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INTRODUCTION

This manual has been prepared to assist the operator and maintenance personnel in understanding the machine so that it may be operated in the safest and most efficient manner and maintained in the best condition. Therefore, it is necessary that all personnel responsible for the operation and maintenance of the machine read and understand the manual.

Before attempting to operate, service or maintain the machine, the personnel should thoroughly familiarize themselves with the physical make-up of the machine. They should be familiar with the major components of the machine and have a general understanding of overall operations.

The operating and maintenance personnel must obey all the warnings and safety precautions posted on the machine and stated throughout this manual. Serious injury to personnel or severe damage to the equipment may result if the warnings and precautions are not followed.

You will be notified of any changes which occur after this manual is printed. We will send you manual revisions that should be inserted in the manual in accordance with instructions which will be forwarded with them.

Receipt of Machine

Examine the shipment carefully for possible damage that might have occurred while in transit. If any damage is noted, notify the transportation carrier immediately and advise U. S. Filter/Blastrac.

U. S. FILTER/BLASTRAC
WARRANTY POLICY

This document is to be used as a guide in determining warranty policies and procedures for U. S. FILTER/BLASTRAC products. It is to be used in determining whether a warranty is justified and also as a procedural guide in completing a U. S. FILTER/BLASTRAC Warranty Claim form.

Warranty Responsibility:

A Machine Warranty Information Card **must** be prepared by the distributor or the end user when the machine is delivered. Failure to comply will make any and all warranties on this equipment null and void. Credit for warranty repairs will be given only after receipt of the WARRANTY CLAIM FORM, properly completed with all the required details. Submittal details are described later in this document.

Warranty Policy:

1. U. S. Filter/Blastrac warrants its products against defects in material and workmanship under normal and proper use for a period of one hundred and eighty (180) days from the date of delivery; in the case of Rental Fleet Machines, date of assignment to Rental Fleet. Such warranty is extended only to the buyer who purchases the equipment directly from U. S. Filter/Blastrac or its authorized distributor. This warranty does not include expendable parts such as, but not limited to, blades, blast wheel, wear plats, liners and seals.

2. The obligation under this warranty is strictly limited to the replacement or repair, at U. S. Filter/Blastrac's option, of machines and does not include the cost of transportation, loss of operating time, or normal maintenance services.

3. This warranty does not apply to failure occurring as a result of abuse, misuse, negligence, corrosion, erosion, normal wear and tear, alterations or modifications made to the machine without express written consent of U. S. Filter/Blastrac.

4. Warranty request must be submitted in writing within thirty (30) days after failure.

5. Written authorization to return merchandise under warranty must first be obtained from U. S. Filter/Blastrac.

6. U. S. Filter/Blastrac reserves the right to inspect and make the final decision on any merchandise returned under warranty.

Warranty Policy (Continued)

7. U. S. Filter/Blastrac offers no warranty with respect to accessories, including but not limited to, engines, motors, batteries, tires and any other parts not manufactured by us but which are warranted by the original manufacturer.

8. U. S. Filter/Blastrac reserves the right to make product changes or improvements without prior notice and without imposing any obligation upon itself to install the same on its products previously sold.

9. The above warranty conditions can only be altered by U. S. Filter/Blastrac. Alterations must be confirmed in writing by U. S. Filter/Blastrac for each specific transaction.

10. U. S. Filter/Blastrac reserves the right to establish specific warranty terms for used or demo machines on an individual transaction basis. Invoices covering such merchandise will clearly state the provisions of the applicable warranty for each specific transaction.

11. WE DO NOT AUTHORIZE ANY PERSON, REPRESENTATIVE OR SERVICE OR SALES OUTFIT TO MAKE ANY OTHER WARRANTY OR TO ASSUME FOR US ANY LIABILITY IN CONNECTION WITH THE SALE OF OUR PRODUCTS OTHER THAN THOSE CONTAINED HEREIN.

12. UNDER NO CIRCUMSTANCES SHALL U. S. FILTER/BLASTRAC BE LIABLE TO CUSTOMER OR ANY OTHER PERSON FOR ANY DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF ANY WARRANTY OR FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER, INCLUDING WITHOUT LIMITATIONS, DAMAGES FOR ANY LOSS OF GOODWILL, WORK STOPPAGE, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES.

13. U. S. FILTER/BLASTRAC MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE U. S. FILTER/BLASTRAC PRODUCTS SOLD PURSUANT THERETO.

PATENTS

The U. S. Filter/Blastrac Abrasive Blast Cleaning Systems are protected by United States and Foreign Patents that are listed below and other Patents applied for:

United States

3 877 175
3 858 359
3 900 969
3 995 661
4 020 596
4 052 820
4 080 760
4 202 142
4 275 531
4 319 436
4 377 922
4 377 923
4 377 924

Foreign

Australia	505/485
Belgium	85/910
Canada	1 097 868
France	2 342 821
Great Britain	1 575 477
	1 575 478
Greece	66143
India	145390
Japan	1 082 838
Mexico	144238
Singapore	43/81
	431/81
South Africa	77/1128
Spain	456353
Switzerland	602278
Taiwan	NI-10295
Venezuela	38441

FORWARD

U. S. Filter/Blastrac is pleased that you have selected the Model 1-20DD Blast Cleaning Machine for your surface preparation requirements. This environmental, closed-cycle, surface preparation machine has been designed and built for abrasive blast cleaning of horizontal surfaces.

This manual has been prepared to assist the operator and the maintenance personnel in understanding the machine so that it may be operated in the most efficient manner and maintained in the best condition. Therefore, it is necessary that all personnel responsible for the operation and maintenance of the machine read the manual thoroughly. By following the instructions in this manual, the 1-20D system can be easily and effectively operated, serviced and maintained by personnel assisted by a brief period of familiarization and training from a U. S. Filter/Blastrac technician.

Before attempting to operate, service or maintain the machine, the personnel should thoroughly familiarize themselves with the physical makeup of the machine, be familiar with the major systems of the machine, and have an understanding of its operation.

The operating and maintenance personnel must obey all the warnings and safety precautions posted on the side of the machine and stated throughout this manual. Serious injury to personnel or severe damage to the equipment may result if the warnings and precautions are not followed, or through careless handling of this equipment.

Initial operation and maintenance must be done cautiously. Extreme care should be taken when activating any control devices until the response of the machine and its various components are clearly understood.

If you have any questions or problems in regard to the operation or capabilities of this U. S. Filter/Blastrac machine, please contact:

U. S. Filter/Blastrac
6215 Aluma Valley Drive
Oklahoma City, OK 73121
405/478-3440
800/256-3440

or your nearest Service Center.

INDEX

DRAWINGS

SECTION 1

SAFETY INSTRUCTIONS
BLASTRAC - MODEL 1-20D

Note: IT IS VERY IMPORTANT THAT YOU READ THIS SECTION BEFORE OPERATING OR MAINTAINING THIS MACHINE.

This Wheelabrator Operator's Manual has been specifically prepared for operating and maintenance personnel working with Blastrac Airless Media Blast Equipment. The information in this manual is intended to provide an understanding of the equipment for safer operation and maintenance procedures. Your maintenance and operating personnel should read and be familiar with the contents of this manual.

SAFETY INSTRUCTIONS

It is important that the operating and maintenance personnel for these machines observe all warnings and precautions that are listed in this operating and maintenance manual for the individual machine, the safety and warning labels posted on the machine and the safety program established by your management.

This Blastrac machine has been manufactured for your specific finishing application. The engineering design of this Airless Blast Machine incorporates three basic elements which include one airless media blast wheel and a media recycling system. As a result of many years of operating and engineering experience, the features of these machines which, when used with proper operation and maintenance procedures, enable the machines to operate in a safer, more efficient trouble-free manner.

A thorough understanding of the Blastrac machine will help assure that the machine can be operated efficiently and safely. 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:

CAUTION
Always keep the abrasive valve control lever in off position except when the machine is blast cleaning. Whenever an irregular or hazardous behavior of the machine occurs during blasting, immediately close the abrasive valve and release the start/stop switch on handle to deactivate the blast wheel motor.

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

Maintain all guards in place. These machines are equipped with guards or coverings for parts that present safety hazards.

All personnel in the immediate area of the machine must wear safety glasses with side shields whenever the machines are operating. Also, protective clothing is recommended for the operator. Never wear

loose, flowing clothes when working around blast equipment. Long-sleeved shirts and safety shoes are recommended.

Since the abrasive impacts the work surface at high velocity, any leaking abrasive can sting if it contacts unprotected skin areas. The blast head must be sealed to the work surface during operation of the machine to prevent possible injury from flying abrasive.

Mechanical

1. Before performing maintenance of Blastrac blast equipment, Zero Mechanical State (ZMS) must be obtained in which:

   a. Every power source that can produce mechanical movement has been locked off. This includes test actuation of the start/stop button after lockout.

   b. Bleed the compressed air from the dust collector manifold to atmospheric pressure.

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

   d. The kinetic energy of the machine members must be at 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 discontinued.

2. All drive guards are kept in place, except during maintenance or repair work. All drive guards are remounted upon completion of any maintenance or repair work

3. Safety glasses with side shields should always be worn when working with or near Blast equipment. Gloves, when applicable, should be worn.

4. Loose fitting clothes are never worn while working near belts, chains, sprockets, shafts, or other components that are movable.

5. The machine and the footing areas around the machine must be kept clean as loose media can make footing dangerous. All leaks in the wheel assembly housing, other abrasive seals, and the abrasive recycling system should be repaired immediately.

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

7. Do not attempt to adjust the feed spout, or other wheel parts while the airless abrasive blast wheel is operating or rotating. Do not attempt to adjust any components while any part of the machine is in operation.

Dust Collectors and Ventilation

All abrasive blast equipment must be properly ventilated to be environmentally effective. This benefits the operator, the machine efficiency, and minimizes wear and maintenance.

With all types of dust collectors, it is important that the dust hoppers be kept as empty as practical. It is important to empty the dust hopper at the end of the operating day or more frequently, if required. Many dusts have the potential to be easily ignited when left stored. The hazards of fires and explosions are minimized when the dust is removed from the dust collector hoppers as recommended.

8. Obey all safety and danger signs and other precaution information posted in the machine and in the areas where the machine is operated.

9. Do not operate Blastrac machinery in the presence of rain or heavy moisture. Do not expose the blast abrasive supply to water or heavy moisture. Always drain abrasive from the machine before shipment. Always empty dust collector disposal bin(s) before shipment.

Electrical

1. Do not operate the machine with the electrical panel door open. A door interlock should prevent opening the door unless the main disconnect switch or circuit breaker is off.

2. Never use oversize fuses or bypass any fuses. Always refer to the electrical drawings provided for the individual machines for proper fuse sizes.

3. Use only overload coils for the motor starter(s) that are for the proper amperage ratings of the motor(s) as shown on the motor nameplate.

4. Disconnect all power sources before attempting maintenance or repair of electric motors on the equipment.

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

6. Before starting the motor(s), check that the correct power supply (460 volt, 60 hertz and 3 phase) is being used and that the motor(s) are connected per the connection diagram on the motor nameplates. Check the motor(s) for the correct rotation. Sustained improper rotation of motors will cause damage to the machine components.

7. This machine must be effectively grounded for operator safety. See "National Electrical Code", Article 250, "Grounding".

8. Do not disconnect power plugs with any electric motor running or energized.

This Blastrac Model 1-20D machine and Model 854 Ultra Jet Dust Collector operate on 460 volts, 60 hertz, 3 phase, electrical power which can cause serious or fatal injury if mistreated. Handle all connectors, cables, and junction boxes with extreme caution. Avoid contact with energized circuits.

SECTION 2

CUSTOMER'S RESPONSIBILITIES

1. The customer shall provide a 460 volt, single phase, 60 cycle, 100 amphere rated grounded electrical power source for the equipment. The estimated total connected full load of this system is 25 ampheres.

2. The customer shall provide personnel who are trained by a WHEELABRATOR Blastrac Field Technician for operation and service of the Blastrac equipment.

3. The customer shall provide all necessary blasting media in accordance with the recommendation of a Blastrac Field Technician so that the most efficient operation will be obtained.

4. The customer shall be responsible for observance of all safety precautions expressed in this manual.

5. The customer shall perform all maintenance and basic repair functions as stated and described in this manual.

6. The customer shall maintain an inventory of "wearable parts" as outlined in this manual.

7. The customer shall dispose all dust collector refuse material.

8. The customer shall provide these tools and accessories:

   Hammer
   Screwdrivers
   Set of Wrenches
   Voltage Meter
   Impeller Allen Head Wrench
   Brooms
   Buckets

SECTION 3

DESCRIPTION AND FUNCTION

General

The Wheelabrator Blastrac Model 1-20D is a surface preparation downblast machine for closed-cycle abrasive cleaning of horizontal surfaces. Thorough removal of surface contaminants on steel or concrete, such as rust, mill scale and various coatings, is accomplished by the impact of metallic abrasive thrown by controlled centrifugal force from a power-driven bladed wheel. This thrown abrasive impacts the work surface, then rebounds upwardly into a specially designed rebound chamber which directs the abrasive into an airwash dust extractor which removes dust, scale, and other contaminants from the abrasive, so that the predominantly good quality steel media is delivered by gravity to the storage hopper for reuse by the blast wheel. The machine is self-propelled by a variable speed electric drive system. For all operating conditions, a Dust Collector shall be connected to the machine. This blast cleaning machine is composed of the following basic systems and elements:

Abrasive Cleaning Head

WHEELABRATOR UNIT - Refer to Figure Number 2

The heart of the patented abrasive cleaning head is the power-driven, eight-bladed wheel that throws abrasive by centrifugal force toward the surface to be cleaned.

The Wheelabrator unit (referred to as wheel or W/A), is enclosed in a guard housing of abrasive-resistant material and lined where necessary with replaceable wear plates. The wheel is driven by a 3600 rpm electric motor.

The Wheelabrator airless abrasive blast wheel is equipped with a cast-in-place impeller for easy maintenance. The impeller serves a very important function in the operation of the wheel by feeding the abrasive in controlled amounts onto the blades of the rotating wheel. In operation, the impeller rotates with the wheel.

Abrasive fed into the center of the rotating impeller is given its initial circular motion to direct it through the control cage opening and onto the wheel blades. The performance of the wheel is vitally dependent upon the setting of the control cage since it directs the abrasive and determines how well the abrasive will cover the work. The setting or location of this control cage opening is extremely important for directing the abrasive blast on to the work surface. (See Figure Numbers 10, 11, and 12, Section 5)

The blast wheel motor circuit is equipped with a current ammeter on the machine to give a visual indication of the abrasive flow to the wheel. If the ammeter reads full amperage when the wheel is being used and the operation is most efficient. The full load amperage rating is listed on the nameplate mounted on the motor and control panel.

Abrasive Control Valve

An enclosed permanent magnet-type abrasive control valve is provided between the abrasive storage hopper and the wheel feed spout to regulate the flow of abrasive from the storage hopper into the blast wheel. The volume of abrasive flow may be varied by the amount the abrasive valve is opened. The valve is manually actuated and is equipped with a mechanical variable stop arrangement. This may be set to provide the desired abrasive shot flow rate. Valve stop adjustments are provided on the abrasive throttle lever located on the side of the operator's control panel.

Rebound Chamber and Separator

Rebound Chamber

After the abrasive impacts the work surface, it rebounds upward into a specially designed rebound chamber and is then directed into an airwash dust extractor.

Separator

Immediately following the rebound chamber is a compact chamber which separates the dust, pulvarized abrasive, debris, and other undesirable contaminants from the returning abrasive prior to its entry into the storage hopper. The returned abrasive is carried by momentum into the storage hopper, while light contaminants are conveyed up and away by a rapidly moving airstream. The airstream is generated by vacuum pressure from the dust collector; dust is conveyed and deposited in the dust filter chamber, or baghouse.

Abrasive Seals

Magnetic abrasive seals are provided around the blast head opening to contain the thrown abrasive. The trailing edge of the blast head is equipped with a seal flap which admits air at high velocity to sweep up residual abrasive from the work surface.

Chassis

All components of the cleaning unit are mounted on a mobil transporter. The chassis, or transport carriage, is a three-wheel, self-propelled unit. The drive system is powered by a 3/4 HP, DC electric motor turning a drive wheel via chain drive and gear reducer. Travel speed is regulated by controlling the drive motor power through an electrical variable DC voltage rectifier control located on the operator's control panel. A quick-release pin on the drive wheel allows free wheeling for towing to and from the work site.

OPERATOR CONTROLS

The operator's control panel on the 1-20D blast unit is provided with the following 110 volt controls and instruments for monitoring and controlling the operating functions of the machine.

Speed Control Switch - regulates the forward/reverse travel speed of the machine through a variable-voltage DC control system.

Travel Switch - controls the direction of travel of the machine. Forward/Brake/Reverse.

Wheel Start/Stop Buttons - starts/stops operation of the blast wheel motor.

Hour Meter - indicated elapsed operating time on the blast machine.

Ammeter - indicated current flow rate to the blast wheel. Use for monitoring proper abrasive flow rate.

On/Off Switch - (on steering handle) provides on/off "attended" operation of the traction drive motor.

Throttle for Abrasive Control Valve - used to start/stop flow of abrasive to the blast wheel and to adjust the rate of abrasive flow during operation.

Dust Collector

The 1-20D shall not be used for blast cleaning unless attached to a proper air exhaust hose and dust collector. A special Pulse Jet Type Dust Collector, Model 854, has been designed to operate in conjunction with the 1-20D Blastrac Machine.

The Model 854 Dust Collector is normally attached to the 1-20D with 50 feet of 6" diameter flexible exhaust hose. The dust collector is mounted on a self-contained mobile chassis. In operation, the 1-20D cleans a radial area around the stationary dust collector, then the entire system is hand-towed to an adjacent area and the procedure is repeated. Occasionally, the dust collector may be parked in an adjacent room and connected to the 1-20D by a longer hose if access to the cleaning area is problem. Consult with a Blastrac representative if longer hose extensions are required.

Filter Chamber

The central part of the dust collector is a filter chamber. Dust-laden air enters this chamber through a vent hose connection at one end, passes through a plenum, and flows an array of eight vertically-mounted filter cartridges. Dust is captured by the surfaces of the cartridges, allowing only clean air to pass. The filtered air next enters a clean-air plenum and moves toward an outlet into an exhauster which returns the clean air to the open atmosphere.

The dust which has been trapped on the external surfaces of the cartridges is periodically removed by rapidly pulsing the cartridges with an internally-supplied pulse of compressed air. The momentary reverse pulse of air removes the cake of dust from the external surfaces of the cartridges and causes only a slight reduction or air flow. The filter cartridges are cleaned individually while others remain "on filter stream."

