



# BRB-1600 MACHINE MANUAL



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## Applications

The BRB-1600 is specifically designed to remove coatings and coverings from horizontal surfaces. Coatings may include glue, epoxies and cementitious overlays. Coverings may include carpet, ceramic tile, and VCT. A wide variety of tools are available from Blastpro® for your specific application. In general, the BRB-1600 uses sharpened spring steel blades along with the weight of the machine itself to perform the scraping function. The variable angle of attack allows for a great deal of flexibility when dealing with different floor coatings.

## Specifications

Dimensions (L x W x H)	60" x 24" x 51"
Weight	1650 lbs.
Charge capacity	15 hour run time
Electrical System	48 VDC, 48 VAC and 12 VDC
Blade Actuation	Electronic
Steering	Electronic
Ground Drive	Electronic
Blade Widths	2" through 12"
Optional Weight Kit(s)	200 lb. Front Set & 275 lb. Internal Set
Speed	High: 316 feet/minute; Low: 180 feet/minute

## Manufacturer

Blastpro Manufacturing  
 6021 Melrose Lane  
 Oklahoma City, OK 73127  
 Toll free: 877-495-6464  
 Phone: 405-491-6464  
 Fax: 405-495-4994  
 Website: [www.blastpromfg.com](http://www.blastpromfg.com)

## General

Read and understand this Machine Manual prior to operating or performing maintenance on the machine. This Machine Manual has been developed as a guideline for machine operation. It is not a substitute for proper organizational training and management. All machine operators and maintenance personnel should be properly trained in operation and safety features of the machine. Make these operating instructions accessible to all operating and maintenance personnel. Never weld, modify, cut or grind components of the machine without prior written consent from the manufacturer. Never use aggressive cleaning chemicals to clean the machine.

## Maintenance and Wear Part Replacement Modes

Maintenance Mode is defined as placing the machine in a configuration, which minimizes potential electric or stored energy hazards. In general, the machine should be placed in Maintenance Mode prior to performing any maintenance and/or troubleshooting activities as follows:

1. Move the machine to a level surface.
2. Lower the blade.
3. Rotate the motor switch to off position.
4. Depress the E-stop button.
5. Remove the 10 amp fuse connecting 48V power to controller.
6. Block the wheels to prevent the machine from moving.
7. Allow all the components to cool.

In general, the machine should be placed in Wear Parts Replacement Mode prior to changing the blade as follows:

1. Move the machine to a level surface.
2. Raise the blade holder so the blade is off of the ground.
3. Rotate motor switch to "OFF" position
4. Depress E-stop button
5. Loosen appropriate bolts and replace blade(s).

After performing any maintenance or repair work verify that all safety labels, guards, lids and bolted connections are properly and securely installed on the machine.

## Work Site Assessment and Inspection

Before starting scraping operations, a site assessment must be performed. During the site assessment verify the following:

1. Work area is flat, clean, and dry, free of debris, frost-free, and has no flammable liquids nearby. Also, make sure that the machine will be able to clear all obstructions.
2. Never scrape over bolts, nuts, screws, nails, or other debris as this may result in significant damage to the machine and serious injury to the operator.
3. Floors have been thoroughly inspected. Some floor or deck surfaces may be coated with, or contaminated by, dangerous materials such as:
  - PCBS
  - Lead
  - Asbestos
  - Pesticides
  - Solvents

- Cleaning fluids
- And/or other harmful chemicals

Disturbing such surfaces can create a serious health threat to those who inhale or come into contact with the dust. The work area must be checked for these materials before work can begin. Blastpro does not warrant its equipment to be suitable for, or approved for, removing dangerous materials. It is therefore the responsibility of the contractor to confirm the safety of the work area and the equipment with the proper authorities. It is also the responsibility of the contractor to warn all staff members of all the potential short-term and long-term health risks associated with inhaling and coming into contact with dangerous materials. The contractor is responsible for protecting all workers from being exposed to dangerous materials.

