrasive may be clumped due to condensation or damp abrasive. Remove the drain hose and clear the opening with a screw driver. If the drain plugs up again, remove the cover plate on the expansion chamber and and clean out any clumped shot, paint, or foreign material.

Problem- How can I find the proper hot spot for my blast pattern?- Horizontal Cleaning

1. Abrasive drops from the shot hopper through the abrasive valve and into the control cage through holes in the top of the control cage tube. The control cage carries shot to the impeller which rotates inside the end of the control cage tube. A cutout or notched opening in the end of the tube allows shot to flow out and onto the blades at one point. The blades rotate around the out side of the tube. Each blade picks up a small amount of shot as it passes the notched opening. The shot will leave the blade approximately 180 degrees from wherever the center of the opening is set. If you are blasting the floor the opening should be set at around 11:00. A hole or arrow on the end of the control cage tube indicates the center of the opening. Rotate the hole or arrow to 11:00 . Remove the adjusting handle from the geared hub and reposition it at 12:00. Lock the cage in place with the locking bolt and spacer. Test the blast pattern by operating the machine at a higher than normal rate of speed. This will show more clearly where the hot spot is on the floor. Now fine tune the hot spot by rotating the control cage slightly clockwise to move the pattern to the left (when looking at the front of the machine or control cage) and slightly counterclockwise to move it to the right. Remember that the machine will always clean better on the left side (when looking at the front of the machine or control cage) because the abrasive is leaving the blades on that side of the machine. Try to set the hot spot in the center of the 17" wide path for best over all cleaning.



Problem- How can I find the proper hot spot for my blast pattern?- Vertical Cleaning

1. Wall Cleaning

Abrasive drops from the shot hopper through the abrasive valve and into the control cage through holes in the top of the control cage tube. The control cage carries shot to the impeller which rotates inside the end of the control cage tube. A cutout or notched opening in the end of the tube allows shot to flow out and onto the blades at one point. The blades rotate around the out side of the tube. Each blade picks up a small amount of shot as it passes the notched opening. The shot will leave the blade approximately 180 degrees from wherever the center of the opening is set. If you are blasting a wall the opening should be set at around 4:00. A hole or arrow on the end of the control cage tube indicates the center of the opening. Rotate the hole or arrow to 4:00 . Remove the adjusting handle from the geared hub and reposition it at 12:00. Lock the cage in place with the locking bolt and spacer. Test the blast pattern by operating the machine at a higher than normal rate of speed. This will show more clearly where the hot spot is on the wall. Now fine tune the hot spot by rotating the control cage slightly clockwise to move the pattern up (when looking at the front of the machine or control cage) and slightly counterclockwise to move it down.Try to set the hot spot in the center of the 18" wide path for best over all cleaning.

Problem- Excessive abrasive leakage- Vertical Cleaning

1. Check the alignment of the main seal to the wall . The seal must float along on the surface and be free to flex in and out. If the seal frame, which fits over the cabinet opening frame is riding on top of the opening frame, leakage will occur due to vacuum loss. Adjust the seal attachment chains so the seal is held securely around the opening frame and cannot ride out on top of it.
2. Make sure that the blast cabinet and main seal are square to the wall. Adjust the turnbuckle to square up the cabinet to the wall surface.
3. Make sure that the screw conveyor is running. If the screw stops, abrasive that leaks from the main seal and the expansion chamber drain tube, will overflow.
4. Check the vacuum system-loss of vacuum will cause leakage. Make sure that there are no kinks or restrictions in the exhaust hose. Tape up any holes in the exhaust hose. The dust collector filters may be clogged. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off. Make sure the pulse air line is attached and that the air is on.
5. Check the screw trough seal. Make sure that the seal is not worn or torn. Make sure the seal is mounted properly- the tapered side should face the machine and the flat side should ride on the wall. When blasting make sure that the seal is turned up- when the machine is pulled up the wall and over weld seams the seal may curl down causing it to leak abrasive. When going up the wall, go a little higher than you plan to blast and then lower the machine- the seal will flip back up and seal to the wall.

Problem- Excessive abrasive leakage- Horizontal Cleaning

1. Check the alignment of the main seal to the floor . The seal must float along on the surface and be free to flex up and down. If the seal frame, which fits over the cabinet opening frame is riding on top of the opening frame, leakage will occur due to vacuum loss. Adjust the seal attachment chains so the seal is held securely up and around the opening frame and cannot ride out or get underneath it.
2. Check the vacuum system-loss of vacuum will cause leakage. Make sure that there are no kinks or restrictions in the exhaust hose. Tape up any holes in the hose. Make sure the exhaust hose is not too long. Do not exceed 100'. Make sure that the vertical seals on the main seal have the corner bolts in place and are pulled up over the corners of the blast cabinet plate to make a good seal. Check for holes in the vertical seals where air vacuum may be lost. Replace seals if necessary.
   The dust collector filters may be clogged. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off. Make sure the pulse air line is attached and that the air is on.
3. Make sure that the abrasive adder rubber seal is closed and secure.
4. Make sure that the sleeve seal on the exhaust hose adapter is in place around the flange.

Problem- Hoist operation is sporadic and the brake on the drive motor smokes or slips

1. Check the brake. Make sure that the machine is on the ground and that there is no cable stress on the hoist. Remove the 4 bolts on the end of the brake and pull the brake away from the motor housing. Be careful with the brake wires- you will have to support the brake while you clean it. Loosen the brake pad disk by flipping the brake locks outward. Blow the dirt and dust out of the brake with an air line. Replace the disk pad if it is worn or broken. Call RBW for replacement. Make sure that the motor gear that drives the disk is tight on the motor shaft. Remount the brake and flip the brake locks back in place.

Problem- Machine keeps blowing off of the wall

1. Adjust the fixture back so the hoist cables are close but not touching the tank wall.
2. Adjust the fixture and machine drive speeds so the fixture is slightly ahead of the machine. If the machine gets ahead of the fixture, it is more likely to blow off.
3. Make sure the magnet is equal distant from the wall on both ends. Adjust the turnbuckle if necessary.

Problem- Machine hangs up on weld seams- Vertical Cleaning

1. Check the main seal retainers to see if they are bent out. If a retainer has bent out it can be bent back by hitting the edge with a hammer. The retainers can also be removed bent back and then reinstalled.
2. Edges of the retainers and the edges of the blast opening can be tapered with a grinder. This will help the seal to move along the rough welds without hanging up.
3. Some welds will be so rough that the seal will hang up anyway. When this happens, raise or lower the hoist slightly. This will break the seal loose. **Caution- if the machine hangs up and won't move, turn off the blast motor immediately so the blast will not burn a hot spot in the floor.**

Problem- Machine hangs up on weld seams- Horizontal Cleaning

1. Check the main seal retainers to see if they are bent out. If a retainer has bent out it can be bent back by hitting the edge with a hammer. The retainers can also be removed bent back and then reinstalled.
2. Edges of the retainers and the edges of the blast opening can be tapered with a grinder. This will help the seal to move along the rough welds without hanging up.
3. Some welds and overlaps will be so high that the seal will hang up anyway. Rock the machine from side to side vigorously by standing to one side of the machine and pulling back and forth on the steering shaft. **Caution- if the machine hangs up and won't move, turn off the blast motor immediately so the blast will not burn a hot spot in the floor.**
4. If the machine hangs up too often, the front tires can be lowered to allow more seal clearance.

Problem- Dust comes out of the dust collector fan

1. A filter has been damaged or a filter is loose. Remove the drum and check for Loose filters. If the dust emissions continue, replace the filters.

Problem- The machine suddenly stopped and now nothing operates

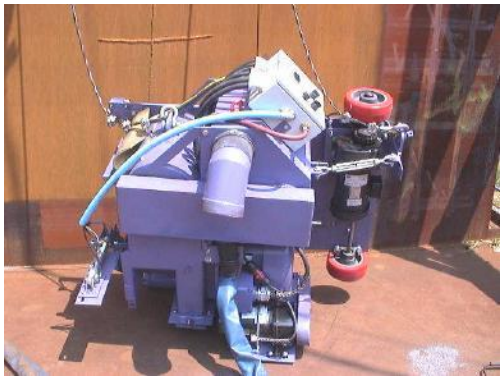
1. You accidentally pushed the E-Stop button on the remote control. Hold the reset button on the main panel in for 10 seconds to reactivate the remote control.

Problem- The machine shuts off and on repeatedly as it moves across the wall

1. The Proximity Switch needs to be adjusted closer to the wall.

Horizontal Mode Conversion

To convert from the wall cleaning mode to the horizontal cleaning mode follow this procedure:

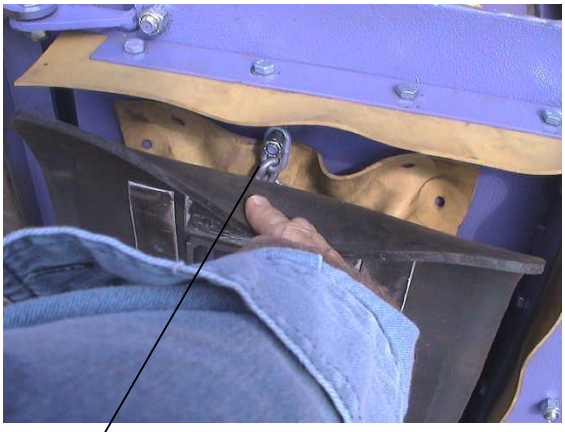


Remove the turnbuckle bolt from the reclaim hopper.

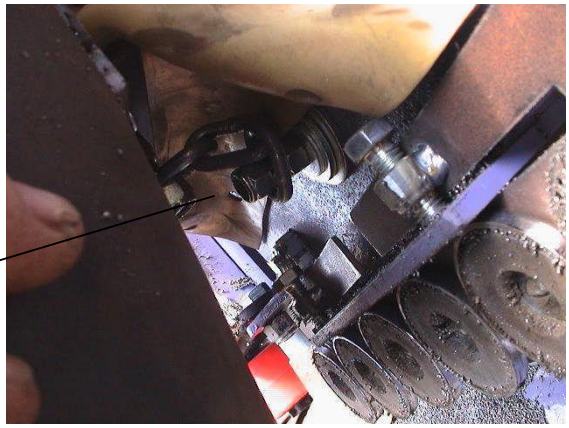
Swing the magnet around and disconnect the magnet drive power cord.

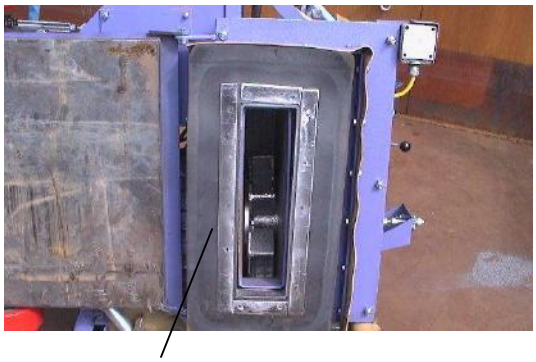
Support the magnet with fork lift Strap and shackle.

Remove the two ½" bolts at the hinge pivot Points and remove the magnet assembly.



Remove the lock nut holding the seal Chain support from both the top and Bottom of the seal assembly.





Remove the seal assembly.

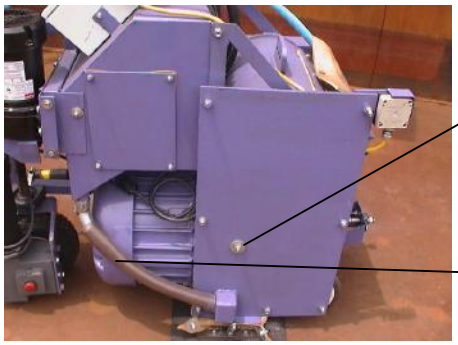
Clamp corners of the frame seal with 3/8” bolts
And large washers as shown.

Remove the magnet mount by loosening
the lock down bolts.

Remove the (7) ½” bolts from the
wall blast plate and the nut and washer
holding the bottom liner in place.
Remove the wall blast plate and the lower liner.

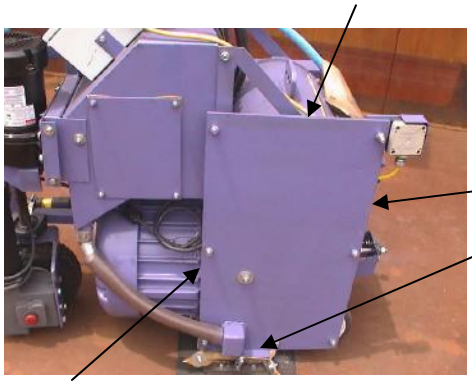
Remove the reclaim drain/ dribble valve

Set the side liner in place as shown.flush
with the cabinet wall. Use tape to hold the
top if required.



Set the side cover plate in place over the liner stud. Install
The ½” lock nut and washers on the liner stud and the
(7) ½” bolts and lock nuts around the cover.. Tighten all
bolts securely.

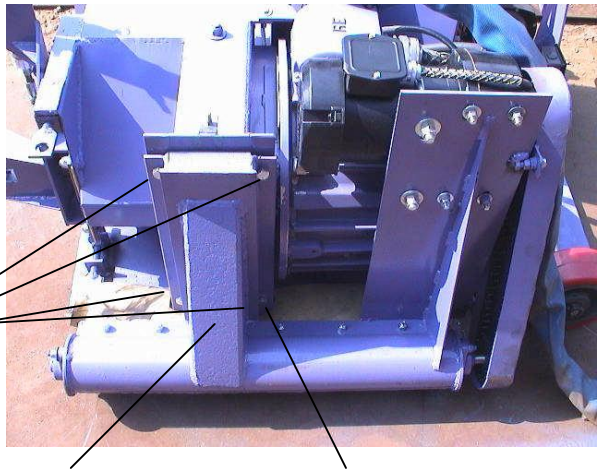
Install the reclaim drain hose.



There will be gaps between the cover plate and the blast cabinet due to warping. Fill in the gaps all around the cover plate with silicone caulk. Caution- Gaps allow vacuum leakage from the System- try to keep connections as air tight as possible. Fewer air leaks means less abrasive left on the floor.

Using a fork lift, strap and shackles, lower the machine on its back side as shown.

Unplug the screw drive motor.



Remove the (4) ½" bolts holding the lower reclaim assembly in place. Remove the lower reclaim assembly.

This bolt is hard to reach. After removing the other (3) bolts, lift the unit back upright to reach the bolt from the seal side of the machine.

Lift the unit back vertical. Holding the unit slightly off the floor, slide the axle and right tire assembly through the adjustable support.

Slide the left tire onto the axle and the axle into the right adjustable support. Made sure the (3) split collars are positioned on each side of the tire and at the end of the axle shaft as shown above. Tighten all collars.

Place a 4 x 4 under the blast motor And set the unit down on the floor.

Place the steering assembly on the two studs located on the reclaim hopper. Install washers and lock nuts and tighten.

Tighten the lock nut on the side support plate.

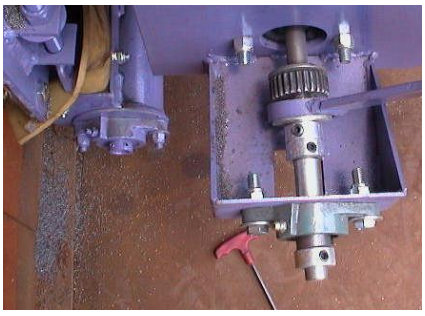
Plug in the steering motor power cord.

Plug in the rear tire drive. Make sure that the white coded plug is attached to the white coded receipt.

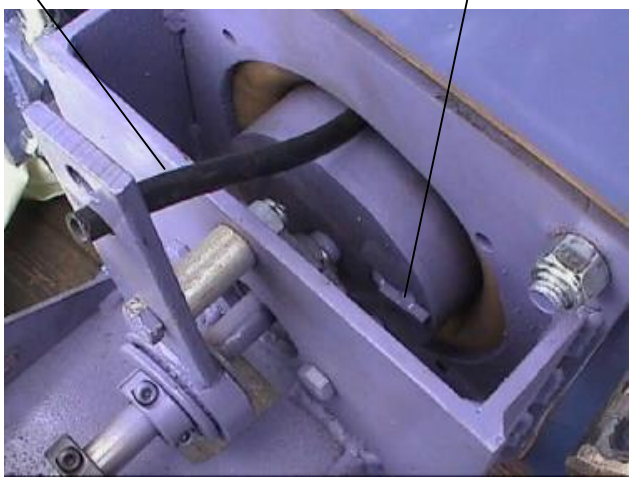
Slide the seal assembly under the blast cabinet opening.

Attach the seal assembly. Slide the attachment chain over the stud and secure with a lock nut. Then secure the attachment chain on the other side of the machine.

The control cage must be reset so the blast is directed toward the floor rather than on the wall.
The arrow on the end of the control cage should be set at 10:00.



Slide the control cage arm off of the cog hub by loosening the retaining collar and rocking the arm back and forth until it comes off.

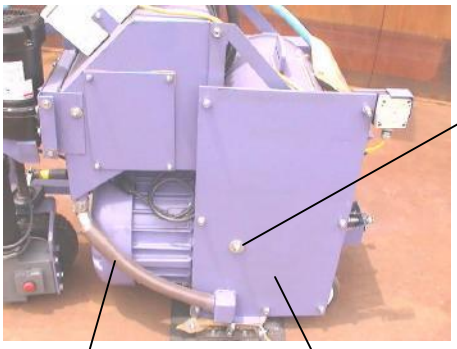


Rotate the control cage counter clockwise until the arrow on the end of the control cage is at 10:00 (3:00 is shown in photo). Be sure to reinstall the breathing tube.

Reset the control cage arm so it is vertical and reattach the locking bolt and breathing tube.
Conduct a blast test- observe the blast pattern on the floor and make adjustments accordingly. To move the pattern to the right (when viewing from in front of the machine), rotate the control cage slightly counter clock wise.
To move the pattern to the left, rotate the control cage slightly clock wise. Remember, for best pattern on the floor keep the blast wheel amperage at 40 amps.

Vertical Mode Conversion

To convert from the floor cleaning mode to the vertical cleaning mode follow this procedure:



Remove the reclaim drain hose.

Remove (7) ½" bolts around the side cover plate. Remove the cover plate.

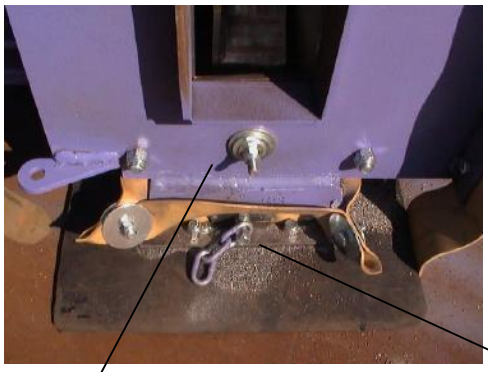
If the cover plate doesn't remove easily, remove the ½" nut which holds the side liner in place. Then remove The cover plate and pry the Liner out of the cabinet opening.

Bolt on the wall blast plate using the (7) ½" bolts from the side cover plate.

Attach the reclaim drain/ dribble valve

Pick up the magnet/ drive assembly with a fork lift, strap and shackle. Locate the shackle around the threaded rod, as shown, so the unit will hang in a vertical and balanced position.

Place the magnet pivot eye mounts on top Of the wall blast plate mounts and attach with (2) ½" bolts and lock nuts.



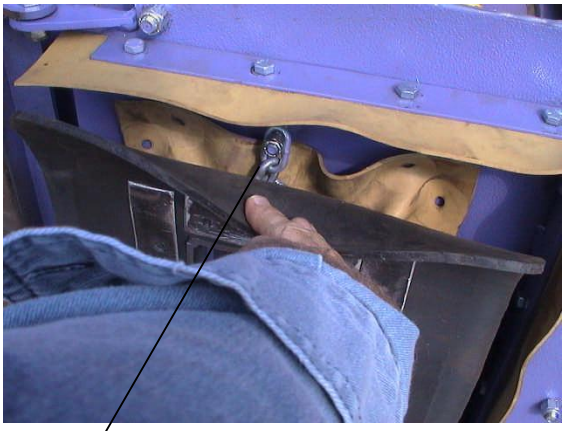
Make sure that the lower liner is in place and bolted securely.

Lift the machine a few inches of the floor, with a fork lift, strap and shackles- see lifting points page . Remove the seal assembly by removing the nut and chain attachments on both sides of the machine.

Remove the (4) corner bolts and large washers.

Slide the magnet mount in place as shown. Secure with lock down bolts.

Place the seal on the wall blast plate as shown.



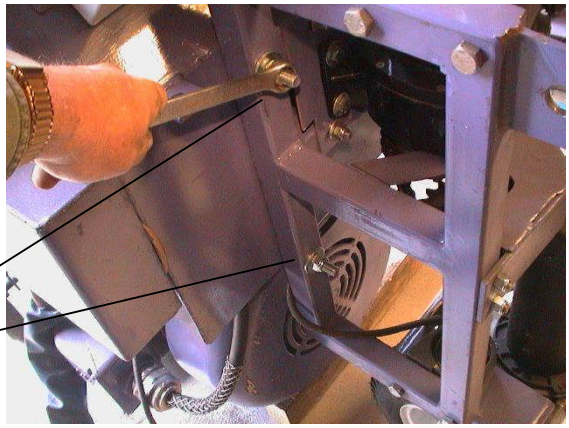
Attach the seal by sliding the chain onto the mounting stud and securing with the lock nut. Follow the same procedure to secure the bottom.

Unplug the rear tire drive motor

With the unit still lifted slightly off the floor, remove the (3) split collars that hold the front tires in place. Remove the axle and tires.

Unplug the steering motor

Place a 4x4 under the blast motor and lower the unit back down on the floor.



Remove the (2) lock nuts which hold the Steering assembly in place.

Loosen the nut holding the side bracket
And remove the steering assembly.

Connect the magnet drive power cord.
Make sure the blue coded plug is matched with the blue coded receptacle.

Swing the magnet assembly around and attach the turnbuckle as shown.

Using a fork lift, strap and shackles, lower the machine on its back side as shown.

(4) bolts

This bolt is hard to reach. After securing the other (3) bolts, lift the unit back upright to reach the bolt from the seal side of the machine. **Caution**- all (4) bolts and lock nuts must be installed and tightened securely.

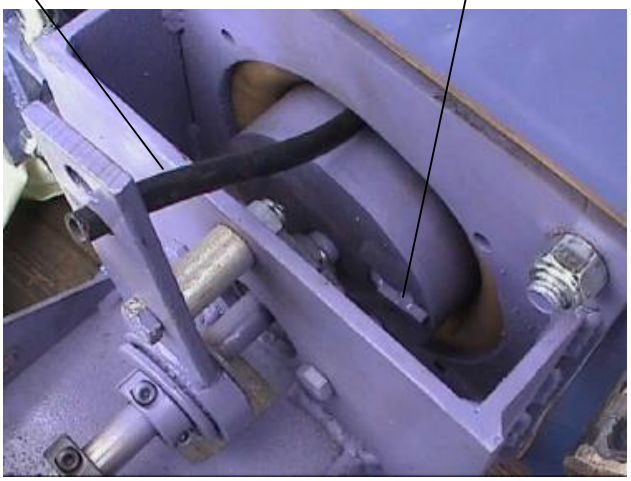
Slide the lower reclaim assembly in place over the blast cabinet opening as shown. Attach with the (4) ½" bolts and lock nuts.

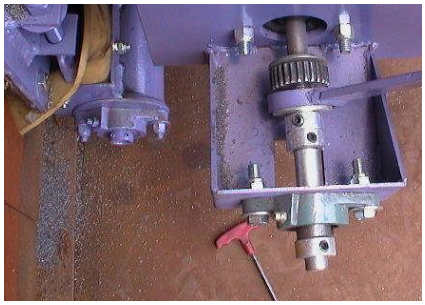
Plug in the screw drive motor. Make sure the Red coded plug is connected to the red coded Receptacle.

The control cage must be reset so the blast is directed toward the wall rather than on the floor.
The arrow on the end of the control cage should be set at 3:00 to 5:00.

Breathing Tube

Arrow





Slide the control cage arm off of the cog hub by loosening the retaining collar and rocking the arm back and forth until it comes off.

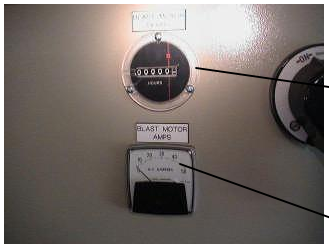
Rotate the control cage clockwise until the arrow on the end of the control cage is at 3:00 to 5:00.
Be sure to reinstall the breathing tube.

Reset the control cage arm so it is vertical and reattach the locking bolt.
Conduct a blast test- observe the blast pattern on the wall and make adjustments accordingly. To lower the pattern, rotate the control cage slightly counter clock wise.
To raise the pattern, rotate the control cage slightly Clock wise.

Main Panel Controls

Main Control Panel is
located on the dust collector.
It controls all machine functions.

Disconnect Switch
Turns power on and off



Hour Meter
Shows how many hours
the blast wheel has operated.

Amperage Meter
Shows the amount of current the
blast wheel is pulling-the higher the
amperage the more shot is being thrown
by the blast wheel. **Caution-do not operate
Over 40 amps.**

Manual /Remote Switch
The machine can be run in manual
If the remote control is damaged or lost
(floor cleaning mode only).
For normal operation with the remote control
The selector switch must be in the Remote
Position.

Horizontal/Vertical Switch
Selects the mode of operation.
Horiz- Floor Cleaning
Vert- Wall Cleaning

Dust Collector Fan Switch
Turns the Dust Collector Blower
On and Off

Fixture Speed Knob
Sets the speed of the
machine drive wheels
when in Vertical Mode.

Machine Speed Knob
Sets the horizontal speed
of the machine drive wheels
when in Vertical Mode.

Reset Button
If the E-Stop on the Remote Control
is pushed, this button must be held in
for 10 seconds to reactivate the remote control.

Emergency Stop
Shuts down all machine operations.

Machine On Board Panel Controls

Machine On Board Panel
For machine operation in
Horizontal Mode (Floor Cleaning)

Amperage Meter
Shows the amount of current the blast wheel is pulling-the higher the amperage the more shot is being thrown by the blast wheel. **Caution-do not operate Over 40 amps.**

Initiate Switch
Activates panel for machine operation in manual mode.
This is only used if the hand held remote control is not available.

Machine Speed Knob
Sets speed of machine in
Horizontal Mode (Floor Cleaning)

Blast On/Off Switch
If the hand held remote control is not available, this switch will operate the blast wheel. The machine must be in Manual Mode and the Initiate Switch must be activated.

Forward/Reverse Selector Switch
If the hand held remote control is not available
This switch will operate if the machine is in manual Mode and the initiate switch has been activated.

Hand Held Remote Controls

Press and hold for 3 seconds for **Left Travel** of the machine and fixture when in vertical mode or **Forward Travel** of machine when in horizontal mode. Press again to stop.

Press and hold for 3 seconds for **Right Travel** of the machine and fixture when in vertical mode or **Reverse Travel** of machine when in horizontal mode. Press again to stop movement.

Press and hold down to **Raise** the machine on the wall (vertical mode only). Release to stop.

Press and hold down to **Lower** the machine on the wall. Release to stop.

E-Stop
Stops all operation- to reset you must press and hold the reset button on the main control panel for 10 seconds.

Blast Motor On/Off
Press for 3 seconds to start. Press again to stop.

Steer Left (Horiz mode only)
Just bump or tap the button too make slight steering corrections. Hold down longer for turning.

Steer Right (Horiz mode only)
Just bump or tap the button too make slight steering corrections. Hold down longer for turning.

VersaBlast Component &Material Check List

Make sure that the following components and materials are transferred from storage to the job site.

For Vertical Operation

- ❑ **VersaBlast Machine**
- ❑ **Dust Collector**
- ❑ **Hoist System**
- ❑ **Trolley Drive (if required)**
- ❑ **Idler Trolley (if required)**
- ❑ **Remote Control**
- ❑ **Fixture with 3/8" tie back cable & 3/8" clamps**
- ❑ **6" Exhaust Hose- 100'**
- ❑ **6" Hose Connectors and clamps as required**
- ❑ **¾" air line for dust collector (small 3/8" air line can be used with reduction fittings)**
- ❑ **5/8" Shackles- (2) for each Hoist & (2) for each machine.**
- ❑ **Abrasive (S-230 to s-390 Recommended) If angular profile is required, mix in 20% of G-25 grit. Caution-due not use hard grit like H or GL, or shot larger than S-390.**
- ❑ **Scoop and Paint Buckets for transferring shot to machines.**
- ❑ **Hand Tools to adjust machine components and maintain operation. (see Hand Tool List)**
- ❑ **Tarp Covers for each machine, dust collector, and hoist.**
- ❑ **Job Site Box to lock up tools and spare parts.**

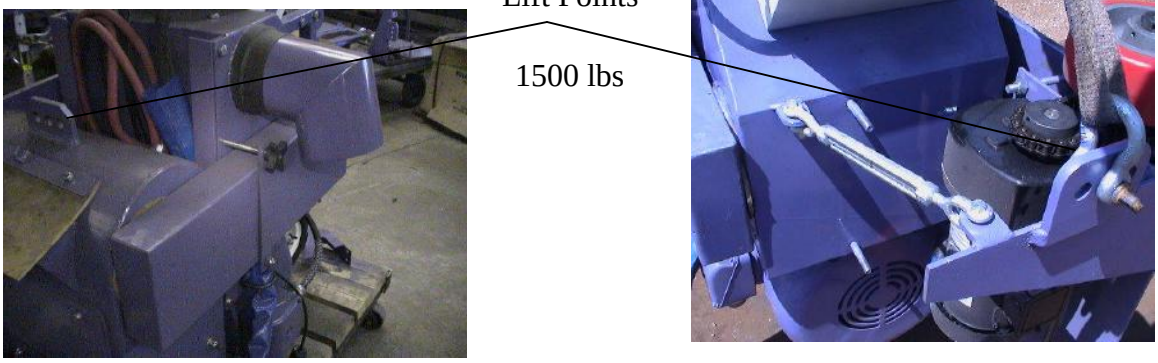
Add For Horizontal Operation

- ❑ **Steering/ Drive Assembly**
- ❑ **Front Wheels axle and collars**
- ❑ **Horizontal Cabinet Wall Plate with Liner**
- ❑ **Abrasive Drain Hose with clamps**
- ❑ **Brooms and flat shovel**

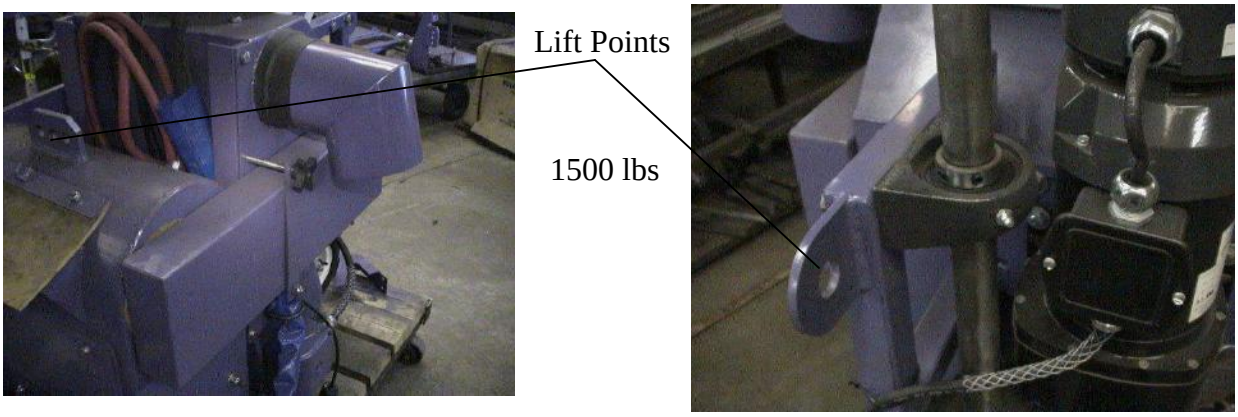
Lifting Points

Caution- Use straps and slings that are in good condition and are rated for the weight of the component. Use 5/8” shackles to connect the slings.

Wall Machine Setup



Floor Machine Setup



1500 lbs

Cone Roof Fixture

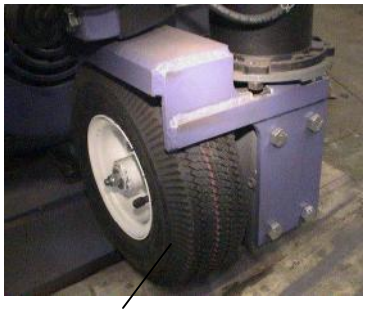
Use straps or slings to lift the fixture. Locate the Slings near the front of the fixture. If the hoist is Mounted on the fixture, the slings must be slid closer To nthe front. Make sure that the fixture is level when lifted. Readjust the slings if necessary.

1500 lbs

Dust Collector

Lifting lugs are located at the four corners of the dust collector housing. Use two slings to lift the unit. Connect the slings with 5/8” shackles at two opposite corner lugs.