The dust drops from the surfaces of the cartridges into a special disposal bin mounted below the filter chamber. Periodically, the operator must stop operation of the system and remove the dust from the bin for disposal.

Dust Bin

The dust bin on the Model 854 is equipped with wheels and a handle to assist in the disposal of the collected dust.

Blower

The blower (exhauster) is mounted on the rear of the dust collector chassis and is powered by a 7-1/2 HP direct-drive motor.

Magnehelic Gauge

A gauge is mounted on the dust collector and measures the differential pressure across the filter surface of cartridges.

Pulse Pressure System

An air compressor with external pressure regulation is mounted on the rear of the dust collector chassis and is belt driven by a 2 HP motor. Compressed air enters a receiver to which three diaphragm valves are attached. These diaphragm valves are activated by solenoid pilot valves, which are in turn activated by an electronic sequencing timer mounted in a separate enclosure. When activated, the diaphragm valves open to admit a short pulse of compressed air into venturi at the end of the filter cartridges. This air pulse cleans the cartridges as previously described.

Chassis

The entire dust collector is mounted on a mobile chassis, resting on three casters. A swivel caster is mounted under the air inlet and the two rigid casters are mounted under the blower.

Note:

The dust collector is not designed for vehicle towing or movement on roads.

Electrical Control Panel

A control panel for the dust collector is mounted on the front of the

chassis. The panel has the following controls and instruments for the operation of the dust collector:

Blower Motor Current - ammeter reads current load on the blower drive motor.

Blower Running Time - an elapsed time meter showing the total accumulated operating hours of the blower.

Compressor Start/Stop Buttons - start/stop the motor driving the compressor

Blower Start/Stop Buttons - start/stop the motor driving the blower.

Cleaning Media

The Wheelabrator Corporation manufactures a variety of special sizes of high quality abrasives for the Blastrac blast cleaning machines. Blastrac steel shot is made of high quality tempered martensitic steel to provide long operating life and minimal abrasive breakdown.

The selection of proper abrasive is very important in assuring best performance from a Blastrac blast cleaning system. Your Blastrac field technician is experienced in selection of proper abrasive to meet the needs of your particular cleaning requirement. Each of the Blastrac Service Centers maintains, in inventory, a wide range of Blastrac abrasives. They can readily supply the quantity of abrasive needed for your particular job.

Ventilation System

A controlled flow of ventilating air must pass through the Model 1-20D Blastrac and Model 854 dust collector during operation for the following purposes:

a. Cooling blast machine components.

b. Sweeping residual abrasive from the blast surface.

c. Collecting and separating dust from the supply of good usable abrasive.

d. Conveying dust to the dust collector.

Ventilation air must follow a particular path through the machine. The air sequence is as follows:

1. Air enters the area around the rear seal flap at high velocity and sweeps residual abrasive from the work surface. Air leaks at the seams of mating parts such as the blast housing lid, control cage, and separator lid should be corrected by sealing.

2. Air moves up the rebound chamber with the rebounding shot, dust, and debris. This air movement also cools the steel abrasive and the chamber walls.

3. Air enters the separator and selectively conveys unwanted fine particles upward toward the exhaust port. The separator lid must be properly seated and secured.

4. Air moves through the flexible hose to the dust collector with sufficient velocity to carry the dust and fine particles. Hose sections must be properly attached at separator outlet and at the air entry on the dust collector. Slip the hose over the flange tube and secure with the a band-type hose clamp, then wrap thoroughly with duct tape. Use only the proper length and diameter of hose as specified in Section 6 of this manual. The hose lengths should be airtight and free of holes. Check daily for wear.

5. Air enters the dust collector baghouse, passes through the filter cartridge and out of the machine via the exhauster. Elastomer seals on the dust collector lid and on the storage bin joints must be maintained in good condition. Dust observed in the dust collector exhaust is an indication of either a damaged - failed filter cartridge or a loose joint at one of the filter cartridge attachment points. Replacement of the faulty filter cartridge or repair of the loose joint should be performed as soon as possible. The magnehelic gauge reads pressure difference between the dust side and the clean side of the filter cartridges. High readings on this gauge indicates a heavy dust cake on the exterior surfaces of the filter cartridges. If a reading exceeds 6 inches water column, the timer should be adjusted to increase pulse frequency to 5 seconds and the air pressure used for pulse cleaning should be set to 100 PSI Max.

SECTION 4

START-UP PROCEDURE

NOTE:

It is important that the operating and maintenance personnel assigned to this machinery thoroughly read and understand all WARNINGS AND SAFETY INSTRUCTIONS found in Section 1 of this manual before attempting any part of the start up, blast cleaning or shutdown procedure for the Model 1-20D Blastrac or the Model 854 Dust Collector.

START-UP

1. Move the machine components to the site to be cleaned. The dust collector may be hand towed or moved by lift truck. To tow the Model 1-20D Blastrac by hand, disconnect the pin from the traction drive hub.

2. Check the blast wheel, control cage, feed spout, seals, and hopper parts for wear. Replace parts where needed.

3. Inspect the electrical interconnection cables for cuts or wear defects, and inspect the flexible exhaust hose for holes or leaks. Replace or repair all defective items before continuing this procedure.

4. Connect the exhaust hose to the Model 1-20D Blastrac and to the Model 854 Dust Collector.

5. Plug in the electrical interconnection cable between the Model 1-20D Blastrac and Model 854 Dust Collector.

6. Turn off the disconnect switch on the control panel of the Model 854 Dust Collector and operator's station on the 1-20D Blastrac.

7. Connect the power cable from the Model 854 Dust Collector to the customer's disconnect box, being sure that power is off and that a proper ground terminal connection is made. Turn power on after wiring.

8. Check the area to be clean of all debris and large objects which might clog or damage the blast cleaning apparatus. Sweep the area before blast cleaning if required.

9. Check that the abrasive valve control is in the closed position. Remove the lid, making sure the separator is free of debris and the abrasive valve is closed. Add approximately fifty (50) pounds of the selected size of Blastrac steel shot. Replace separator lid.

10. Verify that the dust bin on the dust collector has been emptied. Re-secure the dust bin latches.

11. Turn on the dust collector disconnect switch. Engage the start button for the blower (exhauster) drive and air compressor. Check for correct blower and air compressor rotation. If rotation is not correct, engage stop buttons for the drive motors and turn the disconnect switch off. Change the motor wiring connections for correct motor rotation. Recheck motor drive(s) rotation.

12. Turn on the Operator Control Panel Disconnect Switch. Engage the blast wheel start button. Check for correct blast wheel rotation. If rotation is not correct, immediately engage stop button and turn disconnect switch off. Change the wiring connections for motor rotation. Recheck motor rotation.

13. All personnel in the area must now wear safety glasses with side shields.

14. Engage the start button for blower, air compressor and blast wheel.

15. On the 1-20D operator's station, set the (travel) speed control switch to about mid-point for concrete operation. (See Section 6) Engage the traction drive using the "attended" switch on the steering handle. Ease the abrasive valve open while traveling. Watch blast motor ammeter and reduce abrasive flow if the maximum motor amperage is exceeded.

16. After cleaning a 5 ft. test strip, close the abrasive valve, stop the machine and observe the cleaned area.

17. If brightness or texture is uneven on the floor surface, see Section 5.

18. Begin the blast cleaning operation.

Blast Cleaning Shutdown Procedure

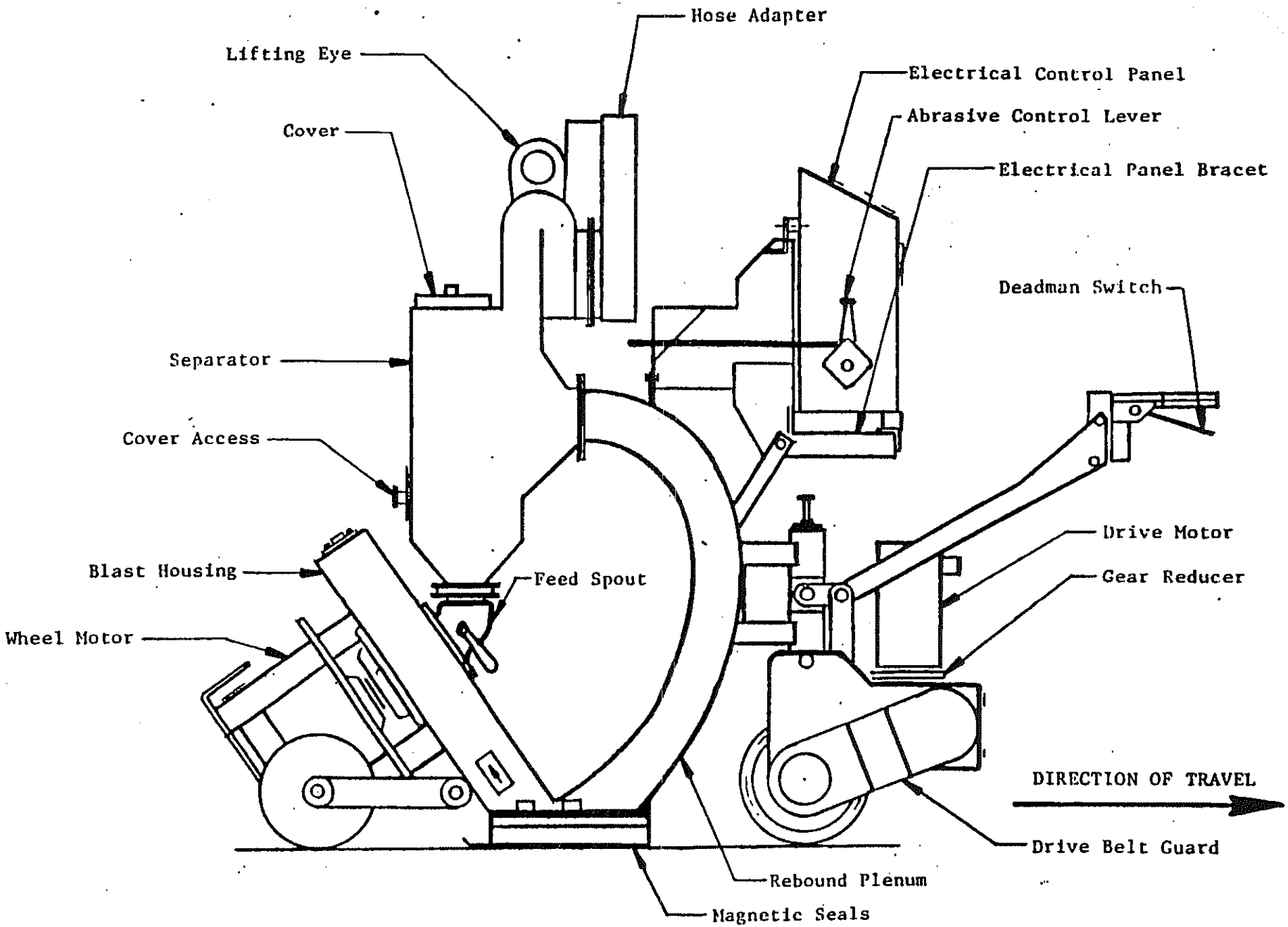
1. Move the abrasive valve control throttle to fully closed position.

2. Release the "attended" switch on the 1-20D Blastrac steering handle to bring the unit to a rest.

3. Push wheel stop button and turn the disconnect switch handle to "off".

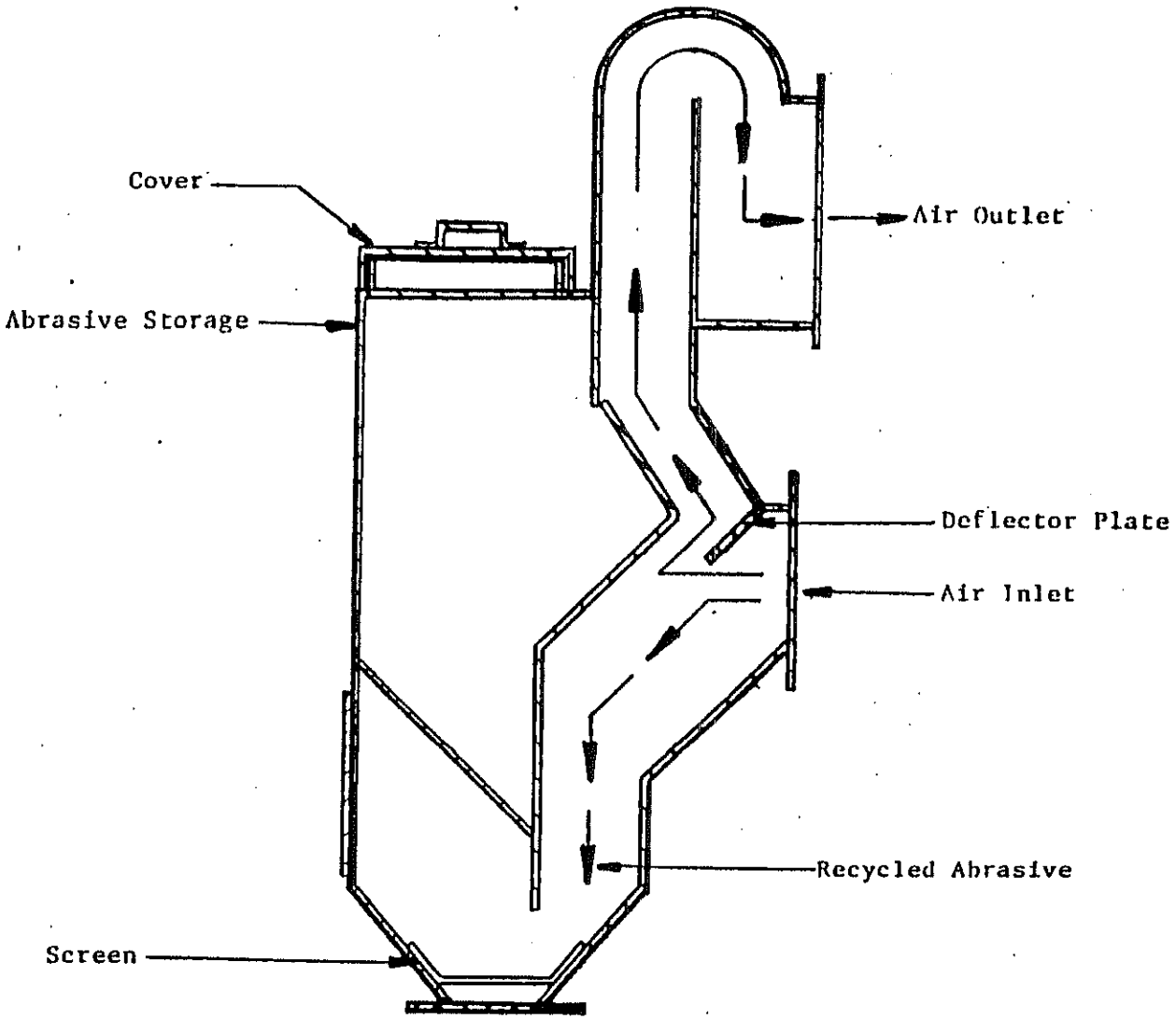
4. Walk to the dust collector panel and push the blower (exhauster) and compressor stop buttons. Turn the panel disconnect switch to "off".

5. Be sure all rotating parts are fully stopped and the machinery is in Zero Mechanical State Condition before attempting any inspection or maintenance operation on the Model 1-20D Blastrac or Model 854 Dust Collector.



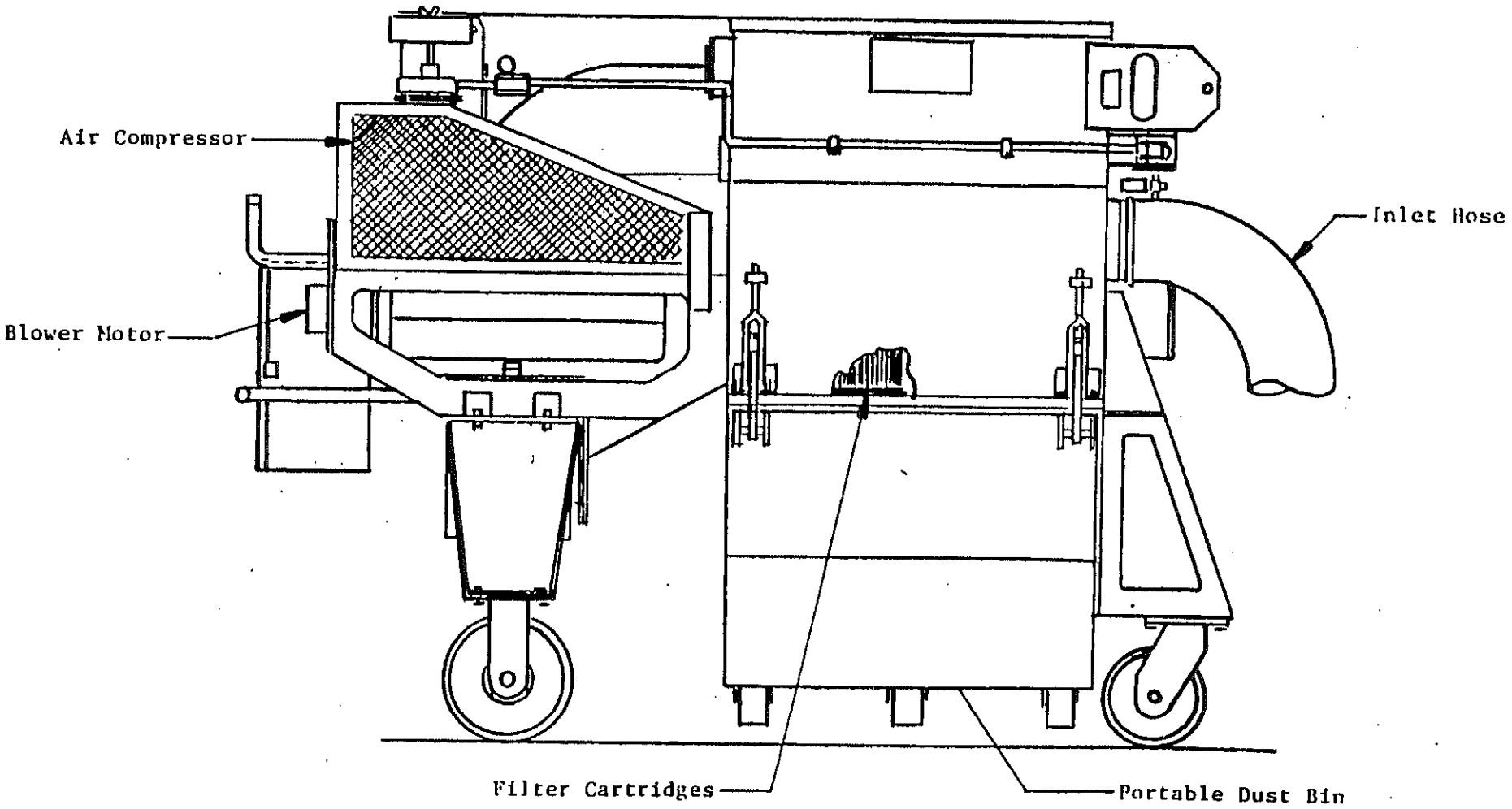
MODEL 1-20D

Figure NO.1



SEPARATOR 1-20D

Figure NO. 2



MODEL 854 DUST COLLECTOR

Figure NO. 3

SECTION 5

BLAST PATTERN

Abrasive leaving the centrifugal blast wheel does not disperse in all directions. The abrasive blast pattern is a controlled angular arc of approximately 49 degrees, directed by the use of a control cage mounted between the impeller and the blades of the WHEELABRATOR wheel. This control cage may be adjusted by angular rotation to control the placement of the blast pattern. Proper adjustment of the control cage is one of the most important maintenance items for effective operation of the Model 1-20D blast cleaning unit. Improper adjustment will cause (1) high wear rates and premature failure of blast housing and liners, (2) loss of blast cleaning capacity, (3) possible loss of rebound and recirculation of abrasive.