4. Operator and any other personnel in the work area are wearing safety glasses with side shields, dust masks, ear plugs, hard hats, steel toed work boots, long sleeved shirts, tight fitting clothing, and gloves. It is also imperative for staff to tie back long hair and to remove all jewelry.
5. Work area has been blocked off to pedestrians, unprotected personnel, and untrained personnel. In the event pedestrians, unprotected personnel, or untrained personnel enter the work area, scraping operations are to be stopped immediately.
6. Fire extinguishers are nearby. Also, take note of the location and the contact information of fire departments close to the work site.
7. All guards are properly installed and in good working order prior to using the machine.
8. All glass and equipment, including vehicles, are protected from debris. This can be done by loosely hanging a sheet of visqueen or other protective material in front of the glass or equipment in a curtain-like fashion.
9. The operator must be aware of their surroundings and use common sense. The operator is not to operate the equipment if he is tired, distracted, or under the influence of drugs, alcohol, or medication that decreases awareness.

## **Personal Protective Equipment (PPE)**

All personnel working with, or in the vicinity of the machine should, at a minimum, utilize the following PPE:

1. Protective boots or shoes
2. Eye protection with side shields
3. Hearing protection
4. Protective leather gloves for handling blades

All personnel should observe PPE requirements particular to each job site.

## Operational Procedures

Support personnel must keep a safe distance from the machine while it is in operation. Do not stand in front of, or behind, the machine while in operation. The blade should only be actuated up and down with the operator properly seated on the machine. Do not drive the machine with the scraper blade more than ½” off of the floor. The operator must be aware of their surroundings. No personnel should operate or perform maintenance on the machine if they are tired, distracted or under the influence of drugs, alcohol or medication that decreases awareness. Verify that all protective guards and covers are properly installed and secured. Verify that there is sufficient light for the operator to view the work surface. The machine is equipped with headlights to provide additional lighting.

## Start-Up Procedures

Only trained, authorized personnel should be allowed to run the machine. If training is needed, please consult with your Blastpro Manufacturing representative or authorized distributor. Prior to start-up, the work surface should be inspected for hidden studs, electrical boxes, or any other hidden obstructions. These items should be removed or clearly marked so they can be avoided.

To move machine:

1. Operator should be firmly seated in the operator’s seat.
2. Verify that the left and right control levers are in the center position.
3. Pull e-stop button up to energize the motor controller.
4. Rotate motor switch to “ON” position.
5. Push rocker switch on the right control lever to raise the blade.
6. Push levers forward to move forward; pull backward to reverse. Varying positions of the left and right control levers will turn the machine left and right.
7. Move machine to desired location.

For normal operation:

1. Insert selected blade into blade holder (see Section 3.3). Always wear leather gloves and use caution when handling the blades.
2. Operator should be firmly seated in the operator’s seat.
3. Verify that the left and right control levers are in the center position.
4. Pull e-stop button up to energize the motor controller.
5. Rotate motor switch to “ON” position.
6. Flip light switch to “ON” position if additional lighting is needed.
7. Push rocker switch on right control lever to adjust the blade angle. Some materials may require more pressure on blade for removal. This can be accomplished with a higher angle on the blade holder.
8. Move control levers forward to start removal. It is recommended to make a single pass in one direction to expose an edge of the material to be removed. Subsequent passes should be made perpendicular to the initial pass. See figure 3.1.1.

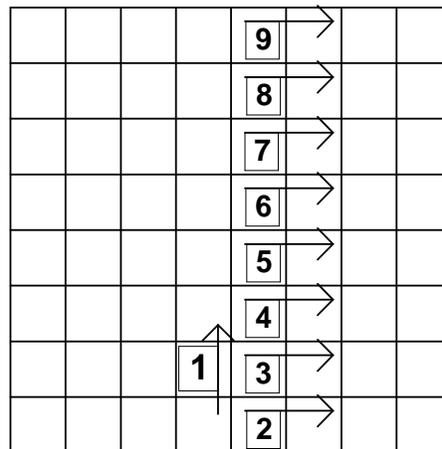


Figure 3.1.1

## Shut Down Procedures

At end of shift or workday:

1. Move machine to level ground for storage.
2. Use the rocker switch in the left control lever to lower the cylinders until the front caster lifts off of the ground.
3. Rotate motor switch to “OFF” position.
4. Depress E-stop.

For long term storage:

1. Move machine to level ground in a secure location for storage.
2. Lift blade to upper-most position.
3. Rotate motor switch to “OFF” position.
4. Depress E-stop.
5. Remove the blade and/or the blade holder from the front of the machine.
6. Operator should be firmly seated in operator’s seat.
7. Pull E-stop out.
8. Rotate motor switch to “ON” position.
9. Use the rocker switch in the right control lever to lower the cylinders until the front caster lifts off of the ground.
10. Rotate motor switch to “OFF” position.
11. Depress E-stop.
12. Cover the machine to protect it from dust and moisture.