Parts List
Horizontal Conversion Parts



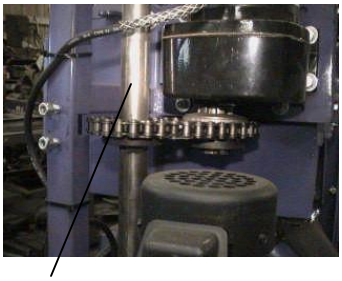
Drive Tire- Pt#101
Inner Tube-Pt#102

Gear Box-Pt#103

Drive Motor-Pt#104

Steering Motor Brake
Pt#105

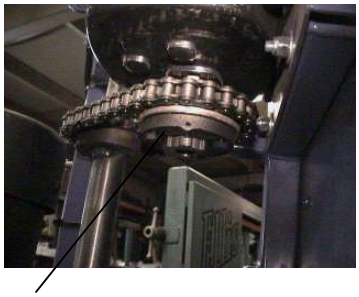
Steering Motor-Pt#106



Steering Shaft Assembly-Pt#107
Includes-Sprocket,lower Bearing
& gearbox mount

Upper Bearing-Pt#108

Steering Chain-Pt#109
Includes Coupling Link



Torque Tamer Assembly-Pt#110
Includes sprocket & Spacer

Steering Assembly
Frame
Pt#111

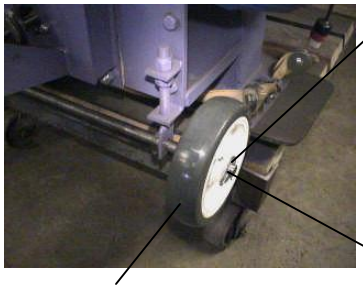
Steering Drive Guard
Pt#112

Abrasive Drain Hose-Pt#113
Hose Clamps-Pt#114

Horizontal Cabinet Wall Plate
Pt#115

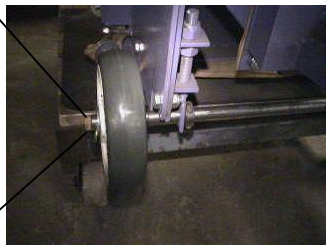
Parts List
Horizontal Conversion Parts- Continued

Side Wall Liner-Pt#116

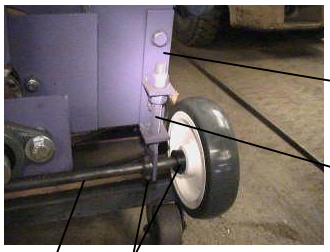


Front Wheel-Pt#117

Front Wheel Pin-Pt#119



Front Wheel Washer-Pt#118



Front Axle Support-Pt#122

Front Axle Post-Pt#123

Front Axle Collar-Pt#120

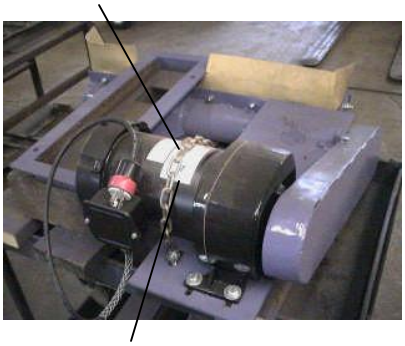
Front Axle-Pt#121

Front Axle Collar-Pt#120

Front Axle Post-Pt#123

Parts List
Vertical Mode Conversion Parts

Tie Down Chain-Pt#124



Screw Drive Motor-Pt#125

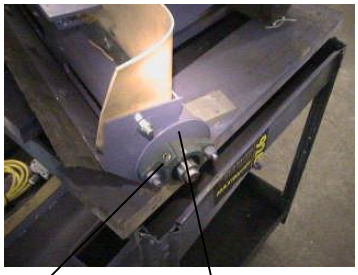
Corner Seal-Pt#126

Center Seal-Pt#127

Center Seal Retainer-Pt#128

End Seal-Pt#129

Screw Drive Guard-Pt#130



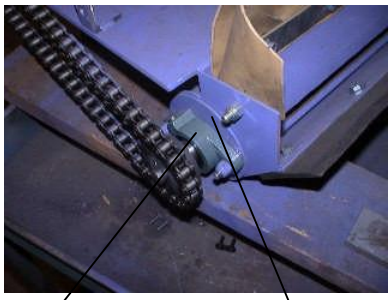
Screw Cover Plate-Pt#131

Screw Conveyor Bearing Pt#132

Screw Conveyor-Pt#133

Sprocket-Pt#134

Screw Drive Chain-Pt#135 Includes Coupling Link



Screw Cover Plate-Pt#136

Screw Conveyor Bearing Pt#137

Screw Trough Seal-Pt#138

Screw Trough Seal Retainer-Pt#139

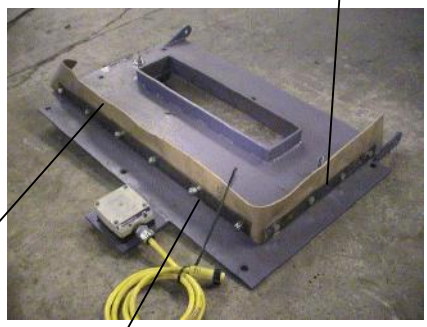
Parts List
Vertical Mode Conversion Parts- Continued

Proximity Switch-Pt#140

Vertical Lower Liner-Pt#142

Vertical Cabinet Wall Plate-Pt#143

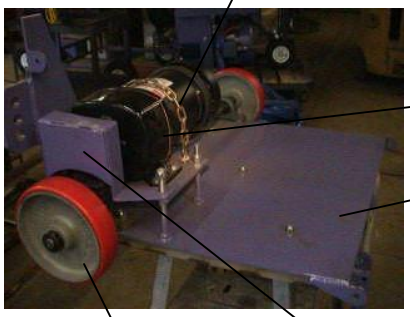
Perimeter Seal Top Retainer-Pt#141



Perimeter Seal Side Retainer-Pt#144

Vertical Perimeter Seal-Pt#145

Tie Down Chain-Pt#124

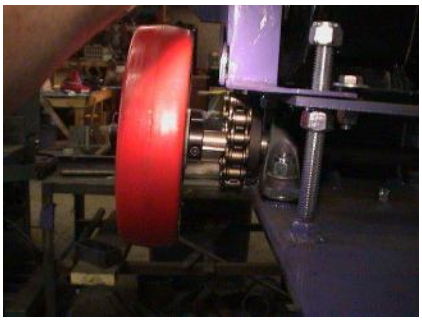


Vertical Drive Motor-Pt#146

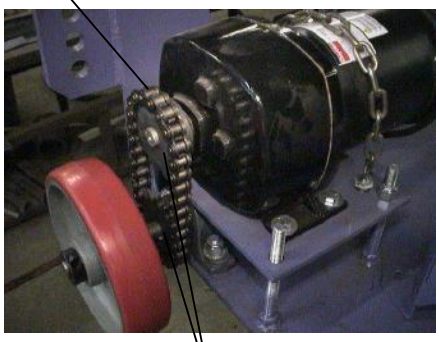
Vertical Drive & Magnet Assembly-Pt#147

Vertical Drive Guard-Pt#148

Vertical Drive Wheel-Pt#149



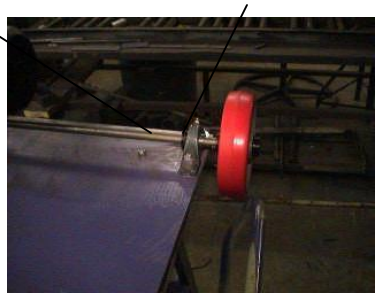
Vertical Drive Chain-Pt#150



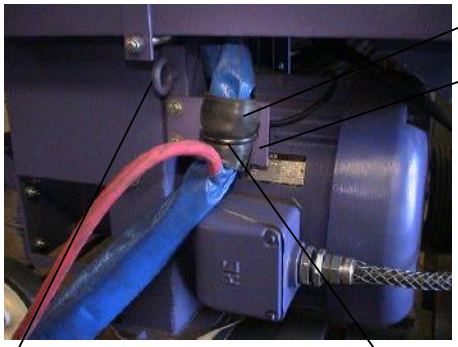
Sprocket-Pt#134

Drive Shaft- Pt#151

Bearing- Pt#152



Parts List
VersaBlast Machine



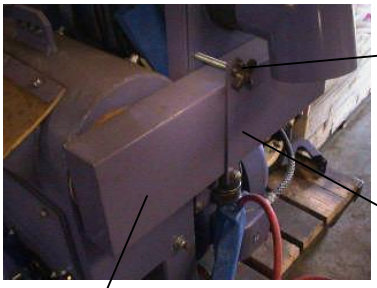
Electrical Cable Clamp Pad-Pt#153

Electrical Cable Clamp Mount-Pt#154

Safety Cable Eye-Pt#155

Electrical Cable Clamp-Pt#156

Electrical Cable Harness-Pt#157



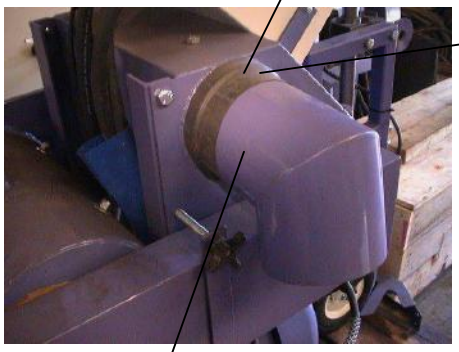
Air Duct Clamp Knob-Pt#158

Air Duct Clamp-Pt#159

Air Duct-Pt#160

Exhaust Elbow Seal-Pt#161

Air Duct Seal-Pt#162



Elbow Clamp Pt#163

Exhaust Elbow-Pt#165

Shot Adder Seal Retainer-Pt#164

Shot Adder Seal -Pt#166

Machine Control Panel Pt#167

Parts List
VersaBlast Machine- Continued

Control Cage Position Arm-Pt#168

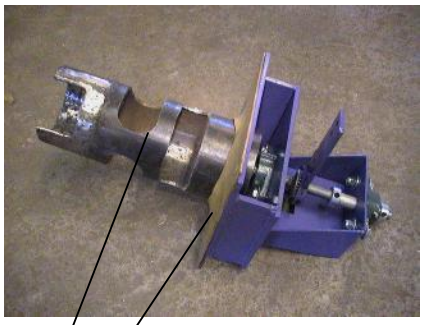
Control Cage Collars-Pt#169

Control Cage Bearing-Pt#173

Control Cage Mount-Pt#170

Control Cage
Arm Spacer-Pt#171

Control Cage Spacer-Pt#172



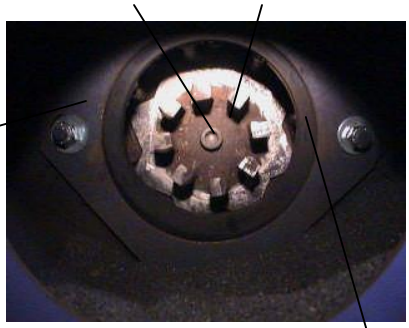
Hopper Cover-Pt#174
Cover Knob-Pt#175

Control Cage Outer Seal-Pt#176

Control Cage Assembly-Pt#177
Includes-shaft,bearing & gear hub

Impeller Bolt Pt#179

Impeller-Pt#180



Shot Valve Magnet-Pt#178

Inner seal Retainer-Pt#181

Shot Valve Bearing-Pt#182

Inner Control Cage Seal-Pt#183

Shot Valve Pivot Arm-Pt#184

Parts List
VersaBlast Machine- Continued

Shot Valve Rod Ball Joint-Pt#185

Shot Valve Rod-Pt#186

Blast Wheel Blade-Pt#187

Blade Bolt-Pt#188

Top Curved Liners-Pt#189

Back Wall Liner-Pt#190

Bottom Blast Opening Liner-Pt#192

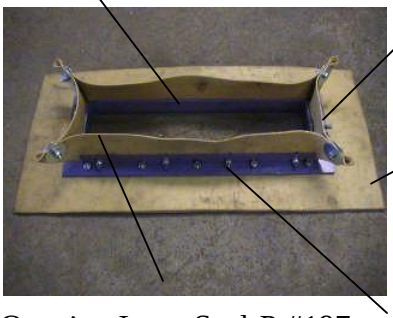
Outer Side Seal Retainer-Pt#191

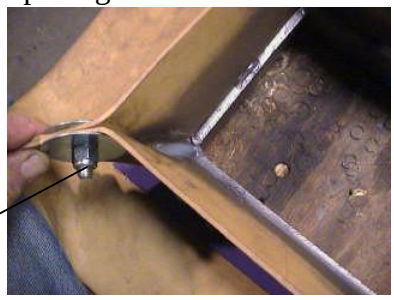
Outer End Seal Retainer-Pt#193

Seal Frame-Pt#194

Inner End Seal Retainer-Pt#195

Blast Opening Outer Seal-Pt#196





Inner Seal Corner Bolt, Nut,& Washers-Pt#198

Blast Opening Inner Seal-Pt#197

Inner Side Seal Retainer-Pt#199

Parts List- Dust Collector

Blower-Pt#200

Blower Motor-Pt#201

Power Cable-Pt#202

Goyen Valve-Pt#203

Steering Handle-Pt#204

Dust Collector Frame-Pt#205

Drum Ratchet-Pt#206

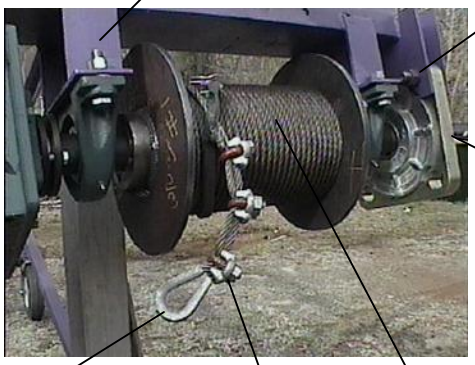
Monometer-Pt#208

Tire Assembly-Pt#207

Filter-Pt#209

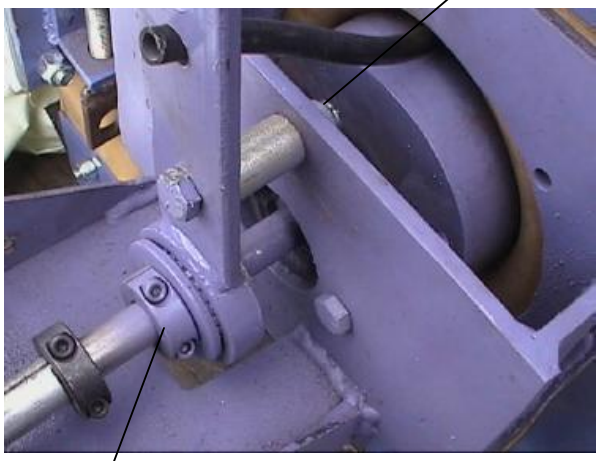
Hanger-Pt#210

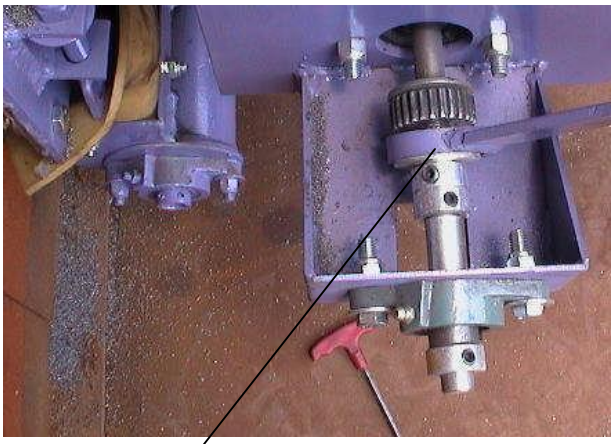
Parts List- Hoist System



Control Cage Adjustment

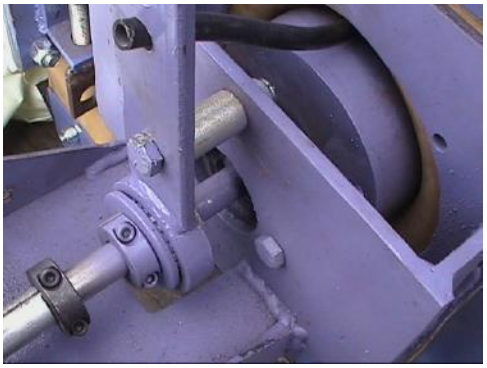
Remove lock nut and remove the bolt and spacer





Slide the locking arm off of the geared hub.

Loosen the collar and slide the collar and washer back away from the adjustment locking arm.



Rotate the arrow on the control cage to 3:00 (as shown) for vertical cleaning.
Rotate the arrow to 10:00 for horizontal cleaning.

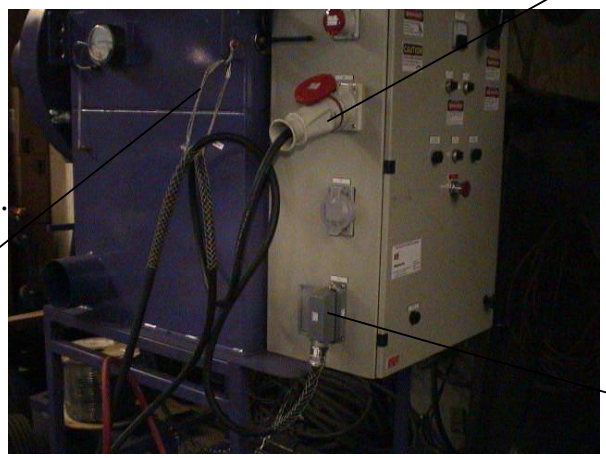
After making the changes slide the locking arm back in place and and Install the locking bolt, collar and washer.

Power Cable & Hose Connections

Floor Operation

Blast Wheel Power Cable

For floor operation connect the wiring harness from the blast machine (blast wheel power cable and the 20 pin power cable as shown).

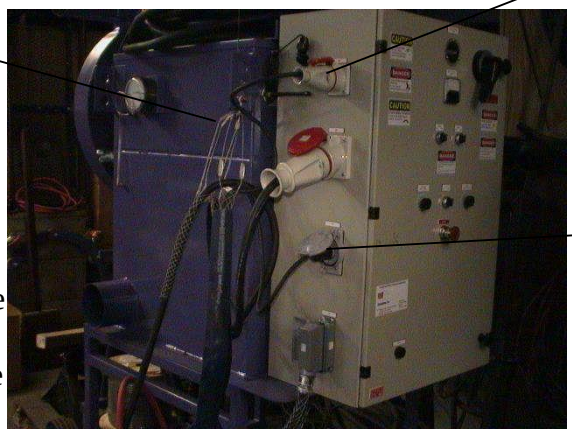


Caution- Be sure to anchor the support slings for each cable harness to the dust collector lifting eye with the shackle provided. This keeps the wires from being pulled loose from the plugs when the collector is moved.

20 Pin Power Cable

Vertical Operation

Hoist Power Cable

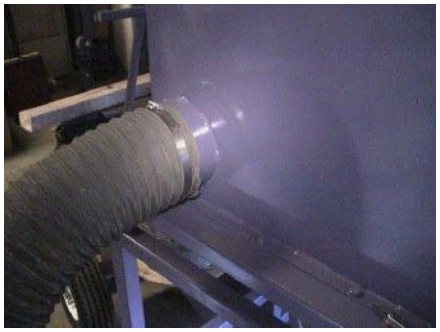


For wall operation connect the blast wheel power cable and the 20 pin power cable as in the floor application. Then connect the cables from the hoist wiring harness (the hoist power cable and the fixture drive power cable).

Fixture or Trolley Power Cable

Connect a ¾" air line with a Chicago fitting to the dust collector air fitting. The pulsing system will automatically keep the cartridge filters clean. A smaller air line can be adapted if required.

Power Cable & Hose Connections Continued



Connect the 6” exhaust hose to the machine and to the dust collector as shown.

An air hose is included in the machine wiring harness to provide air power for options we will offer in the future. The air disconnect on the dust collector is not used now , but will be used to connect the air line in the future.

Safety Labels

Caution- Make sure all safety labels are in place as shown below. Do not paint over labels. Replace labels that are torn or damaged in any way. Replacement labels will be provided free of charge. Call RBW Enterprises 770-251-8989.

Eye protection must be worn when operating or working around this machine

460 Volt

High Voltage lock out power Before servicing

A safety cable must be attached to this dust collector when used on tank roofs.

This machine must be effectively grounded for operator safety

RBW contact information

Check motor rotation machine will be damaged if rotation is incorrect

Lock out machine before servicing do not operate without guards in place

Lock out machine before servicing do not operate without guards in place

120 Volts

Safety Labels
Continued

Eye protection must be worn
when operating or working around
this machine

460 Volt

High Voltage
lock out power
Before servicing

A safety cable must be attached to this
machine when used on tank roofs.

Check motor rotation
machine will be damaged if
rotation is incorrect

Eye protection must be worn
when operating or working
Around this machine.

Moving machinery
this equipment operates from
remote control.

Lock out machine before servicing
do not operate without guards in place

Check rotation

Lock out machine before servicing
do not operate without guards in place

Safety Labels
Continued

Fixture

Lock out machine before servicing
do not operate without guards in place

Moving machinery
this equipment operates from
remote control.

Lock out machine when servicing
wear safety harness.

Dust Collector Inspection and Maintenance

Before beginning maintenance work all power sources (Electrical, Pneumatic, Mechanical) must be locked off, tied off or otherwise neutralized to be considered harmless. It is important that operators and maintenance personnel receive regular equipment safety training and have a thorough working knowledge of all electrical, pneumatic and mechanical aspects of this equipment and observe all warnings and precautions.

- Check the dust drum often - It must be replaced before it is full to avoid spilling dust. Use a hammer or heavy wrench to rap against the drum to find the dust level.

- The dust collector fan exhaust and the monometer reading should be monitored continuously during the cleaning operation. A loose or damaged filter can allow dust to bypass the filtering process and to be discharged to the atmosphere. Clogged filters can make the dust collector inefficient and cause the KleanRider to emit dust. Check the monometer gauge- If it is below 2"water gauge the filters are ok. Over 2"the filters may be clogged. Clean the filters by allowing the air pulse cleaning system to operate with the dust collector fan off for 10 minutes. Poor ventilation will also result in excessive loss of abrasive and can effect the cleaning quality. Proper ventilation is essential to good performance and environmentally safe operation.

- Make sure that the air pulse cleaning system is working properly. Make sure that the air compressor is supplying 80 psi air to the system. Check each goyen valve to assure that it is pulsing every 3 minutes. The blow down signal for each of the (3) Goyen Valves comes from the programmable controller in the dust collector panel. The program is set to pulse each valve sequentially. Pulse time is set for .01 second on and 3 minutes off. Each valve blows down (3) of the (9) filters every three minutes. If longer or shorter pulse times are required a program change is necessary- Contact the factory for program changes. If a valve is not operating, the valve may not be getting a signal from the control panel. Trace the wiring continuity from the valve to the control panel.

- Keep the dust collector out of the weather when not in use. During the cleaning project, cover the unit when not in use to protect it from rain. Make sure that the control panel door is tightly sealed at all times to keep out dust and moisture. **Caution- make sure that a drum is in place at all times**. If the drum is not in place, dust can escape and moisture can collect on the filters. **Filters must be kept dry for proper operation**.

- Replace filters every year. **Caution- When replacing filters or drums, wear dust protection equipment as required by federal, state and local codes.**

- Check the condition of power plugs, cables, connectors and support slings every day. **Caution- Replace or repair damaged plugs, cables, connectors and support slings immediately before operating the machine**.

KleanVac Dust Collector

- Check the pneumatic tires to make sure that they are fully inflated. **Caution- the dust collector is top heavy when the drum is empty. Tires must be fully inflated to safely move the unit.**

Monometer Panel

Automatic air Pulse Filter Cleaning

Control Panel

Torit Cartridge Filters
(9)UltraWeb Filters-Part# 1017

Paint & Dust Receptacle 55 Gal. Drum

Tire-(4) 14" pneumatic-Part# 1021

(2) Drum Ratchet- Part# 1022

Vacuum Hose - (2) 50' long 6" Diameter Exhaust Hose- Part# 1018
(1) Hose Coupling-Part# 1019
(4) 6" Hose Clamps- Part# 1020

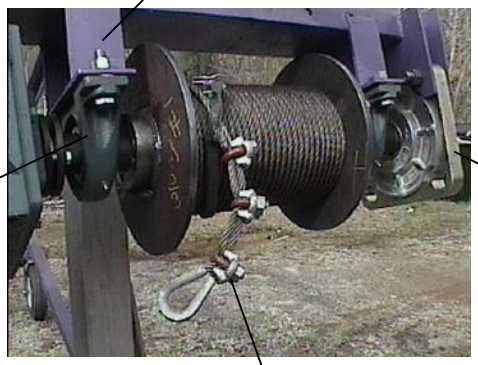
Hoist System
Inspection & Maintenance

Make sure all shackles are wire tied.
All shackles must be 5/8".
Check shackles daily.

Check gearbox oil level
every 12 months-level should be 6" from top of box or approx. center of shaft. (box must be level).
Holds 168 oz. –use Mobile SHC 634

Grease bearings every 6 months

Check bearing bolts before starting each project. Bearing bolts must be 5/8" Grade 5.



Lubricate bearings before every project.

Safety Brake
cover the brake when not in use to keep water, blast sand and dust from the unit. Dust and water can cause the brake to malfunction.

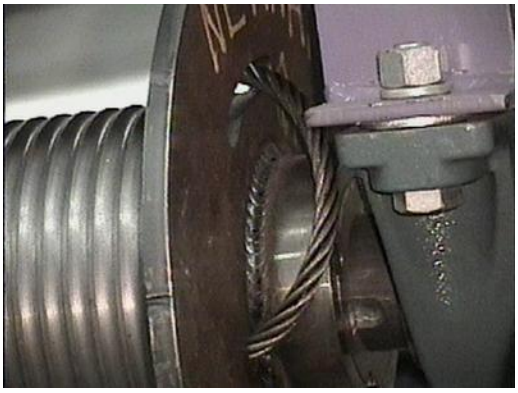
Make sure that at least three clamps are used on each cable and that the clamps are tight.
Check and or tighten cables daily.

Caution:

- **Check cables often. If cables become frayed they must be replaced.**
- **Cable must be hoist rated at 13,000 lbs.-Call RBW for replacement.**
- **Tighten clamps often- always use at least 3 clamps per cable.**
- **Keep the hoist covered when not in use. Protect the brake, drive and cables from dust and water damage.**

Cable Installation

Run the cable end through the slotted hole then through the hole in the side of the drum end wall. Run the cable back through the inside of the hoist drum.

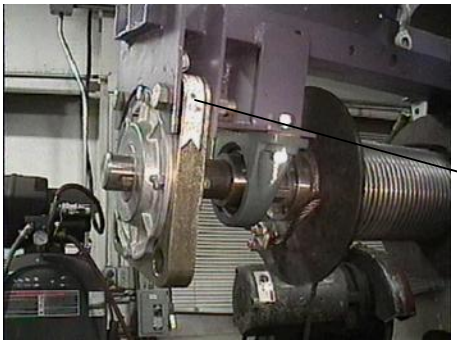


Pull the cable through the drum and out the Hole in the opposite side. Then clamp the Cable in the welded saddle as shown.

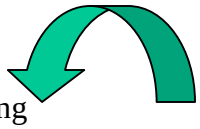
Caution:

- **Cable ends must be secured properly - When replacing cables call RBW for cable replacement specifications and special instruction.**

Safety Brake Instructions



Arrow must point in direction cable is hanging



Caution:

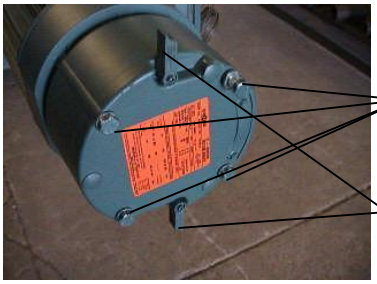
- **The brake is a critical safety component. If the Hoist drive should fail and the machine started to fall the centrifugal brake would stop the fall. To work properly it must be kept clean and free of water and dust. Keep the unit covered when not in use.**
- **If the unit jams for any reason or is tripped by a fall, it must be replaced. It is only good for one failure.**
- **The brake must be mounted so it will trip in the right direction. The arrow on the brake must be pointed in the direction the cable is hanging. Call RBW for special instructions.**
- **If the hoist fails and the safety brake engages, do not attempt to disengage the unit. Use a crane to remove the machine from the hoist cables and call RBW.**

Hoist Motor Brake Instructions

Problem
Brake is smoking or the hoist motor circuit overload kicks out repeatedly.

Solution
Brake disc is jammed with dirt or rust. Clean out the disc and housing. Follow instructions below.

1. Make sure the the machine is on the ground and the cables are disconnected from the machine.
2. Make sure that the power cable is unplugged at the dust collector.



3. Remove the 4 mounting bolts.

4. Open the brake release arms (this spreads the brake spring plates and allows the disc to turn freely.

5. Slip the brake assembly off of the motor shaft being careful not to pull on the brake electrical wires. Use bailing wire to support the brake so no stress will be put on the wires while you clean the brake.

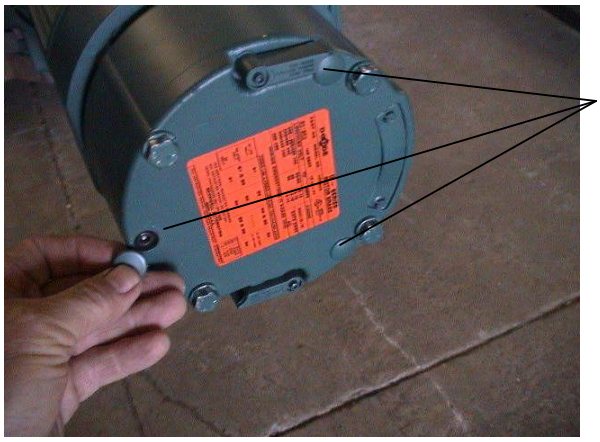
6. Try rotating the brake disc. Blow out any rust or sand lodged between the disc and the clamping plates. Work the disc back and forth until it turns freely. If the disc is still tight, the unit will have to be disassembled for further cleaning. Call RBW before attempting to disassemble the brake.

7. After the disc is cleaned, slide the assembly back onto the motor shaft and install the bolts.

8. Caution- make sure you engage the brake spring plates by closing the release arms.

Problem- Brake does not hold tightly or the machine does not stop immediately when being lowered or raised.

Solution- Adjust brake spring plates by following the procedures below:

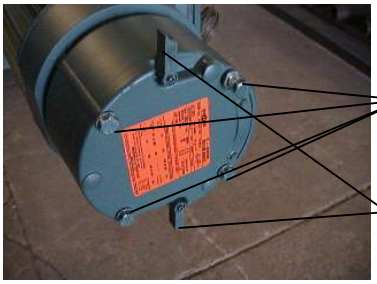


Remove the three plugs on the end of the brake. Tighten each of the three Allen head bolt ¼ turn and try the hoist again. Continue this procedure until the brake works properly.

Problem- The hoist failed and the safety brake engaged.

Solution- First get a crane and remove the machine from the hoist cables. The gear on the hoist motor shaft probably worked loose and came off of the shaft. The gear should be welded to the motor shaft. This procedure assures that the gear cannot work loose. This procedure should be made anytime a replacement motor is installed.

1. Make sure the the machine is on the ground and the cables are disconnected from the machine.
2. Make sure that the power cable is unplugged at the dust collector.



3. Remove the 4 mounting bolts.

4. Open the brake release arms (this spreads the brake spring plates and allows the disc to turn freely.

5. Slip the brake assembly off of the motor shaft being careful not to pull on the brake electrical wires. Use bailing wire to support the brake so no stress will be put on the wires while you clean the brake.

6. Slide the gear back on the shaft. Adjust the gear so the end of the shaft is back from the end of the gear about 3/16". This leaves a 3/16" ledge for welding.

7. Weld the gear to the motor shaft. Caution- the welding ground clamp should be attached to the gear. If the clamp is attached anywhere else the motor could be damaged. Weld all around the inside edge of the gear.

8. After the welding is completed, slide the assembly back onto the motor shaft and install the bolts.

8. Caution- make sure you engage the brake spring plates by closing the release arms.

Break Down to fit through man hole in tanks

Caution- Make sure that all power cables are unplugged from the dust collector so no power is connected to the machine.

Step 1

Remove drain hose.

Step 2

Unbolt the control panel.

Step 3

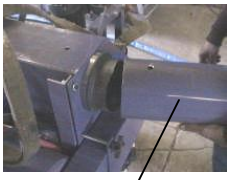
Lay the panel upside down on the machine.

Step 4

Place bolts back in tabs so they don't get lost.

Step 5

Remove exhaust tube locking pin.



Step 6

Step 7

Remove U bolt that clamps the wiring harness.

Step 8

Remove vent box

Step 9

Jack up rear end and place two 2x4s under the blast motor to hold the rear wheel up off of the floor.

Step 10

Remove two nuts holding rear drive in Place.

Step 11

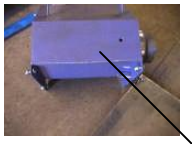
Unplug rear drive power cords.

Step 12

Remove rear drive

Step 13

Remove 4 bolts holding expansion hopper.



Step 14

Remove the hopper, the control panel and wiring harness.

Step 15

Remove the hopper mounting angle.

Step 16

Remove the control cage by Removing 4 nuts.

Step 17

Remove the 2x4s under the motor and tip the machine back so the front wheels can be removed.

Step 18

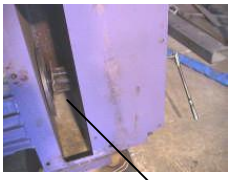
Remove the left wheel and unbolt the axle support bracket.

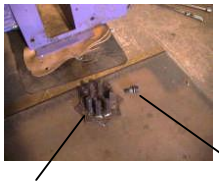
Step 19

Assemble all wheel parts so parts will not be lost.

Step 20

Mark each blade as shown so they can be replaced in the same order.This procedure keeps the wheel assembly in balance. Place a 2x4 under the blades so the assembly won't rotate and remove all 8 blades. Use a breaker bar and ¾" socket to loosen both bolts first, then use a ratchet to remove the bolts. Both bolts must be loosened first so you don't strip threads while removing the bolts.





Impeller Allen Bolt & Lock Washer

Step 21

Remove the impeller from the motor shaft by removing the Allen bolt with a 3/8" Allen socket and an extension bar.




Wheel Hub

Step 22

Try to pry the wheel hub of of the Motor shaft with a pry bar.

If the hub cannot be pried off, place two I/2"x3"long fully threaded bolts in two of the tapped blade holes. Run the bolts through the hub and against the cabinet wall. As the bolts are tightened against the wall, the hub will be pushed off of the shaft. On newer models, two extra tapped holes are located near the hub for this purpose. With this arrangement an extension and ratchet can be used through the cage opening.

Step 23

Remove the side plate by removing all bolts and the liner nut. Since the plate has been sealed with silicone, you will have to pry the plate off with a pry bar or screw driver.



Step 24

Tip the machine over on its side and remove the seal assembly. The seal is held in place with chains which allow the seal to float and flex. Remove the nuts holding the chains in place.






Step 25

Remove the bottom two ¾" nuts that hold the blast motor in place. Loosen the two top nuts, then tip the machine back upright and remove the top nuts. Place a 2x4 under the motor for support then work the motor off of the studs by hand or using a pry bar if necessary.

Place all parts into the tank and reassemble the unit.
See "Reassembly Procedure Inside The Tank".

Reassembly Procedure Inside The Tank





Step 1

Before installing the motor make sure that the shaft is clean and free of rust. Use emery cloth or sand paper to clean the shaft Apply a thin coating of grease or Sealeze on the shaft to aid in installation and future removal of the hub. With the blast cabinet upright, place a 2x4 under the blast motor and work the motor unto the motor studs. Make sure that the wiring receptacle is on the left side as shown. Place the top two nuts on the studs and tip the blast cabinet back on its front side so the motor is up. Place the bottom two nut on the studs and tighten all four nuts.



Step 2

Install the Seal Assembly. The seal opening frame must fit around and over the cabinet frame. Attach the chains at both ends of the seal as shown.

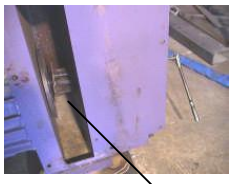

Step 3

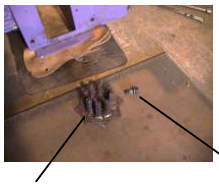
Apply a bead of silicone around the mounting surface for the side plate. Attach the side plate- Leave the liner On the back of the side plate slightly Loose to aid in positioning. Install And tighten all bolts including the liner nut.



Step 4

Make sure that the motor shaft is clean and that a thin coating of grease has been applied. Mark the location of the key slot on the hub. This helps to line the hub up with the motor shaft key. Make sure that the motor shaft key is in place on the shaft. Place the hub on the end of the motor shaft by lining up the key and key slot. Tap the hub on the shaft until it bottoms out using a 2x4 through the control cage opening.





Step 5 Impeller Allen Bolt & Lock Washer

Attach the impeller onto the motor shaft by installing the Allen bolt and lock washer with a 3/8" Allen socket and an extension bar as shown. Apply a drop of Locktite (removable type) on the bolt before installation.



Step 6

Install each marked blade in order, as shown, so the wheel will be balanced. Place a drop of Locktite (removable type) on each bolt. Place a 2x4 under the blades so the assembly won't rotate while tightening the bolts. Tighten all bolts With a ¾" socket and ratchet, then tighten each bolt with a breaker bar. Caution- make sure each blade bolt has been well tightened.




Step 7 Remove any 2x4s and tip the machine back on the blast motor and bolt on the axle support bracket. Attach the front wheel assembly.


Step 8

Replace the control cage and Attach and tighten the four ½"nuts.

Step 9

Attach the hopper mounting angle.



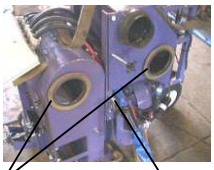

Step 10

Hang the control panel upside down on the machine as shown. Run the wiring harness down along the blast cabinet to the U bolt clamp and then attach the expansion hopper. Install all 4 bolts between the hopper and the support angles. Reattach the U bolt. Caution- the rubber strip must be wrapped around the blue wiring cover and the U bolt must be well tightened to keep the cable harness secure during operation.