CAUTION: The adjustment of the control cage must be made with power disconnect switch in "off" position and the blast wheel completely stopped.

To Adjust the Control Cage:

1. Set the control cage arrow mark as shown on assembly drawing.

2. Place a 3/16 or 1/4 inch steel plate beneath the blast seals and blast at full amperage for 45 seconds. Do not move the Model 1-20D Blastrac machine during this blast pattern test.

3. Remove the Model 1-20D from the blasted zone on the plate and carefully observe the blast pattern. A "hot spot" will exist where maximum blast intensity has occured. This location will usually be slightly discolored due to heat of blasting. CAUTION NOTE: The target plate may be hot enough to burn hands for a period of time after blasting at full amperage (Item 2).

4. Continue to readjust the control cage setting as shown and described until the blast pattern is even across the total width cleaned and the hot spot is well centered.

5. Begin the blast cleaning pattern. After cleaning a few feet of surface, observe for uniform cleaning across the width of the blast pattern. Further small adjustments in the control cage setting may be required to obtain best blast distribution.

The blast pattern may change if abrasive size is changed or when blast parts begin to wear. The operator should always observe the blast pattern during blast cleaning and make adjustments or renew worn parts when required. It is recommended that you use only Blastrac steel shot in the size selected by your Blastrac Technician to assure highest efficiency of your blast cleaning operation.

Blast Operation

When blast cleaning begins, the 1-20D Blastrac machine is normally maneuvered around the dust collector in a parallel path pattern. This pattern will allow the least entanglement of lines and exhaust hose. When an area is completed, the Model 854 Dust Collector and 1-20D are moved together by hand. Carefully avoid over extension of electric cords.

CAUTION: DO NOT PERMIT OTHER EQUIPMENT (SUCH AS FORK LIFT TRUCKS) TO RUN OVER THE POWER CORDS OR THE EXHAUST HOSE!!

Proper travel speeds are suggested in the equipment calibration section of this manual. If irregular surfaces are being cleaned, some variation of travel speed will occur. Compensate by adjusting the travel speed dial on the operator's station. The operator's handle contains a lifting cam which will lift the blast seal to go over obstructions. Swing the handle down slightly to raise the blast seal.

CAUTION: LIFTING THE ABRASIVE SEAL TOO FAR ABOVE THE SURFACE BEING BLASTED MAY CAUSE EXPOSURE OF PERSONNEL AND THE IMMEDIATE SURROUNDINGS TO FLYING SHOT. FOR SAFE ABRASIVE BLASTING PRACTICE, SHUT OFF ABRASIVE FLOW IF BLAST SEAL IS TO BE LIFTED BEYOND THE NORMAL GAP SETTING OF THE ABRASIVE SEAL.

SECTION 6

EQUIPMENT CALIBRATION

The following is a listing of recommended set-up adjusted and reference values which should be used to obtain the best performance of the blast cleaning system. These should be used as starting points, with fine adjustments being made by trial and observation.

CAUTION: CALIBRATION OF ITEMS 1, 2, 6, AND 8 MUST BE MADE WITH ALL ELECTRICAL DISCONNECTS IN "OFF" POSITION AND ALL ROTATING PARTS COMPLETELY STOPPED. ALWAYS OBSERVE ZERO MOTION STATE - ZMS - BEFORE ATTEMPTING ANY ADJUSTMENTS OR MAINTENANCE.

1. Blast Housing Height - Bottom of blast housing to be 1/8" to 1/2" above floor line. Use lesser clearance for smooth floors, more clearance for rough services.

2. Angular Position of Control Cage - See Figure Numbers 10, 11, and 12 in Section 5.

3. Blastrac Steel Shot Size Suggestions:
   A. Brush blast of smooth concrete: BT-1 to BT-3 (smaller size will produce a brighter etch) - See Number 4-A.
   B. Rough concrete, etch for coating: BT-4 to BT-6 See Number 4-B.
   C. Heavy removal of concrete: BT-6 See Number 4-B.
   D. Cleaning scale or paint on steel: BT-4 to BT-6 See Number 4-C

4. Travel Speed Suggestions (Speed Control Switch)
   A. For brush blast of concrete 40-80 - higher setting.
   B. For heavy blast on concrete 15-40 - mid-point setting.
   C. For blast cleaning steel 10-15 - lower setting.

5. Exhaust Hose Length - Recommended length 75 ft. of 6-inch diameter exhaust hose. Maximum length - Consult your Blastrac technician.

6. Dust Collector Pulse Timer - Set for 8 to 15 second pulse interval for concrete. Set for 15 second pulse for steel cleaning.

7. Dust Bin Change Interval - Inspect after one-half hour to estimate change interval.

8. Compressor Unload Setting - 70 to 90 PSI

9. Pressure Drop Across Cartridges - Normally between 1 to 3 inches water column.

SECTION 7

WEAR PARTS

Wear Parts

Certain parts of the 1-20D Blastrac are continuously exposed to abrasive blast; therefore, it is important that these parts be periodically inspected for wear and surface erosion. These parts are all designed for ease of replacement by the operator of the machine, if required.

The next page of this manual lists significant wear parts, their usual replacement interval, an inspection test, and the method of replacement.

WEAR PARTS CHART

PART	INSPECTION INTERVAL	INDICATION OF WEAR	REPLACEMENT METHOD
Feed Spout	100 hrs	Thin entry at wheel end	Remove and replace
Control Cage	25 hrs	Eroded edge on opening	See Section 8
Rebound Chamber	100 hrs	Thin sections, wear at welds	Contact Blastrac Service Center
Deflector Plate	50 hrs	Thin sections, wear at welds	Remove separator lid and replace deflector.
Separator	100 hrs	Thin sections, wear at welds, warping screen wear	Contact Blastrac Service Center
Liners	100 hrs	Thin sections, warping	Bolted to housing remove and replace
Impeller	25 hrs	Vanes worn 1/2" from leading edge	Remove and replace
Centering Plate Bare Wheel		Inspect when changing impeller or blades.	

Blast Wheel Rotating Parts

The assembly of blast wheel rotating parts is shown on Assembly Drawing. It is important to assure that these parts are maintained in a condition of accurate rotating balance to prevent excessive vibration of machine parts, to avoid high stresses on the blast wheel and its attached parts, and to assure long bearing life in the wheel bearing and the blast wheel electric drive motor.

All of the rotating parts are supplied from Blastrac in a state of accurate balance and mating surfaces are accurately machined to obtain good concentric fits.

During the operation of the blast unit, wear of the blades and other surfaces on the blast wheel may cause a deterioration of the original balanced condition. This may be observed by the operator as an increase in vibration of the machine. Small amounts of unbalance are normal; if unusually high levels of vibration occur, the operator should inspect the rotating assembly for the following:

CAUTION: ALL ELECTRIC POWER MUST BE DISCONNECT AND ALL ROTATING PARTS COMPLETELY STOPPED BEFORE ATTEMPTING THIS PROCEDURE. ALWAYS OBSERVE ZERO MECHANICAL STATE - ZMS - BEFORE ATTEMPTING ANY ADJUSTMENTS OR MAINTENANCE.

Wear of wheel blades should be uniform. If wear is uneven, replace with blast wheel kit. If part of the blast wheel has chipped away, replace.

If parts wobble when rotated by hand, there may be a mismatch of mating parts in the rotating assembly. Parts should be dismantled and replaced correctly.

The hub bolt should be replaced with each replacement of a blast wheel kit. A 3/8" washer set is provided and should always be installed under the hub bolt. Always apply proper torque to the hub bolt at each installation of parts.

After any repair of rotating parts, start the wheel momentarily to check for good balance before continuing blast operations.

Occasionally, the blast wheel hub will have indications of abrasion wear. Replace as required.

The electric motor is designed for long operating life in this application. If this unit has deteriorating parts, it will generally be indicated by an unusual noise or an electrical fault. Call a Blastrac representative if this occurs.

SECTION 8

TROUBLESHOOTING

NOTE: ALL SERVICE OF BLASTRAC EQUIPMENT REQUIRES THOROUGH AWARENESS OF THE WARNINGS AND PRECAUTIONS IN SECTION 1 OF THIS MANUAL. READ THOSE PRECAUTIONS BEFORE ATTEMPTING INSPECTION OR MAINTENANCE.

Troubleshooting List: Mechanical Malfunctions

Trouble	Probable Cause	Remedy
Excessive Vibration Usually indicates that the wheel unit is out of balance. This condition will eventually cause bearing failures in the wheel motor or gearing unit.	Unevenly worn blades.	Replace wheel kit check separator and ventilation
	Chipped blades broken blades	Chipped or broken blades will throw wheel permanently cause damage to other parts of the unit. Replace all broken parts from the rebound system before operating the machine.
	Unevenly worn wheel	Inspect and replace wheel kit if it is badly worn or shows uneven wear.
Excessive noise - besides being undesirable, it may also indicate misalignment of WHEELABRATOR components which cause failures or wear.	Improper clearances or alignment between rotating parts of wheel, i.e. control cage and feed spout.	Check alignment and mounting of stationary control cage and feed spout in relation to the rotating impeller. Allow sufficient clearance between moving parts to prevent contact against one another.
	Loose bolts or set screws misalignment.	Check wheel bearing, sheaves, belts, motor mounting, wheel housing, etc. Make certain all components are firmly secured.

Increased Cleaning Time	Improper abrasive feed to wheel.	If ammeter indicates a lower ampere reading than the normal full load rating, check:
	a)Storage hopper	a) storage hopper and add abrasive if level is low.
	b)Contaminated abrasive	b)Abrasive may contain a large percentage of fines or other contaminants which should have been removed by the ventilation system; check ventilation system.
	c)Abrasive feed lines and abrasive control valve	c)Feed lines - obstruction may cause reduced flow through the feed pipe, feed spout or abrasive control valve - check and clean out.
	d)Feed Spout	d)Remove feed spout and check for obstructions, clean out if needed.
	e)Impeller, control cage	e)Impeller or control cage may be worn, replace wheel kit and control cage.
	f)Drive belt	f)Check that belt drive is properly tensioned.
	Loss of directional control of blast pattern.	Conduct an accurate blast pattern test. Make certain that you have definitely located the zone of blast. Adjust control cage accordingly so that the zone of blast is directed onto the work most efficiently.

	Choked wheel - may occur even though all components are in perfect operating condition.	Close the abrasive valve, stop the machine and gradually reopen the valve after resuming travel.
Excessive Wear on wheel housing Rebound, Chamber	Improper setting of abrasive control cage	Abrasive is being directed onto wheel housing and rebound chamber instead of work. Re-adjust control cage. Take test of pattern - blast zone.
Abrasive leakage	Improper Sealing	Check WHEELABRATOR hub seal. Replace if necessary.
Machine will not drive	Travel speed control knob not set high enough.	Reset travel speed by turning Speed Control knob
	Switch not making contact.	Check wiring, check switch, clean contact.
	Fuse in traction drive blown.	Replace fuse. Note: If fuse still blows, shut down particular circuit. Check power source for proper voltage, clean contacts and terminals inspect wiring broken or cut. Check for loose terminals, inspect all system components for damage or malfunction.

Machine Hang-Up	Machine frame hung up on obstruction or unevenness of work surface.	Push down on drive handle to raise machine (1/4" to 1") to clear small obstructions. Check riding height of machine. Adjust as required to obtain 1/8" to 1/2" clearance or reverse machine direction and go around large obstructions.
Loss of cleaning Action	Machine travel speed too fast	Slow down speed by turning speed control knob.
	Abrasive contaminated	Clean out storage hopper and replace with clean abrasive Check ventilation system.
	Blast wheel rotation is wrong.	Reverse polarity Check with electricians.
	Drive belt.	Check drive belt for proper tension.
Contaminated Abrasive	Inefficient flow of air is being delivered by the exhaust fan for proper removal of debris, fines, and contaminants.	Ventilation System - fan, cartridges, and fan belts

Ventilation System (Dust Collector)

Note: Once the Ultra-Jet Dust Collector has been filtering for a few days, a stable operating level will result. Sudden changes of operating pressure can usually be traced to a malfunction.

Contaminated Abrasive - fines and contaminants not properly removed from abrasive.	Insufficient flow of air is being delivered by the dust collector exhaust fan.	Check exhaust fan rotation for correct rotation. Also, check for leaks in fan housing or or wear of fan blades.
Visible Stock Discharge	Torn or punctured filter cartridges	Replace all damaged or faulty filter cartridges.
	Improper cartridge installation. a) loose cartridges b) leaking tube sheet joints. c) loose venturi bolt	Correct installation a, b, and c apply to the pulse jet dust collector only. Check clean air plenum to find trouble area. Dust accumulation will usually indicate source of leak. Note: Top chamber must be removed to check plenum.
High differential pressure	Clogged Filters	Increase timer pulse frequency to 5 seconds and set unloader to 100 psi max. or replace faulty filters.

Air Compressor

Loss of Compressed Air Pressure	Line Leakage from compressor	Check all connection in air line from compressor to dust collector. Make sure all fittings are tight. Do not over torque fittings.
	Diaphragm valve stuck open	Check solenoid pilot valve. Clean plunger. Replace diaphragm valve or pilot valve.
	Unloader not holding correct pressure.	Reset to 80 PSI or replace unloader.
	Loss of compressed air supply.	Check compressed air system. Look for air leaks.
	Improper solenoid operation.	Check timer "tell-tale" lights to observe solenoid operation. Check pilot discharge port to insure that it is open.
	Timer failure.	Observe timer operation. If defective, replace.

	Abrasive system clogged or damaged.	Clean or replace defective parts.
	Ammeter faulty - dirty, inaccurate readings.	Replace.
	Drive belt loose.	Check wheel drive belt for proper tension.
Panel lights will not illuminate	Main circuit breaker tripped	Check main power cable connections. Connect as required.
	Fuses blown in disconnect box.	Check disconnect box for blown fuses. Replace as required.
	Motor control box door open	The panel door is equipped with an interlock. The door cannot be opened before the electrical power is turned off.

Troubleshooting: Air Compressors

Trouble	Cause	Remedy
Excessive noise	Loose motor or compressor pulley	Tighten pulley clamp bolts and set screws.
	Lack of oil in crank-case.	Check for proper oil level; if low, check for damage to bearings. Dirty oil can cause excessive damage.
	Worn connecting rod inserts	Remove connecting rod cap and inspect bearings, if worn or damaged, replace.
	Worn piston pin pin bushing	Replace worn piston pin or pistons as required.
	Burned out bearings	Replace bearings and check for dirt or insufficient amount.
	Excessive crank-shaft end play.	Remove the cylinder and head assemblies from the running gear and check crankshaft for end play. If end play can be felt, remove one thin bearing adjustment shim (where used) at a time, and recheck end play after each removal. The bearing, when properly adjusted, should have a very slight drag when turned over by hand. This adjustment should never be made while the rods are still connected to the crankshaft.
	Loose valve assembly	Replace valve assembly gasket
	Piston hitting the head.	Remove the compressor head and check piston to carbon deposits or other foreign build-up. Replace head with new head gasket and inter-cooler gaskets if needed
	Noisy check valve	Replace.

Troubleshooting List: Electrical Malfunctions

Trouble	Probable Cause	Remedy
Electric Motors do not start. Blastrac and/or Ultra-Jet Dust Collector	Main power cable disconnected at electrical source.	Check main power cable at electrical source. Must be 460 volt, 60 hz., 3 phase
	Circuit breaker tripped (open)	Check circuit breaker
	Applicable motor starter circuit breaker open.	Reset starter circuit breaker
Electric motors do not come up to speed, run slow.	All 3 phases of 460 volt supply not connected properly.	Recheck wiring for loose or improper connections.
	One fuse blown in disconnect box.	Check all fuses. Replace as required.
Circuit breakers trip continuously	Overload in circuit, low power.	Shut down particular circuit. Check power source for proper voltage.
	Broken, damaged or loose wiring	Inspect wiring for broken, cut wires. and loose terminals. Replace/repair as required.
	Dirt or contaminants at terminals.	Clean contacts and terminals.
Wheel Motor ammeter reading unsteady.	Abrasive level low	Add abrasive to specified level
	Loose connector	Tighten electrical connectors.
	Abrasive valve closed or not open enough.	Adjust abrasive control valve.

Over-heating	Poor Ventilation	Relocate the compressor to an area where an ample supply of cool, clean, dry, and well circulated air is available. CAUTION: Avoid locations near boilers or other areas where there is high ambient temperature.
	Dirty cooling surfaces	Clean the cooling surfaces of the cylinder, intercooler and aftercooler.
	Incorrect pulley rotation	Check the arrow on the pulley for correct rotation. If incorrect, have a competent electrician reverse motor rotation. Air flow should always be toward the cylinders (on units with fan type wheel.)
Unit Stalls	Overloaded motor	Check motor voltage connection - have an electrician examine the motor and wiring, then proceed with his recommendations.
	Low or unbalanced voltage.	Same as above.
	Improper lubrication	See Lubrication section of this manual.
	Excessively long or undersized extension cord	Avoid use of extension cords whenever possible. If used, minimize length, and use largest cable size available
Excessive belt wear	Pulley out of alignment	Realign motor pulley with compressor pulley.
	Belt too loose or too tight.	Adjust tension.
	Belt slipping	Adjust tension.