Many of the components on the machine are not meant to be exposed to high levels of moisture. It is critical, especially if the machine is stored in a location exposed to the elements, that it be protected from rain, splashing or other high levels of water.

## Blade Selection

Selecting the proper blade for the application will have a dramatic effect on machine efficiency. If a blade is too wide for the application, there may not be enough pressure on the blade to stay under the material to be removed. If the blade is too narrow, the machine may not be removing the maximum material it is capable of in a single pass. Based on information about a particular job, start with the widest blade that may be appropriate for removal. Make a test pass to determine if the blade will stay under the material. If so, continue with this selected blade. If removal of the material is relatively easy, consider moving to a larger blade. If it is difficult to stay under the material, move to a narrower blade. Always wear leather gloves and use caution when handling blades. In general, flat blades should be used for scraping glues, mastics, epoxies and thinsets. See the figure below:



For carpet, rubberized and elastomeric coatings, a carpet blade should be utilized. The 90° wings on each end of the blade will help keep the removed material manageable. See figure 3.3.2.



Blastpro offers a carbide tipped tool for tile removal. This can be inserted into the 3-hole tool adapter on the blade holder. See the figure below:



## Transport

Only use factory installed tie-down/lifting lugs when transporting or moving the equipment. These are located at the front of the machine, near the blade, and at the rear of the machine, under the motor mounting plate (see figure 3.4.1).

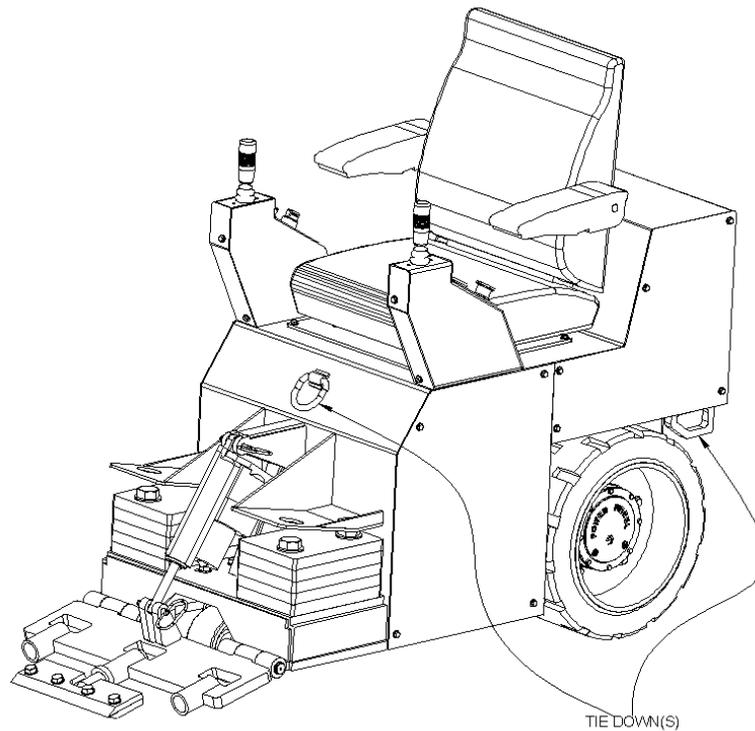


Figure 3.4.1

Never secure the machine with straps; this can result in damage to the cylinders or premature wear. Verify that lifting straps or chains are rated for the weight of the machine. Verify that trailer or truck bed is rated for the weight of the machine. Remove scraper blade and/or pivoting blade holder prior to securing for transport. Verify that the blade holder is lowered and that the front swivel caster is off of the truck or trailer bed. Never allow personnel to stand under the machine when it is being lifted.

## Maintenance Intervals

Perform these maintenance activities more frequently under extremely dusty, dirty conditions. Always wear leather gloves and use caution when handling blades. If additional assistance is required consult your Blastpro representative, authorized Blastpro distributor, or qualified systems professional.

Daily or at the beginning of each shift:

1. Inspect blades for excessive wear.

2. Inspect drive wheels for wear.

Every 25 hours:

1. Inspect electrical connections.
2. Grease all blade and cylinder pivot pins.
3. Inspect battery terminals for corrosion.