Step 11

Place two 2x4s under the blast motor Attach the rear drive as shown. Tighten The two ½" nuts then remove the 2x4s.






Vent seals

Step 12

Reattach the vent box. Caution- make Sure that the vent seals are in place.


Rubber Seal

Step 13

Install the exhaust tube and locking pin. Caution- make sure that the rubber seal is in place and properly attached.


Step 14

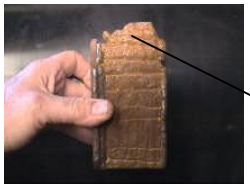
Attach the control panel to the hopper Tabs as shown.


Step 15

Reinstall the hopper drain hose.

Wheel Parts and Liner Inspection and Maintenance

Blast Wheel Blades



Wear begins on the tips of the blade. This blade was allowed to operate too long. The wear is too great to repair.

Check the tips of the blades for groves or notches after each cleaning project. When groves are over 1/8" deep they should be filled with hard face welding rod such a "Wearmax #7". Blade tips can be touched up without removing them, however, if welding is not permitted on the job site it is best to replace worn blades with a new set and then repair the worn set later. New blades come in matched sets that weigh the same. Matched sets must be installed opposite one another to keep the wheel assembly balanced. Repaired blades must also be weighed, marked, and separated into matched sets before installation.
Check bolt heads for wear. Replace any worn bolts. Use only ½"x ¾" L9 bolts.

To remove the blades wedge a 2x4 under the blades so the assembly won't rotate. Use a breaker bar and ¾" socket to loosen both bolts first, then use a ratchet to remove the bolts. Both bolts must be loosened first so you don't strip threads while removing the bolts. When installing a new set of blades place a drop of Locktite (removable type) on each bolt. Tighten all bolts with a ¾" socket and ratchet, then tighten each bolt with a breaker bar.
Caution- make sure each blade bolt has been well tightened.

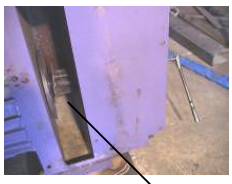
Control Cage

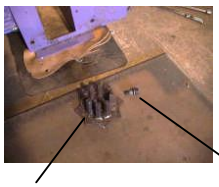
Leading edge

Remove the control cage assembly by removing 4 nuts as shown.

The end of the cage which is subject to wear is coated with hard face weld. Check this area for wear after 50 hours of use. Fill any grooves or notches in the leading edge of the control cage opening with hard face weld.

Impeller





Leading Edge

Impeller

Allen Bolt & Lock Washer

Inspect the impeller by removing the control cage assembly and looking through the opening with a flash light. The impeller should be inspected at 50 hour intervals and must be replaced if an ear is missing or if ears are worn.
Remove the impeller from the motor shaft by removing the Allen bolt with a 3/8"Allen socket and an extension bar as shown. The leading edge of each ear is coated with hard face weld. Fill in any grooves or notches with hard face weld. If the wear is too great replace the impeller. When installing a new impeller place a drop of Locktite (removable type) on the impeller bolt. Caution- make sure the lock washer is in place and the bolt is well tightened.

Common Liners

Top Curved Liner-Pt#224

Back Wall Liner-Pt#225

There are two liners in the machine that are used in the machine for both horizontal and vertical operation- the Top curved liner and the back wall liner. Inspect these liners for wear at 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.

Remove nut to remove the back wall liner

Remove nuts and washers to remove the top curved liner.

To remove the liners at least 3 wheel blades must be removed to allow clearance to get the liners out. Remove the back wall liner first by removing the nut and washer on the front of the blast cabinet. Then remove the top curved liner by removing the two nuts and washers on top of the blast cabinet. When replacing the liners make sure they are seated properly and are tightly secured.

Horizontal Mode Liners

Front Wall Liner-Pt#226

The liner for floor applications is mounted on the side cover plate. Remove the plate and inspect this liner, all blades, the top curved liner, and the back wall liner on 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.

Caution when installing the liner, make sure that the notch lines up with the drain hole in the plate.

Vertical Mode Liners

Remove Nut

Bottom Liner-Pt#227

Washer & Nut (not shown) hold the liner in place

Top End Liner-Pt#228

The bottom liner protects the area below the blast opening and can be removed by removing the nut located below the opening. The top end liner protects the area above the blast opening. This liner is removed when in the horizontal mode. Inspect the liners on 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.

The VersaBlast Cleaning System

Operation, Maintenance & Safety Manual

RBW Enterprises, Inc.
287 Millard Farmer Industrial Blvd.
Newnan, GA 30263

Phone: (770) 251-8989
Mobile: (770) 757-4944

Index

Hazardous Materials Safety Warning

Some surfaces may contain or be coated with Hazardous Materials. Typical examples of hazardous materials include coatings, which may contain LEAD or other toxic materials, and surface construction, which may contain Petroleum Products, Asbestos, Solvents, or other Harmful Chemicals.
During the normal operation of shot blasting equipment, surface material is removed and dust is created. When the surface material is contaminated, the dust may contain hazardous material.
It is probable that a small amount of dust will be released during the cleaning operation. If this dust contains hazardous material, there is a danger that exposure to this dust may pose a health risk. Before using the VersaBlast on any surface, the area must be inspected for possible contamination. Before beginning any project involving the removal of hazardous materials, it is the responsibility of the contractor to insure that the work site and equipment to be used have been inspected and the proper authorities have approved the proposed work. It is also the responsibility of the contractor to notify workers of any potential health risks and insure that workers are properly protected from exposure to hazardous materials. It is the contractor's responsibility to keep the VersaBlast Cleaning System in top running condition to minimize dust leakage.

All federal, state, local and plant codes and regulations must be followed when removing, handling, storing and disposing of hazardous materials.

Hazardous Products Safety Warning

The VersaBlast Cleaning System is designed to clean horizontal and vertical surfaces such as ship hulls, water tanks, oil tanks and bridges. It is the contractor's responsibility to verify the contents of the storage tank or ship hold being cleaned. Tanks or ship holds, which emit highly volatile fumes, should be emptied and the tank should be properly degassed before work proceeds.

The facility owner is responsible for making decisions as to what product fumes are considered volatile and the safety procedures to follow during the cleaning operation. If the product is flammable, the Safety Department should test the fume concentration and issue a hot work permit before work is started each day. This procedure should be followed even if the product has been removed.

It is the responsibility of the facility owner to advise the contractor when product is pumped into or out of the tank being cleaned. All operations should be shut down during the pumping process.

It is the responsibility of the contractor to review the above precautions with the facility owner and to follow the safety procedures.

FORWARD

RBW Enterprises is pleased that you have selected The VersaBlast Cleaning System for your surface preparation requirements. This self-contained surface preparation machine has been designed for abrasive blast cleaning of both horizontal and vertical surfaces.

This manual has been prepared to assist the owner and his operators and maintenance personnel in understanding the system, so it will be operated in a safe and efficient manner. It is essential; therefore, that all personnel responsible for the operation and maintenance of the machine study this manual.

Before attempting to operate or service the system, personnel should thoroughly familiarize themselves with each machine component and have a good understanding of its operation.

Operation and maintenance personnel must obey all warnings and safety precautions posted on the machine and stated throughout this manual. Serious injury or severe equipment damage may result if the warnings and precautions are not followed. No instructions, either written or verbal, can be totally effective without the use of sound judgment and good work practices. Owners should provide appropriate training and monitoring to assure that operating personnel follow good work practices.

A periodic review of the safety standards covered in this manual should be mandatory for all personnel involved in the operation and maintenance of the equipment. If you have any suggestions for improvements or additions to this manual, please call us. Changes, which occur after this manual is printed, will be made by distribution of revisions. The revisions, when received, should be inserted in the manual in accordance with instructions, which will be forwarded with them. The owner must advise his operators and maintenance personnel of all revisions.

This Operation, Maintenance, and Safety Manual should remain with the machine at all times and should be accessible to the operator for study and review.

This equipment should not be leased or loaned out to other contractors without providing a trained operator and the Operation, Maintenance, and Safety Manual.

No alterations should be made on the equipment without the written approval of RBW Enterprises. Unauthorized changes could affect or negate safety systems that are built into the equipment. Unauthorized changes can also adversely affect the efficiency of operation and create safety hazards.

Receipt of Machine-Examine the shipment carefully for possible damage in transit. If damage is noted, notify the transportation carrier immediately and advise RBW.

If you have any questions or problems in regard to the operation or capabilities of this equipment, please contact:

RBW Enterprises, Inc.
287 Mallard Farmer Industrial Blvd.
Newnan, GA 30263
Phone/ Fax (770) 251-8989 –Moble (770) 757-4944

System Description

(see photos The VersaBlast System-page 8)

The **VersaBlast** is the only blast cleaning machine that can clean both horizontal and vertical surfaces, such as floors, roofs, side walls of tanks and other structures.. The VersaBlast can be converted to either the vertical or horizontal cleaning mode in less than 1 hour and can be quickly disassembled to fit through a 24" diameter opening for the internal cleaning of tanks. Due to the compact design, the unit can clean close to obstructions and bottom sole plates of tanks. This unit can also be used high speed etching of concrete surfaces. The large 16" diameter centrifugal blast wheel is powered by a 30 hp-3600 rpm motor. The unit provides a 17" wide blast pattern on horizontal surfaces and a 18" wide pattern in the vertical mode. Production rates can reach 1000 sq. ft./ hr. on steel surfaces. Concrete surfaces are processed at much higher rates.

In the vertical mode, a **Hoist System**, mounted on a powered **Fixture** at the top of the structure being cleaned, raises and lowers the **Blast Module** as the module and fixture traverse horizontally. The system can provide Spot, Sweep, Commercial, Near White or White Metal finishes. The operator controls the machine movement, hoist operation, and blast functions from the hand-held **Wireless Remote Control**. The abrasive media is contained, circulated, and cleaned within the Blast Module. A vacuum hose automatically deposits the paint and dust in a 55 gallon drum, located below the portable **KleanVac Dust Collector** on the ground. When the drum is full, it is easily removed and capped for disposal. The total disposable waste, after cleaning a typical 100' diameter tank, would be 2 to 3 drums, depending on paint thickness. This cleaning system eliminates dust emissions and operator safety concerns associated with other cleaning methods. The high cost of blasting, clean-up and disposal is reduced to only a few cents per square foot.

General Component Description

Blast Module

The Blast Module contains one (1) 30 H.P. centrifugal abrasive throwing wheel, an abrasive circulation system and an air-wash separator. The separator cleans the abrasive and removes the paint and dust. The module also incorporates a flexible seal assembly that assures dust free contact with the surface. The Blast Module is protected internally with manganese steel and easily replaceable hard faced liners. The module is driven along the surface by a variable speed DC gear motor, which rotates two traction tires. All operation functions are controlled by a wireless remote control.

Dust Collector Cart

The lightweight Dust Collector Cart is usually positioned on the ground and in the center of the cleaning path. The operator can pull the unit around the tank as the cleaning progresses. The unit houses the main electrical control panel which feeds power to the VersaBlast module, winch and fixture drive. The dust collector incorporates cartridge filters and an automatic pulse type cleaning system. A 2 CFM, 80 PSI air source is required to provide air for the pulse cleaning the filters. An air cooling system and water filter is provided to remove water from the compressed air.

Winch System

The Winch System includes two cable drums and a drive arrangement which raises and lowers the VersaBlast Module assembly. The cable drums are grooved to assure proper tracking of the cable. Two one hundred foot (100') cables are provided. The winch system operates at a speed of 20 ft. / minute. The winch assembly is mounted to a driven support fixture, which pivots from the center of the tank and moves horizontally in sync with the Blast Module.

Additional Items Supplied with Equipment

All electrical wiring between the control panel and the machine components (100')
Air line between the control panel and the machine components (100')
Power Cable from power source to control panel (200')
Vacuum Duct from dust collector to Blast Module (100')
Field Training (Operation, Safety, Maintenance)
Operation, Maintenance and Safety Manual

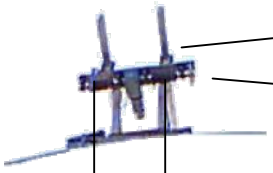
Fixtures

Our **Tank Fixtures** include component parts which bolt together to make equipment supports for cone roof and floating roof tanks. The floating roof fixture rides on the wind girder and is adjustable to cover the majority of girder configurations. Fixtures are also available for internal cleaning. Most of the fixture components and fabrications are made of aluminum to minimize weight. The fixtures are powered and are operated from the hand held remote control on the ground (See The VersaBlast System- page 8 for various fixtures).

Our **Ship Fixture Kit** includes a Trolley Drive System and drawings for the fabrication of two adjustable support stands and a 40' long I- beam. The support stand and I- beam assembly is self supporting from the ship deck. Quick latch safety cables are easily attached to existing structures on the deck. The beam assembly allows 35' of surface to be cleaned. The VersaBlast Winch and Trolley arrangement is pulled along the beam by a drive system which is operated from the remote control. The beam assembly and cleaning system are periodically moved along the deck by crane. (see The VersaBlast System- page 8)

The VersaBlast System

VersaBlast Vertical Cleaning Mode



Powered Fixture
0 to 30'/Min. Travel Speed

Hoist System
20'/ Min. Travel Speed

Hoist Cables (100')

Blast Module
30 HP Blast Wheel
20" Wide Blast Pattern

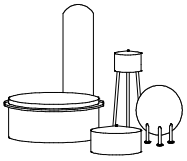
Vacuum Hose (100')

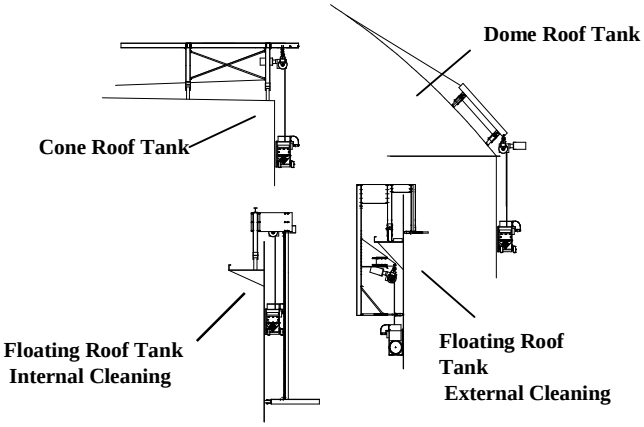
KleanVac Dust Collector
9 Torit Cartridge Filters
Automatic Air Pulse System
Air Dryer System
Blast System Control Panel
Deposits Paint and Dust into 55 Gal. drums

Hand Held Remote Control
Operates all Functions
Wireless Operation

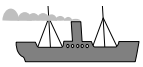
VersaBlast Horizontal Cleaning Mode

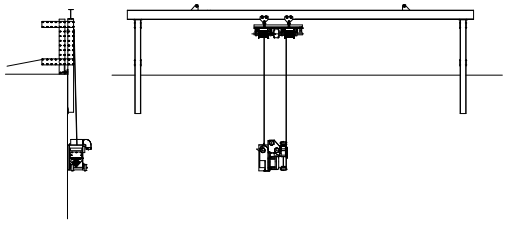
Tank Fixtures





Ship Fixture





Weights & Measures

- **BBlast Module -** 850#
  (26" wide x 48" long x 45" tall)

Hoist System - 600#
(67" long x 36" deep x 18" high)

Dust Collector - 800#
(45" wide x 67" long x 80" high)

Electrical Requirements

460 v. / 60 hz. / 3 phase
60 amp. - Total Running Load

Operation Requirements

1. 460 volt, 3 phase, 60 cycle, 60 amp. electrical service. A 75KW generator should be used. **A large amperage spike is generated when starting the blast wheel motor- A (75 KW minimum) generator is required to provide the starting current. Starter and motor damage may result if a smaller generator is used.**

2. Grounding rod for generator. **The generator must be properly grounded. Consult the generator operators manual for grounding instructions.**

3. 5 CFM @ 80 PSI air supply.

4. Personnel who are trained by an RBW Enterprises field technician for the operation and service of KleanClimber equipment.

5. All necessary blasting media. **Use only quality steel shot (S-230 to S- 390) and steel grit (G-25 to G-16). Other abrasives may cause extreme wear and machine damage. Do not use hard grit-GH or GL.**

6. **Observance of all equipment safety labels and precautions expressed in this manual.**

7. **Compliance with all Federal, State and local codes and regulations.**

8. Scheduled maintenance and repair as described in this manual or by RBW Enterprises Field Technician.

9. An inventory of "wearable parts" as outlined in this manual. See Recommended Spare Parts-page .

10. 55 gal. dust barrels with lids for dust collection refuse.

11. **All tools and accessories as listed under Tools and Safety Equipment in this manual.**

12**. All safety equipment, monitoring devices, personnel training and documentation as required by Federal, State and Local Codes and regulations.**

13. Continued employee training to assure that all operators have read and understand the Operation, Maintenance, and Safety Manual. This includes any and all updated information and revisions.

Tools and Safety Equipment

The following equipment is essential to safe operation and should be on the job site before set-up is started:

Boom truck or crane- Equipment should be capable of lifting 2,000 Lbs. to a height well above the top of the tank or ship being cleaned. (Heaviest lift, the Fixture and Hoist, is 1500 lbs.)Hook should have safety latch.

Slings or lifting cables- Slings should be in good condition and certified for loads well above weight being lifted. Slings should be long enough to assure that a proper lift angle vs. load rating ratio is maintained. (2 required)

5/8" Shackles To attach slings or lifting cables to pick up points (2 required).

Tie down straps, chocks- Equipment necessary for safe transport of system components.

Tarps or Ground Covers- 10' x 70' long to catch abrasive leakage

Hand tools: - Equipment required to maintain system components

Open End Wrenches- (2) 7/16", (2) ½", (2) 9/16", (2) ¾",(2)15/16",(1) 1 1/16",(1) 1 1/8"

Allen Wrenches- (1) 3/8", 3/16", 1/8"

Screw Drivers - (1) large Straight, (1) Small Straight, (1) Miniature Straight, (1) large Philips, (1) Small Philips

Pry Bar, Hammer, Push Broom, Flat Shovel

¾" Air Line - Air supply from air compressor to Dust Collector

Fixture Cable & Clamps - (3/8" cable)

Plastic Buckets & Scoop - For general abrasive handling

55 gal. Drums - For dust disposal

Abrasive Media - Steel shot and/ or steel grit

Weather covers - For VersaBlast, Dust Collector, and winch

Brooms & Buckets - For sweeping up abrasive after cleaning tank roofs & floors

ABC Fire extinguisher - General purpose for all types of fires

Multimeter - For Electrical Trouble Shooting

General Safety Equipment :

First Aid Kit	Safety Glasses	Steel Toed Shoes
Hard Hats	Danger Barrier Ribbon	Gloves

Equipment required by OSHA, EPA & other Federal, State, Local and plant codes.

Utilities - 460 V. 60 HZ. 3 Phase Current (100 AMP Breaker) or 75KW generator

- 5 CFM, 80 PSI. air supply

NOTE: The 30 HP. Wheel motor pulls high initial starting amperage. Use 75 KW generator or larger.

Safety Instructions

This Operator's Manual has been specifically prepared for operating and maintenance personnel working with the VersaBlast Cleaning System. The information in this manual is intended to provide an understanding of the equipment for safer operation and maintenance procedures. Maintenance and operating personnel must read and have a thorough understanding of the contents of this manual. It is extremely important that operators and maintenance personnel observe all warnings and precautions covered in this manual, the safety and warning labels posted on the machine, and the safety program established by your management.

No instructions, written or verbal, can be effective without the use of sound judgment and good work practices in the operation and maintenance of the equipment. Listed below are practices that should always be observed.

1. If irregular or hazardous behavior of the machine occurs during blasting, immediately depress the E-Stop button on the remote control and than the main disconnect switch on the main control panel on the dust collector.

2. Before operating, make certain that the machine can clear or travel around all obstructions in the work area. The work areas must be dry and cleaned of any loose debris at the start of cleaning.

3. All guards must be in place during operation. The main power must be locked out Before removing guards or performing maintenance on the machine.

4. All personnel in the immediate area of the machine must wear safety glasses with side shields whenever the machine is operating. Also, protective clothing is recommended for the operator. Never wear loose clothing when working around blast equipment. Hard hats, long-sleeve shirts, gloves and safety shoes are recommended.

5. Since abrasive impacts the work surface at high velocity, leaking abrasive can sting if it contacts unprotected skin areas. The blast module must be sealed to the work surface during operation to prevent possible injury from flying abrasive. Review the seal adjustment procedures.

6. Do not lease or loan the machine to others without providing a trained operator and The Operation, Maintenance and Safety Manual.

7. Before performing maintenance of VersaBlast equipment, a **Zero Mechanical**

State (ZMS) must be achieved in which:

a. All power source that can produce mechanical movement has been locked off.

b. The mechanical potential energy in all portions of the machine must be at their lowest practical values.

c. The kinetic energy of the machine members must be at the lowest practical values. Loose or freely movable machine members and parts must be secured against accidental movement.

EXAMPLE :

A rotating part, such as an airless blast wheel, will continue to rotate for a period of time after the electrical power has been shut off.

8. The machine and areas around the machine must be kept clean as loose shot can make surfaces slippery and dangerous.. All leaks in the blast module, seal housing and the abrasive recycling system should be repaired immediately.

9. A safety harness **MUST** be worn when operating the machine or checking fixture operation on the roof of tanks.

10. Any condition(s) that may result in further damage to the machine or cause injury to personnel, should be repaired **immediately.**

11. Do not attempt to service or adjust machine components while any part of the machine is in operation. Always lock out the power supply and the control panel disconnect switch before making adjustments or conducting maintenance.

12. Obey all safety signs and other precaution information posted on the machine and in the areas where the machine is operated. Replace any damaged or missing safety labels.

13. **Do not operate VersaBlast machinery in the presence of rain or heavy moisture. Do not expose the abrasive supply to water or heavy moisture.**

14. Always cover the Blast Module and Dust Collector and Winch after work is completed each day. If rain is expected, it is a good idea to drain the abrasive out of the machine.

15. Do not operate the machine with the electrical panel door open. A door interlock prevents the door from opening unless the main disconnect switch or circuit breaker is off. The disconnect switch should not be turned on by over riding or bypassing the door interlock.

16. **Never use a power source other than 460v/60 cycle/3 phase current. Never apply an auxiliary power source to the 120v. machine circuit – the Source could produce dangerous currents back through the 460v to 110v transformer and cause injury or death**.

17. Never use oversize fuses or circuit breakers. Never bypass any fuse or circuit breaker. Always refer to the electrical drawings provided for proper fuse sizes.

18. Use overload coils/relays for the motor starter(s) that are rated for the amperage of the motor(s) as shown on the motor nameplate.

19. Disconnect all power sources before attempting maintenance or repair of electrical motors on the equipment.

20. Avoid contact with rotating parts of the motors, drives or driven components.

21. Before starting the motor(s), check that the correct power supply (voltage, frequency and phase) is being used and that the motor(s) are connected per the connection diagram. Check the motor(s) for the correct rotation. Sustained improper rotation of motors will cause damage to the machine components.Low voltage will damage electrical components.

22. All abrasive blast equipment must be properly ventilated to be environmentally safe. Proper ventilation benefits the operator, the machine efficiency, and minimizes wear and maintenance. Filters must be kept clean and dry. It is important that the dust drum be replaced before it becomes full. The drum should be immediately capped, sealed and stored away from the equipment operation. Dust can be easily ignited when stored in an open condition. Capping and sealing the drum will eliminate the risk of spillage and minimize the risk of fire or explosion.

23. When transporting the equipment from job site to job site, special care must be taken in securing the equipment to the deck of the transportation vehicle. Both wheel chalks and tie down straps should be used.

24. All hose section ends, dust collector inlet and the blast module outlet should be covered to eliminate dust leakage while transporting the equipment.

25. The main power supply cable and the power cable harnesses, which run from the Dust Collector to the VersaBlast Module, carry 460 Volt 3 Phase current. Extreme caution must be taken in protecting the cables from damage. **FAILURE TO DO SO, CAN RESULT IN INJURY OR DEATH.**

26. When standing water exists, plans should be made to keep equipment and power cables dry.

27. All personnel should keep clear of overhead equipment during the setup, operation and breakdown procedures. Erect a danger barrier around the operation.

28. If a coating is to be removed from the surface, samples from various areas should be tested to determine if hazardous materials exist. If hazardous materials are present, all federal, state, and local requirements must be incorporated in the operation procedure.

29 All federal, state, local and plant codes and regulations must be followed when removing, handling, storing and disposing of hazardous materials.

30. The Operation, Maintenance, and Safety Manual should remain with the machine at all times and should be protected from damage and accessible to the operator for study and review.

31. This equipment should not be leased or loaned out to other contractors without providing a trained operator and the Operation, Maintenance, and Safety Manual.

32. No alterations should be made on the equipment without the written approval of RBW Enterprises. Unauthorized changes could affect or negate safety systems that are built into the equipment. Unauthorized changes can also adversely affect the efficiency of operation and create safety hazards.

33. When power cables are run through portholes or over roof ledges, the cable should be wrapped with rubber to minimize wear from the opening or ledge. When standing water exists, plans should be made to keep equipment and power cables dry.

34. All shackles should be 5/8" with a 3 1/2 ton rating. All cables are to be attached using three cable clamps. Clamps must be 3/8" and mounted per specifications.

35. If the stand pipe used to secure the fixture support cable has no flange, a safety device should be incorporated to assure that the cable cannot slide up and off the pipe. Make sure that stand pipes and all tie points, used in securing the safety cable, are structurally sound and capable of supporting heavy loads.

36. Extreme caution must be used in attaching cables to fixtures and center hub systems:
Use 3/8" stranded steel cable with load rating of 12,000# or greater.
Use 5/8" shackles where cables can be damaged by sharp edges.
Use at least (3) 3/8" cable clamps at all connections.
Attach cable clamps as shown in the manual. Check all cable attachment points before starting work at each shift. Wire tie shackle bolts to prevent rotation.

37. Extreme care must be taken when lifting the VersaBlast or Dust Collector. Position lifting straps so the unit is level. Straps must be certified for the load, in good condition, and secured in accordance with good safety procedures.

38. Make sure that the path is clear for the hoses and electrical cable when operating the machine. Know in advance where vents or obstructions are that could interfere with the cables. Additional personnel should be assigned to watch the cables and hoses when obstructions are present.

39. The 30 HP blast wheel motor pulls high amperage when starting. The power source must be capable of supplying continuous 60 amp 460 v. 3 phase current. A 75 kilowatt generator is recommended due to the large starting current. The power source must have ground fault protection and be properly grounded.

40. The electric power generator must be properly grounded. Consult the generator's operation manual for grounding instructions.

41. When the machine is temporarily idle, de-energize the remote control by pressing the E-Stop button. If a button is accidentally activated, nothing will happen. To reactivate the remote control, press and hold the reset button on the main panel.

42. When cleaning roofs of tanks, make sure that the safety cable is attached to the center stand-pipe and to the blast module. The cable length must be set so the unit cannot roll off of the roof.

43. When the dust collector is placed on the roof, it must be tied down securely to the center stand pipe, hand railing or other structure.

44. Caution- The dust collector is top heavy . The dust collector should not be rolled down inclines such as ramps or hills, or over pot holes which might cause the equipment to tip over.

Job Site Set-Up

Transporting Equipment

When transporting the equipment from job site to job site, special care must be taken in securing the units to the deck of the transportation vehicle. Both wheel chalks and tie down straps should be used. When securing the components to a transportation vehicle deck, the blast module and dust collector should be strapped from the top as well as from the support base. Each component has designated lift points. These lift points should be used in conjunction with overhead cranes, hoists, or fork lifts, which are the best methods in loading and unloading the equipment (see Lift Points page 60). Caution- The dust collector is top heavy . The dust collector should not be rolled down inclines such as ramps or hills, or over pot holes which might cause the equipment to tip over.
Should it be necessary to use a trailer ramp, the ramp extensions should be long enough to minimize the incline angle. The flexible duct hoses should be emptied of all residual dust before leaving the job site. **All hose section ends, dust collector inlet and the blast module outlet should be capped before transporting the equipment. A clean dust drum should be in place and secured before transporting the equipment.** This procedure eliminates the possibility of dust spillage during transportation. **Electrical cables and control devices should be protected from load shifts or constant rubbing from vibration of movement.**

Site Preparation

Any supplies, equipment, or debris that interferes with the movement of the Dust Collector Cart, electrical supply cables or dust hoses, should be removed. A plan for safely negotiating around obstructions on the surface to be cleaned should be established in advance. Personnel, in addition to the operator, should be assigned to watch the power cables and hoses when negotiating around protrusions or obstructions. **The main power supply cable and the power cable, which connects the Dust Collector to the Blast Module and hoist, carry 460 Volt 3 Phase current. Extreme caution must be taken in protecting the cables from damage. FAILURE TO DO SO, CAN RESULT IN INJURY OR DEATH.** A cable can be stressed or broken if it hangs up on protrusions or obstacles as the Blast Module travels along the surface. If other equipment is driven across or set on top of the cables, damage may occur. Keep cables clear and protected. **When power cables are run through portholes or over roof ledges, the cable should be wrapped with rubber to minimize wear from the opening or ledge**. **When standing water exists, plans should be made to keep equipment and power cables dry.** Advise other contractors to keep clear of the operating area. All personnel should keep clear of overhead equipment during the setup, operation and breakdown procedures. Erect a danger barrier around the operation.
If a coating is to be removed from the surface, samples from various areas should be tested to determine if hazardous materials exist. **If hazardous materials are present all Federal, state, and local requirements must be incorporated in the operation procedure.**

Machine Setup
Cone Roof Tank Walls

First make sure that all components required for operation are on the job site.(See Component Check List-page 59).

Make sure that the cone roof fixture is assembled properly and that the 150' long fixture support cable is rolled up and securely mounted to the fixture. Check the winch mounting and make sure that the shackles are tight and wire tied so they cannot back out (see Cone Roof Fixture Assembly-page 30-31). Make sure that the VersaBlast is assembled in the vertical cleaning mode (see Vertical Mode Conversion-page 50-55).

Determine where you want to start cleaning on the tank. It is usually best to start cleaning from the stairway platform, moving around the tank and finishing up above the stairs. Areas below the stair treads cannot be cleaned by the VersaBlast. Select a 70' wide section to clean and position the VersaBlast on the ground close to the tank and at the mid point of the cleaning area.

A boom truck is required to place the fixture on the roof and is also utilized to set the dust collector and blast machine in place on the ground. Make sure that the crane is capable of lifting 2500# and that the boom reach is long enough to set the fixture on top of the roof near the edge of the tank. The lifting strap lengths must be considered when determining the boom height capabilities.

Step 1. Lift the fixture into position on the roof of the tank. Use two lifting straps located as shown (see Lifting Points-page 60). Caution- Straps must be rated and certified to carry the load. Place the front tires of the fixture about 6" from the edge of the roof. Square the fixture so the back end of the unit is pointed toward the center of the tank. **Caution**- Connect the fixture support cable to the center stand-pipe before the boom truck lifting straps are disconnected (see Fixture Setup-page 32-34).

Step 2. Using the boom truck, place the Dust Collector on the ground below the fixture about 10 to15' out from the tank. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60).

Step 3. Lift the VersaBlast from the transport vehicle with the boom truck. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60). Place the VersaBlast on the ground directly below the fixture within a foot or two of the tank wall with the seals facing the tank. The VersaBlast is self supporting when sitting on level ground. If necessary place blocks under the machine base to provide a level surface.

Step 4. Connect the 100' long, 6" diameter exhaust hose between the dust collector and the KleanClimber with hose clamps provided (see Power Cable & Hose Connections- page 71-72). **Caution**- The exhaust hose inter surface must be smooth to minimize pressure loss and optimize the efficiency of the machine- do not substitute hoses. Do not exceed 150' of exhaust hose. **Caution**- Streach the hose out before making the connection. Make

sure that there are no kinks or loops in the hose. Kinks and loops cause pressure loss and lower the efficiency of the dust collection system.

Step 5. Connect the the VersaBlast power cable wiring harness to the control panel on the dust collector (see Power Cable & Hose Connections-page 71-72). **Caution- the strain relief straps must be connected to keep the wires from being pulled loose from the plugs. Make sure there is plenty of slack between the strain relief and the plugs.**

Step 6. Do not connect the air line in the wiring harness. The air line is provided for future options which may be operated by air..

Step 7. Connect the 100' power cable harness from the Fixture to the control panel on the dust collector. Make sure to attach the strain relief (see Power Cable & Hose Connections-page 71-72).

Step 8. Connect the 200' main power cable from the dust collector to the generator or power source. **Caution- the power source must be 460V/3 Phase/ 60 Hz and capable of handling 60 amp. running load and starting a 30 HP motor. If a generator is used, 75 KW minimum is recommended. The power source must be properly grounded- follow the generator manufacturer and local code requirements for grounding**. **Power connections, cable splicing etc. should be made by an authorized electrician. The power cable must be protected from sharp edges where it drapes over the roof or around protrusions. Wrap the cable with a rubber protector at all points where the cable is subjected to sharp objects.**
Connect the red, white, and black wires to L1, L2, and L3 terminals at the generator. Connect the green wire to the neutral terminal or ground. Replace all safety covers over the generator terminal box.

Step 9. Before starting the generator, make sure the generator circuit breaker is off and that the disconnect switch at the dust collector is turned off (see Control Panels Operation- page 56-58).

Step 10. Start the generator and make sure that the power gages are on 460 to 480Volts and 60 Hz. **Caution- if the voltage is incorrect the equipment electrical system can be damaged**.

Step 11. Check for proper motor rotation. Turn on the circuit breaker at the generator or power source. Turn on the main disconnect switch at the dust collector control panel. Turn the exhaust fan switch on then off. If the fan doesn't come on, your machine may have the new Phase Monitor installed. The phase monitor is a square yellow module located in the main control panel. The monitor makes sure that the phase is correct so all motors turn in the proper rotation. If the phase is incorrect the red light on the monitor will be on when the power is on. If the green light is on the phase connections are ok. The fan on the dust collector should start and coast to a stop as you check to make sure that the fan is rotating in the proper direction. The fan should rotate clockwise when looking at the end of the motor.

If the exhaust fan is running in the proper direction, all outer motors will run in the right direction. If the fan is running backward or if the phase monitor won't allow the fan to start, shut off the main disconnect switch at the dust collector and the circuit breaker at the generator and shut down the generator. Swap any two wires going to L1, L2 or L3 terminals at the generator. This will reverse the rotation. Start the generator and test again for proper rotation.

Step 12. Charge the machine with abrasive. Pour (4) 50 lb. bags of abrasive into the shot adding chute located on the front of the machine**. Caution**- the rubber flap that covers the chute must be closed for operation. **Caution**- use only quality steel shot or grit in the machine. Use only G type grit shot-**Do not use hard grit (GH or GL)**

Step 13. Make sure that all personnel is wearing safety glasses with side shields and that the work area is in compliance with all Federal, State, Local, and Plant safety regulations.

Step 14. Make sure that the switches on the main control panel are in the proper position. The e-stop switch is pulled out, the mode selector switch is in the vertical position and the operation switch is in remote position.

Step 15. Turn on the main disconnect switch on the electrical panel.

Step 16. Lower the hoist cables using the hoist down switch on the remote control.

Step 17. Connect the cables to the VersaBlast using 5/8" shackles provided.

Step 18. Make sure that each cable is secured with (three) 3/8" cable clamps. Tighten each clamp.

Step 19. Lift the VersaBlast off the ground and onto the tank wall using the hoist up switch on the remote control. Adjust the seal and magnet relation to the tank wall by adjusting the turnbuckle.

Step 20. Check out all machine functions (see Machine Startup Procedure- page 27).