Oil in the discharge air	Worn piston rings	Replace with new rings.
	Compressor air intake restricted.	Clean filter.
	Restricted breather	Clean and check breather valve for free operation.
	Excessive oil in compressor	Drain down to full level.
	Wrong oil viscosity	Check lubrication section of this manual for correct viscosity.
	Connection rod out of alignment.	Have rod with piston attached checked and realigned. Most auto engine rebuilding shops have the equipment to do this test.
Low discharge pressure	Air leaks.	Tighten or replace leaking fittings or connections.
	Leaking valves.	Remove valve assemblies or plates from the head, disassemble and inspect for valve breakage, weak valve springs, or plates, scored valve seats, etc. Replace defective parts and reassemble.
	Restricted air intake.	Clean air filter element.
	Slipping belts.	Loosen motor clamping bolts and move the motor in a direction away from the compressor, being sure that the motor shaft is perfectly parallel to the scribed line. Tighten motor clamping bolts. DO NOT "ROLL" BELTS OVER PULLEYS.
	Blown Gaskets	Replace.
	Low Compression	Replace worn rings, cylinders, and pistons as required.

Pulley wobble	Check for worn crankshaft, keyway, or pulley bore resulting from running the compressor or motor with loose pulleys. Check for bent pulleys or bent crankshaft.

SECTION 9

LUBRICATION INFORMATION

Compressor Lubricating Oil

The lubrication oil used in new compressor units shipped from the factory is a premium quality non-detergent industrial lubricating oil containing rust and oxidation inhibitors. This type of oil is generally recommended for air compressor service by the oil companies, has good water separating ability and is resistant to sludging.

The following list of specific brand name oils represents the lubrication recommendations for this reciprocating compressor. These have the viscosity equivalent of a SAE Grade 20W motor oil.

1. American Oil Company
   A. Amoco Industrial Oil No. 31
   B. Amokon No. 35

2. Clark Oil and Chemical Co. - Co Chem #228

3. Continental Oil Co. - Conoco Dectol Medium

4. Exxon Company
   A. Teresstic 52
   B. Esstic 50
   C. Nuto 53

5. Gulf Oil Corp. - Gulf Harmony Oil 61

6. Phillips Petroleum Co. - Baltic Grade 315

7. Texaco, Inc. - Texas Regal C - R & O

The oils listed above will operate satisfactorily for ambient temperature ranges between 20 deg. and 90 deg. F. This range should be appropriate for most installations. Applications where the ambient temperature is consistently above 90 deg. F. should use the next higher viscosity oil in these same lubrication oil families.

Of the synthetic lubricants, the three types most commonly used today are the phosphate ester base, diester base and flourosilicones. Synthetic oil of the phosphate ester base has been tested and found to be unsatisfactory. It caused premature wearing of the load bearing components. No recommendation can be made on the diester base of the synthetic oils because these have not been tested as of this date.

SECTION 10

SPECIFICATIONS

BLAST MACHINE SPECIFICATIONS

Blastrac Model 1-20D

Length	82.0 In.
Width	30.0 In.
Height	66.0 In.
Weight	1580 Lbs.
Wheel	15.5 In.
Motors	
Wheel	30 HP - 3600 RPM
Traction Drive	.75 HP
Cleaning Width	20.0 In.

DUST COLLECTOR SPECIFICATIONS

Model 854 Cartridge Type Collector

Length	77 In.
Width	34 In.
Height	56 In.
Weight	1200 Lbs.
Cartridges	8 - 7.8 In. dia. X 16.0 In.
Total Area	432 Sq. Ft.
Air Flow	850 CFM
Motors	
Compressor	2 HP
Fan	7.5 HP

SECTION 11
ELECTRICAL EQUIPMENT LIST
1 - 20D BLASTRAC CONTROL PANEL
(FOR MACHINES WITH SERIAL #'S 140120 AND HIGHER.)

QUAN.	DESCRIPTION	MFG.	PART #
1	DISCONNECT (60 A)	TELEMEC D10S2	678217
1	OPERATOR HANDLE	TELEMEC D11SF4	WITH 678217
1	FUSE KIT	TELEMEC D12D62	
1	DISC. SHAFT	TELEMEC D11SH10	
1	PUSH BUTTON(GREEN)	ALLEN BRAD 800H-AR1D1	672922
1	PUSH BUTTON (RED)	ALLEN BRAD 800H-BR6D2	672923
1	SELECTOR SWITCH	ALLEN BRAD 800H-JR2KC1AAXX	494822
1	BOOT (GREEN)	ALLEN BRAD 800H-N5B	
1	BOOT (RED)	ALLEN BRAD 800H-N5A	
1	CONTACTOR	ALLEN BRAD 100-A45ND3	678389
1	OVERLOAD	ALLEN BRAD 193-CPC45	678387
19	TERMINALS	ALLEN BRAD 1492-CA1	296700
8	TERMINALS	ALLEN BRAD 1492-CD2	298881
1	AMMETER	YOKAGOWA 250340NTNT	678390
1	HOUR METER	ENGLER 710/NG7	494823
1	SCR CONTROL	KBIC - 125	686771
1	KNOBS AND DIAL KIT	KBIC 9832	687122
1	RESISTOR .015 OHM	KBIC 9832	WITH 686771
2	FOR/REV RELAYS	POTTER BRUMFIELD PRD11AHO-120	670599

1	RESISTOR	OHMITE L25J10R	489745
3	FUSES	BUSSMAN FRS-R60	464493
1	FUSE	BUSSMAN FRN-R15	497602
1	FUSE BLOCK	MARATHON F30A1SP	
1	SPEED CONTROL POT.	KBIC 5 KOHM	687122
1	LIMIT SWITCH	MICRO SWITCH 2LSL	454796
1	CONTROL TRANSFORMER	GEN ELEC 1KVA 9T51B101	454855
1	PLUG	APPLETON ACP6034BC	687879
1	MOTOR	30 HP	492809
1	MOTOR	3/4 HP DC	488583
1	CORD GRIP	KELLEMS 74-01-078 (CG 408-90)	489954
2	CORD GRIP	KELLEMS 74-01-018 (CG 612)	490196
1	CORD GRIP	KELLEMS 74-01-008 (CG 408)	489953
2	CORD GRIP	KELLEMS 74-01-083 (CG 610-90)	492007
3	CORD GRIP	KELLEMS 74-01-027 (CG 1018)	422989
FT	CABLE	6/4 TYPE W	422987
FT	CABLE	14/6 TYPE SO	442135
FT	CABLE	16/3 TYPE SO	417012
1	ELECTRICAL PANEL		490684

ELECTRICAL EQUIPMENT LIST
854 DUST COLLECTOR
(FOR MACHINES WITH SERIAL #'S 140124 AND HIGHER.)

QUAN.	DESCRIPTION	MANUFACTURER	PART #
1	DISCONNECT (60 A)	TELEMEC D10S2	678217
1	OPERATOR HANDLE	TELEMEC D11SF4	WITH 678217
1	FUSE KIT	TELEMEC. D12D62	
1	PUSHBUTTON (GREEN)	ALLEN BRAD 800H-AR1D1	672922
1	PUSHBUTTON (RED)	ALLEN BRAD 800H-BR6D2	672923
1	PILOT LIGHT (AMBER)	ALLEN BRAD 800H-PR16A	463182
1	BOOT (GREEN)	ALLEN BRAD 800H-N5B	
1	BOOT (RED)	ALLEN BRAD 800H-N5A	
1	CONTACTOR	ALLEN BRAD 100-A09ND3	677698
1	CONTACTOR	ALLEN BRAD 100-A18ND3	678216
1	OVERLOAD	ALLEN BRAD 193-BSB30	676080
1	OVERLOAD	ALLEN BRAD 193-BSC15	676523
18	TERMINALS	ALLEN BRAD 1492-CA1	296700
1	TRANSFORMER	GEN ELEC. 9T58L49	495119
1	FUSEHOLDER	GEN ELEC 9T58P15	WITH 495119
3	FUSES (60A)	BUSSMAN FRS-R60	464493
3	FUSES (20A)	BUSSMAN FRN-R20	463862
1	FUSEBLOCK	MARATHON 6F30A3SP	
1	CORD GRIP	KELLEMS 74-01-008 (CG408)	489953

1	CORD GRIP	KELLEMS 74-01-017(CG610)	490195
1	CORD GRIP	KELLEMS 74-01-027(CG1018)	422989
1	CORD GRIP	KELLEMS 74-01-080 (CG410-90)	688839
1	CORD GRIP	KELLEMS 74-01-078 (CG408-90)	489954
1	CORD GRIP	KELLEMS 74-01-083 (CG610-90)	492007
1	CORD GRIP	KELLEMS 74-01-018 (CG612)	490196
1	AMMETER	YOKOGAWA 250/240 NG NG	463828
1	HOUR METER	ENGLER 710/NG7	494823
1	RECEPTACLE	APPLETON ACR6034	687880
FT	CABLE	16/3 SO	417012
FT	CABLE	6/4 TYPE W	422987
FT	CABLE	14/4 SO	276996
FT	CABLE	12/4 SO	490197
1	FUSE	BUSS #MDX-3A (DUAL ELEMENT)	497599
1	TIMER BOARD	SOLID STATE 1-3 OUT DNC T2003-A10	487270
1	BLOWER MOTOR	7.5 HP	497698
1	COMPRESSOR MOTOR	2 HP	265505
1	ELECTRICAL PANEL		497376

SECTION 12

BLAST WHEEL REPLACEMENT

CAUTION: ALL ELECTRIC POWER MUST BE DISCONNECTED AND ALL ROTATING PARTS COMPLETELY STOPPED BEFORE ATTEMPTING THIS PROCEDURE. ALWAYS OBSERVE ZMS BEFORE ATTEMPTING ANY ADJUSTMENTS OR MAINTENANCE!

1. Release two (2) locking cams holding feed spout and slide straps away from feed spout. Remove feed spout.

2. Remove control cage clamps and control cage.

3. Remove four (4) mounting nuts, flat washers and lock washers holding the control cage mounting assembly to housing. Do not loosen any other screws on the control cage mounting assembly, the remaining screws are used to set the gap between the wheel and control cage.

4. Remove socket head cap screw and washer from wheel; then remove wheel from housing.

5. Check the blast wheel hub for indications of wear. Replace if required.

6. Install new wheel using new wheel screw and washer.

7. Re-install control cage mounting assembly to housing.

8. Install new control cage. Rotate wheel by hand making certain wheel does not contact the control cage.

9. Re-install feed spout.

10. Start the wheel momentarily to check for good balance before blasting.

11. See Section 5 "Blast Pattern" for adjustment of the control cage.

The assembly of blast wheel rotating parts is shown in Figure 4. It is important to assure that these parts are maintained in a condition of accurate rotating balance to prevent excessive vibration of machine parts, to avoid high stresses on the blast wheel and its attached parts, and also to assure long bearing life in the unit bearing assembly.

All of the rotating parts are supplied from Blastrac in a state of accurate balance and mating surfaces are accurately machined to obtain good concentric fits.

The unit bearing assembly and the electric motor are designed for long operating life. If either unit has deteriorating parts, they will generally be indicated by an unusual noise or an electrical fault. Call a Blastrac representative if this occurs.

Blastrac

PORTABLE BLAST CLEANING SYSTEMS

REPLACEMENT WHEEL PARTS KIT FOR MODELS 1-20 D AND 2-48 D

GENERAL INFORMATION:

This replacement wheel parts kit will service one blast wheel on Model 1-20D or 2-48D Blastrac equipment.

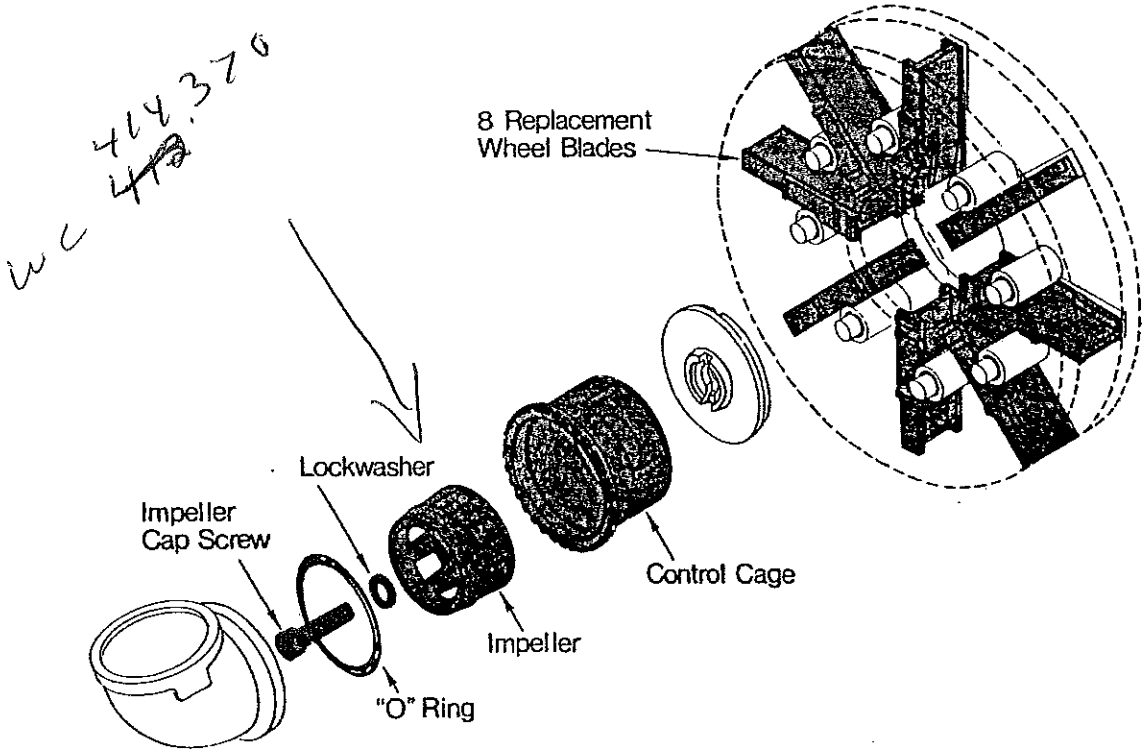
CAUTION: READ INSTRUCTIONS CAREFULLY BEFORE BEGINNING WORK. IMPROPER PROCEDURES CAN CAUSE PERSONAL INJURY OR EQUIPMENT DAMAGE!

WHEEL KIT:

Each Wheel Kit contains:
- **8 — Replacement Wheel Blades**
- **1 — Control Cage**
- **1 — Impeller**
- **1 — Allen Head Impeller Bolt with Lockwasher**
- **1 — Rubber "O" Ring**

REQUIRED TOOLS:

Adjustable Crescent Wrench or 9/16" Open or Box End Wrench
No. 168083 Impeller Wrench (supplied with machine)
¾-10 SAE Tap
Hammer
10" Driftpin or Punch



WHEEL SERVICE PROCEDURES

REMOVAL OF WORN PARTS:

CAUTION: DISCONNECT BLASTRAC UNIT FROM POWER SUPPLY BEFORE SERVICING! DO NOT BEGIN SERVICING UNTIL WHEEL IS COMPLETELY STOPPED. BLAST WHEEL MAY SPIN 5 TO 10 MINUTES AFTER POWER IS TURNED OFF!

a. Loosen the two feed spout clamps and remove feed spout (FIG. 1).

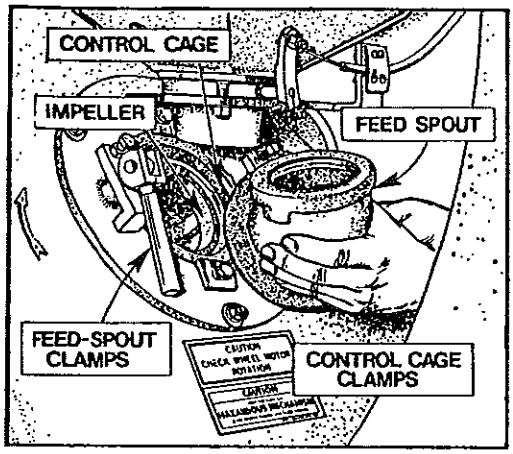


Figure 1. Remove Feed Spout.

b. Remove impeller bolt. Insert impeller bolt wrench (Tool No. 168083) into bolt in center of impeller. Using the wrench rotate the wheel clockwise and sharply snap the wrench in a counter-clockwise direction to loosen the bolt. **CAUTION: DO NOT HOLD WHEEL BY INSERTING AN OBJECT INTO THE IMPELLER OPENINGS OR INSPECTION COVER ON WHEEL HOUSING. (FIG. 2).**

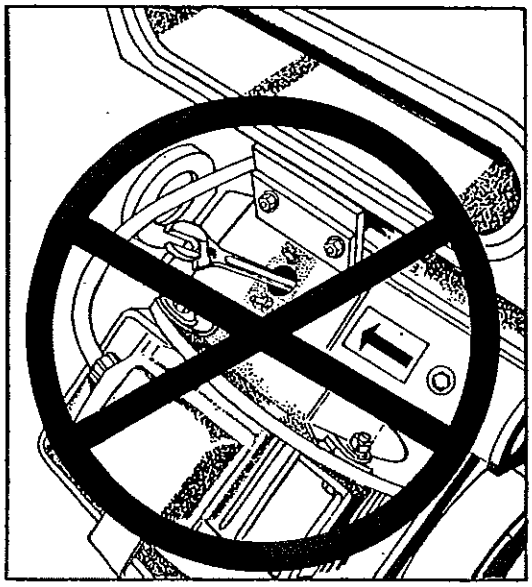


Figure 2. Do Not Secure Wheel by Inserting Objects in this Manner.

c. Remove impeller.

d. Locate arrow on outside edge of control cage. Mark its position on wheel housing.

e. Remove control cage clamps at 6 and 12 o'clock position and remove control cage.

f. Insert notched end of impeller wrench into hole in centering plate. Engage plate and remove. **(FIG. 3).**

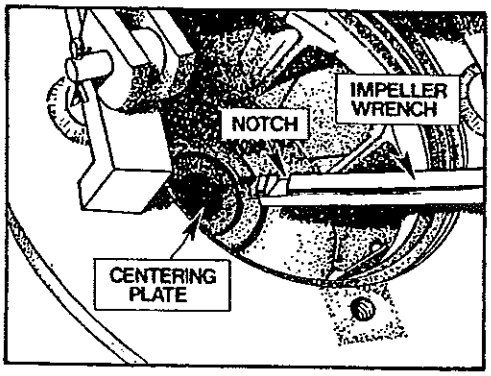


Figure 3. Engage Plate and Remove.

g. Remove inspection plate on top of wheel housing. Using a driftpin or punch drive the wheel blade into center of wheel **(FIG. 4).** Remove blade. Rotate wheel 180° and remove opposite blade. Repeat procedure until all blades are removed.