Every 50 hours:

1. Tighten rear wheel nuts
2. Grease front caster and inspect for wear or damage.

## Troubleshooting

Problem	Possible Cause	Remedy
Electric motor will not start	E-stop is depressed	Turn motor switch to "OFF", pull out E-stop button, and try to start motor
	Fuse is blown	Replace 10A fuse
	Batteries are dead	Charge batteries
	Motor controller fault	Remove rear cowling to retrieve fault code on controller and consult Blastpro Representative or authorized distributor (see section 4.3)
Slow coating removal	Blade is dull	Flip or replace blade
	Blade is too wide	Replace with narrower blade
	Incorrect blade angle	Adjust blade angle up or down
Cylinder movement seems slow	Dirt in cylinder control spool valve or damaged cylinder	Consult Blastpro representative or authorized distributor
Battery charger LED does not come on when the power is applied to the battery charger	Not plugged into a live circuit	Verify that the circuit you are plugged into is live
	Extension cord is damaged	Replace extension cord
	Leads connecting the charger to the battery terminals are damaged or corroded	Repair/replace/clean the leads
Battery charger LED never blinks	Indication of shorted cells in a battery	Replace damaged battery

No power is present across the leads from charger to battery terminal when disconnected	The charger will not turn on until the leads are connected	Use a shorter or bigger extension cord (always use the shortest possible cord)
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## Motor Controller Fault Codes

The motor controller located on the rear of the machine has two LED's, one yellow and one red. There are five different LED display modes:

Mode	Description
No illumination	Controller is not powered on; vehicle has a dead battery; or severe damage
Flashing yellow	Controller operating normally
Solid yellow and red	Controller is in Flash program mode
Solid red	Watchdog failure or no software loaded. Cycle on/off and if necessary, load software
Flashing yellow and red	Controller has detected a fault. 2-digit code flashed by yellow LED identifies a specific fault; one or two flashes by red LED indicate whether first or second digit will follow

Fault code example: 1 red flash, 2 yellow flashes, 2 red flashes & 3 yellow flashes indicates fault code 23. This is the number that should be communicated to your Blastpro representative to determine a resolution to the fault.

## Battery Charging

To charge the battery:

1. Plug the female end of the extension cord into the charging outlet on the rear of the machine.
2. Plug the male end of the extension cord into a properly rated AC outlet.
3. The charger is equipped with an electronic timer. When the battery reaches the gassing threshold (2.3 V/cell) the timer will activate and run for three hours. During this period the batteries are in gassing mode. After three hours the charger will drop the batteries into float mode (2.26 V/cell), indicated by a blinking LED.
4. To discontinue charging, unplug the extension cord from the power outlet and the machine.

To extend the life of the batteries, the machine should only be used until the charge meter reads 20%. Fully discharging the batteries on a regular basis will dramatically decrease the life of the battery, or cause polarity reversal resulting in complete battery

failure. After the battery reaches 10% of charge remaining, the discharge rate increases dramatically.

It is normal for the charger to become hot when charging. Do not obstruct the flow of air around the charger. Do not allow clothing, blankets or other material to cover the charger. Do not use near fuels, grain, dust, solvents or other flammables.

The battery charger must be grounded to reduce the risk of electric shock. The charger is equipped with a ground type plug, and it must be plugged into a nominal 115 volt, 60 Hz circuit.

Improper connection of the charger grounding conductor can result in a risk of an electric shot. Do not use this charger on a two pole ungrounded outlet or attempt to break off the ground prong for use on a receptacle or extension cord not having a ground.

To reduce the risk of fire, only charge this machine on circuits provided with a maximum of 20 ampere branch circuit protection circuit breaker or fuse, in accordance with the National Electric Code, and all local codes and ordinances.

Even after relatively short periods of charging, about 2-3 hours, the battery indicator may initially read 100% charge. This is an indication of the surface charge of the battery and will decrease quickly to the actual percentage of charge while running the machine. This is normal. To achieve a deeper charge percentage the machine should be left charging for longer periods of time.

Since there are one sets of four batteries wired in series some cells become uneven during charge/discharge cycles. At least one a month, perform two charge cycles back-to-back. This will bring up cells that are lagging behind fully charged cells. This is important for overall battery performance.

## Recommended Spare Parts

It is recommended that the machine owner/operator keep spare parts with the machine while it is working. Down time due to part failure or lack of wear parts can far exceed the cost of the parts.