Note: For instructions on setting up special fixtures for floating roof tanks, dome roof tanks, and knuckle roofs Call RBW Enterprises- (770) 251-8989.

Machine Setup
Tank Roofs

First make sure that the VersaBlast is assembled in the horizontal cleaning mode (see Horizontal Mode Conversion – page 45-49).

Make sure that all components required for operation are on the job site.(See Component Check List-page 59).

A boom truck is required to place the dust collector and blast machine on the roof. Make sure that the crane is capable of lifting 2500# and that the boom reach is long enough to set the dust collector on the roof and away from the edge of the tank. The lifting strap lengths must be considered when determining the boom height capabilities.

Step 1. Lift the dust collector onto the roof of the tank. Use two lifting straps located as shown (see Lifting Points-page 60). Caution- Straps must be rated and certified to carry the load. Place the collector as far onto the roof and away from the edge as possible. **Caution**- the dust collector is free rolling- have at least three men on the roof to hold the collector and to remove the hoist straps. Pull the collector up to the center of the tank and tie it off securely to the center stand pipe.

Step 2. Lift the VersaBlast up to the roof with the boom truck. **Caution**- Connect straps at the proper pickup points with 5/8" shackles (see Lifting Points-page 60). Place the VersaBlast as far onto the roof and away from the edge as possible. The VersaBlast will stay in place and will not move without power.

Step 3. Lift the 100' exhaust hose, abrasive, brooms and buckets to the roof before dismissing the boom truck.

Step 4. Connect the 100' long, 6" diameter exhaust hose between the dust collector and the KleanClimber with hose clamps provided (see Power Cable & Hose Connections- page 71-72). **Caution**- the exhaust hose inter surface must be smooth to minimize pressure loss and optimize the efficiency of the machine- do not substitute hoses. Do not exceed 150' of exhaust hose. **Caution**- stretch the hose out before making the connections. Make sure that there are no kinks or loops in the hose. Kinks and loops cause pressure loss and lower the efficiency of the dust collection system.

Step 5. Connect the the VersaBlast power cable wiring harness to the control panel on the dust collector (see Power Cable & Hose Connections-page 71-72). **Caution- the strain relief straps must be connected to keep the wires from being pulled loose from the plugs. Make sure there is plenty of slack between the strain relief and the plugs.**

Step 6. Do not connect the air line in the wiring harness. The air line is provided for future options which may be operated by air..

Step 7. Connect the 200' main power cable from the dust collector to the generator or power source. **Caution- the power source must be 460V/3 Phase/ 60 Hz and capable of handling 60 amp. running load and starting a 30 HP motor. If a generator is used, 75 KW minimum is recommended. The power source must be properly grounded- follow the generator manufacturer and local code requirements for grounding**. **Power connections, cable splicing etc. should be made by an authorized electrician. The power cable must be protected from sharp edges where it drapes over the roof or around protrusions. Wrap the cable with a rubber protector at all points where the cable is subjected to sharp objects.**
Connect the red, white, and black wires to L1, L2, and L3 terminals at the generator. Connect the green wire to the neutral terminal or ground. Replace all safety covers over the generator terminal box.

Step 8. Before starting the generator, make sure the generator circuit breaker is off and that the disconnect switch at the dust collector is turned off (see Control Panels Operation- page 56-58).

Step 9. Start the generator and make sure that the power gages are on 460 to 480Volts and 60 Hz. **Caution- if the voltage is incorrect the equipment electrical system can be damaged**.

Step 10. Check for proper motor rotation. Turn on the circuit breaker at the generator or power source. Turn on the main disconnect switch at the dust collector control panel. Turn the exhaust fan switch on then off. If the fan doesn't come on, your machine may have the new Phase Monitor installed. The phase monitor is a square yellow module located in the main control panel. The monitor makes sure that the phase is correct so all motors turn in the proper rotation. If the phase is incorrect the red light on the monitor will be on when the power is on. If the green light is on the phase connections are ok. The fan on the dust collector should start and coast to a stop as you check to make sure that the fan is rotating in the proper direction. The fan should rotate clockwise when looking at the end of the motor. If the exhaust fan is running in the proper direction, all outer motors will run in the right direction. If the fan is running backward or if the phase monitor won't allow the fan to start, shut off the main disconnect switch at the dust collector and the circuit breaker at the generator and shut down the generator. Swap any two wires going to L1, L2 or L3 terminals at the generator. This will reverse the rotation. Start the generator and test again for proper rotation.

Step 11. Charge the machine with abrasive. Pour (4) 50 lb. bags of abrasive into the shot adding chute located on the front of the machine**. Caution**- the rubber flap that covers the chute must be closed for operation. **Caution**- use only quality steel shot or grit in the machine. Use only G type grit shot-**Do not use hard grit (GH or GL)**

Step 12. Make sure that all personnel is wearing safety glasses with side shields and that the work area is in compliance with all Federal, State, Local, and Plant safety regulations.

Step 13. Make sure that the switches on the main control panel are in the proper position. The e-stop switch is pulled out, the mode selector switch is in the horizontal position and the operation switch is in the remote position.

Step 14. **Caution**-connect a 3/8" safety cable between the machine and the center stand pipe. Measure the distance from the center to the edge of the tank and adjust the cable so the machine could not run out beyond the edge of the tank.

Step 15. Check out all machine functions (see Machine Startup Procedure- page 24-26).

Machine Setup

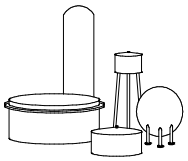
Special Applications

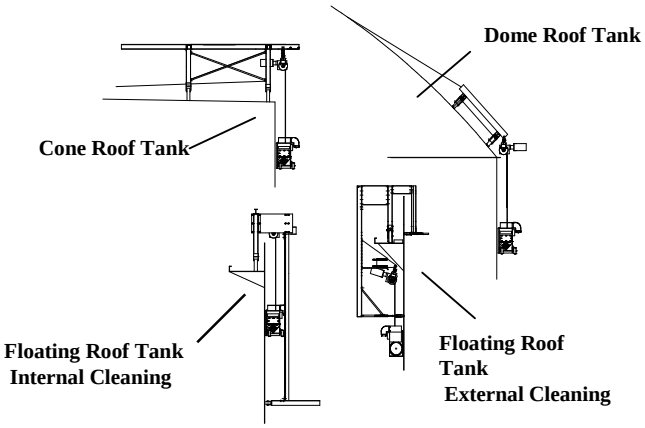
Setup Procedures vary on different types of tanks. Fixtures are available for , floating roof tanks where the fixture rides on the wind girder, dome roof tanks, internal wall cleaning where a trolley drive and I-beam is used, ship hull cleaning, etc.

If you have a special application, call RBW Enterprises. We will provide the proper fixture system and the proper setup instructions for the application.

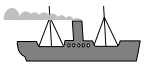
Caution- do not attempt to hang the VersaBlast machine on unauthorized fixtures. Fixtures must be approved by RBW Enterprises. 770-251-8989.

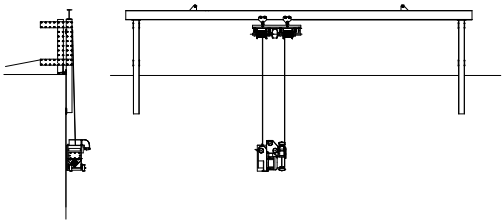
Tank Fixtures





Ship Fixture





Machine Start-up, Operation, and Shut Down Procedures
Horizontal Mode

Caution- do not attempt to operate the VersaBlast until you have thoroughly reviewed this manual and have gone through proper training. Before starting this procedure, make sure that all equipment is set-up properly as described in Machine Setup (see Machine Set-up-page 20-22).

First review the operating functions of each switch on the main control panel on the dust collector, the panel on the machine and the hand held remote control (see Controls Operation- pages-56-58). Make sure that the main disconnect switch on the main control panel is off. Check to make sure that the power cable is properly connected at the generator or power source and that the generator or power source is properly grounded. Make sure that the generator is set for 460 Volt/3 Phase/60 Cycle operation and that the circuit breaker is off.

If the machine has been assembled for the vertical cleaning mode, it will need to be converted to the horizontal mode (see Horizontal Mode Conversion-page-45-49)

1. Make sure that the Power Cable for the VersaBlast is properly connected and the cable strain sling is secured to the dust collector (see Cable Connections-page-71-72). If connections need to be made, make sure that the disconnect switch is in the off position. Make sure that the safety cable is in place and properly connected if the system is on a roof.

2. Make sure that the ¾" air supply line is connected, the air compressor is running, and all air valves are turned on.

3. Check the exhaust hose for proper connection at the dust collector, at the VersaBlast machine and at any splice points.

4. Check the dust drum under the Dust Collector- The drum should be replaced if it is over ¾ full. Rap on the drum with a hammer or other metal object to determine the dust level. When replacing and handling waste drums, take all precautions for protection from hazardous dust as required by federal, state and local codes.

5. Make sure that shot has been added to the machine.

6. Start the generator- check the generator voltmeter - if needed, adjust the voltage to 460 volts. Switch on the circuit breaker at the generator. Turn on the main disconnect switch on the control panel at the Dust Collector.

7. Bump the dust collector fan switch on and off and check for proper blower rotation. The blower motor fan on the back of the blower motor must rotate clockwise. Caution- do not assume the motor rotation is proper if air is blowing out of the fan- it will blow out in either direction.

8. A phase controller is used on newer systems to make sure that the motors run in the right direction. If the fan won't start- Shut down the generator or shut of the power supply and swap any two wires L1,L2,or L3, at the generator power terminals. Do not swap the ground wire. Restart the generator and check the fan rotation.

9. Make sure that the mode switches on the main control panel are set on "Horizontal" and "Remote".

10. Check the blast wheel rotation by looking at the cooling fan on the back of the blast motor. Press the "Blast on/off" button to start the motor and then press it again to shut it off. Let the fan slow down and observe the direction of rotation. It should be rotating clockwise when looking from the back of the motor. Caution- the motor must run clockwise, do not operate the machine if the motor is running counterclockwise. If the dust collector fan is running clockwise and the blast wheel is running counterclockwise, wiring changes must be made- call RBW.

11. Check the forward and reverse movement of the VersaBlast. First turn the speed knob on the machine panel to 3. Press the "Forward" button on the remote control and hold it for 2 seconds then let up. The machine should start moving forward. Adjust the speed knob up and down to check out the speed adjustment. Push the "Forward" button again to stop. Use the same procedure to check out the Reverse movement by pressing the "Reverse" button.

12. Next test the steering operation. Press the steering left button and let up. The drive wheel should turn to the right, steering the machine to the left. Try steering right by pressing the right button. Practice steering the machine before you start blasting. Learn to just bump the button for minor steering corrections. Remember, at the end of each pass you do not have to turn the machine around, just reverse the direction. This machine will blast going in both directions.

13. Before testing the blast, make sure that the control cage is in the proper position for floor cleaning. The arrow should be set at 10:00. To adjust the control cage see (Control Cage Adjustment-page 70).

15. Now that the control cage is set, run a blast test. Turn on the dust collector fan and start the blast wheel.

16. Start the machine moving forward at slow speed (2 to 3 on the speed knob).

17. Next pull out the abrasive valve knob on the front of the machine. Observe the amperage increase on the ammeter. Pull out the knob until the amperage increases to 35 to 40 Amps. If the amperage goes too high, move the knob back in slightly. Monitor the ammeter closely during the cleaning operation. If the amperage drops below 30, the cleaning quality will drop. As the amperage drops, pull out the knob more. When the amperage is low and the knob is all the way out, it is time to add shot. Note: the first time you blast, it will take more abrasive to fill up all the voids in the machine. Keep adding shot until the amperage remains constant at 35 to 40 amps. Caution- Never run the machine higher than 40 amps.- the blast motor can burn out and the machine will get too hot.

18. Check the blast pattern- it may have to be adjusted. The machine will always clean better on the right hand side (side opposite the exhaust hose) since the blast wheel turns clockwise. The blasted path will have a clean sharp edge on the right side and a rough edge on the left. The best setting is to move the pattern to the left as far as possible without loosing the sharp edge on the right side. To move the pattern to the left, turn the control cage counterclockwise. To move the pattern to the right, rotate the control cage clockwise.

    Another way to set the pattern is to find the hotspot of the blast by running a short distance at higher speed. You will see a very narrow cleaned pattern, this is the hot spot of the blast pattern. If you adjust the control gage to get this narrow pattern in the middle of the full width pattern, the setting should be proper for normal cleaning speeds. Once the cage is set, bolt down the locking arm so the cage can't move out of position. Mark the cage position so you will always know the proper setting

    The proper cleaning speed will vary depending on the type and thickness of the coating being removed and the cleaning requirements. Speeds in the range of 2 to 4 cover most applications.

19. Practice cleaning until you get a feel of the machine operation. You will leave abrasive on the floor as you pass over weld seams and dips in the surface. This shot should be swept over to the next path- the machine will pick it up. If you get confused or something happens, you can shut down the machine by pushing the E-Stop button on the remote control. To reactivate the remote control, you must push in and hold the reset button on the main control panel. The button must be held in for 10 seconds.

20. For normal shut down, stop the machine movement, pull the shot valve out to stop abrasive flow to the blast wheel, shut off the blast motor, and turn off the main disconnect switch on the main panel.

Machine Start-up, Operation, and Shut Down Procedures
Vertical Mode

Caution- do not attempt to operate the VersaBlast until you have thoroughly reviewed this manual and have gone through proper training. Before starting this procedure, make sure that all equipment is set-up properly as described in Machine Setup (see Machine Set-up-page 17-19).

First review the operating functions of each switch on the main control panel on the dust collector, the panel on the machine and the hand held remote control (see Controls Operation- pages-56-58). Make sure that the main disconnect switch on the main control panel is off. Check to make sure that the power cable is properly connected at the generator or power source and that the generator or power source is properly grounded. Make sure that the generator is set for 460 Volt/3 Phase/60 Cycle operation and that the circuit breaker is off.

If the machine has been assembled for the horizontal cleaning mode, it will need to be converted to the Vertical mode (see Vertical Mode Conversion-page-50-55).

Make sure that the roof fixture has been assembled properly(see Cone Roof Fixture Assembly-page 30-31) and is properly positioned on the roof and secured to the center stand pipe (see Cone Roof Fixture Setup-page 32-34)

1. Make sure that the Power Cable for the VersaBlast machine and the power cable for the hoist and fixture drive is properly connected and the cable strain slings are secured to the dust collector (see Cable Connections-page 71-72). If connections need to be made, make sure that the disconnect switch is in the off position.

2. Make sure that the ¾" air supply line is connected, the air compressor is running, and all air valves are turned on.

3. Check the exhaust hose for proper connection at the dust collector, at the VersaBlast machine and at any splice points.

4. Check the dust drum under the Dust Collector- The drum should be replaced if it is over ¾ full. Rap on the drum with a hammer or other metal object to determine the dust level. When replacing and handling waste drums, take all precautions for protection from hazardous dust as required by federal, state and local codes.

5. Make sure that shot has been added to the machine.

6. Start the generator- check the generator voltmeter - if needed, adjust the voltage to 460 volts. Switch on the circuit breaker at the generator. Turn on the main disconnect switch on the control panel at the Dust Collector.

7. Bump the dust collector fan switch on and off and check for proper blower rotation. The blower motor fan on the back of the blower motor must rotate clockwise. Caution- do not assume the motor rotation is proper if air is blowing out of the fan- it will blow out in either direction.

8. A phase controller is used on newer systems to make sure that the motors run in the right direction. If the fan won't start- Shut down the generator or shut of the power supply and swap any two wires L1,L2,or L3, at the generator power terminals. Do not swap the ground wire. Restart the generator and check the fan rotation.

9. Make sure that the mode switches on the main control panel are set on "Vertical" and "Remote".

10. Lower the hoist cables and connect them to the machine. Lift the VersaBlast off the ground and onto the tank wall using the hoist up switch on the remote control. Adjust the seal and magnet relation to the tank wall by adjusting the turnbuckle. Run the turnbuckle in or out to square the seal to the wall, then lock it in place with the lock nut.

11. Check the blast wheel rotation by looking at the cooling fan on the back of the blast motor. Press the "blast on/off" button and the steering "left" button to start the motor and then press the "blast on/off" button again to shut it off. Let the fan slow down and observe the direction of rotation. It should be rotating clockwise when looking from the back of the motor. Caution- the motor must run clockwise, do not operate the machine if the motor is running counterclockwise. If the dust collector fan is running clockwise and the blast wheel is running counterclockwise, wiring changes must be made- call RBW.

12. Check the left and right movement of the VersaBlast. First turn the speed knobs for the machine and the fixture on the control panel to 3. Press the "left" button on the remote control and hold it for 2 seconds then let up. The machine and fixture should start moving to the left. Adjust the speed knob up and down to check out the speed adjustment. Push the "left" button again to stop. Use the same procedure to check out the right movement by pressing the "Right" button. Adjust the speed of the fixture and machine so both move at approximately the same speed. It is often best to run the fixture slightly faster so it stays a little ahead of the machine. This tends to help the machine to stay tight to the wall.

13. Before testing the blast, make sure that the control cage is in the proper position for vertical cleaning. The arrow should be set at 3:00. To adjust the control cage see (Control Cage Adjustment-page 70).

14. Now that the control cage is set, run a blast test. Turn on the dust collector fan and start the blast wheel.

15. Start the blast wheel and start machine moving left or right at slow speed (2 to 3 on the speed knob).

16. Next pull out the abrasive valve knob on the front of the machine. Observe the amperage increase on the ammeter. Pull out the knob until the amperage increases to 35 to 40 Amps. If the amperage goes too high, move the knob back in slightly. Monitor the ammeter closely during the cleaning operation. If the amperage drops below 30, the cleaning quality will drop. As the amperage drops, pull out the knob more. When the amperage is low and the knob is all the way out, it is time to add shot. Note: the first time you blast, it will take more abrasive to fill up all the voids in the machine. Keep adding shot until the amperage remains constant at 35 to 40 amps. Caution- Never run the machine higher than 40 amps.- the blast motor can burn out and the machine will get too hot.

17. Check the blast pattern- it may have to be adjusted. To set the pattern, find the hotspot of the blast by running a short distance at higher speed. You will see a very narrow cleaned pattern, this is the hot spot of the blast pattern. If you adjust the control gage to get this narrow pattern in the middle of the full width pattern, the setting should be proper for normal cleaning speeds. Once the cage is set, bolt down the locking arm so the cage can't move out of position. Mark the cage position so you will always know the proper setting

    The proper cleaning speed will vary depending on the type and thickness of the coating being removed and the cleaning requirements. Speeds in the range of 2 to 4 cover most applications.

18. Practice cleaning until you get a feel of the machine operation. You will leave abrasive on the floor as you pass over weld seams and dips in the surface. This shot should be swept over to the next path- the machine will pick it up. If you get confused or something happens, you can shut down the machine by pushing the E-Stop button on the remote control. To reactivate the remote control, you must push in and hold the reset button on the main control panel. The button must be held in for 10 seconds.

19. For normal shut down, stop the machine movement, shut off the blast motor, and turn off the main disconnect switch on the main panel. You do not have to pull the shot valve out to stop abrasive flow when the machine is in the vertical mode. The valve will already be set for start-up.

Cone Roof Fixture Assembly (Step 1)

Front Base (1)
(Part # 546)

Bolt the two Front Vertical Beams(72”long) to the Front Base with 5/8” bolts (8 per beam). Make sure that the beam flange face with 4 holes for the Catch Bracket and the Base face with the turnbuckle tabs are on the same side.

Drive Wheel Assy. (1)
(Part # 547)

Bolt one Drive Wheel Assy. and one Idler Wheel Assy. to the Front Base With 5/8” pivot bolt.

Front Vertical Beam (2)
(Part # 548)

Bolt two Catch Brackets to the Front Vertical Beams with 5/8” bolts. (4 per bracket)

Catch Bracket (2)
(Part # 549)

Idler Wheel Assy. (3)
(Part # 550)

Bolt the two Rear Vertical Beams(60”long) to the Rear Base with 5/8” bolts (8 per beam).

Rear Base (1)
(Part # 551)

Bolt two Idler Wheel Assemblies to the Rear Base with 5/8” pivot bolt.

Rear Vertical Beam (2)
(Part # 552)

Horizontal Angle Support (4) (Part # 553)

Bolt two Horizontal Angle Supports to each set of vertical beams. One on each side of the front beams, And one on each side of the rear beams.
Place the two Hoist Support Beams on top of the Horizontal Support Angles.Place the flange with Only 8 holes down, and bolt in place with 5/8” bolts. (4 bolts at each of the four vertical beams) Use the first 4 holes at the rear end of the Hoist Support Beam. Note: The hoist support beams should extend 7 ¾” back from the rear vertical beams and 39 ¾” beyond the front vertical beams.

Hoist Support Beam (2) (Part # 554)

Cross Brace Angle (4) (Part # 555)

Bolt the two sets of Cross Brace Angles in place Between the vertical beams with ½” bolts. Bolt each set of brace angles together where they cross With ½” bolts.

Cone Roof Fixture Assembly (Step 2)

Cable Eye (2) (Part # 556)

Bolt the two cable eyes in place using the back outer 5/8” bolt that bolts the horizontal support angle to the Support beam.

Attach the two turnbuckles to the two tabs on the Front Base. Use the pin and cotter supplied. Attach the 3/8” 200’ long Tie Back Cable to one of the turnbuckles. Use three 3/8” cable clamps. Run the other end of the cable through the Cable Eye at the rear of the fixture. Temporally attach three 3/8” cable clamps to the end of the cable for later use. Roll the cable up and wire tie it to the fixture assembly. The cable will used later to run around the tank stand pipe and back to the other side of the fixture.

¾” Turnbuckle (2) (Part # 557)

3/8” Cable clamp (6) (Part # 534)

Cable Eye (2) (Part # 556)

Hoist Support Bracket (2) (Part # 544)

5/8” Shackle (2) (Part # 535)

Place a 5/8” shackle in each of the the two Hoist Support Brackets and slide the brackets onto the beams (you cannot insert the shackle after the bracket is mounted). Bolt the brackets to the beams with 5/8” bolts (2 in each beam). Locate the two holes in the front angle of the bracket at the closest set of holes to the front vertical beams. This places the hoist as close to the vertical beams as possible. Attach the Hoist Assembly to the Hoist support Brackets with the two 5/8” Shackles. Wire tie the shackle bolts so they can’t unscrew.

Hoist Assembly (Part # 545)

Connect the power cable from the Drive Wheel Assembly To the power supply cable from the hoist. The power supply is 15’ long- the extra length is required when used on the floating roof fixture. Roll up the excess cable and tie secure it to the fixture frame.

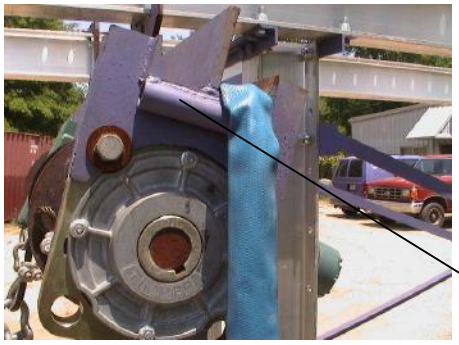
The hoist motor extends inside the fixture frame.

Cone Roof Fixture Setup (Step 1)

Unroll the power cable so it is free to uncoil as the fixture is lifted to the tank roof.

Cord Grips

Make sure that the cord grip loops are secured to the hoist frame so the cables cannot be pulled loose at the motors.



Make sure that the cable harness is laying in the channel and is laying over the round tube. The smooth tube keeps the harness from being damaged from the sharp edge.

Round Tube

Make sure that the cable wraps On the hoist drums are straight And smooth across the drum.

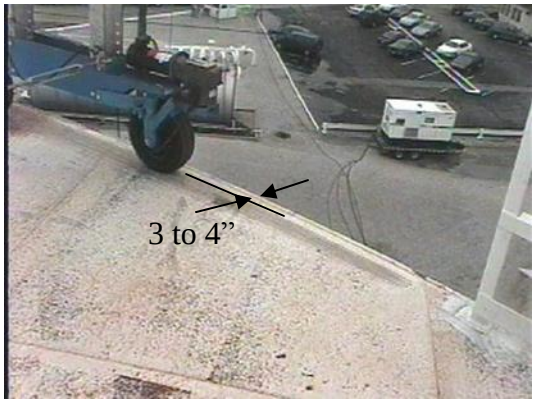
Caution-Make sure that there are at least (4) 3/8" cable clamps on each cable and that hey are extremely tight.

Hoist Support Brackets

Make sure that the hoist support brackets are mounted as close to the front tires and vertical support beams as possible. Additional holes are provided in case the hoist has to be moved out further from the tank wall so the cables can clear vents are other obstructions. When the hoist is moved out, addition counter weights will have to be added to the back end of the fixture. Bolt the brackets down to the beam with (4) 5/8" grade 5 bolts.

Cone Roof Fixture Setup (Step 2)

Use two straps to lift the fixture- one on each beam. Locate the straps about two foot back from the front vertical beams. Double wrap each strap so it won't slide along the beam during the lift. Pick the fixture off the ground, if it tips either way, readjust the straps so the unit picks up level. Caution- make sure the crane and straps are sized properly for the load. The fixture and the hoist weighs around 2000 lbs.



Place the fixture on the roof of the tank with the front tires about 3 to 4" from the edge of the tank. Make sure that the fixture is sitting square and that the rear of the fixture is pointed toward the center of the tank.

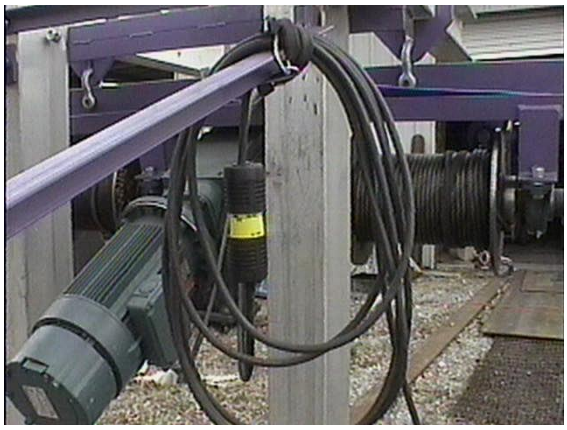
Adjust the ¾" turnbuckles so they will have equal adjustment in both directions. This will allow for final adjustment after the tie back cable is in place.

Run the cable from the turnbuckle through the rear eye and around the tanks center stand pipe. Run the cable back through the other rear eye and connect it to the opposite turnbuckle using at least two 3/8" cable clamps. Pull the cable tight as possible before clamping. Next pull the two cables together and place a single clamp about two foot from the stand pipe. This will keep the fixture running square to the tank.

Single 3/8" clamp

Caution- The center stand pipe must be structurally sound and capable of handling 1000 lb. pull at the base. The standpipe must be located in the center of the tank. If it isn't special cable connections must be made. Call RBW for help in set-up.

Cone Roof Fixture Setup (Step 3)



Connect the power cable for the fixture drive to the power cable from the hoist wiring harness. The cable is required to be long for floating roof applications. Roll up the extra cable and secure it to the fixture. **Caution- Make sure that all cables are clear of any pinch points and cannot be Damaged during operation.**

Make sure that the wheels are straight in line with each other Rather than turned to match the radius of the tank.

Tighten pivot bolts after alignment. **Caution- bolts must be very tight to keep the tire from turning during operation.**

Align wheels straight and in line.

Caution- Stand-pipes are rarely exactly in the center of the tank. Therefore, it is important to check out the movement of the fixture over the quadrant you are planning to clean to make sure that the fixture will not roll off of the edge of the tank or roll back too far on the roof of the tank. This check must be made for each quadrant you clean.

Make sure you have connected the fixture drive cables to the dust collector control panel and that You have read the machine start-up section before operating the fixture.

Using the remote control from on top of the tank, run the fixture back and forth along the quadrant path and observe the tire distance to the edge of the tank. If the leading tire gets within 1" from the edge, back up until the leading cable becomes slightly slack and then adjust the turnbuckle to take up some slack. Adjust the cables in this way until the fixture will move the full quadrant without getting to close to the edge. Ideally, the leading tire should fluctuate no more than 1" to 4" from the edge of the tank. If the fluctuation is greater select a shorter quadrant of cleaning. If the fixture is allowed to move back away from the edge too far, the machine weight will tend to tip the fixture up at the back end. **Caution-it is important to keep the front and back sets of tires positioned straight in line with one another, rather than turned to match the tank curvature. This keeps the fixture tracking as close to the edge as the cables will allow and keeps the cables stretched tight. If the fixture were to track away from the edge allowing the cables to become slack, the fixture could tip up in back due to the weight of the machine. On small diameter tanks, it may be necessary to turn the front wheels slightly more in line with the curvature of the tank. The rear wheels, however, should always be straight and in line.**

After the fixture quadrant test is completed, align the fixture over the machine and lower the hoist Cables with the remote control.

Trouble Shooting Guide-Electrical

Problem- Nothing Operates on the machine

1. Check the generator output gage- Make sure that the generator is putting out 460 to 480 volts.
2. Check the circuit breaker at the generator or power source.
3. Check power source fuses.
4. Make sure that the machine power harness is plugged into the main control panel. If operating in the vertical mode make sure that the hoist and fixture power harness is plugged into the main panel.
5. Make sure that the disconnect switch on the main panel is "on" and that the E-Stop at the panel and on the remote control has not been pushed.
6. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
7. Make sure that the remote/manual switch is in the remote position.
8. If you are in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1"). If the hoist won't operate proceed to step 9.
9. Check the primary and secondary circuit breakers in the main panel.
10. Check or replace the 9v. battery in the hand held remote control. Be careful with the small wires that connect the battery. Check the wire connections to the battery snap terminal to make sure they are not broken.
11. Check the remote control antenna. Make sure that the wires are properly connected to the magnetic base and are properly connected to the receiver in the main panel.
12. Remove the cover on the remote control receiver in the main control panel. Turn on the power with the door open. **Caution High Voltage** do not touch anything in the panel. Check to see if the power LED light is on on the receiver circuit board. If the light is on, operate each function with the hand held transmitter. LED lights across the top of the circuit board should come on for each operation. If the lights come on, the problem is not in the remote control system. If the power light is on and the operation lights don't come on, call Microtronics and ask for technical assistance for trouble shooting the receiver problem.
13. If the power LED light is not on, the problem may be in the 24v. power supply. Check the 24v. Power Supply Transformer. Voltage in should be 110v. and voltage out should be 24v. If 24v. is present at the power transformer output, check the connections of wire # running from the power transformer to the remote control receiver. If the power transformer has 110v. coming in but is not putting out 24v., the transformer may need to be replaced. Call RBW for replacement (770-251-8989).

Trouble Shooting Guide-Electrical

Problem- Dust Collector Fan won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Check the fan over load circuit breaker. If the over load is tripped, reset by pushing in the black button. If the over load trips again, increase the amperage setting until the fan will start. If the fan still trips off, there is a short or loose connection in the wiring, or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Problem- Blast Motor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. If you are in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Check the blast motor over load circuit breaker. If the over load is tripped, reset by turning the trip switch clockwise until it resets in the vertical position. If the over load trips again, increase the amperage setting until the motor runs without tripping. If the motor still trips off, there is a short in the wiring or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Problem- Hoist Motor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Check the hoist motor over load circuit breaker. If the over load is tripped, reset by pushing in the black button. If the over load trips again, increase the amperage setting until the motor runs without tripping. If the motor still trips, there is a short in the wiring or the over load circuit breaker may need to be replaced.Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.

Trouble Shooting Guide-Electrical

Problem- Screw Conveyor won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel.
5. Make sure that the red coded male and female plugs are properly connected at the machine.
6. The machine must be on the wall so the proximity switch is made for the machine drive, fixture drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Check the screw motor over load circuit breaker. If the over load is tripped, reset by flipping the trip switch back to the up position. If the over load trips again, there is a short in the wiring or the over load circuit breaker may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
6. If the motor runs, but the screw doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprockets.

Problem- Machine Travel Drive won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "horizontal" or "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel.
5. Make sure that the Blue coded male and female plugs are properly connected at the machine.
6. If you are operating in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine travel drive, fixture travel drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").

Trouble Shooting Guide-Electrical

5. Make sure that the speed pot on the main panel is turned up.
6. Check the Dart Board Drive fuse. Replace with 15amp fuse, if required.
7. If the drive still won't operate, there is a short or loose connection in the wiring or the Dart Board may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
8. If the motor runs, but the drive wheel doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprockets.

Problem- Fixture Travel Drive won't run

1. Make sure that the disconnect switch on the main panel is "on".
2. Make sure that the mode switch on the main panel is set in the proper position for the mode of operation "vertical".
3. Make sure that the remote/manual switch is in the remote position.
4. Make sure that the machine power harness is plugged into the main control panel. Make sure that the hoist and fixture power harness is plugged into the main panel.
5. If you are operating in the vertical mode, the machine must be on the wall so the proximity switch is made for the machine travel drive, fixture travel drive, screw drive or blast wheel to operate. The hoist drive and dust collector fan will operate. Hoist the machine onto the wall and make sure the proximity switch is close to the wall (within 1").
5. Make sure that the speed pot on the main panel is turned up.
6. Check the Dart Board Drive fuse. Replace with 15amp fuse, if required.
7. If the drive still won't operate, there is a short or loose connection in the wiring or the Dart Board may need to be replaced. Call RBW (770-251-8989) or Bold Systems (770) 831-1920) for trouble shooting directions.
8. If the motor runs, but the fixture drive wheel doesn't turn, the drive chain or a sprocket key has come off. Remove the guard and check the chain and sprocket.

Trouble Shooting Guide-Operation

Problem- Can't get blast amperage up to 30 amps.

1. Adjust abrasive valve in until amperage is achieved.
2. The abrasive hopper, abrasive valve, control cage, or impeller may be clogged with foreign material such as paint chips, rubber seal fragments, duct tape, or abrasive bag material. Some paints can also gum up due to the heat of the abrasive and stick to the blast wheel components. Remove the hopper cover and the control cage and remove the foreign material. Remove any built up paint from all components. The paint can be removed with a scraper screw driver and hammer. **Caution- Lock out all power sources before beginning maintenance work.**
3. The dust collector filters may be clogged. Poor vacuum will effect the blast amperage. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off.

Problem- I add shot and the machine runs at good amperage for a short time but soon drops down to low amperage.

1. The expansion chamber is probably filling up due to the drain hose being plugged. Air is drawn out of the blast cabinet by the dust collector to remove the paint and dust. The air travels through the air duct to the expansion chamber. Some good shot is also pulled out to the expansion chamber. This shot drops to the bottom of the expansion chamber and the lighter dust and paint is pulled to the top of the chamber and out the exhaust hose to the dust collector. The shot must return to the blast cabinet through the drain hose. If the drain hose plugs up, the abrasive will fill up in the expansion chamber and be sucked out to the dust collector. The drain hole in the chamber may be plugged with foreign material or the abrasive may be clumped due to condensation or damp abrasive. Remove the drain hose and clear the opening with a screw driver. If the drain plugs up again, remove the cover plate on the expansion chamber and and clean out any clumped shot, paint, or foreign material.
2. If you are operating in the vertical mode, the dribble valve rubber flap may be held open allowing air to suck up the drain hose restricting the flow of abrasive. The dribble valve allows the shot to flow into the reclaim screw trough without loosing vacuum . The rubber flap is held shut by the system vacuum- as shot builds up in the hose and gets heavy enough the flap will be forced open and allow some abrasive to drop into the screw trough. Check the valve during operation to see if it is functioning properly. Remove any restrictions or replace the flap if required.
3. If you are operating in the horizontal mode it is possible that the lower hose connection box is plugged due to foreign material, condensation or wet shot. Remove the drain hose and clean out the connection box.