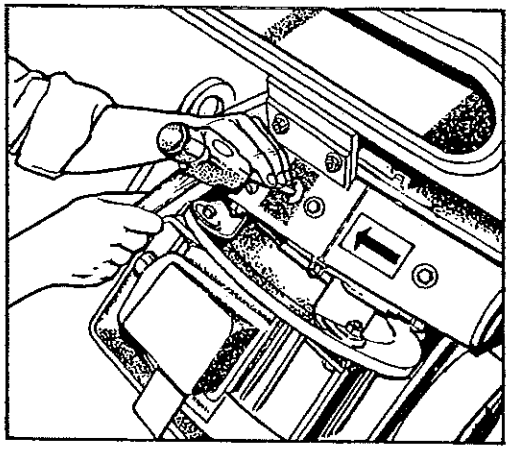


Figure 4. Drive Wheel Blade into Center of Wheel. Remove Blade.

CAUTION: Do not strike wheel spacer (FIG. 5).

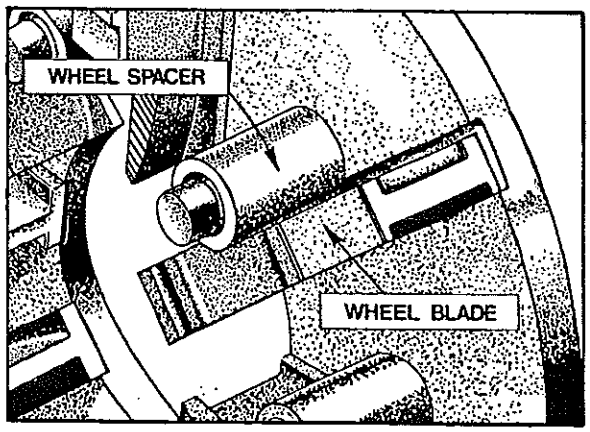


Figure 5. DO NOT STRIKE WHEEL SPACER.

h. Replace inspection cover.

INSTALLATION OF WHEEL KIT:

CAUTION: PROTECTIVE EYEGLASSES MUST BE WORN AT ALL TIMES WHEN CHANGING WHEEL.

a. Use compressed air from dust collector compressor to blow out dirt, shot and contaminants from the wheel. Blow out center hole in motor shaft to remove all abrasive from internal threads **(FIG. 6).**

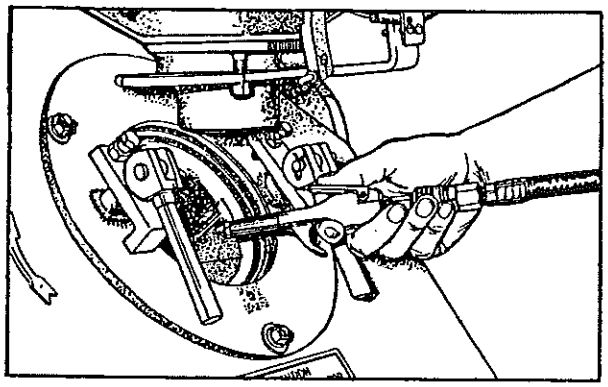


Figure 6. Clean Wheel with Compressed Air.

b. Install wheel blades through opening in center of wheel. The raised shoulder on the back of the wheel blades rests against the wheel spacers when properly installed. **(FIG. 5).**

c. Install centering plate **(FIG. 7).** Blades in top of wheel must be held in place until centering plate is inserted. Dowel pins in the back of wheel hub must fit into the slots on back of the centering plate. When properly seated the centering plate is flush with the back wheel plate.

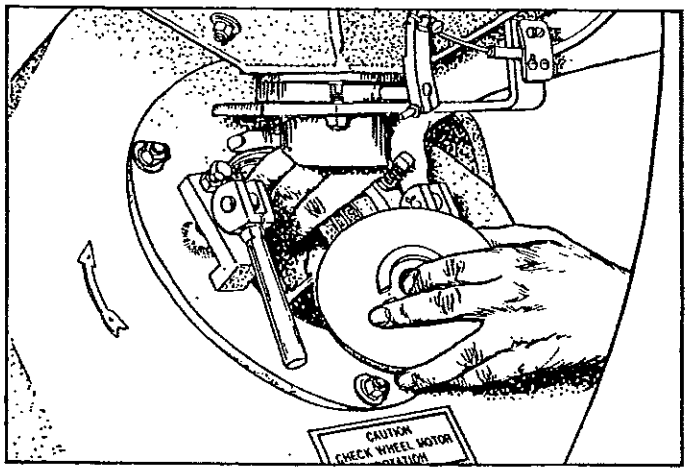


Figure 7. Install Centering Plate.

d. Install control cage. Clean the control cage seat with a compressed air blast to remove abrasive and foreign material before installation. The control cage must seat squarely for proper operation. Align arrow on face of control cage with mark made on wheel housing (Approx. midway between the 2 and 3 o'clock position). Tighten clamps.

e. Clean out hole in center of motor shaft with a ¾-10 SAE tap and blow out metal shavings with compressed air. **(FIG. 8). CAUTION: To avoid serious equipment damage the internal threads must be clean and free of all dirt and abrasive.**

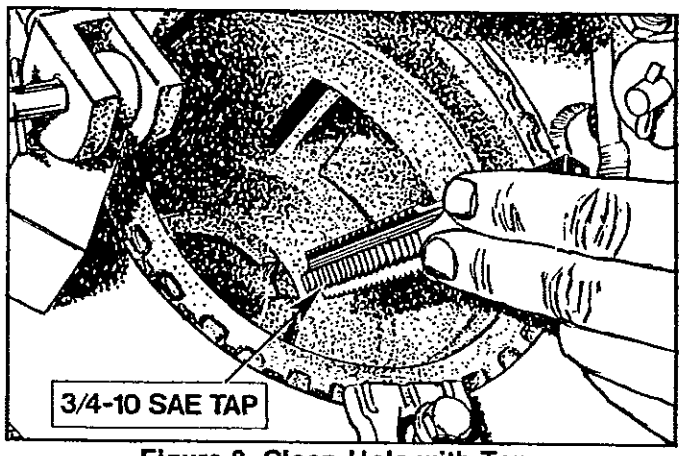


Figure 8. Clean Hole with Tap.

f. Insert impeller. Align pegs on back of impeller with notches in centering plate. **(FIG. 9).**

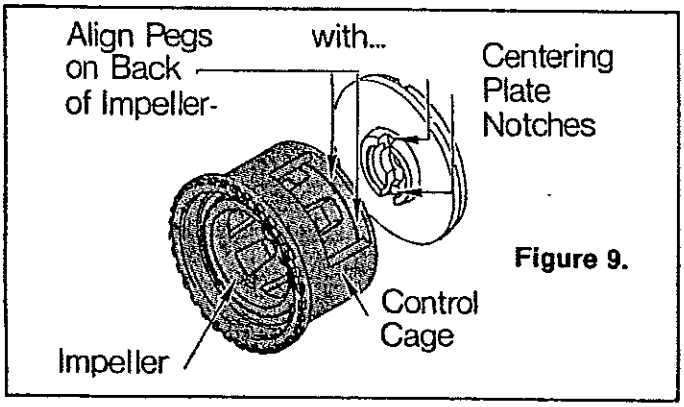


Figure 9.

g. **CAUTION: DO NOT HOLD WHEEL BY INSERTING AN OBJECT INTO THE IMPELLER OPENINGS OR INSPECTION COVER ON WHEEL HOUSING. (FIG. 2).** Install **new** impeller bolt and lock washer. Finger tighten bolt. Insert impeller wrench and snap wrench in a clockwise direction to tighten bolt. The bolt must be tightened sufficiently to flatten the split-ring lock washer. **CAUTION: KEEP FINGERS CLEAR OF IMPELLER OPENINGS WHEN TURNING WHEEL!**

h. Install new "O" ring on feed spout.

i. Install feed spout. Tighten clamps.

RETURN TO SERVICE:

a. Check for free wheel rotation. If rubbing or grinding is present, correct the conditions immediately!

b. Check blast pattern and adjust if necessary.

SETTING THE CORRECT BLAST PATTERN:

Setting the correct blast pattern is essential in assuring an even, clean profile on the surface being cleaned.

An incorrect blast pattern causes:

(1) Uneven cleaning of the blasted surface (leaving "shadows" on either side of the clean blast path).

(2) Premature wear on integral parts of the machine.

The four (4) major factors affecting the blast pattern are:

(1) Blast wheel rotation. The blast wheel must rotate in the direction indicated by the arrow on the wheel housing.

(2) Worn wheel kit parts. The blades, impeller, and control cage (in wheel kit form) must be replaced periodically to insure correct operation and the proper blast pattern and balance.

(3) Abrasive size. The size of abrasive affects the blast pattern necessitating adjustment of the control cage to correspond with small or large abrasive. **(FIG. 11).**

(4) Position of the control cage. The control cage and its proper positioning is the most critical factor in setting a correct blast pattern. Every control cage possesses a window **(FIG.10)** in the side wall, the position of which determines where the abrasive enters the wheel blades and impacts the surface to be prepared. Type of control cage (determining window size and shape) is decided prior to machine use.

Proper positioning of the window is a trial-and-error procedure, and will often be established on the job after every wheel kit replacement. Although trial-and-error is unavoidable — the approximate window location can be established by following these few basic steps:

(a) Determine the leading and trailing edge of control cage window. **(FIG. 10).**

(b) Position **trailing** edge at approximately 2:30 - 2:45 on the clock face. **(FIG. 11).**

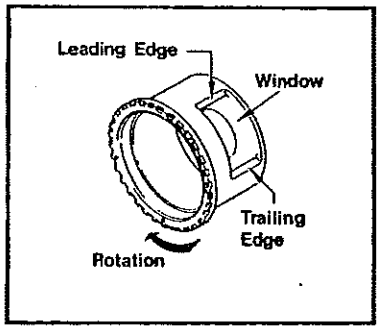


Figure 10.

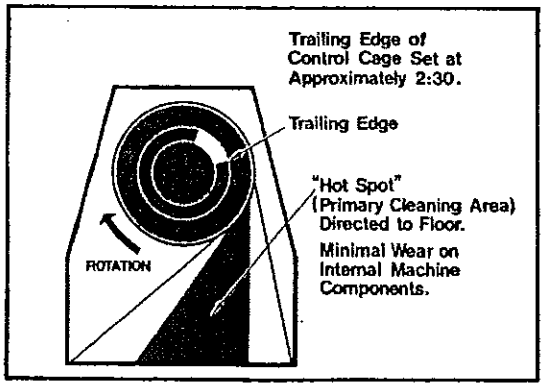


Figure 12. Correct Control Cage Setting

Troubleshooting:

As viewed from the feed spout side **(see FIG. 1):**

(1) If the blast pattern is strong on the right side of the blast path and weak ("shadows") on the left side, move the trailing edge of the control cage clockwise in increments of 1/8" - 1/4".

(2) If the blast pattern is strong on the left side of the blast path and weak on the right side, move the trailing edge of the control cage counterclockwise in increments of 1/8" - 1/4".

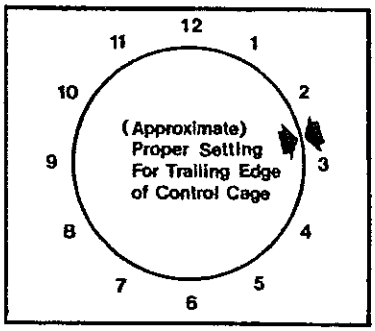


Figure 11.

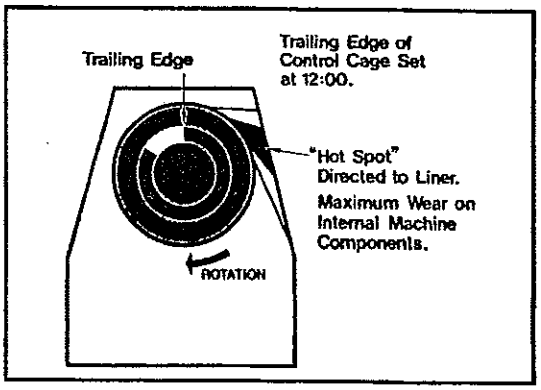


Figure 13. Incorrect Control Cage Setting

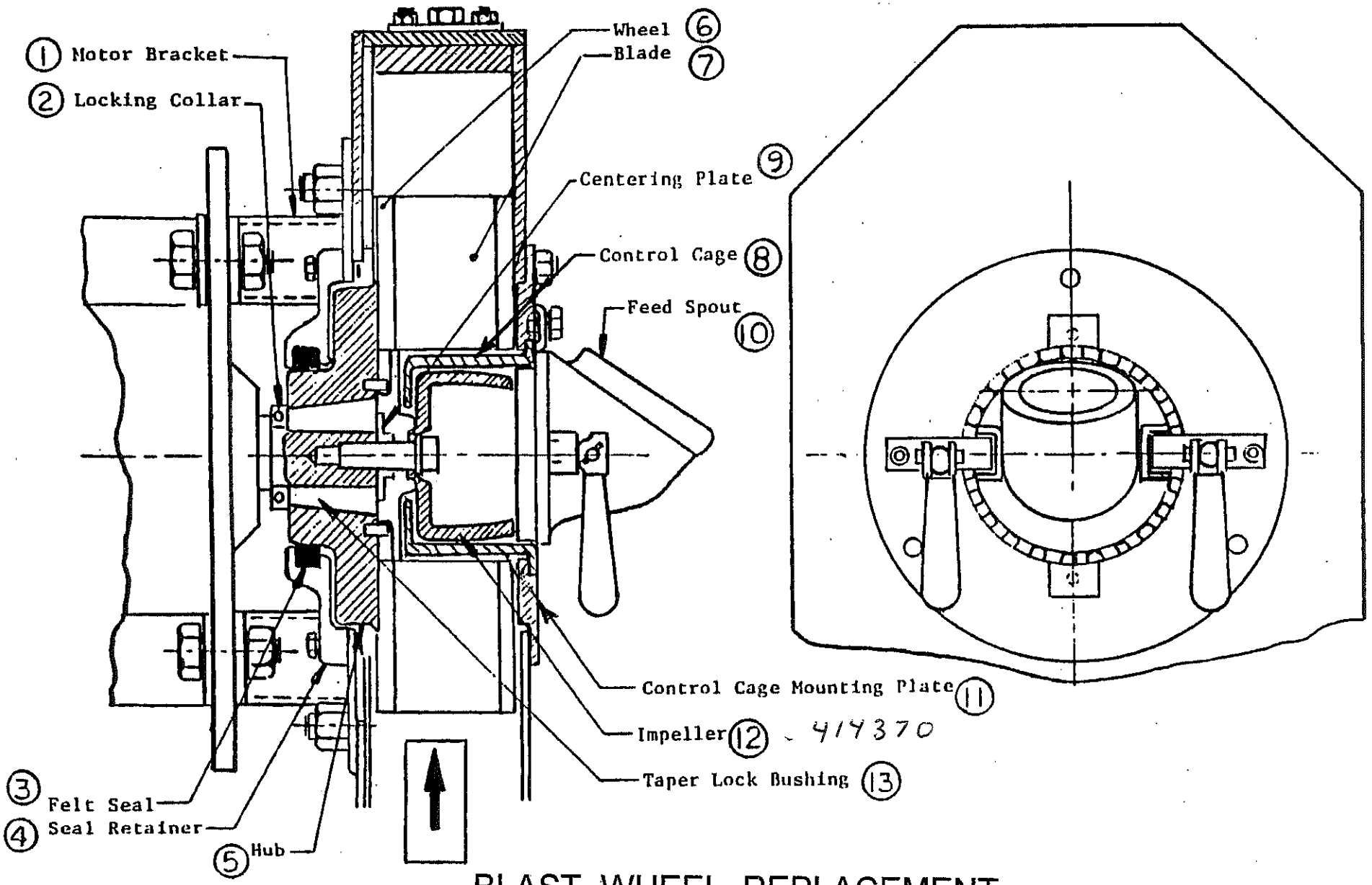
Item	Part No.
1	452811
2	463740
3	452802

Item	Part No.
4	452822
5	154863
6	414667

Item	Part No.
7	428571
8	441985
9	417089

Item	Part No.
10	422826
11	422833
12	414370

Item	Part No.
13	465675



BLAST WHEEL REPLACEMENT

FIGURE NO. 4

U. S. FILTER

BLASTRAC

HAZARDOUS MATERIALS

SAFETY WARNING

Some floor or deck surfaces may be coated with or contaminated by **hazardous material**. Typical examples of hazardous materials include tile mastic which is likely to contain **asbestos**, stained areas near electrical equipment which may contain **PCBs**, old paint, which may contain **lead**, stained or surface contaminated floor areas in chemical or other industrial facilities that may contain **pesticides**, **cleaning fluids**, **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 very probable that dust will be released during the normal operation of U. S. Filter/Blastrac equipment. If this dust contains hazardous material, there is a danger that exposure to this dust may pose a health risk.

Before using U. S. Filter/Blastrac equipment on any surface, the area must be inspected for possible contamination.

U. S. Filter/Blastrac does not warrant its equipment to be suitable for, or approved for, removing hazardous materials.

Before beginning any project involving the removal of hazardous materials, it is the responsibility of the contractor to ensure that the work site and equipment to be used have been inspected and the proposed work has been approved by the proper authorities. It is also the responsibility of the contractor to notify workers of any potential health risks and ensure that workers are properly protected from exposure to hazardous materials and from the long term effects of such exposure.

Filter/Blastrac Portable Shot Blast Cleaning Systems are not designed for use to remove, clean, profile, or alter any surface coated with or otherwise contaminated by hazardous material. U. S. Filter/Blastrac expressly disclaims any liability for injury, death, or damage that might occur or result from such use.

Blastrac
PORTABLE BLAST CLEANING SYSTEMS

REPLACEMENT WHEEL PARTS KIT FOR MODELS 1-20 D AND 2-48 D

GENERAL INFORMATION:

This replacement wheel parts kit will service one blast wheel on Model 1-20D or 2-48D Blastrac equipment.

CAUTION: READ INSTRUCTIONS CAREFULLY BEFORE BEGINNING WORK. IMPROPER PROCEDURES CAN CAUSE PERSONAL INJURY OR EQUIPMENT DAMAGE!