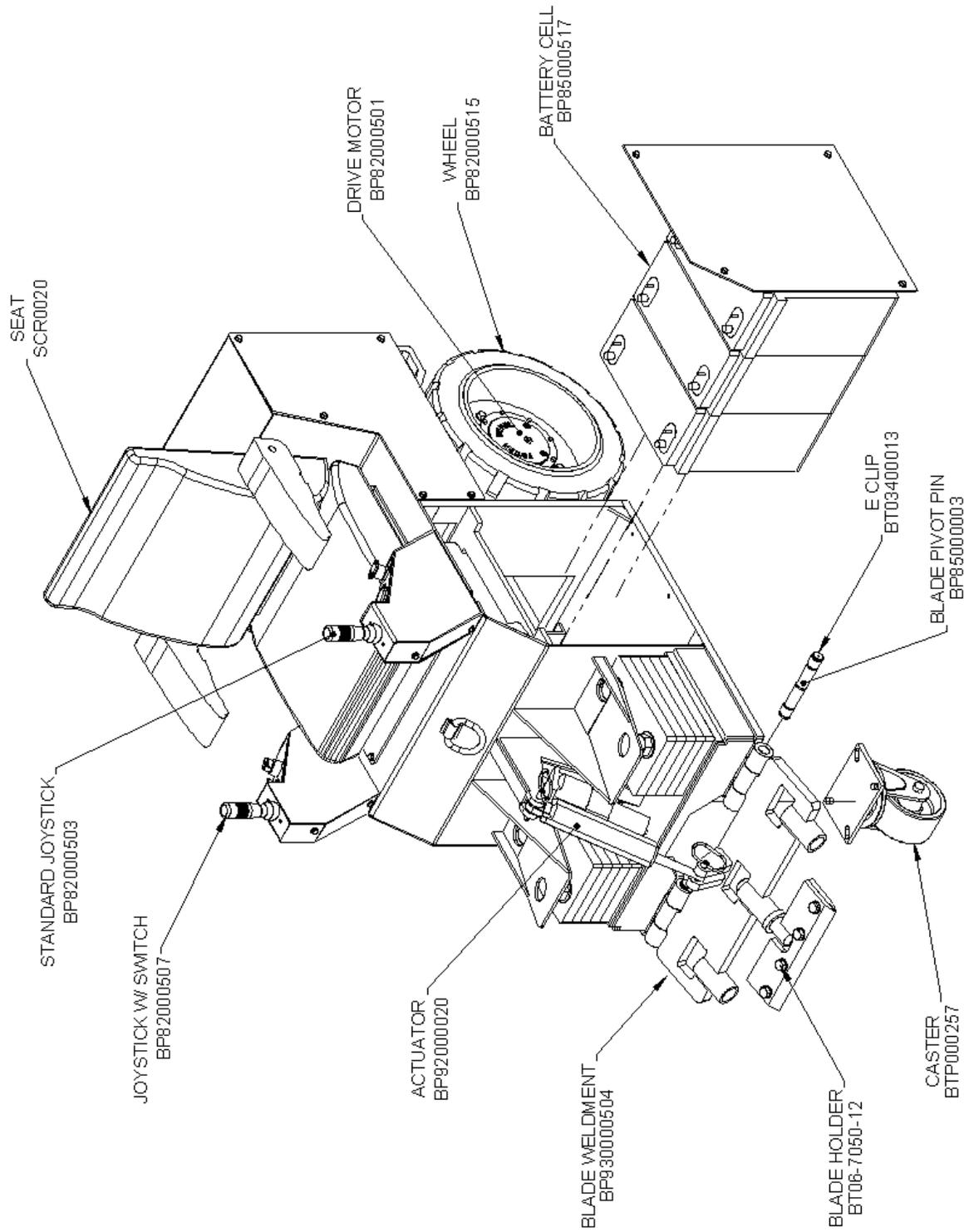
Part Number	Description
BTP000451	6" Carpet Removal Blade
BTP000553	8" Carpet Removal Blade
BTP000554	10" Carpet Removal Blade
BTP000555	12" Carpet Removal Blade
BTP000853	6" Tile Blade
BTP000854	8" Tile Blade
BTP000855	12" Tile Blade W/ Bevel
BTP000886	10" Tile Blade W/ Bevel