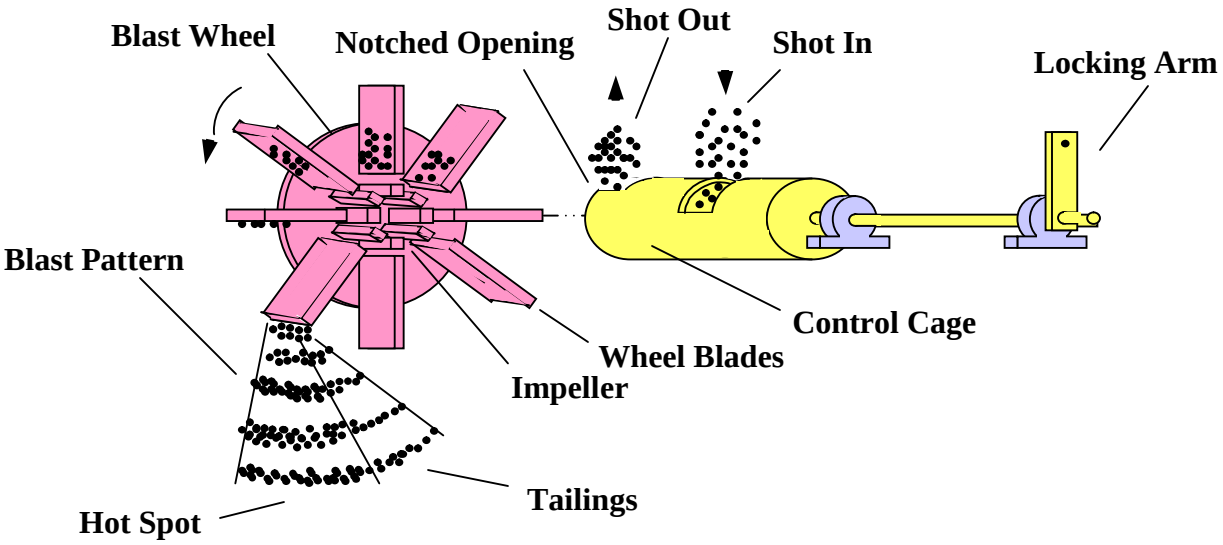
3. The dust collector filters may be clogged. Poor vacuum will effect the blast amperage. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off.

Problem- The exhaust hose to the dust collector is filling up with excessive amounts of shot

1. The expansion chamber is probably filling up due to the drain hose being plugged. Air is drawn out of the blast cabinet by the dust collector to remove the paint and dust. The air travels through the air duct to the expansion chamber. Some good shot is also pulled out to the expansion chamber. This shot drops to the bottom of the expansion chamber and the lighter dust and paint is pulled to the top of the chamber and out the exhaust hose to the dust collector. The shot must return to the blast cabinet through the drain hose. If the drain hose plugs up, the abrasive will fill up in the expansion chamber and be sucked out to the dust collector. The drain hole in the chamber may be plugged with foreign material or the abrasive may be clumped due to condensation or damp abrasive. Remove the drain hose and clear the opening with a screw driver. If the drain plugs up again, remove the cover plate on the expansion chamber and and clean out any clumped shot, paint, or foreign material.

Problem- How can I find the proper hot spot for my blast pattern?- Horizontal Cleaning

1. Abrasive drops from the shot hopper through the abrasive valve and into the control cage through holes in the top of the control cage tube. The control cage carries shot to the impeller which rotates inside the end of the control cage tube. A cutout or notched opening in the end of the tube allows shot to flow out and onto the blades at one point. The blades rotate around the out side of the tube. Each blade picks up a small amount of shot as it passes the notched opening. The shot will leave the blade approximately 180 degrees from wherever the center of the opening is set. If you are blasting the floor the opening should be set at around 11:00. A hole or arrow on the end of the control cage tube indicates the center of the opening. Rotate the hole or arrow to 11:00 . Remove the adjusting handle from the geared hub and reposition it at 12:00. Lock the cage in place with the locking bolt and spacer. Test the blast pattern by operating the machine at a higher than normal rate of speed. This will show more clearly where the hot spot is on the floor. Now fine tune the hot spot by rotating the control cage slightly clockwise to move the pattern to the left (when looking at the front of the machine or control cage) and slightly counterclockwise to move it to the right. Remember that the machine will always clean better on the left side (when looking at the front of the machine or control cage) because the abrasive is leaving the blades on that side of the machine. Try to set the hot spot in the center of the 17" wide path for best over all cleaning.



Problem- How can I find the proper hot spot for my blast pattern?- Vertical Cleaning

1. Wall Cleaning

Abrasive drops from the shot hopper through the abrasive valve and into the control cage through holes in the top of the control cage tube. The control cage carries shot to the impeller which rotates inside the end of the control cage tube. A cutout or notched opening in the end of the tube allows shot to flow out and onto the blades at one point. The blades rotate around the out side of the tube. Each blade picks up a small amount of shot as it passes the notched opening. The shot will leave the blade approximately 180 degrees from wherever the center of the opening is set. If you are blasting a wall the opening should be set at around 4:00. A hole or arrow on the end of the control cage tube indicates the center of the opening. Rotate the hole or arrow to 4:00 . Remove the adjusting handle from the geared hub and reposition it at 12:00. Lock the cage in place with the locking bolt and spacer. Test the blast pattern by operating the machine at a higher than normal rate of speed. This will show more clearly where the hot spot is on the wall. Now fine tune the hot spot by rotating the control cage slightly clockwise to move the pattern up (when looking at the front of the machine or control cage) and slightly counterclockwise to move it down.Try to set the hot spot in the center of the 18" wide path for best over all cleaning.

Problem- Excessive abrasive leakage- Vertical Cleaning

1. Check the alignment of the main seal to the wall . The seal must float along on the surface and be free to flex in and out. If the seal frame, which fits over the cabinet opening frame is riding on top of the opening frame, leakage will occur due to vacuum loss. Adjust the seal attachment chains so the seal is held securely around the opening frame and cannot ride out on top of it.
2. Make sure that the blast cabinet and main seal are square to the wall. Adjust the turnbuckle to square up the cabinet to the wall surface.
3. Make sure that the screw conveyor is running. If the screw stops, abrasive that leaks from the main seal and the expansion chamber drain tube, will overflow.
4. Check the vacuum system-loss of vacuum will cause leakage. Make sure that there are no kinks or restrictions in the exhaust hose. Tape up any holes in the exhaust hose. The dust collector filters may be clogged. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off. Make sure the pulse air line is attached and that the air is on.
5. Check the screw trough seal. Make sure that the seal is not worn or torn. Make sure the seal is mounted properly- the tapered side should face the machine and the flat side should ride on the wall. When blasting make sure that the seal is turned up- when the machine is pulled up the wall and over weld seams the seal may curl down causing it to leak abrasive. When going up the wall, go a little higher than you plan to blast and then lower the machine- the seal will flip back up and seal to the wall.

Problem- Excessive abrasive leakage- Horizontal Cleaning

1. Check the alignment of the main seal to the floor . The seal must float along on the surface and be free to flex up and down. If the seal frame, which fits over the cabinet opening frame is riding on top of the opening frame, leakage will occur due to vacuum loss. Adjust the seal attachment chains so the seal is held securely up and around the opening frame and cannot ride out or get underneath it.
2. Check the vacuum system-loss of vacuum will cause leakage. Make sure that there are no kinks or restrictions in the exhaust hose. Tape up any holes in the hose. Make sure the exhaust hose is not too long. Do not exceed 100'. Make sure that the vertical seals on the main seal have the corner bolts in place and are pulled up over the corners of the blast cabinet plate to make a good seal. Check for holes in the vertical seals where air vacuum may be lost. Replace seals if necessary.
   The dust collector filters may be clogged. Check the magnahelix gage on the dust collector. It should be at 1 to 2. If it is higher, stop and let the filters pulse down for 10 minutes with the fan turned off. Make sure the pulse air line is attached and that the air is on.
3. Make sure that the abrasive adder rubber seal is closed and secure.
4. Make sure that the sleeve seal on the exhaust hose adapter is in place around the flange.

Problem- Hoist operation is sporadic and the brake on the drive motor smokes or slips

1. Check the brake. Make sure that the machine is on the ground and that there is no cable stress on the hoist. Remove the 4 bolts on the end of the brake and pull the brake away from the motor housing. Be careful with the brake wires- you will have to support the brake while you clean it. Loosen the brake pad disk by flipping the brake locks outward. Blow the dirt and dust out of the brake with an air line. Replace the disk pad if it is worn or broken. Call RBW for replacement. Make sure that the motor gear that drives the disk is tight on the motor shaft. Remount the brake and flip the brake locks back in place.

Problem- Machine keeps blowing off of the wall

1. Adjust the fixture back so the hoist cables are close but not touching the tank wall.
2. Adjust the fixture and machine drive speeds so the fixture is slightly ahead of the machine. If the machine gets ahead of the fixture, it is more likely to blow off.
3. Make sure the magnet is equal distant from the wall on both ends. Adjust the turnbuckle if necessary.

Problem- Machine hangs up on weld seams- Vertical Cleaning

1. Check the main seal retainers to see if they are bent out. If a retainer has bent out it can be bent back by hitting the edge with a hammer. The retainers can also be removed bent back and then reinstalled.
2. Edges of the retainers and the edges of the blast opening can be tapered with a grinder. This will help the seal to move along the rough welds without hanging up.
3. Some welds will be so rough that the seal will hang up anyway. When this happens, raise or lower the hoist slightly. This will break the seal loose. **Caution- if the machine hangs up and won't move, turn off the blast motor immediately so the blast will not burn a hot spot in the floor.**

Problem- Machine hangs up on weld seams- Horizontal Cleaning

1. Check the main seal retainers to see if they are bent out. If a retainer has bent out it can be bent back by hitting the edge with a hammer. The retainers can also be removed bent back and then reinstalled.
2. Edges of the retainers and the edges of the blast opening can be tapered with a grinder. This will help the seal to move along the rough welds without hanging up.
3. Some welds and overlaps will be so high that the seal will hang up anyway. Rock the machine from side to side vigorously by standing to one side of the machine and pulling back and forth on the steering shaft. **Caution- if the machine hangs up and won't move, turn off the blast motor immediately so the blast will not burn a hot spot in the floor.**
4. If the machine hangs up too often, the front tires can be lowered to allow more seal clearance.

Problem- Dust comes out of the dust collector fan

1. A filter has been damaged or a filter is loose. Remove the drum and check for Loose filters. If the dust emissions continue, replace the filters.

Problem- The machine suddenly stopped and now nothing operates

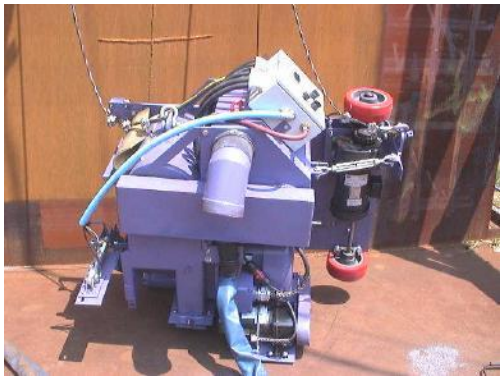
1. You accidentally pushed the E-Stop button on the remote control. Hold the reset button on the main panel in for 10 seconds to reactivate the remote control.

Problem- The machine shuts off and on repeatedly as it moves across the wall

1. The Proximity Switch needs to be adjusted closer to the wall.

Horizontal Mode Conversion

To convert from the wall cleaning mode to the horizontal cleaning mode follow this procedure:

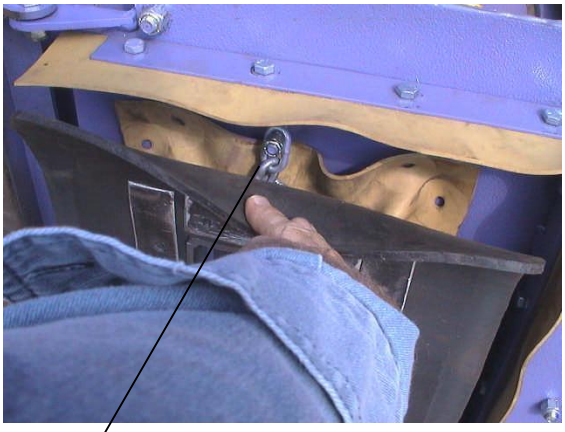


Remove the turnbuckle bolt from the reclaim hopper.

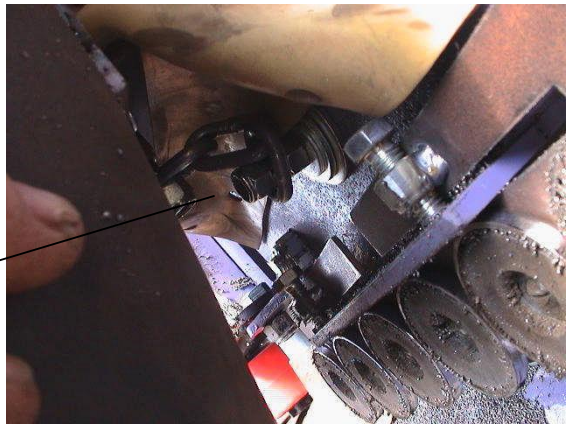
Swing the magnet around and disconnect the magnet drive power cord.

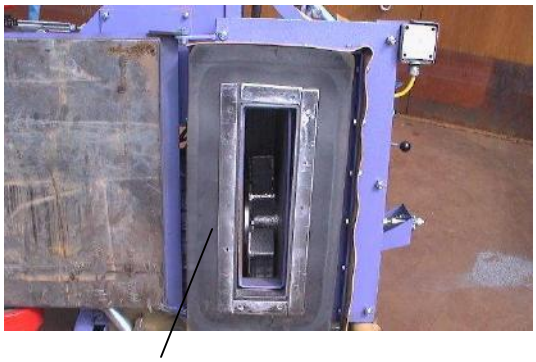
Support the magnet with fork lift Strap and shackle.

Remove the two ½" bolts at the hinge pivot Points and remove the magnet assembly.



Remove the lock nut holding the seal Chain support from both the top and Bottom of the seal assembly.





Remove the seal assembly.

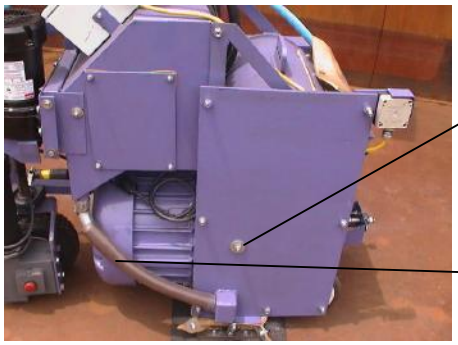
Clamp corners of the frame seal with 3/8” bolts
And large washers as shown.

Remove the magnet mount by loosening
the lock down bolts.

Remove the (7) ½” bolts from the
wall blast plate and the nut and washer
holding the bottom liner in place.
Remove the wall blast plate and the lower liner.

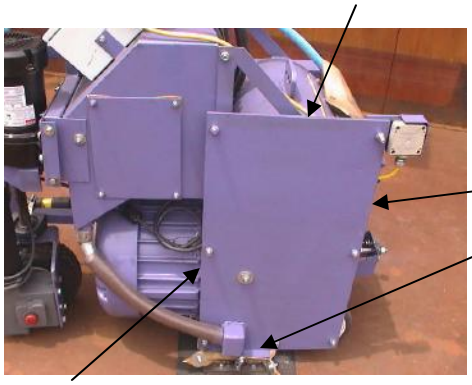
Remove the reclaim drain/ dribble valve

Set the side liner in place as shown.flush
with the cabinet wall. Use tape to hold the
top if required.



Set the side cover plate in place over the liner stud. Install
The ½” lock nut and washers on the liner stud and the
(7) ½” bolts and lock nuts around the cover.. Tighten all
bolts securely.

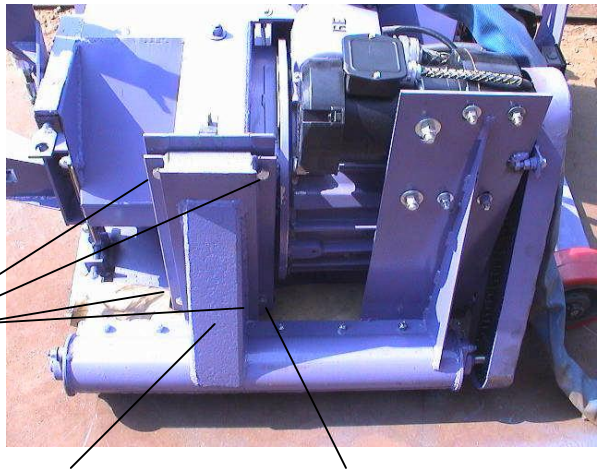
Install the reclaim drain hose.



There will be gaps between the cover plate and the blast cabinet due to warping. Fill in the gaps all around the cover plate with silicone caulk. Caution- Gaps allow vacuum leakage from the System- try to keep connections as air tight as possible. Fewer air leaks means less abrasive left on the floor.

Using a fork lift, strap and shackles, lower the machine on its back side as shown.

Unplug the screw drive motor.



Remove the (4) ½" bolts holding the lower reclaim assembly in place. Remove the lower reclaim assembly.

This bolt is hard to reach. After removing the other (3) bolts, lift the unit back upright to reach the bolt from the seal side of the machine.

Lift the unit back vertical. Holding the unit slightly off the floor, slide the axle and right tire assembly through the adjustable support.

Slide the left tire onto the axle and the axle into the right adjustable support. Made sure the (3) split collars are positioned on each side of the tire and at the end of the axle shaft as shown above. Tighten all collars.

Place a 4 x 4 under the blast motor And set the unit down on the floor.

Place the steering assembly on the two studs located on the reclaim hopper. Install washers and lock nuts and tighten.

Tighten the lock nut on the side support plate.

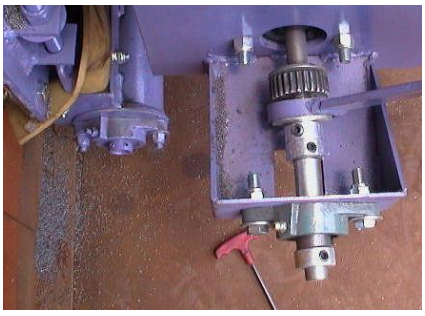
Plug in the steering motor power cord.

Plug in the rear tire drive. Make sure that the white coded plug is attached to the white coded receipt.

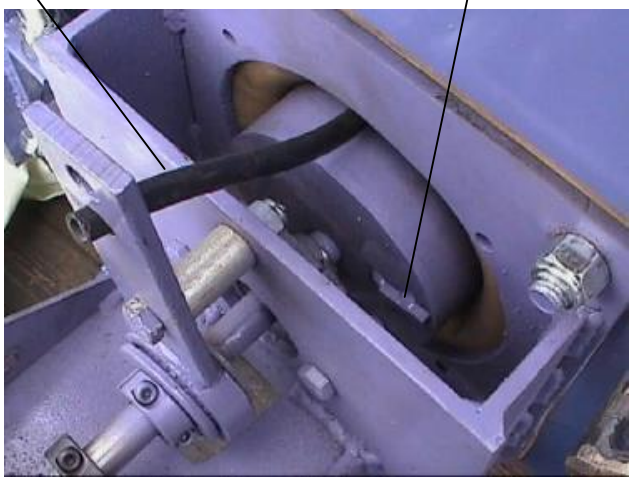
Slide the seal assembly under the blast cabinet opening.

Attach the seal assembly. Slide the attachment chain over the stud and secure with a lock nut. Then secure the attachment chain on the other side of the machine.

The control cage must be reset so the blast is directed toward the floor rather than on the wall.
The arrow on the end of the control cage should be set at 10:00.



Slide the control cage arm off of the cog hub by loosening the retaining collar and rocking the arm back and forth until it comes off.

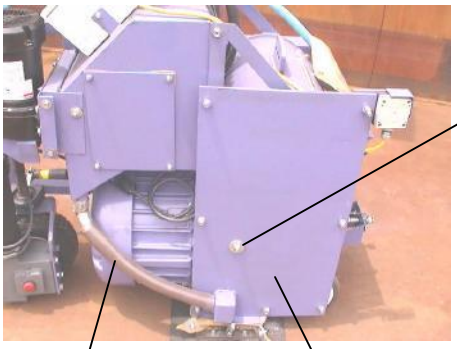


Rotate the control cage counter clockwise until the arrow on the end of the control cage is at 10:00 (3:00 is shown in photo). Be sure to reinstall the breathing tube.

Reset the control cage arm so it is vertical and reattach the locking bolt and breathing tube.
Conduct a blast test- observe the blast pattern on the floor and make adjustments accordingly. To move the pattern to the right (when viewing from in front of the machine), rotate the control cage slightly counter clock wise.
To move the pattern to the left, rotate the control cage slightly clock wise. Remember, for best pattern on the floor keep the blast wheel amperage at 40 amps.

Vertical Mode Conversion

To convert from the floor cleaning mode to the vertical cleaning mode follow this procedure:



Remove the reclaim drain hose.

Remove (7) ½" bolts around the side cover plate. Remove the cover plate.

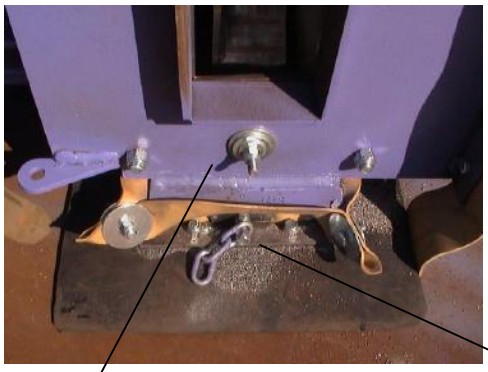
If the cover plate doesn't remove easily, remove the ½" nut which holds the side liner in place. Then remove The cover plate and pry the Liner out of the cabinet opening.

Bolt on the wall blast plate using the (7) ½" bolts from the side cover plate.

Attach the reclaim drain/ dribble valve

Pick up the magnet/ drive assembly with a fork lift, strap and shackle. Locate the shackle around the threaded rod, as shown, so the unit will hang in a vertical and balanced position.

Place the magnet pivot eye mounts on top Of the wall blast plate mounts and attach with (2) ½" bolts and lock nuts.



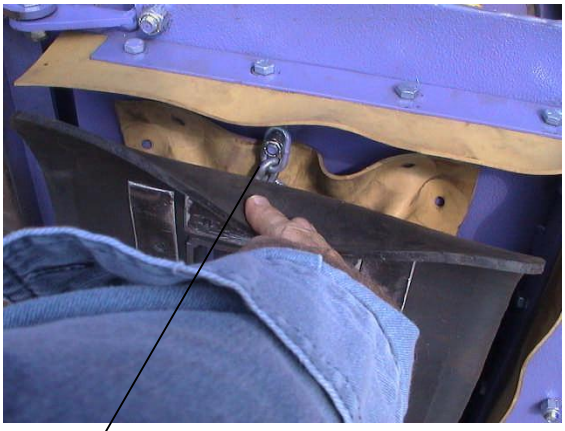
Make sure that the lower liner is in place and bolted securely.

Lift the machine a few inches of the floor, with a fork lift, strap and shackles- see lifting points page . Remove the seal assembly by removing the nut and chain attachments on both sides of the machine.

Remove the (4) corner bolts and large washers.

Slide the magnet mount in place as shown. Secure with lock down bolts.

Place the seal on the wall blast plate as shown.



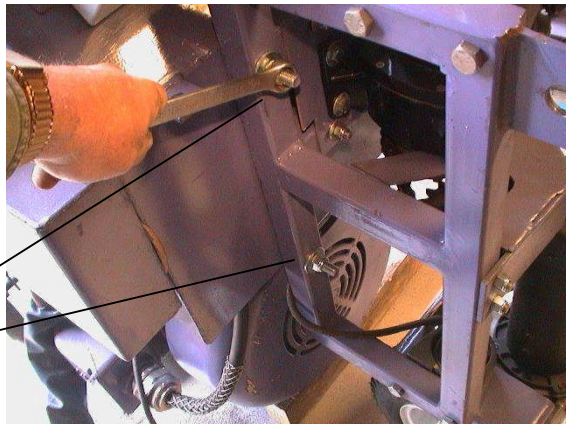
Attach the seal by sliding the chain onto the mounting stud and securing with the lock nut. Follow the same procedure to secure the bottom.

Unplug the rear tire drive motor

With the unit still lifted slightly off the floor, remove the (3) split collars that hold the front tires in place. Remove the axle and tires.

Unplug the steering motor

Place a 4x4 under the blast motor and lower the unit back down on the floor.



Remove the (2) lock nuts which hold the Steering assembly in place.

Loosen the nut holding the side bracket
And remove the steering assembly.

Connect the magnet drive power cord.
Make sure the blue coded plug is matched with the blue coded receptacle.

Swing the magnet assembly around and attach the turnbuckle as shown.

Using a fork lift, strap and shackles, lower the machine on its back side as shown.

(4) bolts

This bolt is hard to reach. After securing the other (3) bolts, lift the unit back upright to reach the bolt from the seal side of the machine. **Caution**- all (4) bolts and lock nuts must be installed and tightened securely.

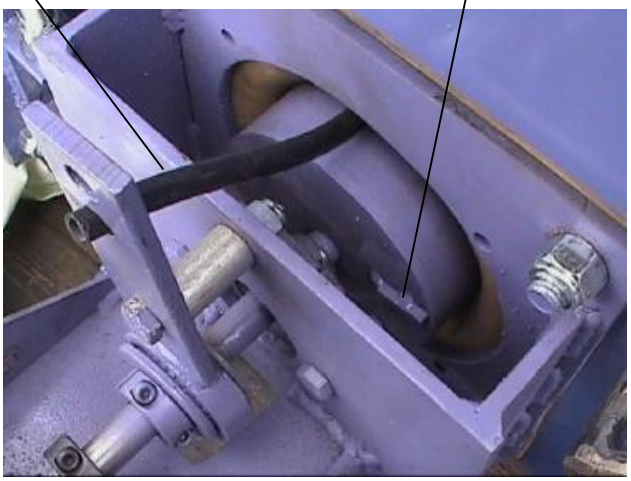
Slide the lower reclaim assembly in place over the blast cabinet opening as shown. Attach with the (4) ½" bolts and lock nuts.

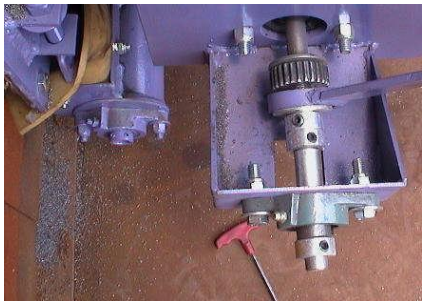
Plug in the screw drive motor. Make sure the Red coded plug is connected to the red coded Receptacle.

The control cage must be reset so the blast is directed toward the wall rather than on the floor.
The arrow on the end of the control cage should be set at 3:00 to 5:00.

Breathing Tube

Arrow





Slide the control cage arm off of the cog hub by loosening the retaining collar and rocking the arm back and forth until it comes off.

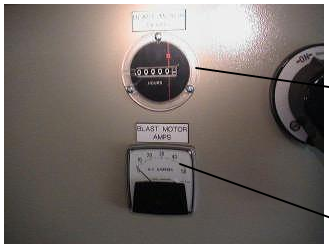
Rotate the control cage clockwise until the arrow on the end of the control cage is at 3:00 to 5:00.
Be sure to reinstall the breathing tube.

Reset the control cage arm so it is vertical and reattach the locking bolt.
Conduct a blast test- observe the blast pattern on the wall and make adjustments accordingly. To lower the pattern, rotate the control cage slightly counter clock wise.
To raise the pattern, rotate the control cage slightly Clock wise.

Main Panel Controls

Main Control Panel is
located on the dust collector.
It controls all machine functions.

Disconnect Switch
Turns power on and off



Hour Meter
Shows how many hours
the blast wheel has operated.

Amperage Meter
Shows the amount of current the
blast wheel is pulling-the higher the
amperage the more shot is being thrown
by the blast wheel. **Caution-do not operate
Over 40 amps.**

Manual /Remote Switch
The machine can be run in manual
If the remote control is damaged or lost
(floor cleaning mode only).
For normal operation with the remote control
The selector switch must be in the Remote
Position.

Horizontal/Vertical Switch
Selects the mode of operation.
Horiz- Floor Cleaning
Vert- Wall Cleaning

Dust Collector Fan Switch
Turns the Dust Collector Blower
On and Off

Fixture Speed Knob
Sets the speed of the
machine drive wheels
when in Vertical Mode.

Machine Speed Knob
Sets the horizontal speed
of the machine drive wheels
when in Vertical Mode.

Reset Button
If the E-Stop on the Remote Control
is pushed, this button must be held in
for 10 seconds to reactivate the remote control.

Emergency Stop
Shuts down all machine operations.

Machine On Board Panel Controls

Machine On Board Panel
For machine operation in
Horizontal Mode (Floor Cleaning)

Amperage Meter
Shows the amount of current the blast wheel is pulling-the higher the amperage the more shot is being thrown by the blast wheel. **Caution-do not operate Over 40 amps.**

Initiate Switch
Activates panel for machine operation in manual mode.
This is only used if the hand held remote control is not available.

Machine Speed Knob
Sets speed of machine in
Horizontal Mode (Floor Cleaning)

Blast On/Off Switch
If the hand held remote control is not available, this switch will operate the blast wheel. The machine must be in Manual Mode and the Initiate Switch must be activated.

Forward/Reverse Selector Switch
If the hand held remote control is not available
This switch will operate if the machine is in manual Mode and the initiate switch has been activated.

Hand Held Remote Controls

Press and hold for 3 seconds for **Left Travel** of the machine and fixture when in vertical mode or **Forward Travel** of machine when in horizontal mode. Press again to stop.

Press and hold for 3 seconds for **Right Travel** of the machine and fixture when in vertical mode or **Reverse Travel** of machine when in horizontal mode. Press again to stop movement.

Press and hold down to **Raise** the machine on the wall (vertical mode only). Release to stop.

Press and hold down to **Lower** the machine on the wall. Release to stop.

E-Stop
Stops all operation- to reset you must press and hold the reset button on the main control panel for 10 seconds.

Blast Motor On/Off
Press for 3 seconds to start. Press again to stop.

Steer Left (Horiz mode only)
Just bump or tap the button too make slight steering corrections. Hold down longer for turning.

Steer Right (Horiz mode only)
Just bump or tap the button too make slight steering corrections. Hold down longer for turning.

VersaBlast Component &Material Check List

Make sure that the following components and materials are transferred from storage to the job site.

For Vertical Operation

- ❑ **VersaBlast Machine**
- ❑ **Dust Collector**
- ❑ **Hoist System**
- ❑ **Trolley Drive (if required)**
- ❑ **Idler Trolley (if required)**
- ❑ **Remote Control**
- ❑ **Fixture with 3/8" tie back cable & 3/8" clamps**
- ❑ **6" Exhaust Hose- 100'**
- ❑ **6" Hose Connectors and clamps as required**
- ❑ **¾" air line for dust collector (small 3/8" air line can be used with reduction fittings)**
- ❑ **5/8" Shackles- (2) for each Hoist & (2) for each machine.**
- ❑ **Abrasive (S-230 to s-390 Recommended) If angular profile is required, mix in 20% of G-25 grit. Caution-due not use hard grit like H or GL, or shot larger than S-390.**
- ❑ **Scoop and Paint Buckets for transferring shot to machines.**
- ❑ **Hand Tools to adjust machine components and maintain operation. (see Hand Tool List)**
- ❑ **Tarp Covers for each machine, dust collector, and hoist.**
- ❑ **Job Site Box to lock up tools and spare parts.**

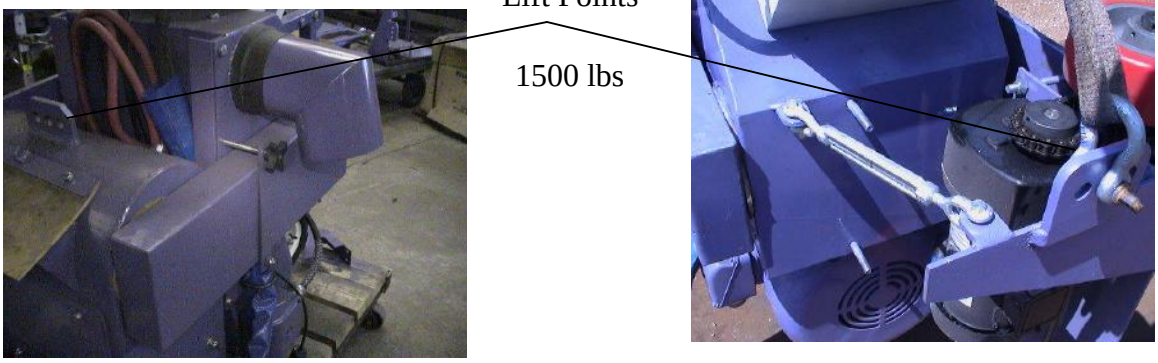
Add For Horizontal Operation

- ❑ **Steering/ Drive Assembly**
- ❑ **Front Wheels axle and collars**
- ❑ **Horizontal Cabinet Wall Plate with Liner**
- ❑ **Abrasive Drain Hose with clamps**
- ❑ **Brooms and flat shovel**

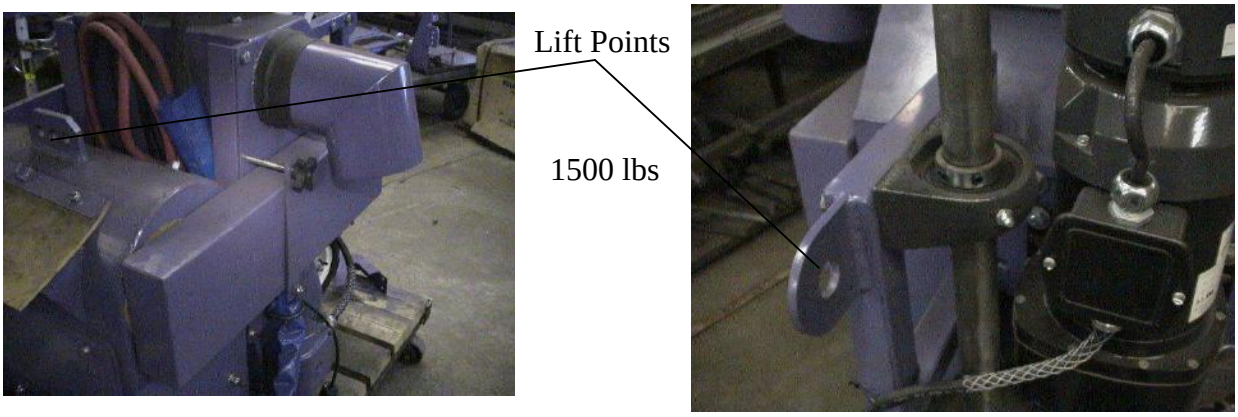
Lifting Points

Caution- Use straps and slings that are in good condition and are rated for the weight of the component. Use 5/8” shackles to connect the slings.

Wall Machine Setup



Floor Machine Setup



1500 lbs

Cone Roof Fixture

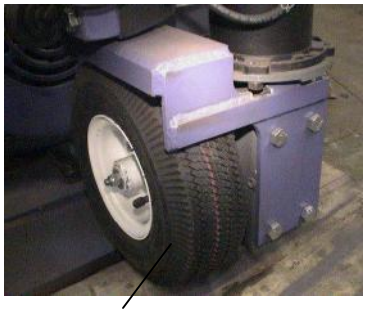
Use straps or slings to lift the fixture. Locate the Slings near the front of the fixture. If the hoist is Mounted on the fixture, the slings must be slid closer To nthe front. Make sure that the fixture is level when lifted. Readjust the slings if necessary.