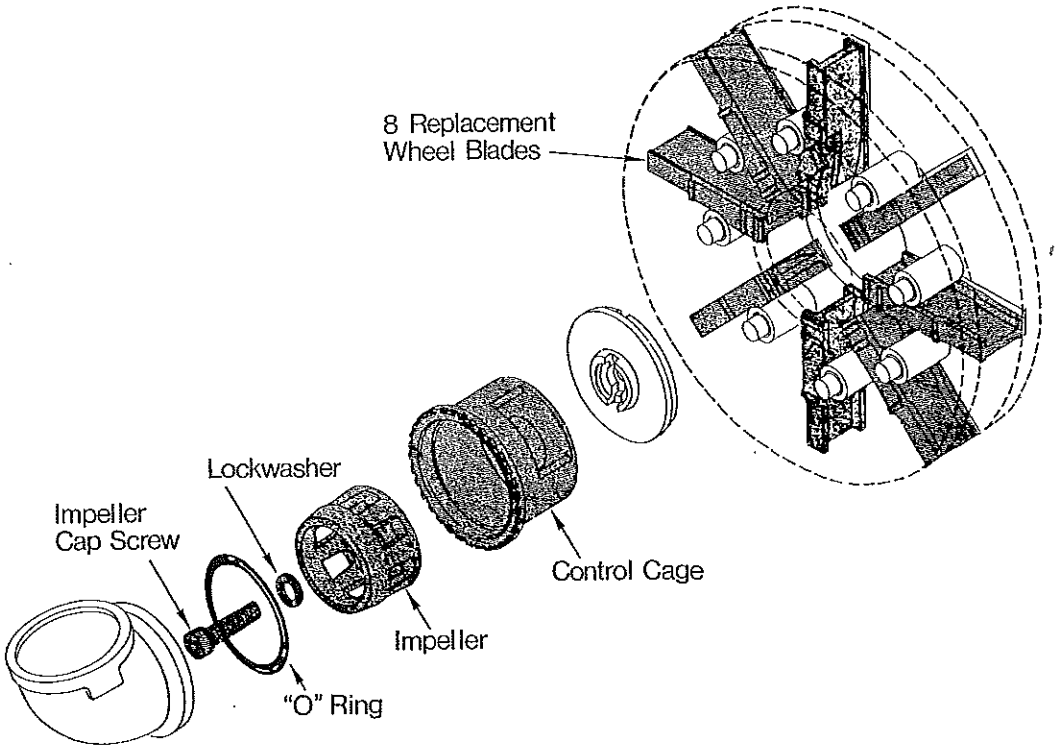
WHEEL KIT:

Each Wheel Kit contains:

- **8 — Replacement Wheel Blades**
- **1 — Control Cage**
- **1 — Impeller**
- **1 — Allen Head Impeller Bolt with Lockwasher**
- **1 — Rubber "O" Ring**

REQUIRED TOOLS:

Adjustable Crescent Wrench or 9/16" Open or Box End Wrench
No. 168083 Impeller Wrench (supplied with machine)
¾-10 SAE Tap
Hammer
10" Driftpin or Punch



WHEEL SERVICE PROCEDURES

REMOVAL OF WORN PARTS:

CAUTION: DISCONNECT BLASTRAC UNIT FROM POWER SUPPLY BEFORE SERVICING! DO NOT BEGIN SERVICING UNTIL WHEEL IS COMPLETELY STOPPED. BLAST WHEEL MAY SPIN 5 TO 10 MINUTES AFTER POWER IS TURNED OFF!

a. Loosen the two feed spout clamps and remove feed spout **(FIG. 1).**

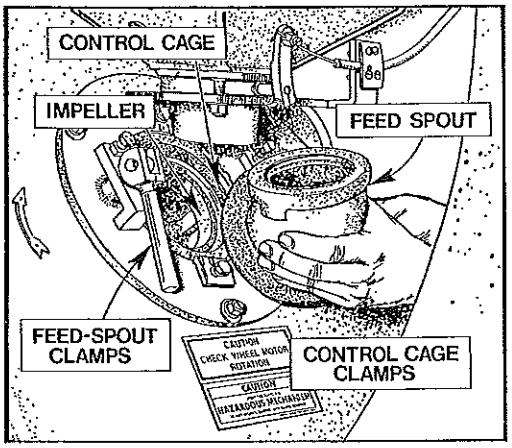


Figure 1. Remove Feed Spout.

b. Remove impeller bolt. Insert impeller bolt wrench (Tool No. 168083) into bolt in center of impeller. Using the wrench rotate the wheel clockwise and sharply snap the wrench in a counter-clockwise direction to loosen the bolt. **CAUTION: DO NOT HOLD WHEEL BY INSERTING AN OBJECT INTO THE IMPELLER OPENINGS OR INSPECTION COVER ON WHEEL HOUSING. (FIG. 2).**

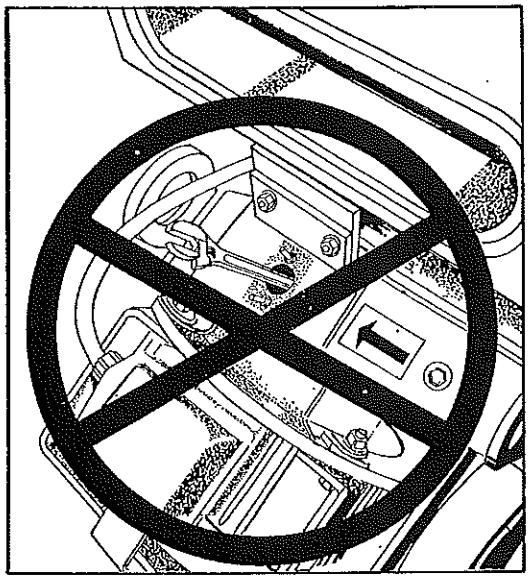


Figure 2. Do Not Secure Wheel by Inserting Objects in this Manner.

c. Remove impeller.

d. Locate arrow on outside edge of control cage. Mark its position on wheel housing.

e. Remove control cage clamps at 6 and 12 o'clock position and remove control cage.

f. Insert notched end of impeller wrench into hole in centering plate. Engage plate and remove. **(FIG. 3).**

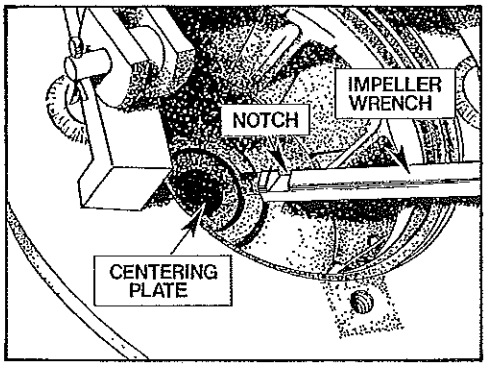


Figure 3. Engage Plate and Remove.

g. Remove inspection plate on top of wheel housing. Using a driftpin or punch drive the wheel blade into center of wheel **(FIG. 4).** Remove blade. Rotate wheel 180° and remove opposite blade. Repeat procedure until all blades are removed.

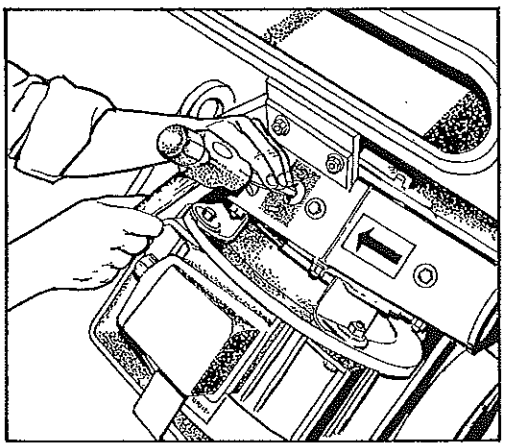


Figure 4. Drive Wheel Blade into Center of Wheel. Remove Blade.

CAUTION: Do not strike wheel spacer (FIG. 5).

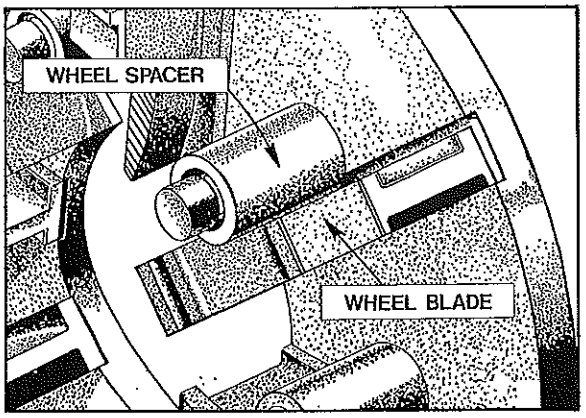


Figure 5. DO NOT STRIKE WHEEL SPACER.

h. Replace inspection cover.

INSTALLATION OF WHEEL KIT:

CAUTION: PROTECTIVE EYEGLASSES MUST BE WORN AT ALL TIMES WHEN CHANGING WHEEL.

a. Use compressed air from dust collector compressor to blow out dirt, shot and contaminants from the wheel. Blow out center hole in motor shaft to remove all abrasive from internal threads **(FIG. 6).**

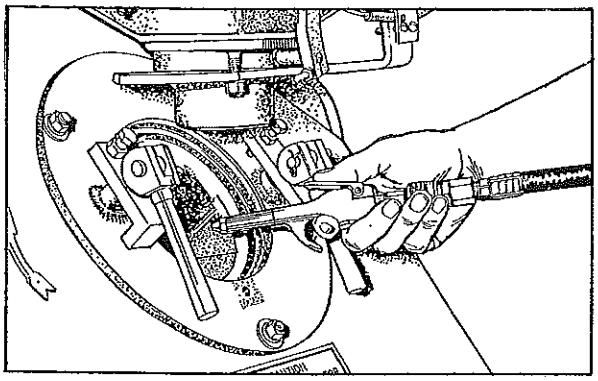


Figure 6. Clean Wheel with Compressed Air.

b. Install wheel blades through opening in center of wheel. The raised shoulder on the back of the wheel blades rests against the wheel spacers when properly installed. **(FIG. 5).**

c. Install centering plate **(FIG. 7).** Blades in top of wheel must be held in place until centering plate is inserted. Dowel pins in the back of wheel hub must fit into the slots on back of the centering plate. When properly seated the centering plate is flush with the back wheel plate.

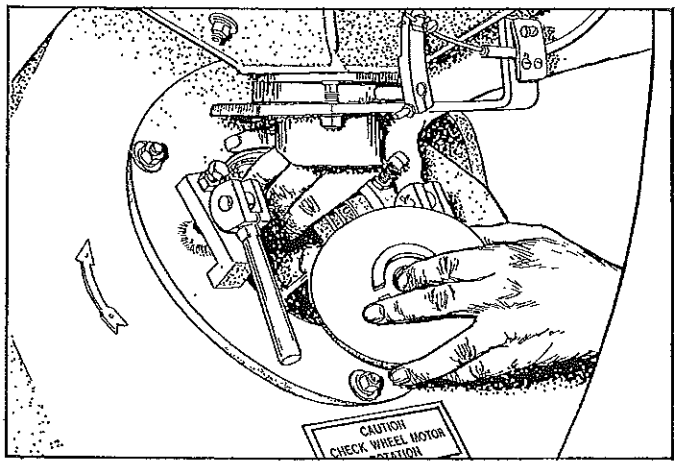


Figure 7. Install Centering Plate.

d. Install control cage. Clean the control cage seat with a compressed air blast to remove abrasive and foreign material before installation. The control cage must seat squarely for proper operation. Align arrow on face of control cage with mark made on wheel housing (Approx. midway between the 2 and 3 o'clock position). Tighten clamps.

e. Clean out hole in center of motor shaft with a ¾-10 SAE tap and blow out metal shavings with compressed air. **(FIG. 8). CAUTION: To avoid serious equipment damage the internal threads must be clean and free of all dirt and abrasive.**

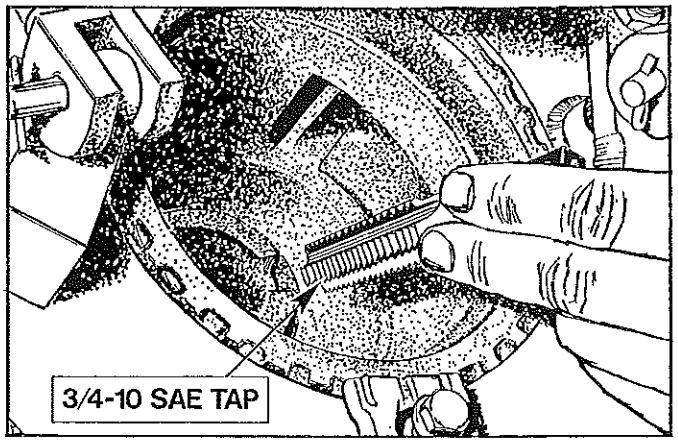


Figure 8. Clean Hole with Tap.

f. Insert impeller. Align pegs on back of impeller with notches in centering plate. **(FIG. 9).**

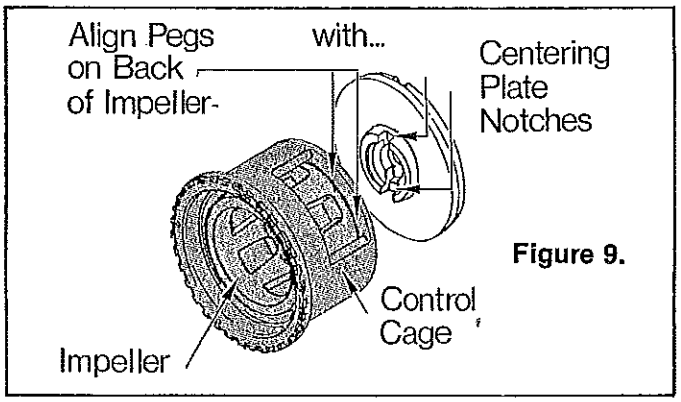


Figure 9.

g. **CAUTION: DO NOT HOLD WHEEL BY INSERTING AN OBJECT INTO THE IMPELLER OPENINGS OR INSPECTION COVER ON WHEEL HOUSING. (FIG. 2).** Install **new** impeller bolt and lock washer. Finger tighten bolt. Insert impeller wrench and snap wrench in a clockwise direction to tighten bolt. The bolt must be tightened sufficiently to flatten the split-ring lock washer. **CAUTION: KEEP FINGERS CLEAR OF IMPELLER OPENINGS WHEN TURNING WHEEL!**

h. Install new "O" ring on feed spout.

i. Install feed spout. Tighten clamps.

RETURN TO SERVICE:

a. Check for free wheel rotation. If rubbing or grinding is present, correct the conditions immediately!

b. Check blast pattern and adjust if necessary.

SETTING THE CORRECT BLAST PATTERN:

Setting the correct blast pattern is essential in assuring an even, clean profile on the surface being cleaned.

An incorrect blast pattern causes:

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(a) Determine the leading and trailing edge of control cage window. **(FIG. 10).**

(b) Position **trailing** edge at approximately 2:30 - 2:45 on the clock face. **(FIG. 11).**

Troubleshooting:

As viewed from the feed spout side **(see FIG. 1):**

(1) If the blast pattern is strong on the right side of the blast path and weak ("shadows") on the left side, move the trailing edge of the control cage clockwise in increments of 1/8″ - 1/4″.

(2) If the blast pattern is strong on the left side of the blast path and weak on the right side, move the trailing edge of the control cage counterclockwise in increments of 1/8″ - 1/4″.

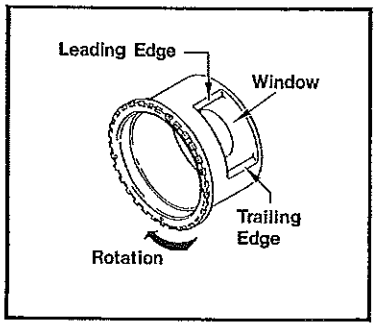


Figure 10.

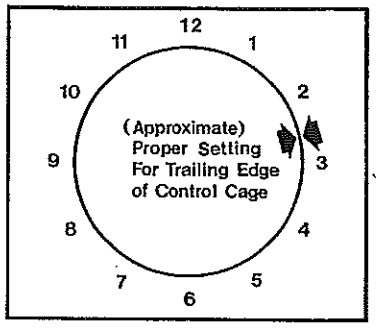


Figure 11.

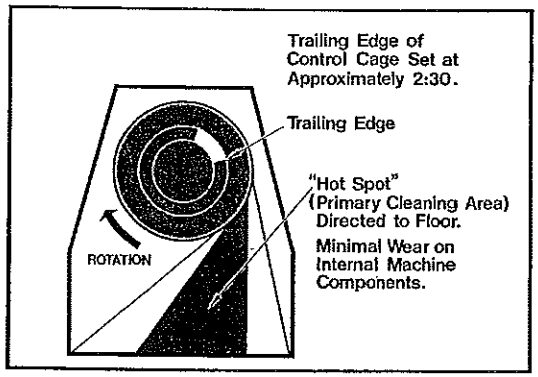


Figure 12. Correct Control Cage Setting

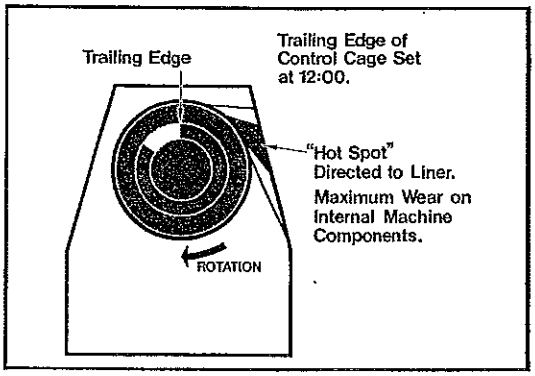


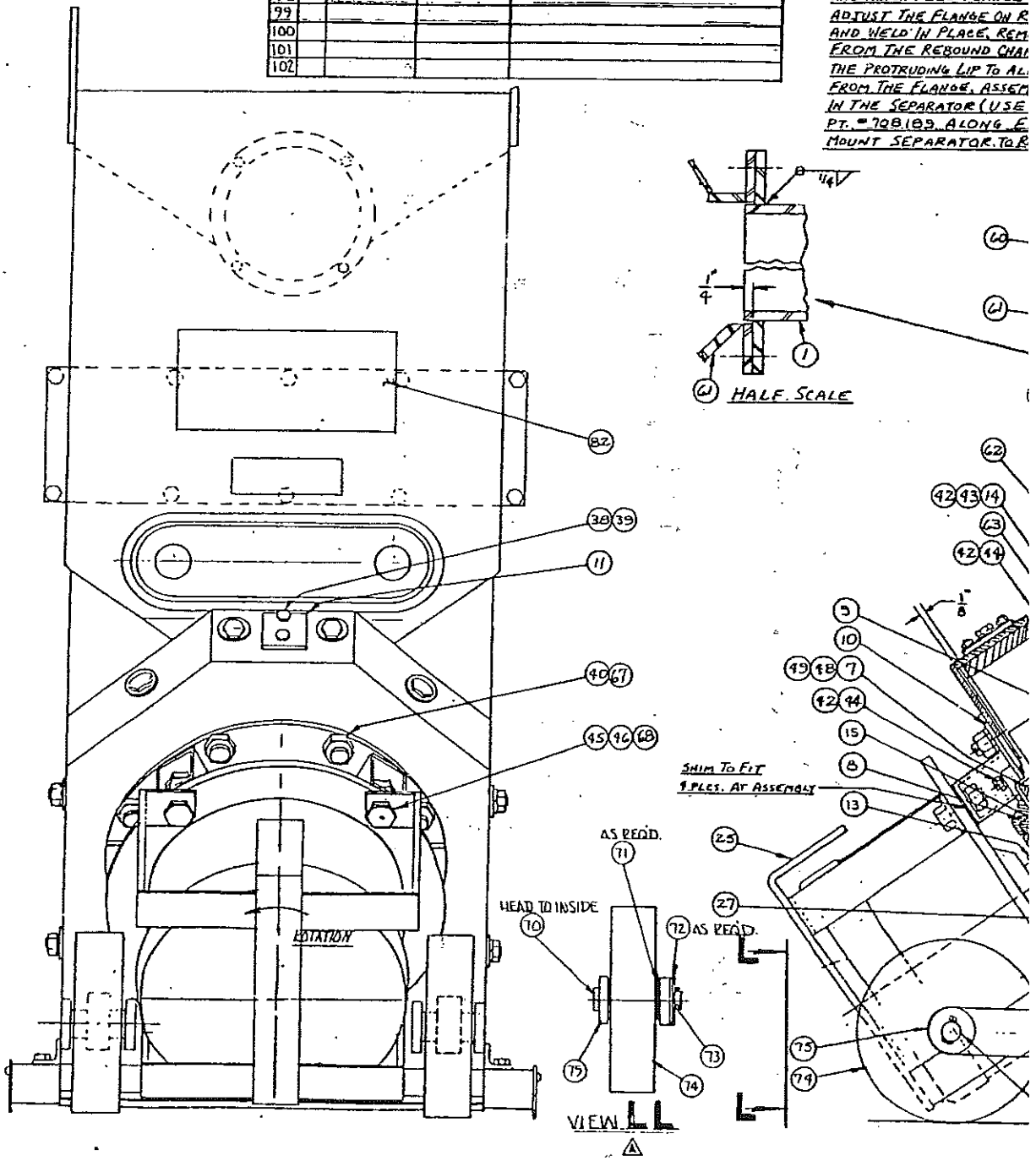
Figure 13. Incorrect Control Cage Setting