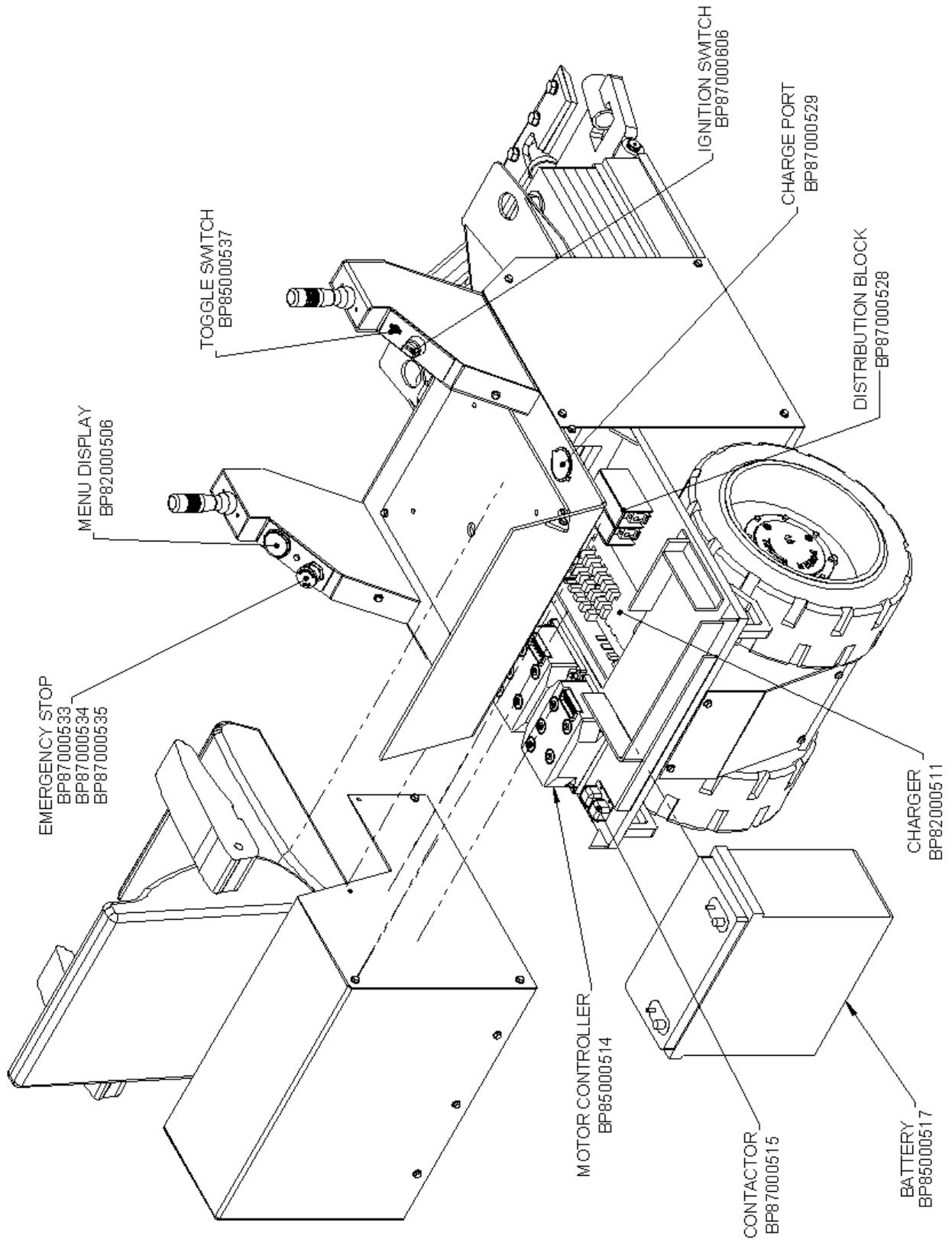
## Recommended Tools

This is a list of the minimum tools necessary to maintain and/or operate the machine during normal operation. This list is not meant to be exhaustive or to indicate the tools required for more intensive maintenance.