1500 lbs

Dust Collector

Lifting lugs are located at the four corners of the dust collector housing. Use two slings to lift the unit. Connect the slings with 5/8” shackles at two opposite corner lugs.

Parts List
Horizontal Conversion Parts



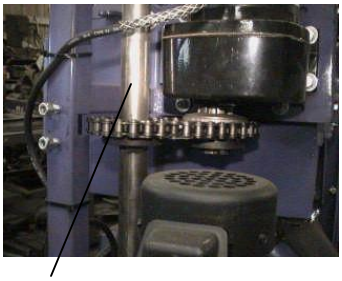
Drive Tire- Pt#101
Inner Tube-Pt#102

Gear Box-Pt#103

Drive Motor-Pt#104

Steering Motor Brake
Pt#105

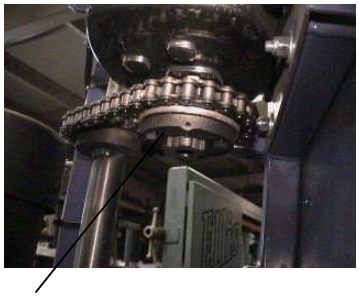
Steering Motor-Pt#106



Steering Shaft Assembly-Pt#107
Includes-Sprocket,lower Bearing
& gearbox mount

Upper Bearing-Pt#108

Steering Chain-Pt#109
Includes Coupling Link



Torque Tamer Assembly-Pt#110
Includes sprocket & Spacer

Steering Assembly
Frame
Pt#111

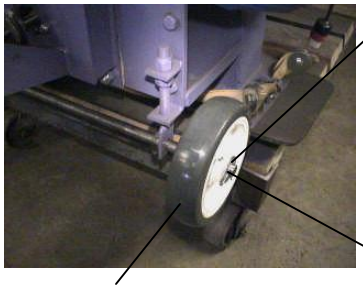
Steering Drive Guard
Pt#112

Abrasive Drain Hose-Pt#113
Hose Clamps-Pt#114

Horizontal Cabinet Wall Plate
Pt#115

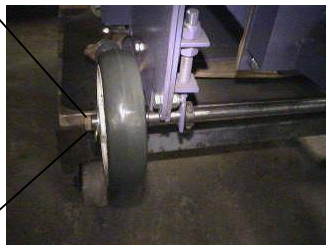
Parts List
Horizontal Conversion Parts- Continued

Side Wall Liner-Pt#116

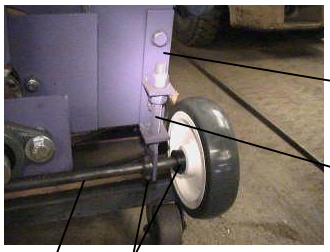


Front Wheel-Pt#117

Front Wheel Pin-Pt#119



Front Wheel Washer-Pt#118



Front Axle Support-Pt#122

Front Axle Post-Pt#123

Front Axle Collar-Pt#120

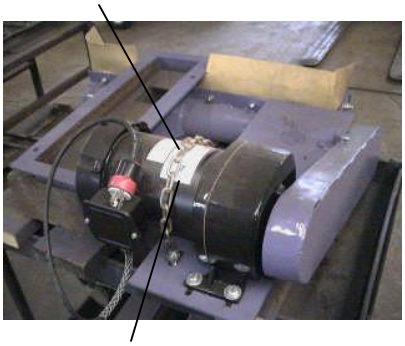
Front Axle-Pt#121

Front Axle Collar-Pt#120

Front Axle Post-Pt#123

Parts List
Vertical Mode Conversion Parts

Tie Down Chain-Pt#124



Screw Drive Motor-Pt#125

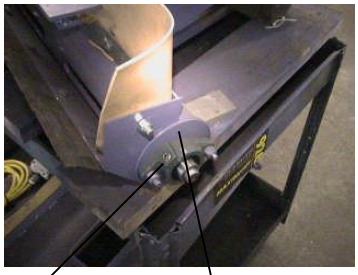
Corner Seal-Pt#126

Center Seal-Pt#127

Center Seal Retainer-Pt#128

End Seal-Pt#129

Screw Drive Guard-Pt#130



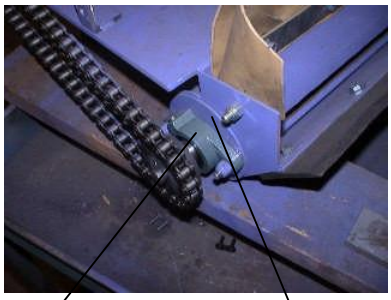
Screw Cover Plate-Pt#131

Screw Conveyor Bearing Pt#132

Screw Conveyor-Pt#133

Sprocket-Pt#134

Screw Drive Chain-Pt#135 Includes Coupling Link



Screw Cover Plate-Pt#136

Screw Conveyor Bearing Pt#137

Screw Trough Seal-Pt#138

Screw Trough Seal Retainer-Pt#139

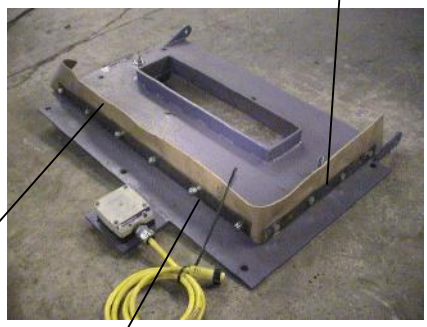
Parts List
Vertical Mode Conversion Parts- Continued

Proximity Switch-Pt#140

Vertical Lower Liner-Pt#142

Vertical Cabinet Wall Plate-Pt#143

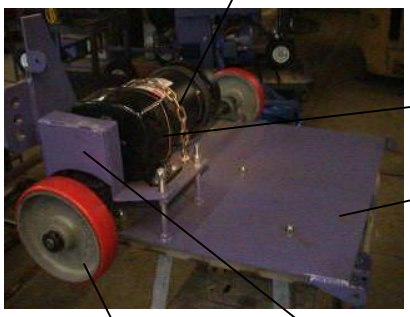
Perimeter Seal Top Retainer-Pt#141



Perimeter Seal Side Retainer-Pt#144

Vertical Perimeter Seal-Pt#145

Tie Down Chain-Pt#124

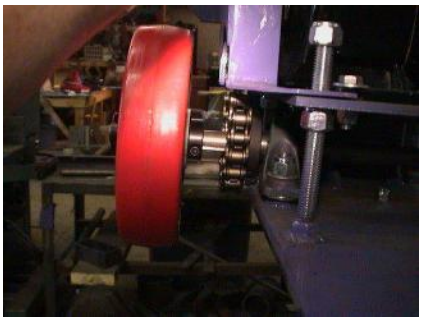


Vertical Drive Motor-Pt#146

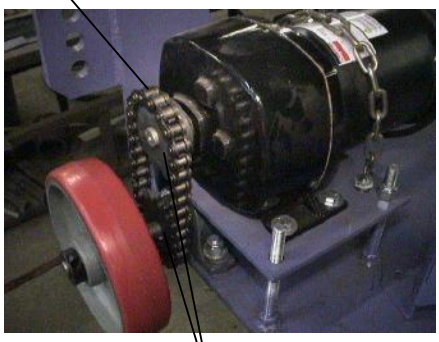
Vertical Drive & Magnet Assembly-Pt#147

Vertical Drive Guard-Pt#148

Vertical Drive Wheel-Pt#149



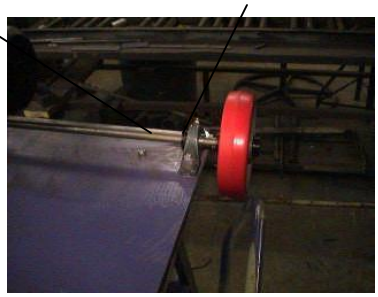
Vertical Drive Chain-Pt#150



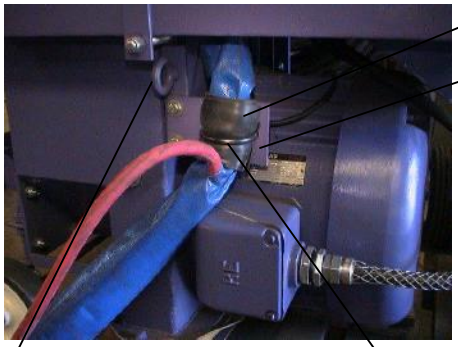
Sprocket-Pt#134

Drive Shaft- Pt#151

Bearing- Pt#152



Parts List
VersaBlast Machine



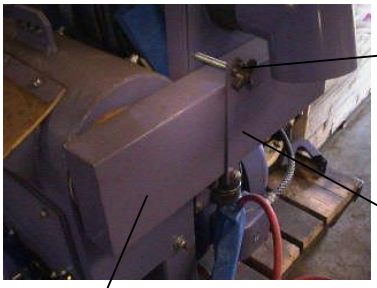
Electrical Cable Clamp Pad-Pt#153

Electrical Cable Clamp Mount-Pt#154

Safety Cable Eye-Pt#155

Electrical Cable Clamp-Pt#156

Electrical Cable Harness-Pt#157



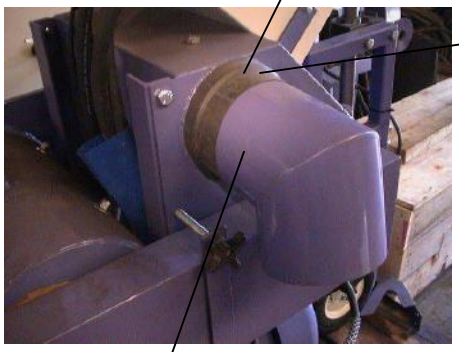
Air Duct Clamp Knob-Pt#158

Air Duct Clamp-Pt#159

Air Duct-Pt#160

Exhaust Elbow Seal-Pt#161

Air Duct Seal-Pt#162



Elbow Clamp Pt#163

Exhaust Elbow-Pt#165

Shot Adder Seal Retainer-Pt#164

Shot Adder Seal -Pt#166

Machine Control Panel Pt#167

Parts List
VersaBlast Machine- Continued

Control Cage Position Arm-Pt#168

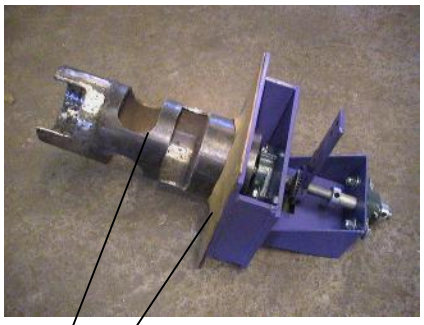
Control Cage Collars-Pt#169

Control Cage Bearing-Pt#173

Control Cage Mount-Pt#170

Control Cage
Arm Spacer-Pt#171

Control Cage Spacer-Pt#172



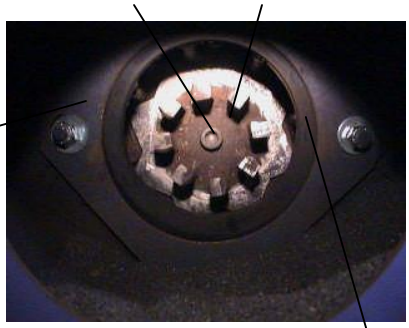
Hopper Cover-Pt#174
Cover Knob-Pt#175

Control Cage Outer Seal-Pt#176

Control Cage Assembly-Pt#177
Includes-shaft,bearing & gear hub

Impeller Bolt Pt#179

Impeller-Pt#180



Shot Valve Magnet-Pt#178

Inner seal Retainer-Pt#181

Shot Valve Bearing-Pt#182

Inner Control Cage Seal-Pt#183

Shot Valve Pivot Arm-Pt#184

Parts List
VersaBlast Machine- Continued

Shot Valve Rod Ball Joint-Pt#185

Shot Valve Rod-Pt#186

Blast Wheel Blade-Pt#187

Blade Bolt-Pt#188

Top Curved Liners-Pt#189

Back Wall Liner-Pt#190

Bottom Blast Opening Liner-Pt#192

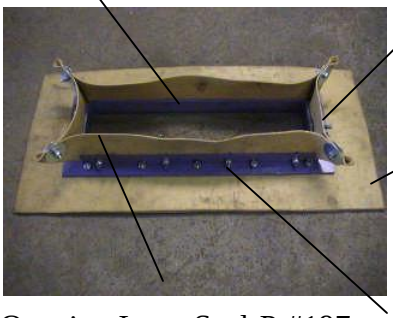
Outer Side Seal Retainer-Pt#191

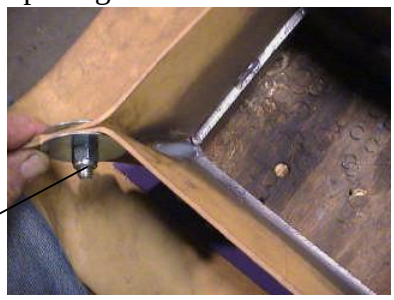
Outer End Seal Retainer-Pt#193

Seal Frame-Pt#194

Inner End Seal Retainer-Pt#195

Blast Opening Outer Seal-Pt#196





Inner Seal Corner Bolt, Nut,& Washers-Pt#198

Blast Opening Inner Seal-Pt#197

Inner Side Seal Retainer-Pt#199

Parts List- Dust Collector

Blower-Pt#200

Blower Motor-Pt#201

Power Cable-Pt#202

Goyen Valve-Pt#203

Steering Handle-Pt#204

Dust Collector Frame-Pt#205

Drum Ratchet-Pt#206

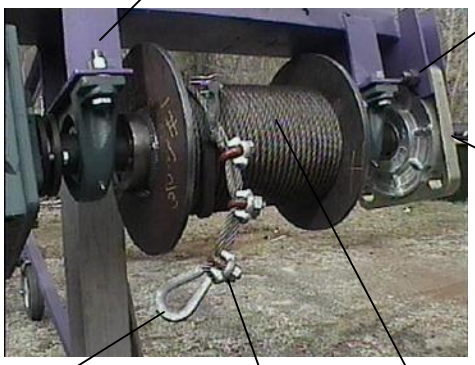
Monometer-Pt#208

Tire Assembly-Pt#207

Filter-Pt#209

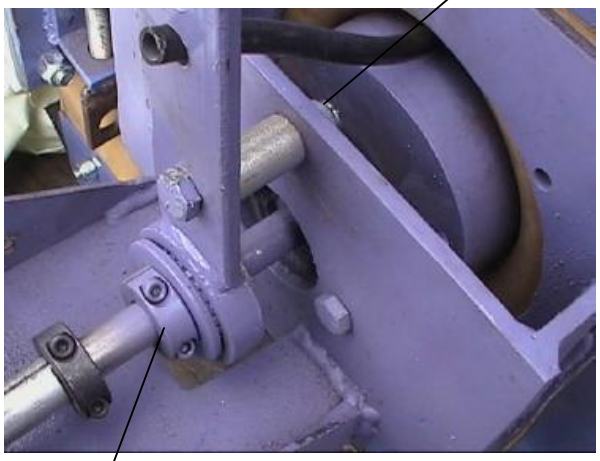
Hanger-Pt#210

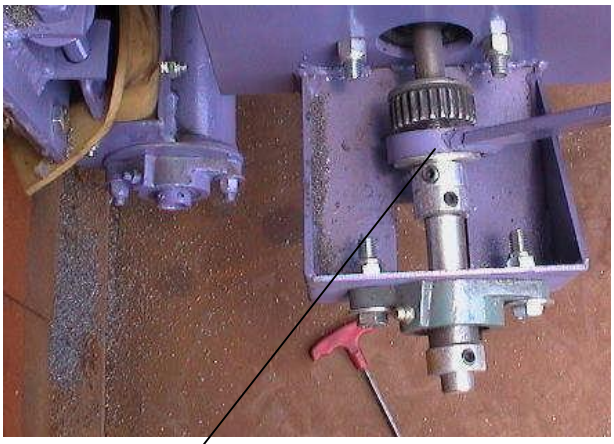
Parts List- Hoist System



Control Cage Adjustment

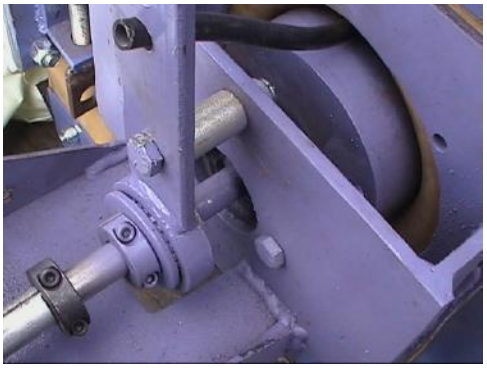
Remove lock nut and remove the bolt and spacer





Slide the locking arm off of the geared hub.

Loosen the collar and slide the collar and washer back away from the adjustment locking arm.



Rotate the arrow on the control cage to 3:00 (as shown) for vertical cleaning.
Rotate the arrow to 10:00 for horizontal cleaning.

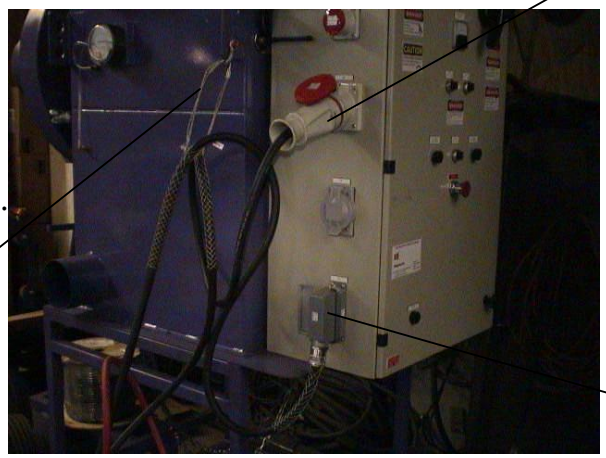
After making the changes slide the locking arm back in place and and Install the locking bolt, collar and washer.

Power Cable & Hose Connections

Floor Operation

Blast Wheel Power Cable

For floor operation connect the wiring harness from the blast machine (blast wheel power cable and the 20 pin power cable as shown).

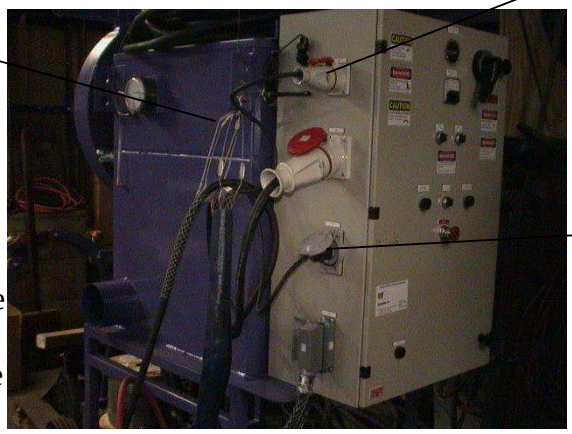


Caution- Be sure to anchor the support slings for each cable harness to the dust collector lifting eye with the shackle provided. This keeps the wires from being pulled loose from the plugs when the collector is moved.

20 Pin Power Cable

Vertical Operation

Hoist Power Cable

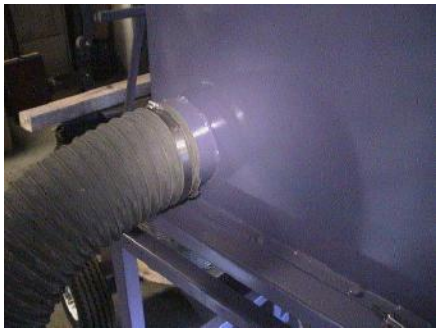


For wall operation connect the blast wheel power cable and the 20 pin power cable as in the floor application. Then connect the cables from the hoist wiring harness (the hoist power cable and the fixture drive power cable).

Fixture or Trolley Power Cable

Connect a ¾" air line with a Chicago fitting to the dust collector air fitting. The pulsing system will automatically keep the cartridge filters clean. A smaller air line can be adapted if required.

Power Cable & Hose Connections Continued



Connect the 6” exhaust hose to the machine and to the dust collector as shown.

An air hose is included in the machine wiring harness to provide air power for options we will offer in the future. The air disconnect on the dust collector is not used now , but will be used to connect the air line in the future.

Safety Labels

Caution- Make sure all safety labels are in place as shown below. Do not paint over labels. Replace labels that are torn or damaged in any way. Replacement labels will be provided free of charge. Call RBW Enterprises 770-251-8989.

Eye protection must be worn when operating or working around this machine

460 Volt

High Voltage lock out power Before servicing

A safety cable must be attached to this dust collector when used on tank roofs.

This machine must be effectively grounded for operator safety

RBW contact information

Check motor rotation machine will be damaged if rotation is incorrect

Lock out machine before servicing do not operate without guards in place

Lock out machine before servicing do not operate without guards in place

120 Volts

Safety Labels
Continued

Eye protection must be worn
when operating or working around
this machine

460 Volt

High Voltage
lock out power
Before servicing

A safety cable must be attached to this
machine when used on tank roofs.

Check motor rotation
machine will be damaged if
rotation is incorrect

Eye protection must be worn
when operating or working
Around this machine.

Moving machinery
this equipment operates from
remote control.

Lock out machine before servicing
do not operate without guards in place

Check rotation

Lock out machine before servicing
do not operate without guards in place

Safety Labels
Continued

Fixture

Lock out machine before servicing
do not operate without guards in place

Moving machinery
this equipment operates from
remote control.

Lock out machine when servicing
wear safety harness.

Dust Collector Inspection and Maintenance

Before beginning maintenance work all power sources (Electrical, Pneumatic, Mechanical) must be locked off, tied off or otherwise neutralized to be considered harmless. It is important that operators and maintenance personnel receive regular equipment safety training and have a thorough working knowledge of all electrical, pneumatic and mechanical aspects of this equipment and observe all warnings and precautions.

- Check the dust drum often - It must be replaced before it is full to avoid spilling dust. Use a hammer or heavy wrench to rap against the drum to find the dust level.

- The dust collector fan exhaust and the monometer reading should be monitored continuously during the cleaning operation. A loose or damaged filter can allow dust to bypass the filtering process and to be discharged to the atmosphere. Clogged filters can make the dust collector inefficient and cause the KleanRider to emit dust. Check the monometer gauge- If it is below 2"water gauge the filters are ok. Over 2"the filters may be clogged. Clean the filters by allowing the air pulse cleaning system to operate with the dust collector fan off for 10 minutes. Poor ventilation will also result in excessive loss of abrasive and can effect the cleaning quality. Proper ventilation is essential to good performance and environmentally safe operation.

- Make sure that the air pulse cleaning system is working properly. Make sure that the air compressor is supplying 80 psi air to the system. Check each goyen valve to assure that it is pulsing every 3 minutes. The blow down signal for each of the (3) Goyen Valves comes from the programmable controller in the dust collector panel. The program is set to pulse each valve sequentially. Pulse time is set for .01 second on and 3 minutes off. Each valve blows down (3) of the (9) filters every three minutes. If longer or shorter pulse times are required a program change is necessary- Contact the factory for program changes. If a valve is not operating, the valve may not be getting a signal from the control panel. Trace the wiring continuity from the valve to the control panel.

- Keep the dust collector out of the weather when not in use. During the cleaning project, cover the unit when not in use to protect it from rain. Make sure that the control panel door is tightly sealed at all times to keep out dust and moisture. **Caution- make sure that a drum is in place at all times**. If the drum is not in place, dust can escape and moisture can collect on the filters. **Filters must be kept dry for proper operation**.

- Replace filters every year. **Caution- When replacing filters or drums, wear dust protection equipment as required by federal, state and local codes.**

- Check the condition of power plugs, cables, connectors and support slings every day. **Caution- Replace or repair damaged plugs, cables, connectors and support slings immediately before operating the machine**.

KleanVac Dust Collector

- Check the pneumatic tires to make sure that they are fully inflated. **Caution- the dust collector is top heavy when the drum is empty. Tires must be fully inflated to safely move the unit.**

Monometer Panel

Automatic air Pulse Filter Cleaning

Control Panel

Torit Cartridge Filters
(9)UltraWeb Filters-Part# 1017

Paint & Dust Receptacle 55 Gal. Drum

Tire-(4) 14" pneumatic-Part# 1021

(2) Drum Ratchet- Part# 1022

Vacuum Hose - (2) 50' long 6" Diameter Exhaust Hose- Part# 1018
(1) Hose Coupling-Part# 1019
(4) 6" Hose Clamps- Part# 1020

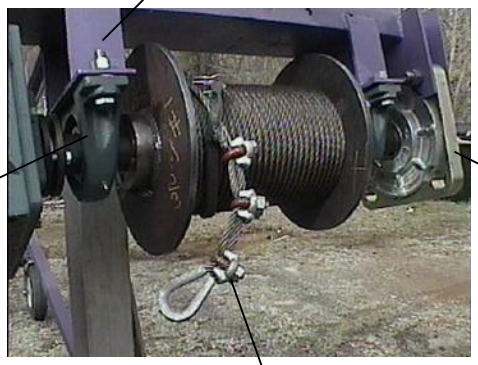
Hoist System
Inspection & Maintenance

Make sure all shackles are wire tied.
All shackles must be 5/8".
Check shackles daily.

Check gearbox oil level
every 12 months-level should be 6" from top of box or approx. center of shaft. (box must be level).
Holds 168 oz. –use Mobile SHC 634

Grease bearings every 6 months

Check bearing bolts before starting each project. Bearing bolts must be 5/8" Grade 5.



Lubricate bearings before every project.

Safety Brake
cover the brake when not in use to keep water, blast sand and dust from the unit. Dust and water can cause the brake to malfunction.

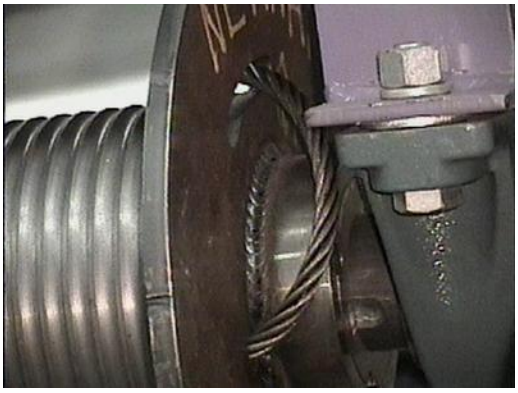
Make sure that at least three clamps are used on each cable and that the clamps are tight.
Check and or tighten cables daily.

Caution:

- **Check cables often. If cables become frayed they must be replaced.**
- **Cable must be hoist rated at 13,000 lbs.-Call RBW for replacement.**
- **Tighten clamps often- always use at least 3 clamps per cable.**
- **Keep the hoist covered when not in use. Protect the brake, drive and cables from dust and water damage.**

Cable Installation

Run the cable end through the slotted hole then through the hole in the side of the drum end wall. Run the cable back through the inside of the hoist drum.

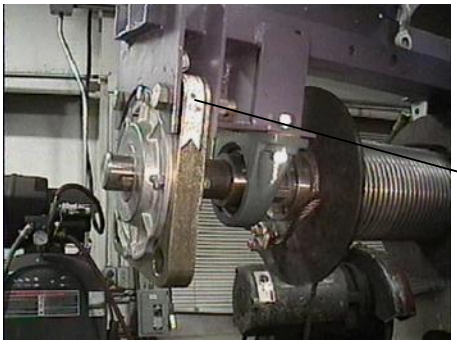


Pull the cable through the drum and out the Hole in the opposite side. Then clamp the Cable in the welded saddle as shown.

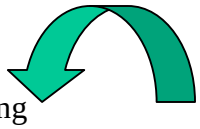
Caution:

- **Cable ends must be secured properly - When replacing cables call RBW for cable replacement specifications and special instruction.**

Safety Brake Instructions



Arrow must point in direction cable is hanging



Caution:

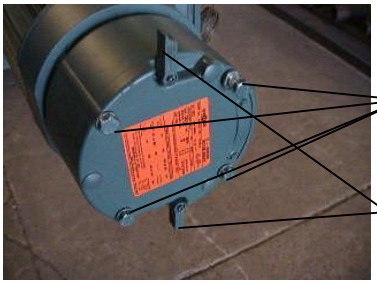
- **The brake is a critical safety component. If the Hoist drive should fail and the machine started to fall the centrifugal brake would stop the fall. To work properly it must be kept clean and free of water and dust. Keep the unit covered when not in use.**
- **If the unit jams for any reason or is tripped by a fall, it must be replaced. It is only good for one failure.**
- **The brake must be mounted so it will trip in the right direction. The arrow on the brake must be pointed in the direction the cable is hanging. Call RBW for special instructions.**
- **If the hoist fails and the safety brake engages, do not attempt to disengage the unit. Use a crane to remove the machine from the hoist cables and call RBW.**

Hoist Motor Brake Instructions

Problem
Brake is smoking or the hoist motor circuit overload kicks out repeatedly.

Solution
Brake disc is jammed with dirt or rust. Clean out the disc and housing. Follow instructions below.

1. Make sure the the machine is on the ground and the cables are disconnected from the machine.
2. Make sure that the power cable is unplugged at the dust collector.



3. Remove the 4 mounting bolts.

4. Open the brake release arms (this spreads the brake spring plates and allows the disc to turn freely.

5. Slip the brake assembly off of the motor shaft being careful not to pull on the brake electrical wires. Use bailing wire to support the brake so no stress will be put on the wires while you clean the brake.

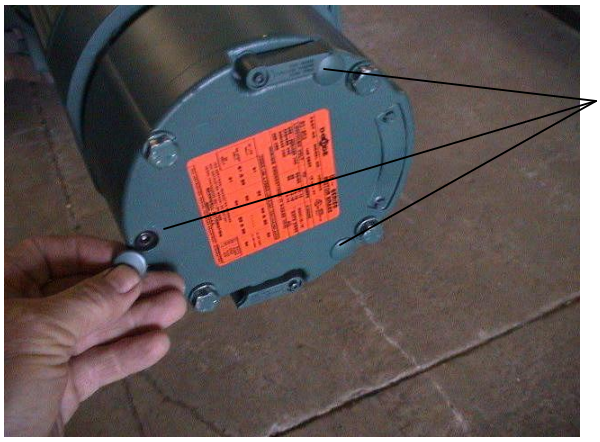
6. Try rotating the brake disc. Blow out any rust or sand lodged between the disc and the clamping plates. Work the disc back and forth until it turns freely. If the disc is still tight, the unit will have to be disassembled for further cleaning. Call RBW before attempting to disassemble the brake.

7. After the disc is cleaned, slide the assembly back onto the motor shaft and install the bolts.

8. Caution- make sure you engage the brake spring plates by closing the release arms.

Problem- Brake does not hold tightly or the machine does not stop immediately when being lowered or raised.

Solution- Adjust brake spring plates by following the procedures below:

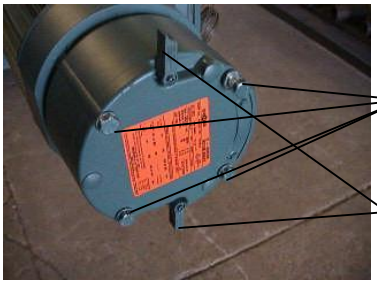


Remove the three plugs on the end of the brake. Tighten each of the three Allen head bolt ¼ turn and try the hoist again. Continue this procedure until the brake works properly.

Problem- The hoist failed and the safety brake engaged.

Solution- First get a crane and remove the machine from the hoist cables. The gear on the hoist motor shaft probably worked loose and came off of the shaft. The gear should be welded to the motor shaft. This procedure assures that the gear cannot work loose. This procedure should be made anytime a replacement motor is installed.

1. Make sure the the machine is on the ground and the cables are disconnected from the machine.
2. Make sure that the power cable is unplugged at the dust collector.



3. Remove the 4 mounting bolts.

4. Open the brake release arms (this spreads the brake spring plates and allows the disc to turn freely.

5. Slip the brake assembly off of the motor shaft being careful not to pull on the brake electrical wires. Use bailing wire to support the brake so no stress will be put on the wires while you clean the brake.

6. Slide the gear back on the shaft. Adjust the gear so the end of the shaft is back from the end of the gear about 3/16". This leaves a 3/16" ledge for welding.

7. Weld the gear to the motor shaft. Caution- the welding ground clamp should be attached to the gear. If the clamp is attached anywhere else the motor could be damaged. Weld all around the inside edge of the gear.

8. After the welding is completed, slide the assembly back onto the motor shaft and install the bolts.

8. Caution- make sure you engage the brake spring plates by closing the release arms.

Break Down to fit through man hole in tanks

Caution- Make sure that all power cables are unplugged from the dust collector so no power is connected to the machine.

Step 1

Remove drain hose.

Step 2

Unbolt the control panel.

Step 3

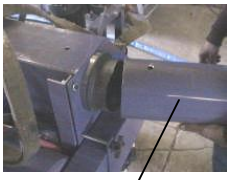
Lay the panel upside down on the machine.

Step 4

Place bolts back in tabs so they don't get lost.

Step 5

Remove exhaust tube locking pin.



Step 6

Step 7

Remove U bolt that clamps the wiring harness.

Step 8

Remove vent box

Step 9

Jack up rear end and place two 2x4s under the blast motor to hold the rear wheel up off of the floor.

Step 10

Remove two nuts holding rear drive in Place.

Step 11

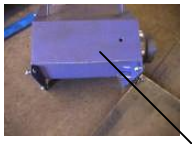
Unplug rear drive power cords.

Step 12

Remove rear drive

Step 13

Remove 4 bolts holding expansion hopper.



Step 14

Remove the hopper, the control panel and wiring harness.

Step 15

Remove the hopper mounting angle.

Step 16

Remove the control cage by Removing 4 nuts.

Step 17

Remove the 2x4s under the motor and tip the machine back so the front wheels can be removed.

Step 18

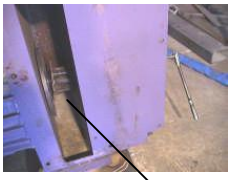
Remove the left wheel and unbolt the axle support bracket.

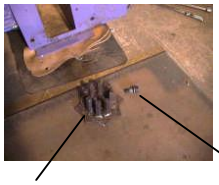
Step 19

Assemble all wheel parts so parts will not be lost.

Step 20

Mark each blade as shown so they can be replaced in the same order.This procedure keeps the wheel assembly in balance. Place a 2x4 under the blades so the assembly won't rotate and remove all 8 blades. Use a breaker bar and ¾" socket to loosen both bolts first, then use a ratchet to remove the bolts. Both bolts must be loosened first so you don't strip threads while removing the bolts.





Impeller Allen Bolt & Lock Washer

Step 21

Remove the impeller from the motor shaft by removing the Allen bolt with a 3/8" Allen socket and an extension bar.




Wheel Hub

Step 22

Try to pry the wheel hub of of the Motor shaft with a pry bar.

If the hub cannot be pried off, place two I/2"x3"long fully threaded bolts in two of the tapped blade holes. Run the bolts through the hub and against the cabinet wall. As the bolts are tightened against the wall, the hub will be pushed off of the shaft. On newer models, two extra tapped holes are located near the hub for this purpose. With this arrangement an extension and ratchet can be used through the cage opening.

Step 23

Remove the side plate by removing all bolts and the liner nut. Since the plate has been sealed with silicone, you will have to pry the plate off with a pry bar or screw driver.



Step 24

Tip the machine over on its side and remove the seal assembly. The seal is held in place with chains which allow the seal to float and flex. Remove the nuts holding the chains in place.






Step 25

Remove the bottom two ¾" nuts that hold the blast motor in place. Loosen the two top nuts, then tip the machine back upright and remove the top nuts. Place a 2x4 under the motor for support then work the motor off of the studs by hand or using a pry bar if necessary.