86D285

DET.	QTY.	PART NO.	DRAWING NO.	DESCRIPTION
74	2	450171		WHEEL - 10" DIA.
75	2	BM 484710	81C418	YOKE - FRONT IDLER
76	1	472553	73A1015	SIGN - ROTATION
77	1	494151	838511	SIGN - SAFETY GLASSES
78	1	467413	78C1143	SLL SCREEN - SEPARATOR
79	1	494044	83A418	SIGN - CAUTION - UNDER GUARD
80	1	710200	71A515	MOUNTING BLOCK
81	1	494150	838510	SIGN - LETHAL VOLTAGE
82	1	459567	77B136	SIGN - BLASTRAC 1-20 D
83	2	498276	85A116	SIGN - LIFT HERE
84	2	500178		1/4-20 NC x 1-3/4 HEX HD SCR.
85	1	498169	83A431	SIGN - CAUTION - ROTATION
86	1	150371	55A998	SIGN - AMP
87	6	500953		1/4" LOCKWASHER
88	2	451956		CLEAT
89	1	713024		PIN/CLEVIS 3/8" DIA.
90	1	500595		PIN/COTTER 1/8" x 3/4
91	4	500181		1/4-20 x 2-1/2" HEX HD SCR.
92	4	500200		3/8-16 x 2" HEX HD. SCR.
93	2	500230		1/2-13 x 4" HEX HD. SCR.
94	2	500116		1/2" LOCKWASHER
95	2	500062		1/2-13 HEX NUT
96	2	499602		1" WASHER/SPL.
97	1	712993	85A318	PIN 1" DIA.
98				
99				
100				
101				
102				

DET.	QTY.	PART NO.	DRAWING
52	1	BM 478457	80D61
53	4	500174	
54	4	500079	
57	1	478459	80B40
58	6	500104	
59	2	422831	78A30
60	1	BM 477978	80B29
61	1	BM 478128	80D50
62	1	BM 478200	80B39
63	1	BM 456308	76B95
64	1	BM 478127	80B34
65	2	478125	80B32
66	2	478126	80B32
67	8	500117	
68	4	500118	
69	2	500647	
70	4	488316	
71	4	951963	
72	8	500110	
73	6	501352	

MOUNT SEPARATOR TO RE
AND ALIGN FEED FUNNEL
ADJUST THE FLANGE ON R
AND WELD IN PLACE, REM
FROM THE REBOUND CHA
THE PROTRUDING LIP TO AL
FROM THE FLANGE, ASSEM
IN THE SEPARATOR (USE
PT. # 708189, ALONG E
MOUNT SEPARATOR TO R

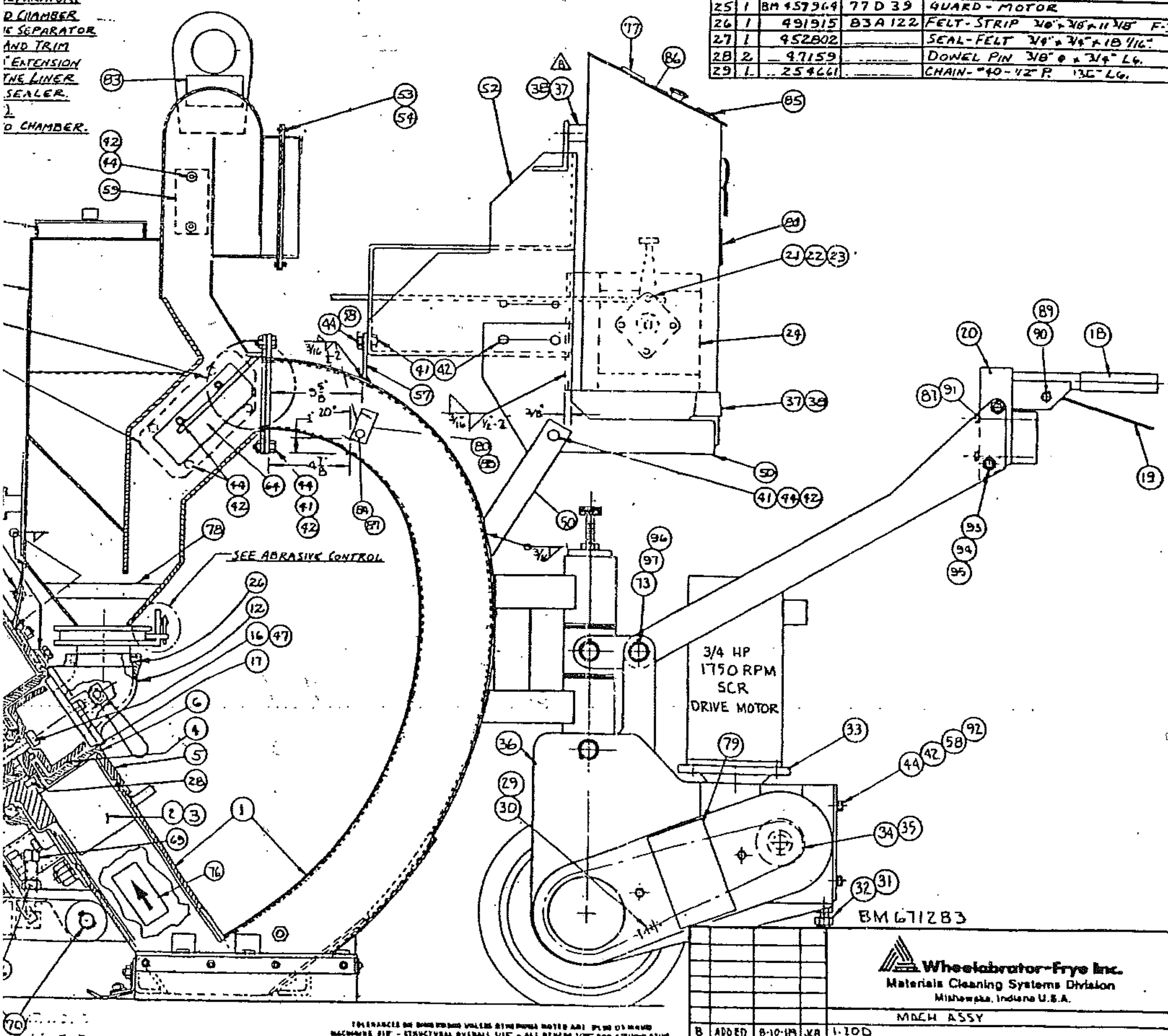


DESCRIPTION
RACKET - FAN MOTOR
"-20 x 3/4" HEX HD. SCR.
"-20 FLEX LOC NUT
[illegible]
[illegible]
AR - MOUNTING
3" FLATWASHER
NEL - ACCESS
VER - SEPARATOR
PARATOR - HOPPER
VER - ACCESS
RACKET - HOUSING & SEPARATOR
L - LINER - SEPARATOR
L - PLATE - COVER
ASKET
3" LOCKWASHER
LOCKWASHER
"-10 x 3" SQ. HD. SET SCR.
V - CLEVIS 1" Φ x 4 1/2" LG.
SHER - THRUST
I.D. FLAT WASHER
x 1-1/2" COTTER PIN

DET.	QTY.	PART. NO.	DRAWING NO.	DESCRIPTION
30	1	452836		CONNECTING LINK - #40 - 1/2 P
31	2	500227		1/2"-13 x 3" HEX HD. SCR.
32	2	500071		1/2"-13 JAM NUT
33	1	488550		REDUCER 50-1
34	1	484816		SPROCKET 16T #40 1-1/8 BORE
35	1	501910		KEY 1/4 SQ x 1" LG.
36	1	BM 499590	85D505	DRIVE/WELD
37	4	710015		INSULATOR
38	10	500059		5/16"-18 HEX NUT
39	2	500114		5/16" LOCKWASHER
40	8	500063		5/8"-11 HEX NUT
41	16	500768		3/8"-16 x 1 1/4" HEX HD. SCR
42	47	500115		3/8" LOCKWASHER
43	2	500965		3/8"-16 x 7/8" HEX HD. SCR.
44	45	500060		3/8"-16 HEX NUT
45	4	500269		3/4"-10 x 2" HEX HD. SCR.
46	6	500064		3/4"-10 HEX NUT
47	1	165790		LOCKWASHER 3/4" HIGH COLLAR
48	8	500471		1/2"-13 x 1 1/4" SOC. HD. SCR.
49	8	501770		1/2" FILLISTER LOCKWASHER
50	1	BM 478958	80 C 330	BRACKET - ELECT. PANEL

DET	QTY	PART NUMBER	DRAWING NUMBER	DESCRIPTION
1	1	BM 671255	86D273	ASSEMBLY REB PLENUM / BLAST HOUS
2	1	BM 414667	72C730	ASSEMBLY BARE WHEEL C.W.
3	1	428571	74B319	W/A BLADES (1 SET)
4	1	414310	72C655	IMPELLER
5	1	422833	78C17	SUPPORT, CONTROL CAGE
6	1	441385	74C1511	CONTROL CAGE - 45° OPENING
7	1	154863	55C561	HUB
8	1	452822	76B634	RETAINER, SEAL
9	1	417085	72C1276	CENTER, PLATE
10	1	~~BM 452811~~	~~76C605~~	BRACKET, MOTOR (685132)
11	1	413860	73B1325	PLATE, COVER
12	1	422826	78C15	SPOUT FEED
13	1	463740	78AB5	COLLAR, SPLIT
14	2	414655	72A664	CLAMP, CONTROL CAGE
15	1	465675	--	BUSHING, TAPER LOCK - 1-3/4 BORE
16	1	158063	56A237	IMPELLER CAP SCREW
17	1	448251		"O" RING
18	1	453290		GRIP - RUBBER
19	1	BM 451916	76 B 606	SWITCH - DEADMAN LEVER
20	1	BM 499593	85B196	HANDLE
21	4	500096		#10-24 x 3/4" - ROUND HD. SCR.
22	4	500901		#10-24 HEX NUT
23	4	500113		3/16" LOCKWASHER
24	1	479716	80 B 492	BRACKET - CONTROL BOX MOUNTING
25	1	BM 457964	77 D 39	GUARD - MOTOR
26	1	491915	83A122	FELT - STRIP 3/8" x 3/8" x 11 3/8" F-3
27	1	452802		SEAL - FELT 3/4" x 3/4" x 18 1/16"
28	2	47159		DOWEL PIN 3/8" Φ x 3/4" LG.
29	1	254661		CHAIN - #40 - 1/2" P. 135" LG.

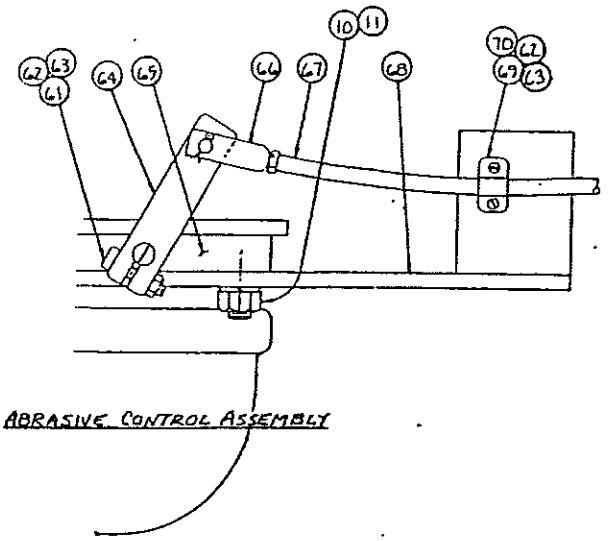
D CHAMBER.
SEPARATOR.
D CHAMBER
E SEPARATOR
AND TRIM
EXTENSION
THE LINER
SEALER.
D CHAMBER.



Wheelabrator-Frye Inc.
Materials Cleaning Systems Division
Mishawaka, Indiana U.S.A.

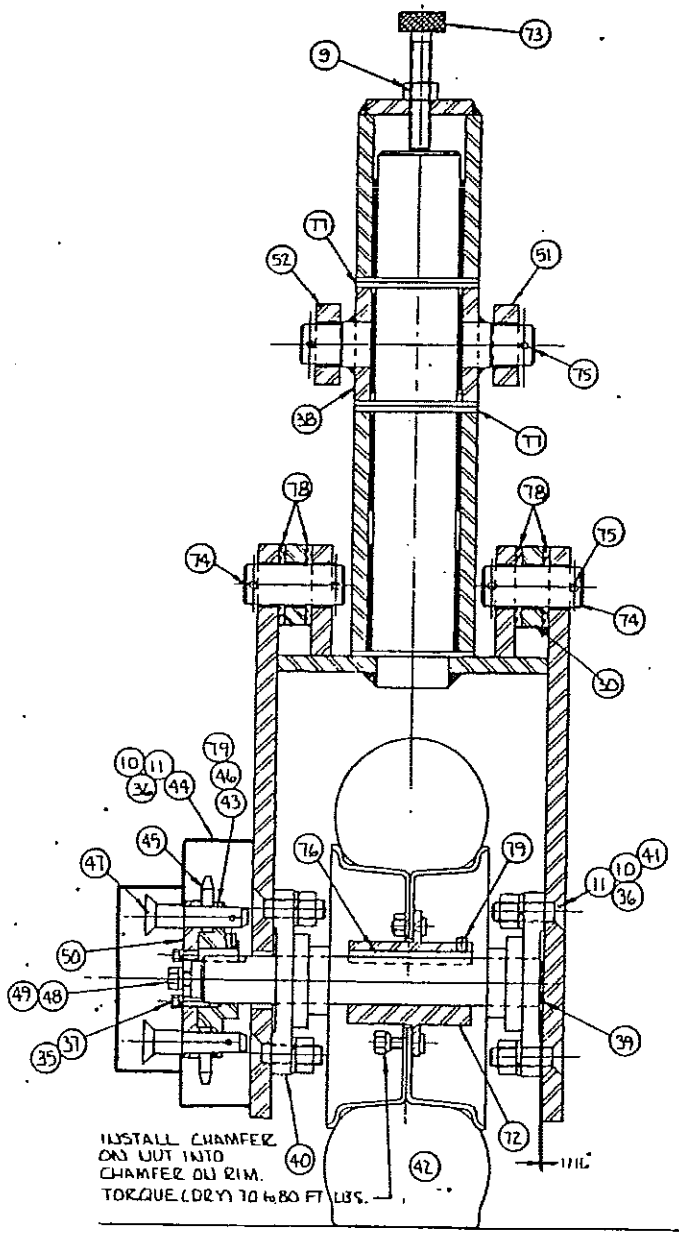
MACH ASSY

B	ADDED	8-10-89	KR	1-10D			
A	ADD VIEW	3/4/86	LEW	SCALE NTS	DRAWN LRW	TRACED	86D285
CHG	WAS	DATE	BY	DATE 2-4-86	CHECK	APPR	

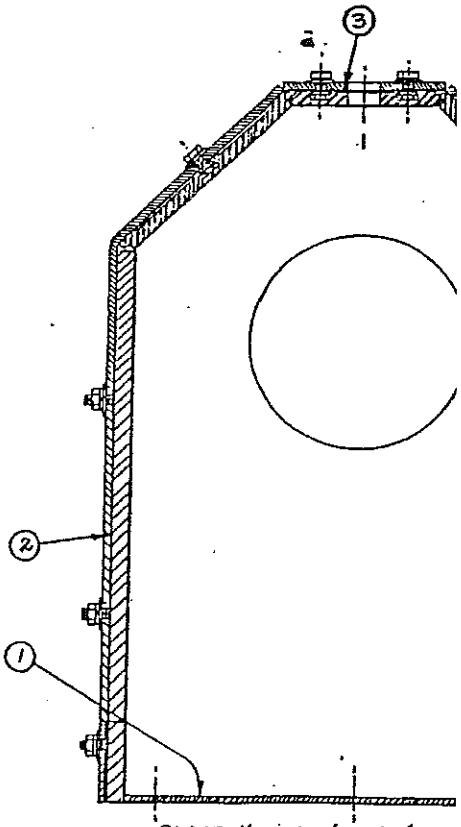


ABRASIVE CONTROL ASSEMBLY

DET	QTY.	PART NO.	DRAWING NO.
53	4	500946	
54	2	422836	
55	2	422837	
56	2	501339	
57	2	422839	78 A 273
58	2	500963	
59	2	500070	
60	2	BM 422840	78 A 272
61	1	501617	
62	5	500901	
63	5	500113	
64	1	478461	80 A 351
65	1	BM 452352	76 D 618
66	1	491719	
67	1	BM 484813	83 B 89
68	1	BM 422829	78 C 16
69	2	452394	
70	4	501053	
71	1	708189	
72	1	677677	89 D 235
73	1	499601	
74	2	712994	85 A 317
75	6	501352	
76	1	501917	78 D 698
77	5	670877	86 A 21
78	4	499602	
79	3	50122A	



TRACTION DRIVE ASSY.