- Ratchet
- Sockets: 7/16", 1/2", 9/16" and 3/4"
- Combination wrench: 7/16", 1/2", 9/16" and 3/4"
- Utility knife
- Rubber mallet or dead blow hammer
- Leather gloves
- Multi meter with DC and AC capabilities

# Schematics





## Warranty Registration Information

A copy of the warranty card on the following document, together with proof of payment, must be submitted with any service request. This warranty card must be returned to Blastpro Manufacturing, Inc., 6021 Melrose lane, Oklahoma City, OK 73127, within ten (10) days of acquiring Blastpro products in order to qualify for the one year limited warranty contained in the sales agreement. Blastpro provides as a limited warranty to original purchasers of Blastpro equipment, purchased within & situated within the United states of America, who notify Blastpro in writing through completion of the Blastpro equipment warranty card within ten (10) days of acquiring Blastpro equipment, the following limited warranty. Subject to the exclusions, limitations & conditions stated above & below, Blastpro will warrant its products against defects in materials & workmanship, provided the original purchaser uses such equipment under normal & proper use, for a period of one year or 1,000 hours, whichever occurs first, from the date of delivery to the original purchaser. During the applicable limited warranty period & subject to the exclusions, limitations & conditions contained herein, Blastpro shall, within a reasonable period of time, repair or replace, at its option, any defective components of the equipment. The limited warranty does not cover wear parts, including but not limited to, tires, magnets, seals, casters, liners, wear plates, bearings, cages, blast wheels, blades, belts, electrical wiring components & items of a similar nature. This limited warranty does not cover damage to Blastpro equipment caused by any of the following: the use of the equipment for purposes other than which the equipment was designed & intended, all external causes such as (without limitation) acts of god, accidents, dropping, collision, fire, water damage, freezing, striking other objects, misuse or otherwise using the equipment contrary to the instructions & warnings contained in the user manual; altering or modifying Blastpro equipment or accessories; exposure to environmental conditions beyond reasonable limits & the limits stated in the equipment manual; failure to properly maintain & service the equipment; damage caused by the use of any non-Blastpro parts or attachments on the equipment. To obtain repair or replacement under this limited warranty, the original purchaser must contact Blastpro at 1-877-495-6464. The original purchaser must be prepared to describe any alleged problem, as well as provide proof of purchase & proof of date of delivery & return of the equipment warranty card. Written authorization from Blastpro must be obtained prior to any Blastpro equipment being returned to Blastpro. Once Blastpro provides the original purchaser with a written authorization, then the original purchaser shall deliver the equipment as instructed by Blastpro. The original purchaser shall pay the cost of shipping & shall also bear any risk of loss during shipping. Providing the Blastpro equipment is defective & the limited warranty applies, Blastpro shall, within a reasonable period of time, repair or replace any defective components. The original purchaser shall be responsible for picking up the repaired equipment or may arrange for shipment at original purchaser's expense. Blastpro's repair or replacement of any defective parts on the equipment does not extend the term of this limited warranty, which shall expire on expiration of the period of one year from the date of original delivery, subject to the further terms of this warranty. This limited warranty is the only warranty applicable to Blastpro equipment.

Blastpro disclaims all other warranties, express or implied, including implied

Warranties of merchantability or fitness for a particular purpose, other than those warranties implied & incapable of exclusion, restriction or modification under applicable law. Any such implied warranties which may be required by law & are not disclaimed hereby, are limited to the extent allowed by law to the applicable period of this implied warranty or to the applicable time period provided by the applicable state law, whichever period is shorter. Under no circumstances shall Blastpro be liable to the original purchaser or any other person for any direct, indirect or consequential damages resulting from the use or misuse of the equipment or arising out of any breach of any warranty or for any special or consequential damages of any character, including without limitation, damages for any loss of goodwill, work stoppage or any & all other commercial damages or losses. No change to or additional warranty, no matter by whom made or when made, shall apply to any equipment sold by Blastpro.

## Warranty Registration Card

To ensure the proper warranty coverage is extended to the owner of this machine, fill out the attached card completely & accurately & return to Blastpro Manufacturing, Inc. Keep the top portion of this card for your records with the following user's reference information:

Delivery date: \_\_\_\_\_

Delivering distributor Name: \_\_\_\_\_

Delivering distributor Address: \_\_\_\_\_

Machine serial number: \_\_\_\_\_

Machine model: \_\_\_\_\_

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## Warranty Registration Card

To ensure that your Blastpro machine is covered under warranty, please fill in the following information & mail it to BlastPro Manufacturing, Inc. 6021 Melrose Lane, Oklahoma City, OK 73127, or Fax to 405-495-1331. The following boxes must be checked:

Machine Manual Received

Training Scheduled or Complete

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Machine Model Number: \_\_\_\_\_

Delivery Date: \_\_\_\_\_

Distributer Name: \_\_\_\_\_