Place all parts into the tank and reassemble the unit.
See "Reassembly Procedure Inside The Tank".

Reassembly Procedure Inside The Tank





Step 1

Before installing the motor make sure that the shaft is clean and free of rust. Use emery cloth or sand paper to clean the shaft Apply a thin coating of grease or Sealeze on the shaft to aid in installation and future removal of the hub. With the blast cabinet upright, place a 2x4 under the blast motor and work the motor unto the motor studs. Make sure that the wiring receptacle is on the left side as shown. Place the top two nuts on the studs and tip the blast cabinet back on its front side so the motor is up. Place the bottom two nut on the studs and tighten all four nuts.



Step 2

Install the Seal Assembly. The seal opening frame must fit around and over the cabinet frame. Attach the chains at both ends of the seal as shown.

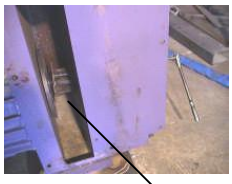

Step 3

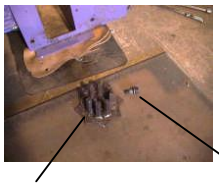
Apply a bead of silicone around the mounting surface for the side plate. Attach the side plate- Leave the liner On the back of the side plate slightly Loose to aid in positioning. Install And tighten all bolts including the liner nut.



Step 4

Make sure that the motor shaft is clean and that a thin coating of grease has been applied. Mark the location of the key slot on the hub. This helps to line the hub up with the motor shaft key. Make sure that the motor shaft key is in place on the shaft. Place the hub on the end of the motor shaft by lining up the key and key slot. Tap the hub on the shaft until it bottoms out using a 2x4 through the control cage opening.





Step 5 Impeller Allen Bolt & Lock Washer

Attach the impeller onto the motor shaft by installing the Allen bolt and lock washer with a 3/8" Allen socket and an extension bar as shown. Apply a drop of Locktite (removable type) on the bolt before installation.



Step 6

Install each marked blade in order, as shown, so the wheel will be balanced. Place a drop of Locktite (removable type) on each bolt. Place a 2x4 under the blades so the assembly won't rotate while tightening the bolts. Tighten all bolts With a ¾" socket and ratchet, then tighten each bolt with a breaker bar. Caution- make sure each blade bolt has been well tightened.




Step 7 Remove any 2x4s and tip the machine back on the blast motor and bolt on the axle support bracket. Attach the front wheel assembly.


Step 8

Replace the control cage and Attach and tighten the four ½"nuts.

Step 9

Attach the hopper mounting angle.



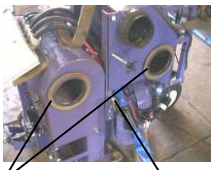

Step 10

Hang the control panel upside down on the machine as shown. Run the wiring harness down along the blast cabinet to the U bolt clamp and then attach the expansion hopper. Install all 4 bolts between the hopper and the support angles. Reattach the U bolt. Caution- the rubber strip must be wrapped around the blue wiring cover and the U bolt must be well tightened to keep the cable harness secure during operation.


Step 11

Place two 2x4s under the blast motor Attach the rear drive as shown. Tighten The two ½" nuts then remove the 2x4s.






Vent seals

Step 12

Reattach the vent box. Caution- make Sure that the vent seals are in place.


Rubber Seal

Step 13

Install the exhaust tube and locking pin. Caution- make sure that the rubber seal is in place and properly attached.


Step 14

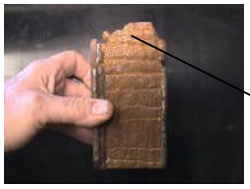
Attach the control panel to the hopper Tabs as shown.


Step 15

Reinstall the hopper drain hose.

Wheel Parts and Liner Inspection and Maintenance

Blast Wheel Blades



Wear begins on the tips of the blade. This blade was allowed to operate too long. The wear is too great to repair.

Check the tips of the blades for groves or notches after each cleaning project. When groves are over 1/8" deep they should be filled with hard face welding rod such a "Wearmax #7". Blade tips can be touched up without removing them, however, if welding is not permitted on the job site it is best to replace worn blades with a new set and then repair the worn set later. New blades come in matched sets that weigh the same. Matched sets must be installed opposite one another to keep the wheel assembly balanced. Repaired blades must also be weighed, marked, and separated into matched sets before installation.
Check bolt heads for wear. Replace any worn bolts. Use only ½"x ¾" L9 bolts.

To remove the blades wedge a 2x4 under the blades so the assembly won't rotate. Use a breaker bar and ¾" socket to loosen both bolts first, then use a ratchet to remove the bolts. Both bolts must be loosened first so you don't strip threads while removing the bolts. When installing a new set of blades place a drop of Locktite (removable type) on each bolt. Tighten all bolts with a ¾" socket and ratchet, then tighten each bolt with a breaker bar.
Caution- make sure each blade bolt has been well tightened.

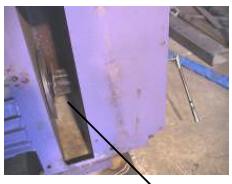
Control Cage

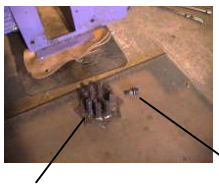
Leading edge

Remove the control cage assembly by removing 4 nuts as shown.

The end of the cage which is subject to wear is coated with hard face weld. Check this area for wear after 50 hours of use. Fill any grooves or notches in the leading edge of the control cage opening with hard face weld.

Impeller





Leading Edge

Impeller

Allen Bolt & Lock Washer

Inspect the impeller by removing the control cage assembly and looking through the opening with a flash light. The impeller should be inspected at 50 hour intervals and must be replaced if an ear is missing or if ears are worn.
Remove the impeller from the motor shaft by removing the Allen bolt with a 3/8"Allen socket and an extension bar as shown. The leading edge of each ear is coated with hard face weld. Fill in any grooves or notches with hard face weld. If the wear is too great replace the impeller. When installing a new impeller place a drop of Locktite (removable type) on the impeller bolt. Caution- make sure the lock washer is in place and the bolt is well tightened.

Common Liners

Top Curved Liner-Pt#224

Back Wall Liner-Pt#225

There are two liners in the machine that are used in the machine for both horizontal and vertical operation- the Top curved liner and the back wall liner. Inspect these liners for wear at 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.

Remove nut to remove the back wall liner

Remove nuts and washers to remove the top curved liner.

To remove the liners at least 3 wheel blades must be removed to allow clearance to get the liners out. Remove the back wall liner first by removing the nut and washer on the front of the blast cabinet. Then remove the top curved liner by removing the two nuts and washers on top of the blast cabinet. When replacing the liners make sure they are seated properly and are tightly secured.

Horizontal Mode Liners

Front Wall Liner-Pt#226

The liner for floor applications is mounted on the side cover plate. Remove the plate and inspect this liner, all blades, the top curved liner, and the back wall liner on 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.

Caution when installing the liner, make sure that the notch lines up with the drain hole in the plate.

Vertical Mode Liners

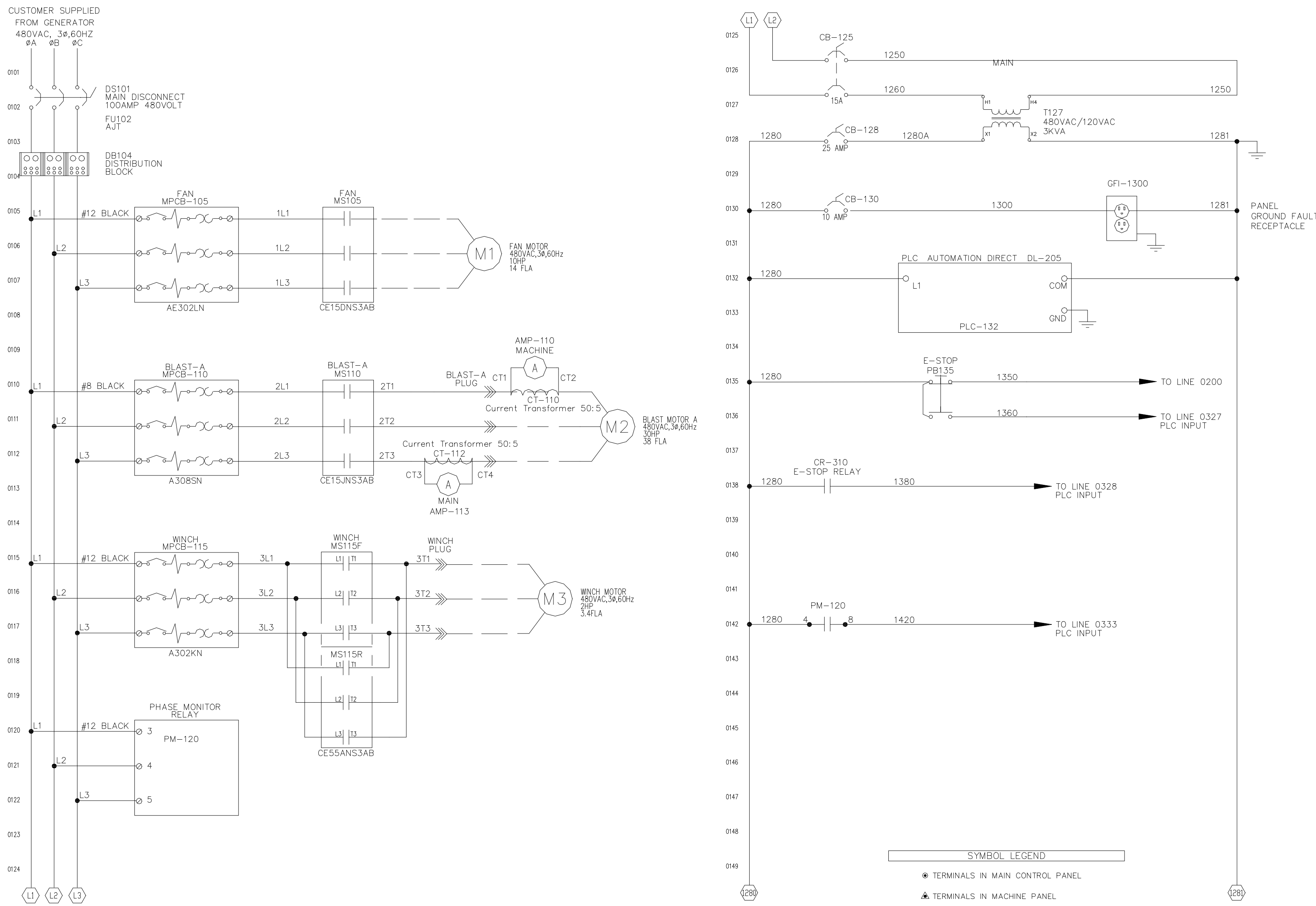
Remove Nut

Bottom Liner-Pt#227

Washer & Nut (not shown) hold the liner in place

Top End Liner-Pt#228

The bottom liner protects the area below the blast opening and can be removed by removing the nut located below the opening. The top end liner protects the area above the blast opening. This liner is removed when in the horizontal mode. Inspect the liners on 50 hour intervals. If wear is found, remove the liners and fill the wear area with hard face weld. If the wear is too great, replace the liner.



MARK	DESCRIPTION	DATE
A	As Built	5/9/2003

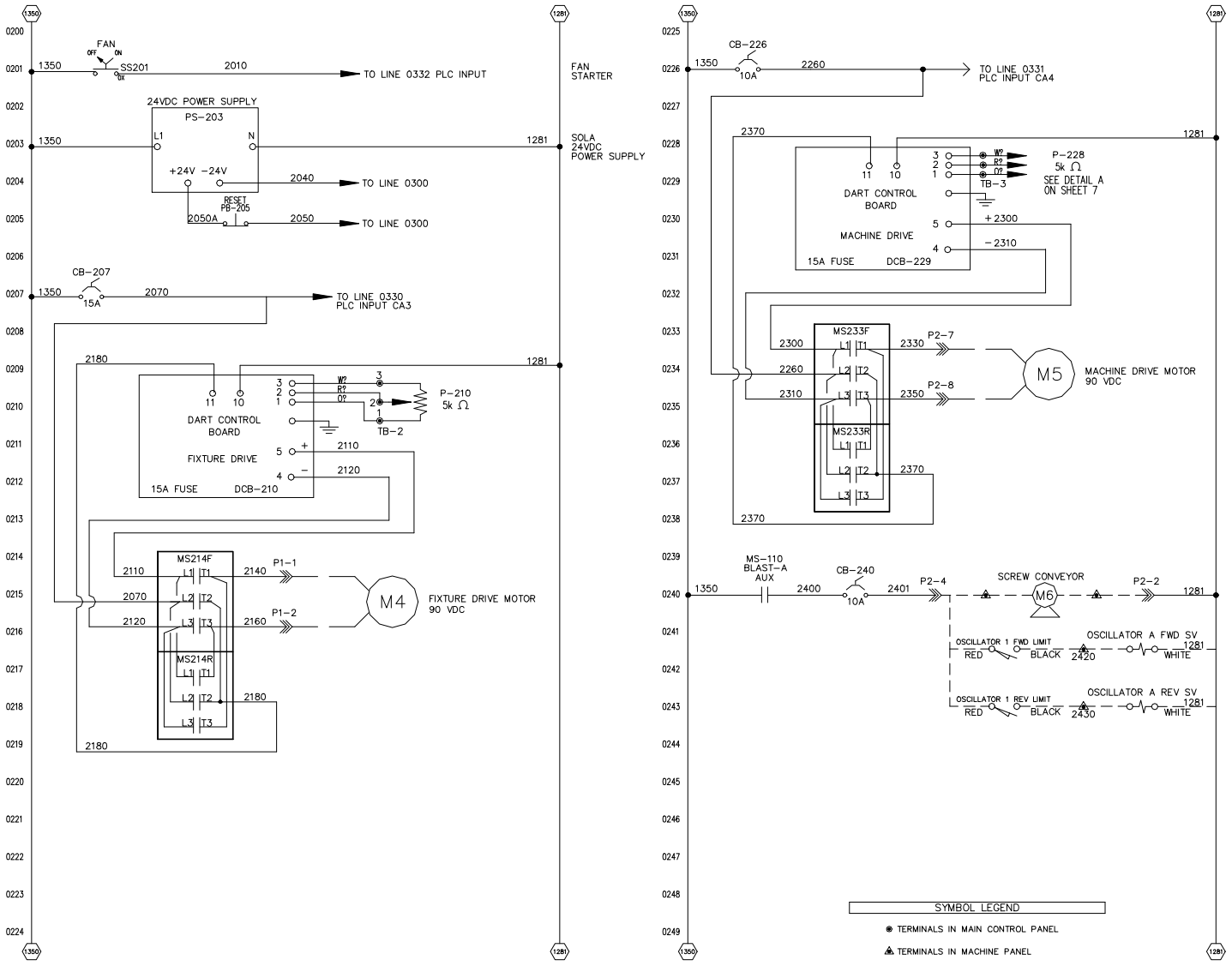
THIS DRAWING IS THE PROPERTY OF BOLD CONTROLS INC. THE DISCLOSURES CONTAINED ON THIS DRAWING ARE MADE WITH THE UNDERSTANDING THAT THEY ARE CONFIDENTIAL AND WILL NOT BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN APPROVAL OF BCI. ALL PRINTS AND ASSOCIATED DOCUMENTS MUST BE RETURNED UPON THE COMPLETION OF THE JOB OR ESTIMATE.

Versa Blast Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS INC
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE: N/A
DATE: 03/28/03
PROJ. NO.: Program 06
PLOT DATE: 5/9/2003
DESIGNED BY: SGW
CAD FILE: RBW 001

SHEET: REW-001
1 of 10 SHEET(S)

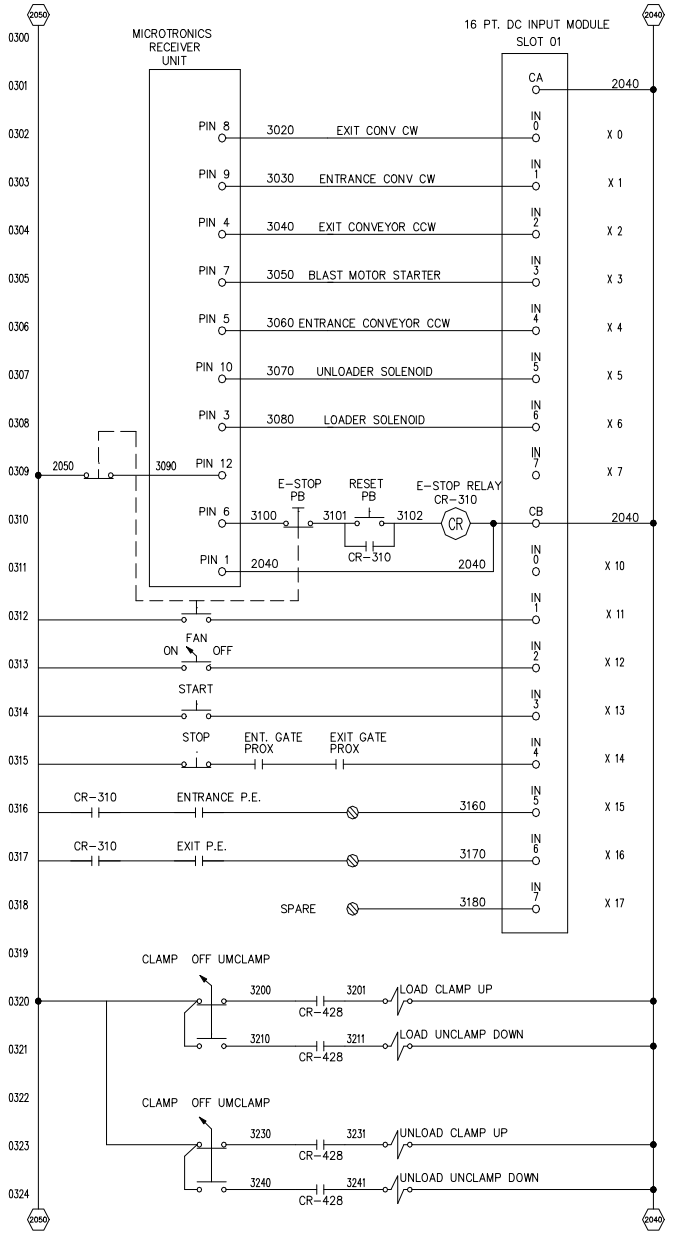


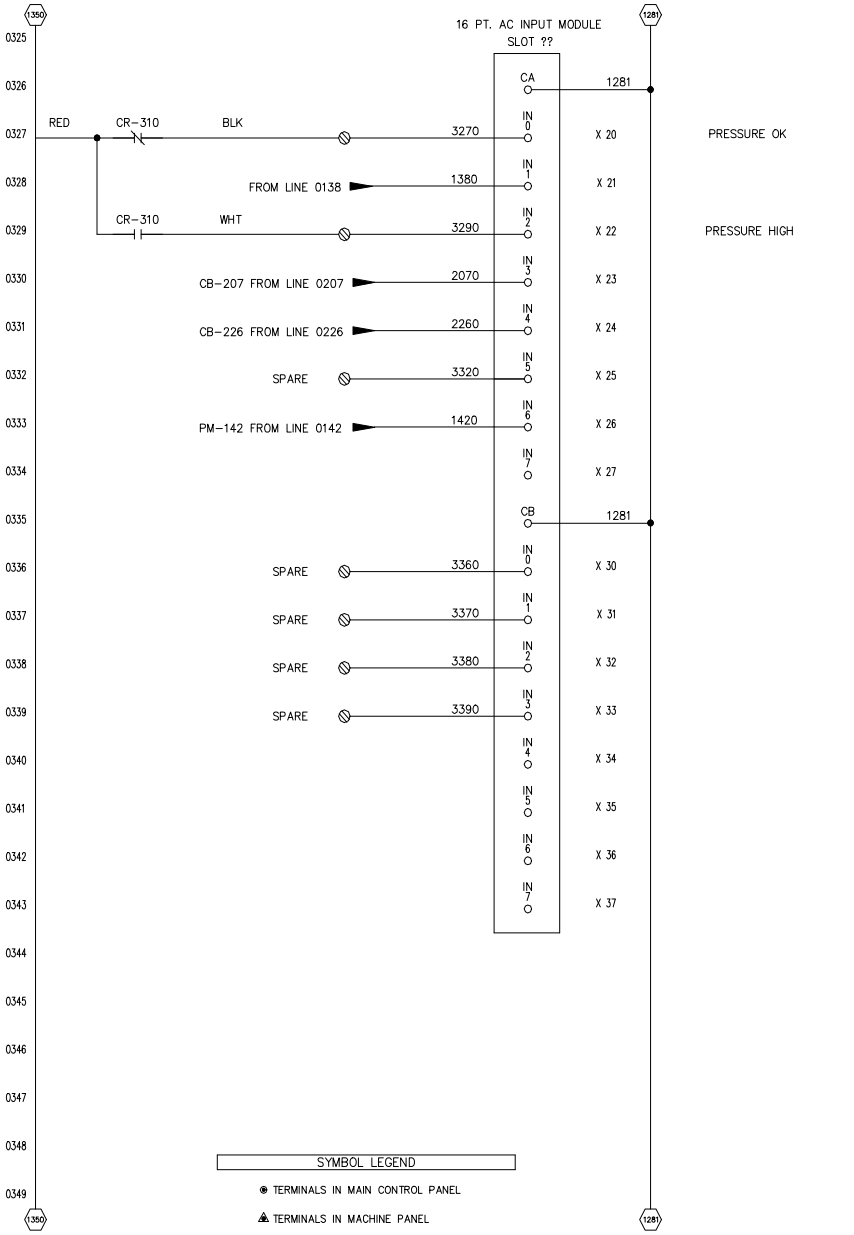
MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

Versa Blaster Control Panel
RBW ENTERPRISES INC
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford, Georgia 30518
Ph (770) 831-1920

SCALE	N/A
DATE	03/28/03
PROG. REV.	Program 06
PLOT DATE	5/09/03
DESIGNED BY	SCW
DWG FILE	RBW 002
SHEET	RBW 002
	2 OF 10 SHEET(S)



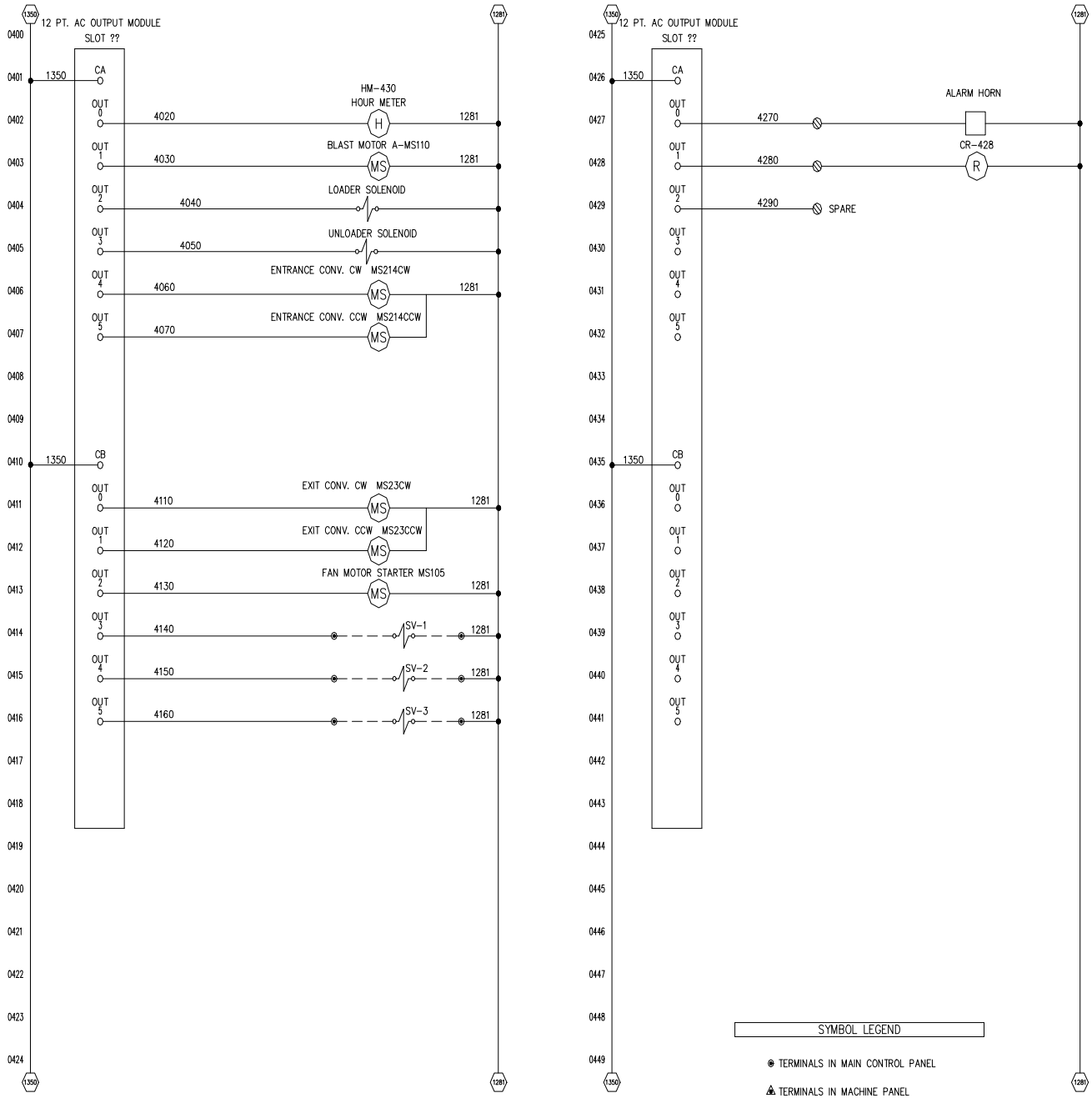


MARK	DESCRIPTION	DATE
A	AS BUILT	01/20/05

Pipe Blast Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE: N/A
DATE: 10/01/04
PROJ. NO.
PLOT DATE: 01/20/05
DESIGNED BY: SGW
CAD FILE: RBW 003
SHEET: RBW 003
3 OF 10 SHEETS



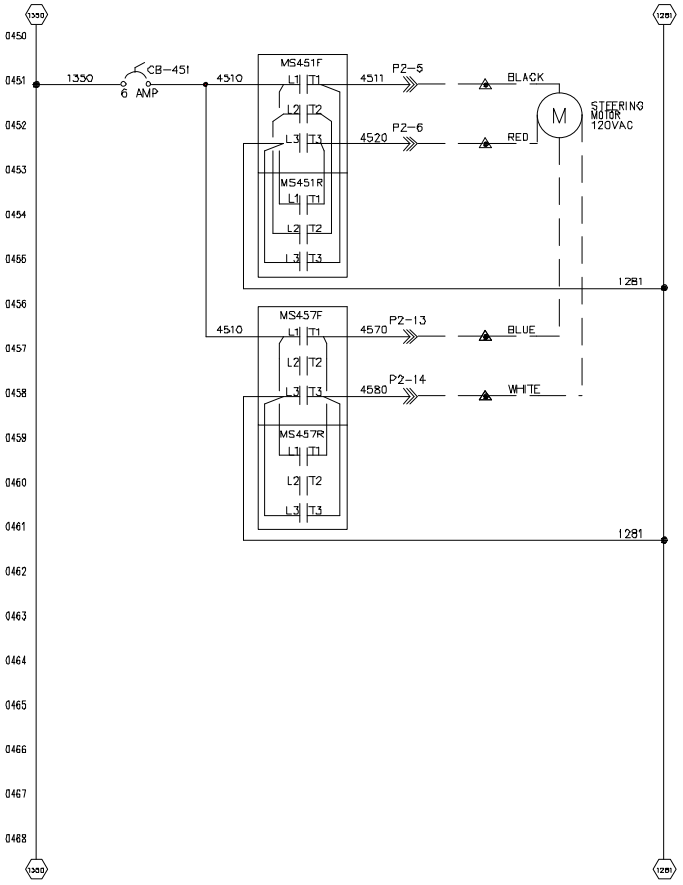
MARK	DESCRIPTION	DATE
A	AS BUILT	01/20/05

Pipe Blast Control Panel

RBW ENTERPRISES INC.
VERSA BLAST
CONTROL PANEL

BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford,Georgia 30518
PH (770) 831-1920

SCALE:	N/A
DATE:	10/01/04
PROJ. NO.	
PLOT DATE:	1/20/05
DESIGNED BY:	SGW
CAD FILE:	RBW 004
SHEET:	RBW 004
SHEET(S)	4 OF 6



SYMBOL LEGEND

● TERMINALS IN MAIN CONTROL PANEL

▲ TERMINALS IN MACHINE PANEL

MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/05

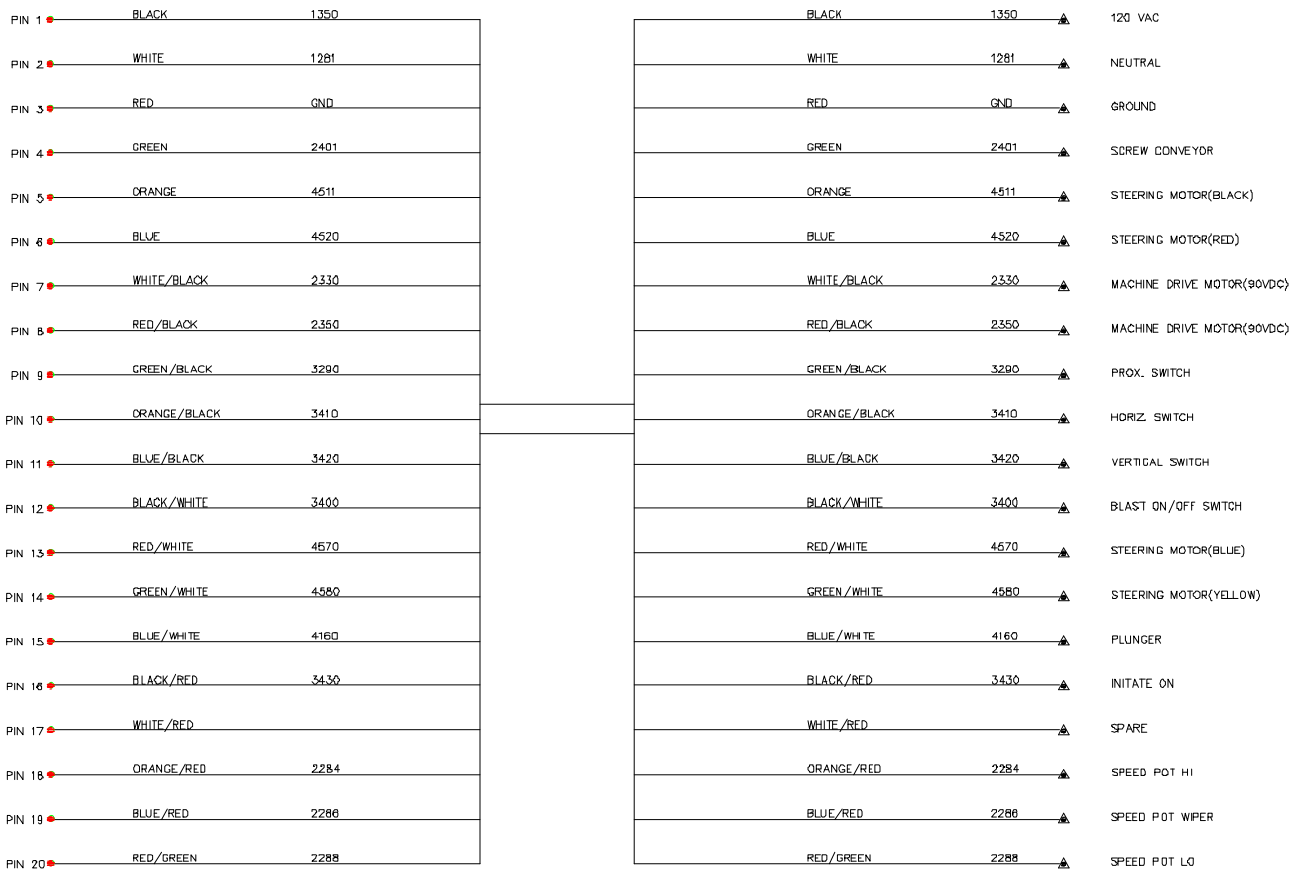
Versa Blast Control Panel

RBW ENTERPRISES INC.
VERSA BLAST
CONTROL PANEL

BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE	N/A
DATE	3/28/03
DRAWN	Program 06
PLOT DATE	3/28/03
DESIGNED BY	SLOW
DRAWING NO.	RBW 005
DESIGN	RBW 005
5 OF 10 SHEET(S)	

20 CONDUCTOR CABLE



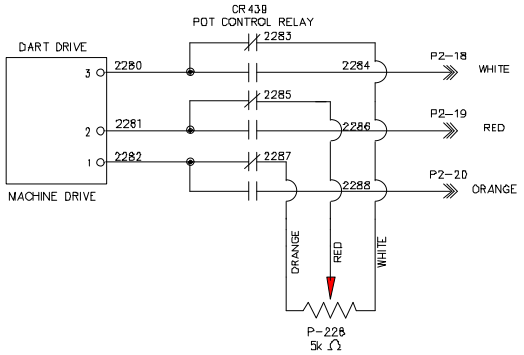
MARK	DESCRIPTION	DATE
A	AS BUILT	5/27/03

Versa Blast Control Panel
RBW ENTERPRISES INC.
287 millard Farmer Industrial Blvd.
Newnan, Ga. 30263

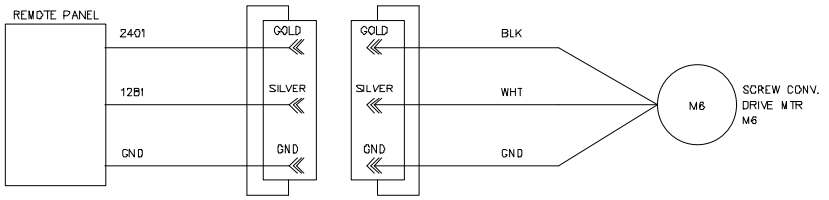
BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
PH (770) 831-1920

SHEET	6 OF 10 SHEETS
SCALE	N/A
DWG	RBW 006
DATE	3/28/03
PROJECT	Program 06
PLOT DATE	5/28/03
DESIGNED BY	SDW
DWG #	RBW 006