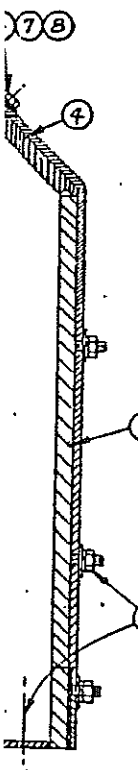


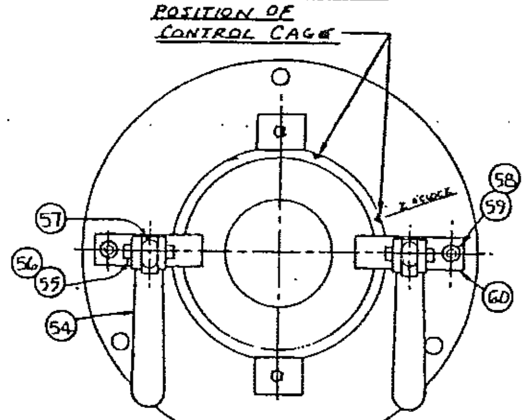
BLAST HOUSING LINER ARRA
1/4 SCALE

DESCRIPTION
5/8 HEX HD SC.
OUBLE JERGENS #18103
LEVIS 3/8" ϕ x 1 1/4"
3/4" COTTER PIN
ROD CAM
x 1 1/2" - SOC. HD. SCR.
6 JAM NUT
KET - CAM
x 1" - SOC. HD. SCR.
- HEX NUT
LOCKWASHER
GE - VALVE
ASSY - ABRASIVE
- ROD W/PIN
- CONTROL - ASSY
- TUBE, FEED SPOUT
- CABLE
x 1/2 HEX HD SC
3 KNURLED HD. SC.
2 COTTER PIN
x 1/4 x 9
R
ER
3/8 SOC HD SET SC

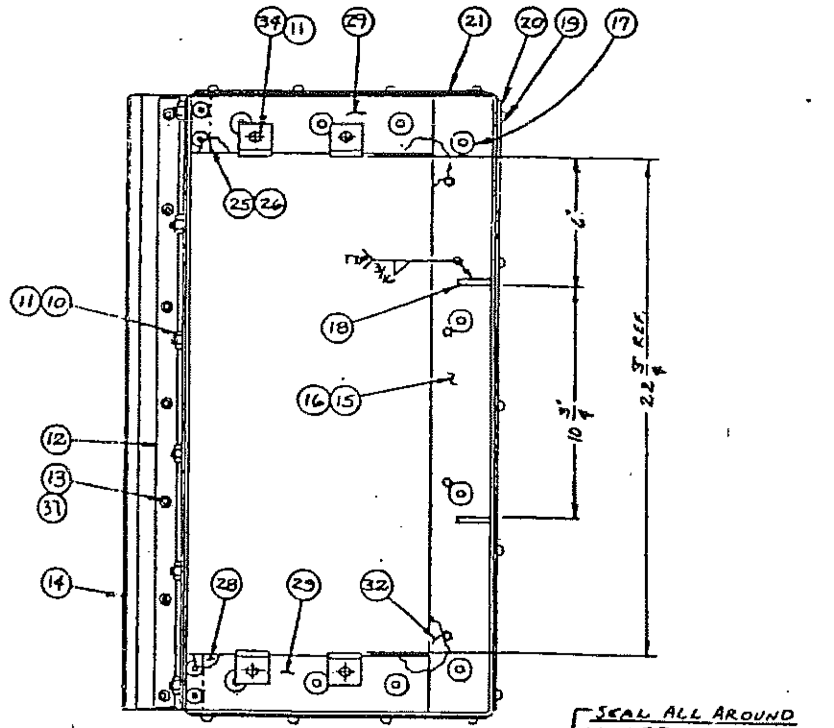
DET	QTY.	PART NO.	DRAWING NO.	DESCRIPTION
27	1	BM 478061	80 B 313	PLATE - SEAL
28	2	477991	80 B 298	MAGNET - 10"
29	2	477982	80 B 299	INSULATOR
30	1	BM 499595	85 B 198	LINKAGE
31	1	488023	82 B 84	SLL BRACKET
32	1	478203	80 B 400	MAGNET - 28"
33	1	478064	80 C 307	SKIRT - RUBBER
34	4	500767		3/8"-16 x 1" HEX HD. SCR.
35	4	500174		1/4-20 x 3/4 HEX HD SCR.
36	6	500104		3/8" FLAT WASHER
37	11	500953		1/4 LOCKWASHER
38	1	BM 499597	85B195	YOKE
39	1	499596	85B199	SHAFT
40	2	488549		BEARING - FLANGE - 2 BOLT - BRWS. FB160
41	4	501539		3/8"-16 x 1 3/4 FLAT HD. SOC. SCR.
42	1	499600		TIRE & RIM ASSY
43	1	488551	82 B 512	HUB
44	1	BM499591	85C215	GUARD - DRIVE
45	1	477631	80 B 258	SPROCKET - 30T - 2 1/4" B.
46	1	501310	78 D 698	KEY 1/4" x 1/4" x 1"
47	2	478198		PIN - QUICK RELEASE
48	1	500189		5/16"-18 x 3/4" HEX HD. SCR
49	1	500114		5/16" LOCKWASHER
50	1	477630	80 B 257	RETAINER - SPROCKET
51	1	BM499598	85B202	ARM RH
52	1	BM499599		ARM LH

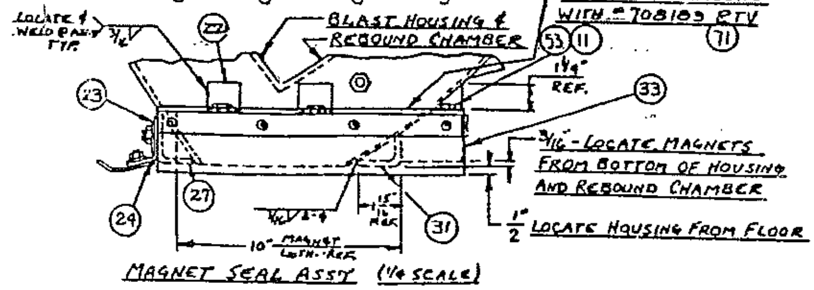
DET	QTY	PART NO.	DRAWING NO.	DESCRIPTION
1	1	BM 488307	82 B 85	LINER - REBOUND LIP - SLL
2	1	BM 488313	82 B 509	LINER - LEFT
3	1	467414	78 C 1342	LINER - TOP
4	2	467415	78 C 1343	LINER - CORNER
5	1	BM 488314	82 B 510	LINER - RIGHT
6	2	500219		1/2"-13 x 1" HEX HD. SCR.
7	11	500106		1/2" FLATWASHER
8	11	500116		1/2" LOCKWASHER
9	10	500062		1/2"-13 HEX NUT
10	14	500060		3/8"-16 HEX NUT
11	22	500115		3/8" LOCKWASHER
12	1	478062	80 B 314	RETAINER - SKID
13	7	500058		1/4"-20 HEX NUT
14	1	478059	80 B 311	SKID - SEAL
15	1	488022	82 B 83	BRACKET - MAGNET MOUNT
16	1	478055	80 C 304	INSULATOR - BAR
17	10	477588		5/16"-18 x 1" - FLAT HD. SOC. SCR. - BRASS
18	2	478204	80 A 312	GUSSET
19	13	500972		1/4"-20 x 1" - BUTTON HD. SOC. SCR.
20	1	478056	80 B 303	RETAINER - REAR
21	2	478058	80 B 305	RETAINER - SIDE
22	4	477495	80 A 84	BRACKET - SEAL
23	1	478060	80 B 312	RETAINER - FRONT
24	1	478121	80 B 315	SEAL - FRONT
25	2	477503	80 A 87	INSULATOR - BLOCK
26	4	500861		1/4"-20 x 1 1/2" FLAT HD. SCR.





FEED SPOUT CLAMPING





MAGNET SEAL ASST (1/4 SCALE)

REF BM 671283

Wheelabrator-Frye Inc.
Materials Cleaning Systems Division
Mishawaka, Indiana U.S.A.

MACH ASSY.

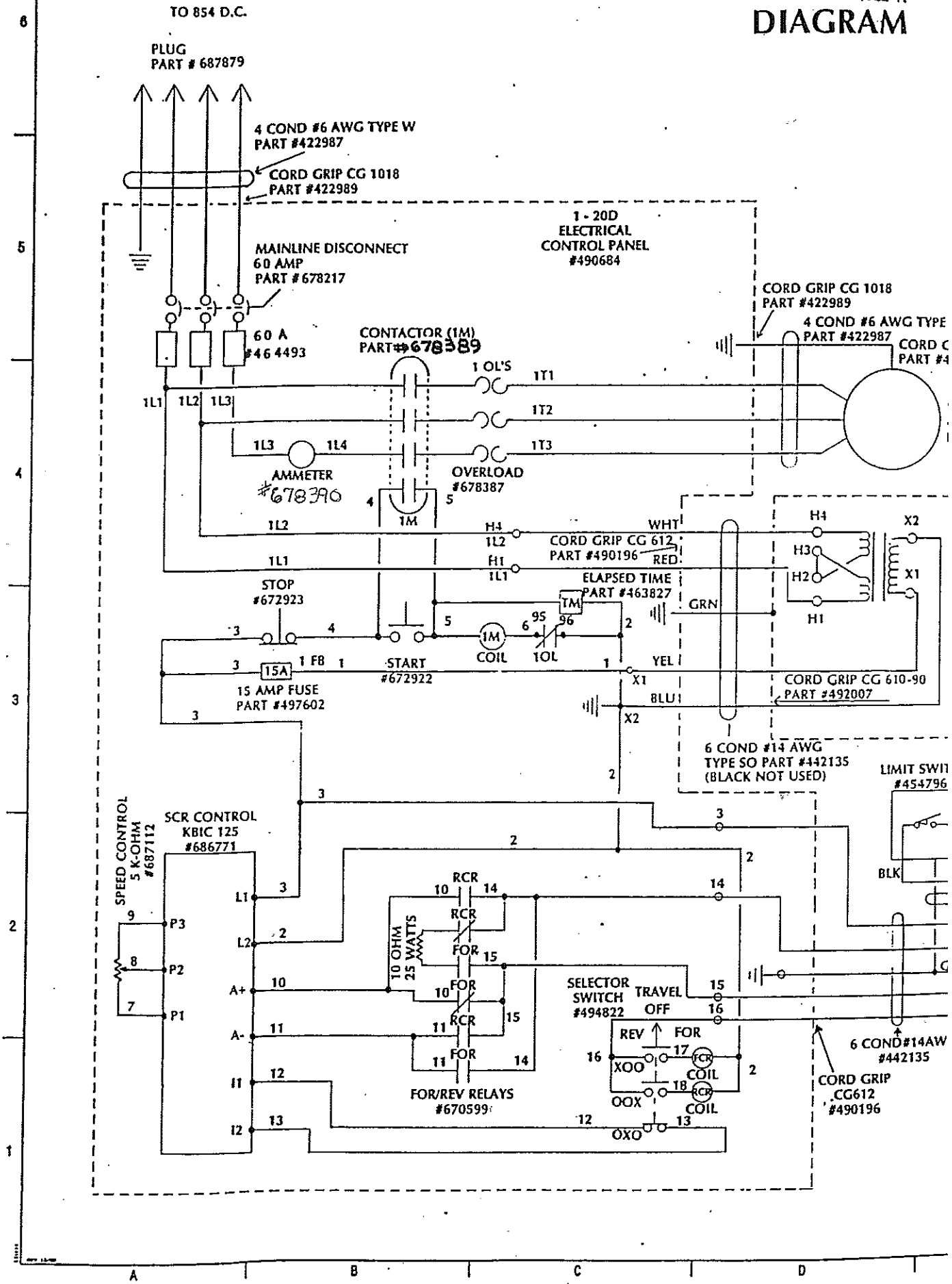
1-10D

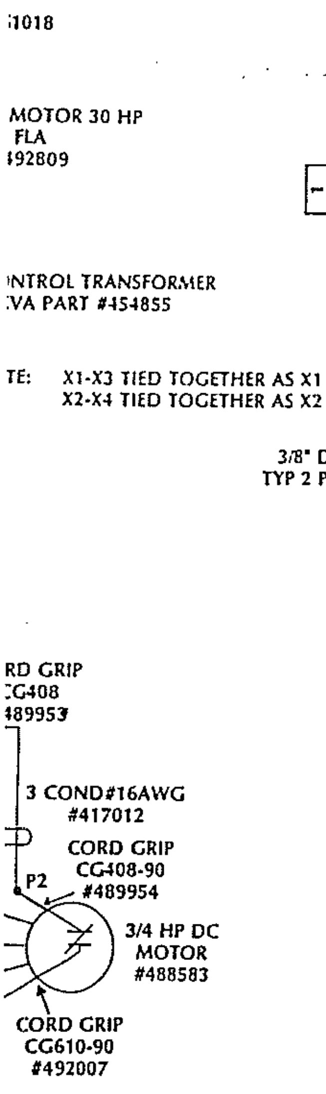
A	499597	2-6-90	DPB	SCALE NTS	DRAWN RM	TRACED
CHG	WAS	DATE	BY	DATE 4/7/86	CHECK	APPR

86D286

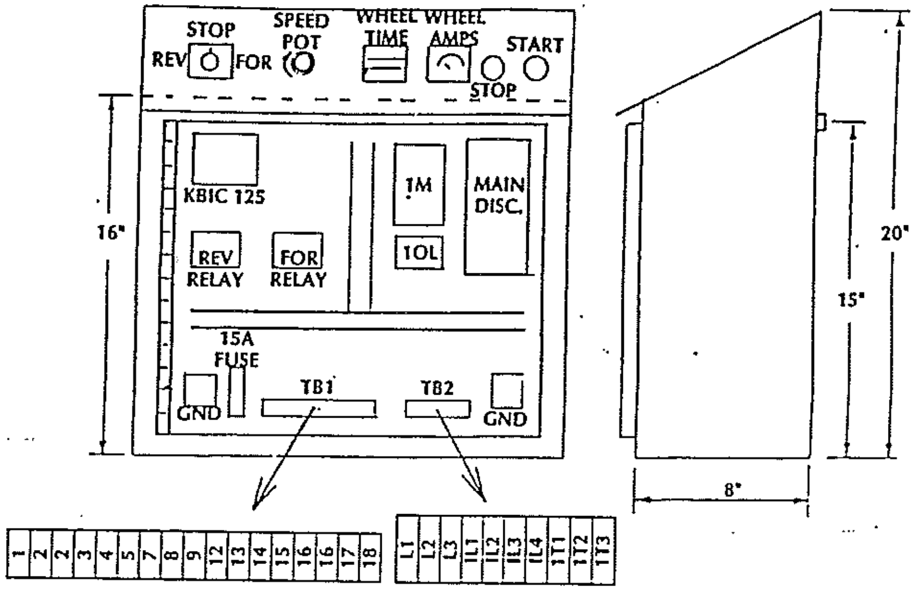
TOLERANCES ON DIMENSIONS UNLESS OTHERWISE NOTED ARE AS FOLLOWS: MACHINING ±1/2" - STRUCTURAL OVERALL ±1/8" - ALL OTHERS ±1/32"

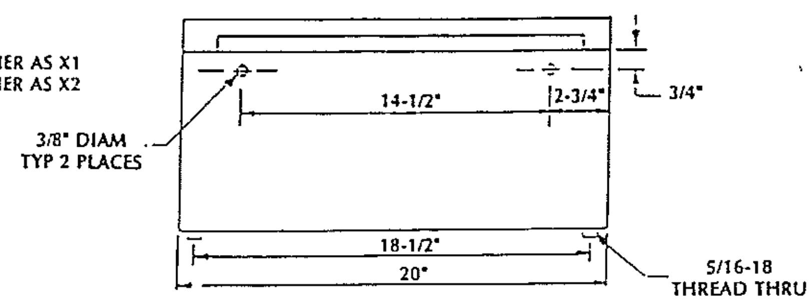
1 - 20D ELECTRIC DIAGRAM

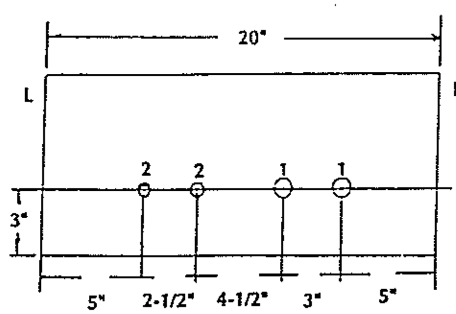




PANEL LAYOUT







KELLEM GRIP HOLES BOTTOM OF PANEL

	KNOCKOUT SIZE	GRIP P/N
①	1-14"	CG 1018
②	3/4"	CG 612

DIMENSIONAL TOLERANCES - UNLESS OTHERWISE NOTED - INSPECTION SPECIFICATION - WIS 5007

FABRICATING	MACHINING	WELDING AND ASSEMBLY	RELATIONAL	CASTING
(SHEARING, BURNING, PUNCHING.) TWO PLACE DECIMALS (AND FRACTIONS) ±0.06; ANGULAR (POSITIONAL) ±0°30'; ANGULAR (CHAMFER AND WELD GROOVE) ±1°30'	TWO PLACE DECIMALS (WHERE SHOWN BY √) ±0.010; THREE PLACE DECIMALS ±0.005; ANGULAR ±0°30'	TWO PLACE DECIMALS (AND FRACTIONS) ±0.09; ANGULAR (POSITIONAL) ±0°30'; ALL WELDMENTS ±0.12	FLATNESS (IN OVERALL LENGTH THROUGH 60.00") ±0.06; SQUARENESS (CORNER TO CORNER, MAX DIFFERENCE IN DIAGONALS) 0.12 MAX	CAST PARTS SHALL MEET THE STEEL FOUNDERS' SOCIETY OF AMERICA (SFSA) T5 TOLERANCE AS DEFINED BY THE FOLLOWING RELATIONSHIP OF TOLERANCE TO ACTUAL CAST DIMENSION LENGTH (L) AND CASTING WEIGHT (W): [illegible]

NOTE: BEND RADIUS IS EQUAL TO MATERIAL THICKNESS, UNLESS OTHERWISE NOTED.

490684

Wheelabrator Corporation
Shenandoah, Georgia U.S.A.
LaGrange, Georgia U.S.A.

ELECTRICAL SCHEMATIC
854 DUST COLLECTOR

SCALE NONE TAV
4/28/94

94D359

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