DETAIL A



MOTOR 6



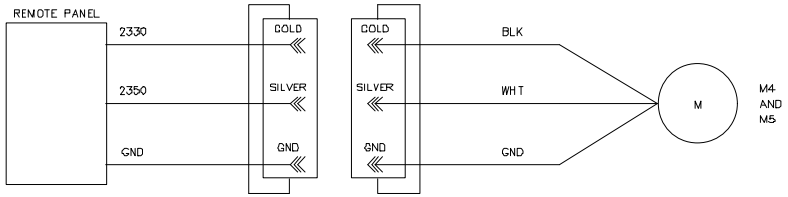
FEMALE PLUG ASSEMBLY

P&S # L515C
RUBBER BOOT W/RED TAPE
CUT 45" LONG
USE 14-3 SO CORD

MALE PLUG ASSEMBLY

P&S # L515P
RUBBER BOOT W/RED TAPE
CUT 18" LONG
USE 14-3 SO CORD
INSTALL STRAIN RELIEF AT MTR

M4 FIXTURE DRIVE
M5 MACHINE DRIVE



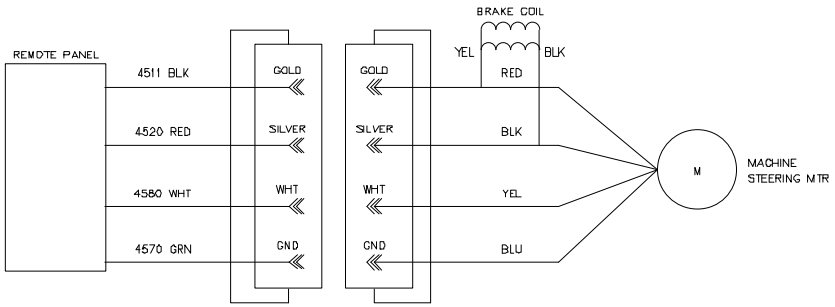
FEMALE PLUG ASSEMBLY

P&S # L515C
RUBBER BOOT W/BLU TAPE
CUT 45" LONG

MALE PLUG ASSEMBLY

P&S # L515P
RUBBER BOOT W/BLU TAPE
VERTICLE: CUT 28" LONG
HORIZ.: CUT 35" LONG
INSTALL STRAIN RELIEF AT MOTOR

STEERING MOTOR



FEMALE PLUG ASSEMBLY

P&S # L1420C
RUBBER BOOT
CUT 45" LONG
USE 14-4 SO CORD

MALE PLUG ASSEMBLY

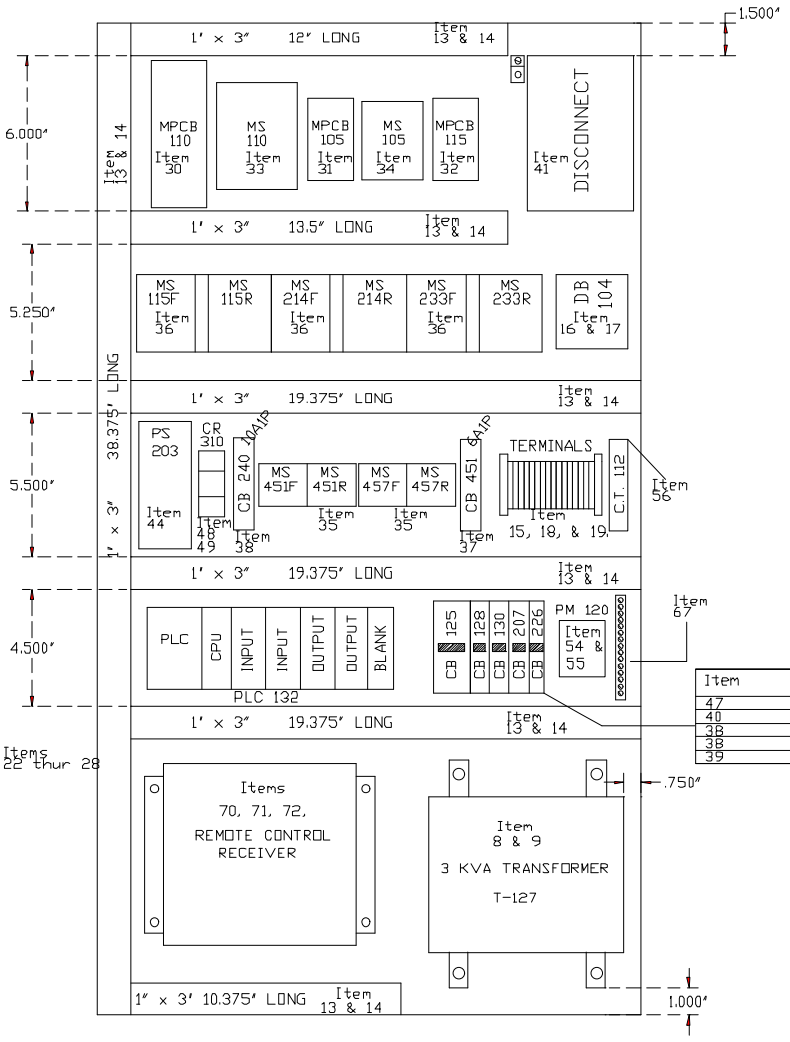
P&S # L1420P
RUBBER BOOT
CUT 34" LONG
USE 14-4 SO CORD
INSTALL STRAIN RELIEF AT MOTOR

MARK	DESCRIPTION	DATE
A	AS BUILT	

Versa Blast Control Panel
RBW ENTERPRISES, INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS, Inc.
4540 Atwater Court
Suite 112
Buford, Georgia 30518
PH (770) 831-1920

SCALE	N/A
DATE	3/28/03
ENGR	Program 06
PLOT DATE	3/28/03
DRAWN BY	SCW
DWG NO	RBW 007
ITEM	RBW 007
SHEET	7 OF 10 SHEETS



Item	Tag	
47	CB-125	15 A 2P
40	CB-128	25 A 1P
38	CB-130	10 A 1P
38	CB-226	10 A 1P
39	CB-207	15 A 1P

DIN RAIL LIST

1 PIECE @ 2.500 " TOP ROW
1 PIECE @ 7.000 " TOP ROW
1 PIECE @ 15.500 " SECOND ROW
1 PIECE @ 16.000 " THIRD ROW
1 PIECE @ 11.000 " FOURTH ROW
1 PIECE @ 5.250 " FOURTH ROW
1 PIECE @ 17.000 " ON DOOR

ALUMINUM RAILS ON DOOR

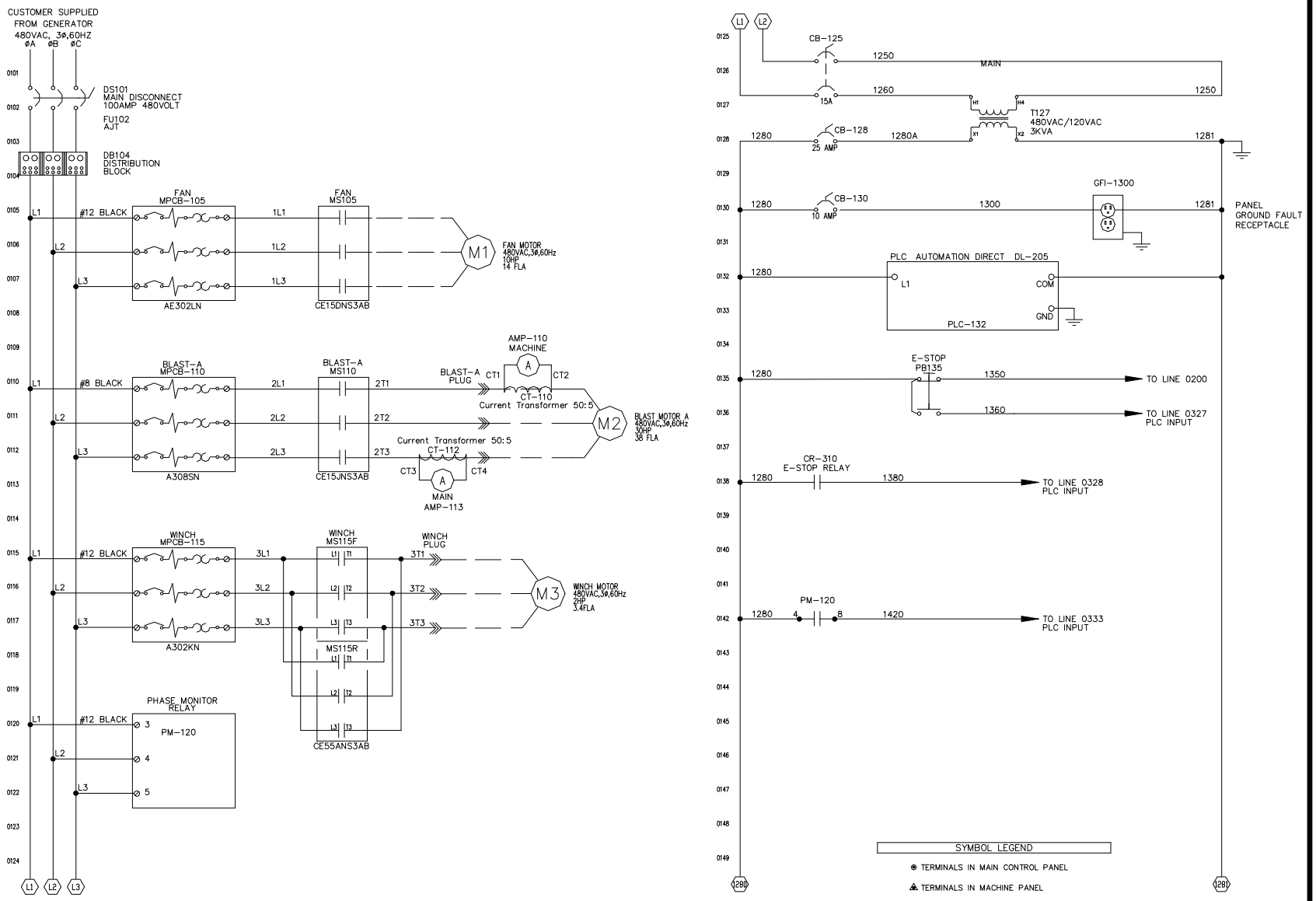
3 PIECES @ 21 " LONG
1.5 " WIDE X 1/8 " THICK

MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

Versa Blaster Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
PH (770) 831-1920

SHEET	RBW 010
SHEETS	10
SCALE	N/A
DWG	3/28/03
PANEL	Program 06
TEST DATE	5/28/03
DESIGNED BY	SDW
DRAWN BY	RBW 010

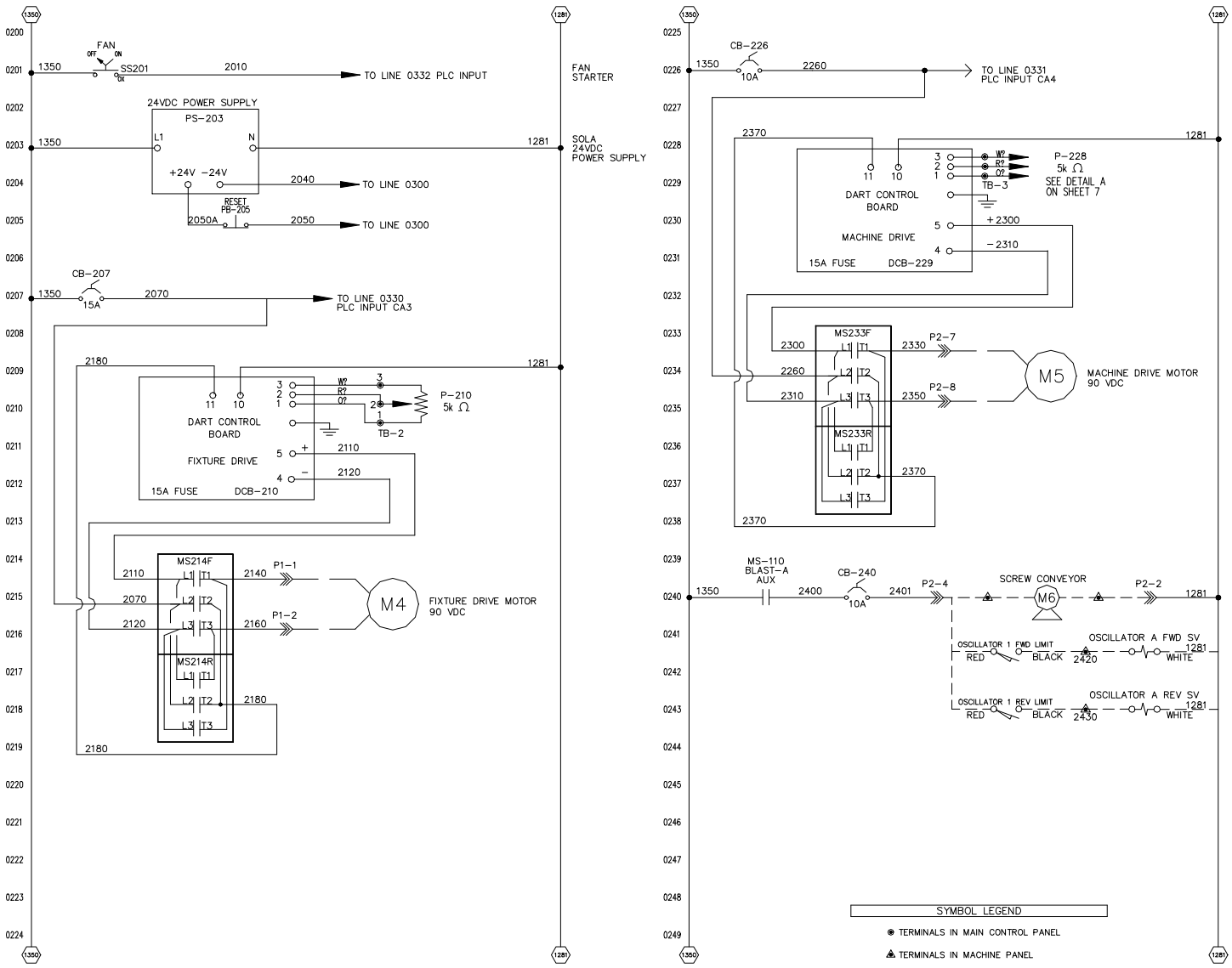


MARK	DESCRIPTION	DATE
A	As Built	5/9/2003

Versa Blast Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE:	N/A
DATE:	03/28/03
PROJ. NO.	Program 06
PLOT DATE:	5/9/2003
DESIGNED BY:	RW
CAD FILE:	REW_001
SHEET:	REW-001
	1 of 10 SHEETS



MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

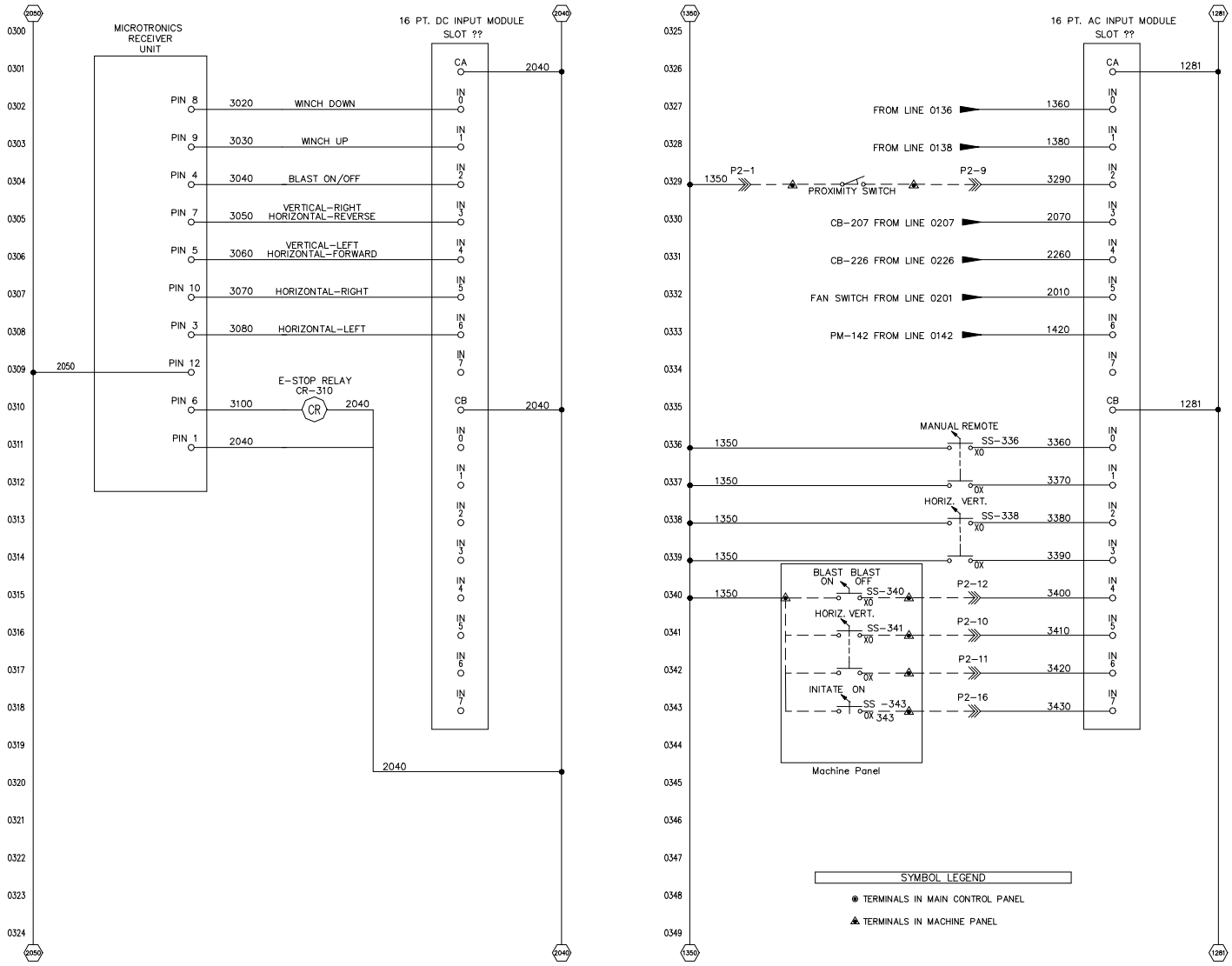
Versa Blaster Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE:	N/A
DATE:	03/28/03
PROJ. NO.	Program 06
PLOT DATE:	5/09/03
DESIGNED BY:	SGW
CAD FILE:	REV 002

SHEET: RBW 002

2 or 10 SHEET(S)



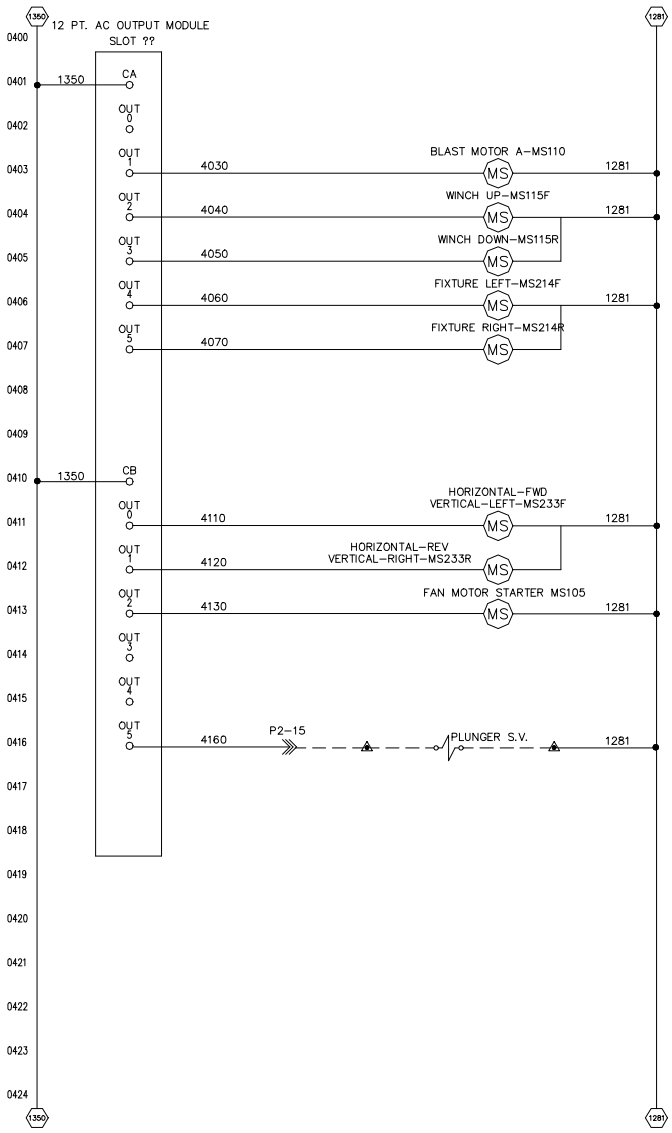
MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

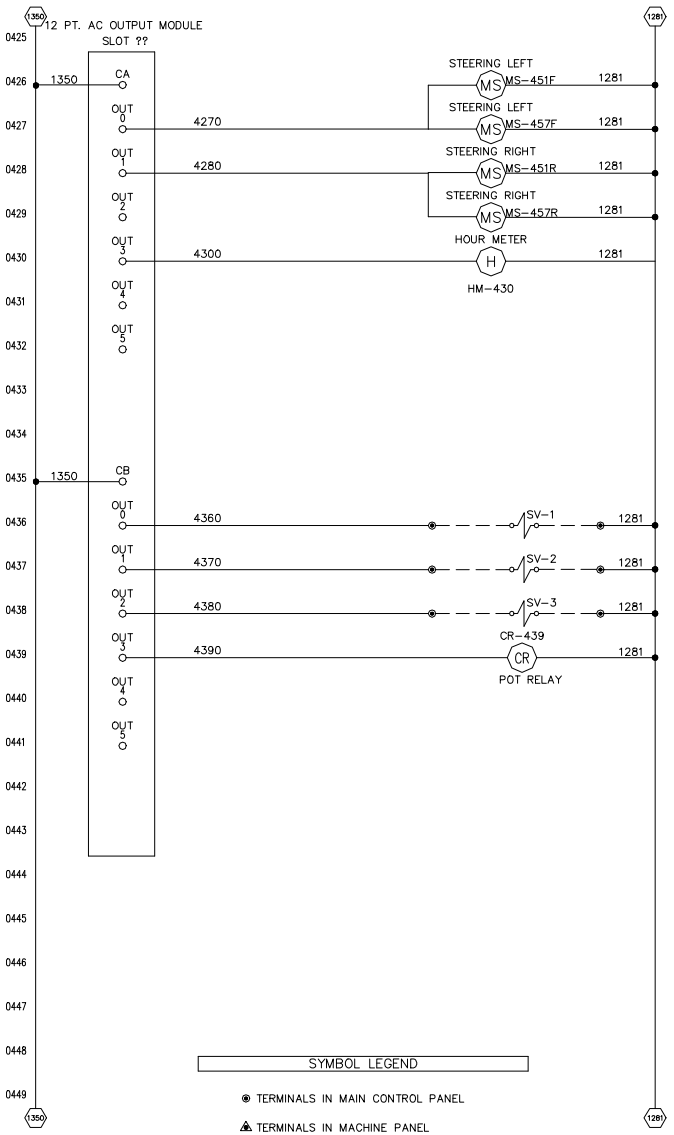
Veras Blast Control Panel
RBW ENTERPRISES INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford, Georgia 30518
Ph (770) 831-1920

SCALE	N/A
DATE	3/28/03
PROJ. MGR.	Program 06
PLOT DATE	5/09/03
DESIGNED BY	SCW
CAD FILES	RBW 003

SHEET: RBW 003
3 of 10 SHEETS





SYMBOL LEGEND

◉ TERMINALS IN MAIN CONTROL PANEL

⚠ TERMINALS IN MACHINE PANEL

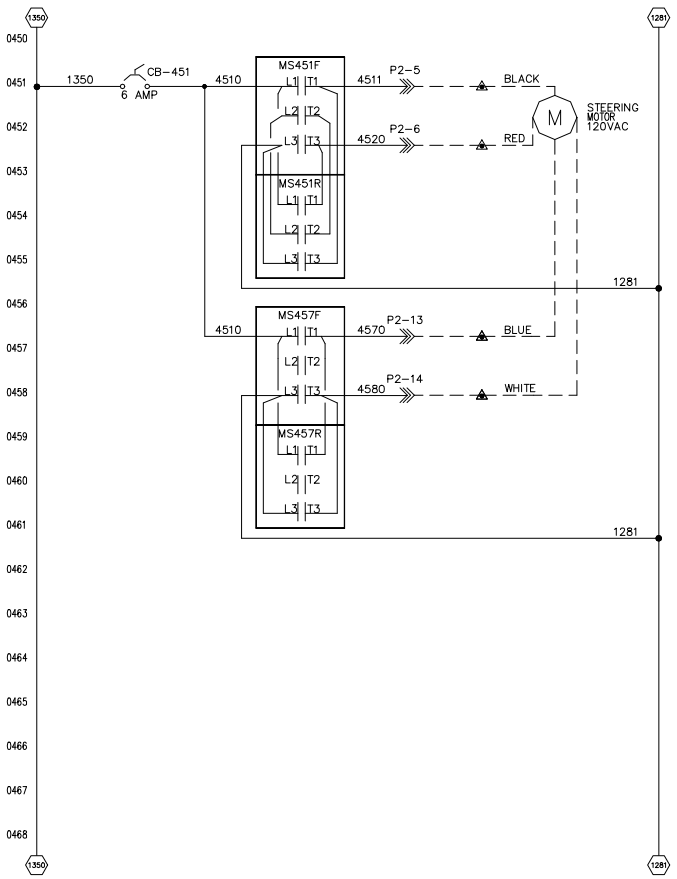
MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

Versa Blast Control Panel
RBW ENTERPRISES INC.
VERSA BLAST
CONTROL PANEL

BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE: N/A
DATE: 3/28/03
PROJ. NO. Program 06
PLOT DATE: 3/28/03
DESIGNED BY: SCW
DWG FILE: RBW 004

SHEET: RBW 004
4 OF 10 SHEET(S)



SYMBOL LEGEND

◉ TERMINALS IN MAIN CONTROL PANEL

◬ TERMINALS IN MACHINE PANEL

MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

Versa Blast Control Panel

RBW ENTERPRISES INC.
VERSA BLAST
CONTROL PANEL

BOLD CONTROLS INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE:	N/A
DATE:	3/28/03
PROJ. NO.	Program 06
PLOT DATE:	3/28/03
DESIGNED BY:	SGW
DWG. NO.	RBW 005

SHEET: RBW 005

5 of 10 SHEETS

20 CONDUCTOR CABLE

PIN 1	BLACK	1350	BLACK	1350	120 VAC
PIN 2	WHITE	1281	WHITE	1281	NEUTRAL
PIN 3	RED	GND	RED	GND	GROUND
PIN 4	GREEN	2401	GREEN	2401	SCREW CONVEYOR
PIN 5	ORANGE	4511	ORANGE	4511	STEERING MOTOR(BLACK)
PIN 6	BLUE	4520	BLUE	4520	STEERING MOTOR(RED)
PIN 7	WHITE/BLACK	2330	WHITE/BLACK	2330	MACHINE DRIVE MOTOR(90VDC)
PIN 8	RED/BLACK	2350	RED/BLACK	2350	MACHINE DRIVE MOTOR(90VDC)
PIN 9	GREEN/BLACK	3290	GREEN/BLACK	3290	PROX. SWITCH
PIN 10	ORANGE/BLACK	3410	ORANGE/BLACK	3410	HORIZ. SWITCH
PIN 11	BLUE/BLACK	3420	BLUE/BLACK	3420	VERTICAL SWITCH
PIN 12	BLACK/WHITE	3400	BLACK/WHITE	3400	BLAST ON/OFF SWITCH
PIN 13	RED/WHITE	4570	RED/WHITE	4570	STEERING MOTOR(BLUE)
PIN 14	GREEN/WHITE	4580	GREEN/WHITE	4580	STEERING MOTOR(YELLOW)
PIN 15	BLUE/WHITE	4160	BLUE/WHITE	4160	PLUNGER
PIN 16	BLACK/RED	3430	BLACK/RED	3430	INITATE ON
PIN 17	WHITE/RED		WHITE/RED		SPARE
PIN 18	ORANGE/RED	2284	ORANGE/RED	2284	SPEED POT HI
PIN 19	BLUE/RED	2286	BLUE/RED	2286	SPEED POT WIPER
PIN 20	RED/GREEN	2288	RED/GREEN	2288	SPEED POT LO

MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

Versa Blast Control Panel
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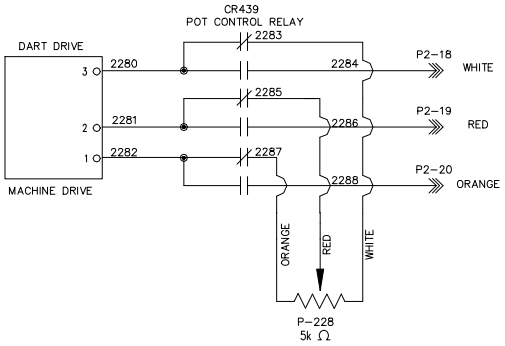
287 millard Farmer Industrial Blvd
Newnan, Ga. 30263

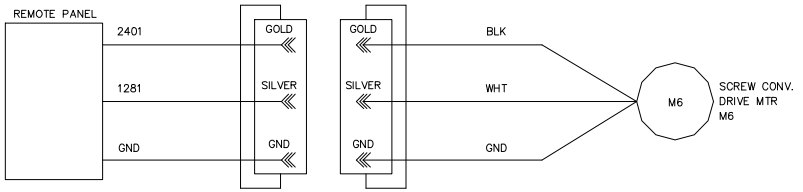
BOLD CONTROLS, INC.
4540 Atwater Court
Suite 112
Buford Georgia 30518
Ph (770) 831-1920

SCALE: N/A
DATE: 3/28/03
PROJ. ENGR: Program 06
PLOT DATE: 3/28/03
DESIGNED: SGW
DWG NO: RBW 006
REV:
SHEET: RBW 006
6 OF 10 SHEET(S)

DETAIL A



MOTOR 6



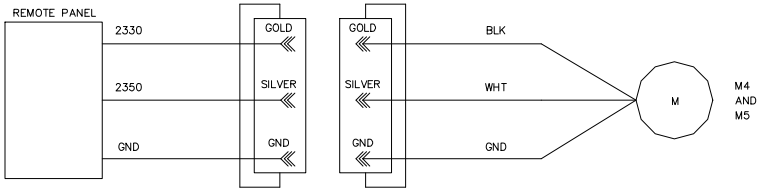
FEMALE PLUG ASSEMBLY

P&S # L515C
RUBBER BOOT W/RED TAPE
CUT 45" LONG
USE 14-3 SO CORD

MALE PLUG ASSEMBLY

P&S # L515P
RUBBER BOOT W/RED TAPE
CUT 18" LONG
USE 14-3 SO CORD
INSTALL STRAIN RELIEF AT MTR

M4 FIXTURE DRIVE
M5 MACHINE DRIVE



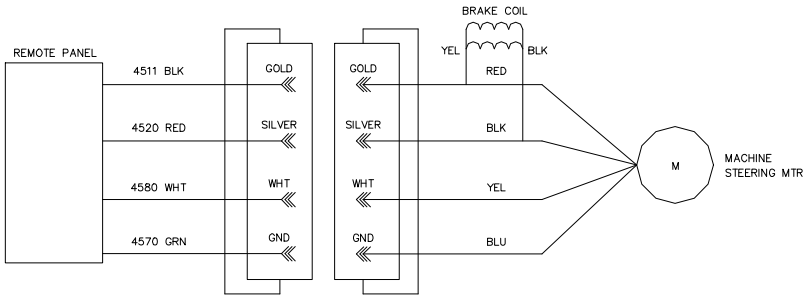
FEMALE PLUG ASSEMBLY

P&S # L515C
RUBBER BOOT W/BLU TAPE
CUT 45" LONG

MALE PLUG ASSEMBLY

P&S # L515P
RUBBER BOOT W/BLU TAPE
VERTICLE: CUT 28" LONG
HORIZ.: CUT 35" LONG
INSTALL STRAIN RELIEF AT MOTOR

STEERING MOTOR



FEMALE PLUG ASSEMBLY

P&S # L1420C
RUBBER BOOT
CUT 45" LONG
USE 14-4 SO CORD

MALE PLUG ASSEMBLY

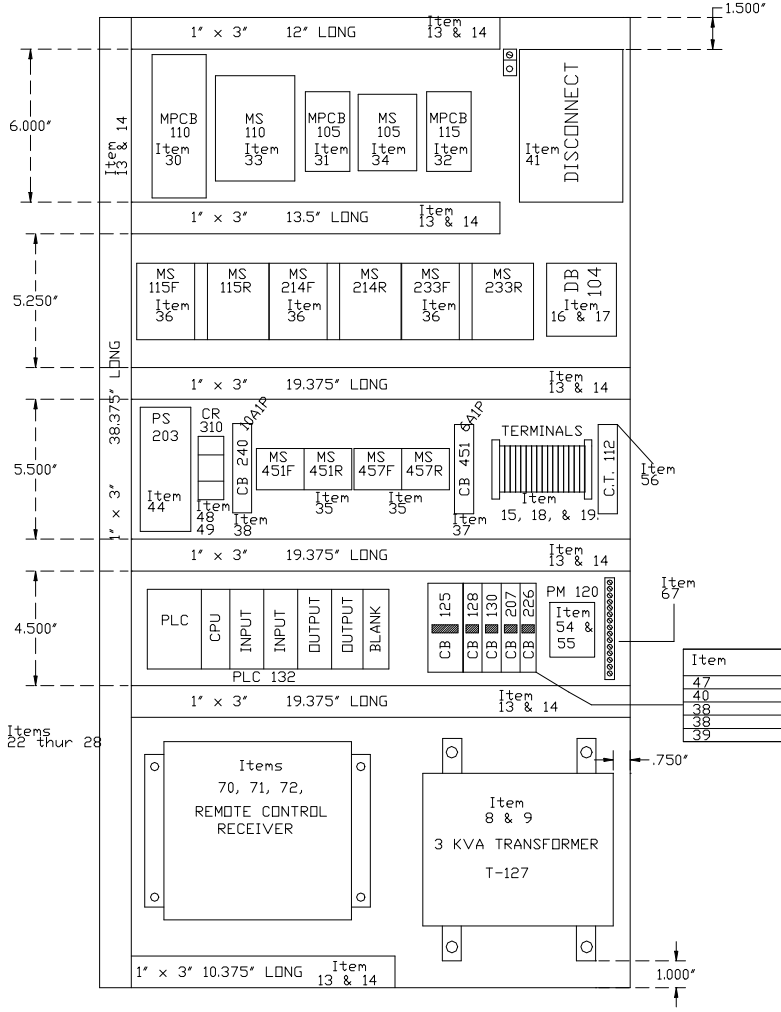
P&S # L1420P
RUBBER BOOT
CUT 34" LONG
USE 14-4 SO CORD
INSTALL STRAIN RELIEF AT MOTOR

MARK	DESCRIPTION	DATE
A	AS BUILT	

Versa Blast Control Panel
RBW ENTERPRISES, INC.
287 Millard Farmer Industrial Blvd
Newnan, Ga. 30263

BOLD CONTROLS INC
4540 Atwater Court
Suite 112
Buford, Georgia 30518
Ph (770) 831-1920

SCALE: N/A
DATE: 3/28/03
PROJECT: Program 06
PLOT DATE: 3/28/03
DESIGNED BY: SDW
CAD FILE: RBW 007
SHEET: RBW 007
7 of 10 SHEETS



Item	Tag	
47	CB-125	15 A 2P
40	CB-128	25 A 1P
38	CB-130	10 A 1P
38	CB-226	10 A 1P
39	CB-207	15 A 1P

DIN RAIL LIST

1 PIECE @ 2.500 " TOP ROW
1 PIECE @ 7.000 " TOP ROW
1 PIECE @ 15.500 " SECOND ROW
1 PIECE @ 16.000 " THIRD ROW
1 PIECE @ 11.000 " FOURTH ROW
1 PIECE @ 5.250 " FOURTH ROW
1 PIECE @ 17.000 " ON DOOR

ALUMINUM RAILS ON DOOR

3 PIECES @ 21 " LONG
1.5 " WIDE X 1/8 " THICK

MARK	DESCRIPTION	DATE
A	AS BUILT	5/07/03

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SHEET:	RBW 010
SIZE:	N/A
DATE:	3/28/03
PROG. NO.	Program 06
PLOT DATE	3/28/03
DESIGNER	SCW
DWG. REV.	RBW 010
SHEETS	10 of 10