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## MODEL 1-16DB Ride-on Shot Blaster



Shot Blasting

OPERATING MANUAL

**CONTENTS - SECTION 1**

- 1.1 Rating
- 1.2 Unit specifications
- 1.3 Operative range and correct usage
- 1.4 Advice for operators of blast cleaning machines

# OPERATING MANUAL



## 1.1 RATINGS

Unit / designation: Blastrac Blast Cleaning Machine

Machine type: 1-16DB

Manufacturer: 

<b>Blastrac US</b>
13201 North Santa Fe
Oklahoma City, OK 73114
United States of America
Local: 405/478-3440
toll-free: 800/256-3440
<a href="mailto:info@blastrac.com">info@blastrac.com</a>
<a href="http://www.blastrac.com">www.blastrac.com</a>

## 1.2 UNIT SPECIFICATIONS

Dimensions:

	1-16DB
Length	104 in
Width	62 in
Height	66 in
Weight	4170 lbs
Blasting Width	16 in

General Equipment Spec:

Drive Motor	Hydrostatic Transmision
Fuel System	Diesel
Motor RPM	2600
Charging System	12 Volt
Dust Collector	2600 cfm compressed air pulse cleaning





The 1-16DB is exclusively designed to clean dry, frost-free horizontal surfaces. The machine may not be used for other purposes. The manufacturer will not be liable for damage resulting from such incorrect usage. In these cases the user assumes all risks.

## 1.4 ADVICE FOR OPERATORS OF BLAST CLEANING MACHINES



In accordance with the accident prevention regulations for blast cleaning work, the operator must provide operating instructions for blast cleaning work in a form and language that is understandable.



During operation the acceptable noise level of the 1-16DB could exceed 85 dB(A). This noise level depends on the local circumstances. When the noise level is 85 dB(A) or more, the machine operator and persons working near the machine must wear sound-insulating equipment. However, it is the contractor's responsibility to ensure the safety of their operator.



Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless and colorless and can cause injury or death if inhaled. Do not use equipment indoors without adequate ventilation. Refer to OSHA guidelines and regulations concerning maximum levels of exposure to carbon monoxide gases and other hazards associated with using internal combustion engines. It is highly recommended that a CO (carbon monoxide) detector be used to warn the user if levels become unsafe.

**CONTENTS – SECTION 2**

- 2.1 Warnings and symbols
- 2.2 Organizational Measures
- 2.3 Personnel selection and qualification
- 2.4 General Safety Precautions
- 2.5 Definition of the safety off position

# OPERATING MANUAL



## SECTION 2 SAFETY

The following denominations and symbols are used in the Operating Instructions to highlight areas of particular importance. These symbols may or may not be used on the machine:



Symbol of operational safety.  
 In these Operating Instructions this symbol will be shown next to all safety precautions that are to be followed to maximize safety and equipment performance. Follow these instructions and take special care in these circumstances. In addition to these instructions, the general safety precautions and accident prevention guidelines are also to be followed.



Particular details regarding the economical use of the equipment.



Information, instructions and restrictions with regard to possible risks to persons, property or equipment.



Indicates where consultation with the manufacturer is required.



Instructions relating to periodic checks.



Reference to important instructions contained in the Operating Instructions.

## 2.2 ORGANIZATIONAL MEASURES



These Operating Instructions are to be kept with the machine, and must be within reach at all times!

In addition to these Operating Instructions, general and legal regulations regarding accident prevention and environmental protection must be complied with per local regulations.

Such duties may, for example, relate to the handling of hazardous substances, or the provision and wearing of personal protection equipment, as well as compliance with traffic regulations.

The Operating Instructions must be supplemented by other instructions, including the duty to supervise and report incidents relating to particular working practices, for example work organization, work procedures and personnel safety.

Personnel entrusted with working with the machine must read and understand the Operating Instructions before starting work, paying specific attention to the Safety information. To read these instructions after work has commenced is too late. This particularly applies to incidental activities such as setting up the equipment, carrying out maintenance work or training staff to work with the machine.

## SECTION 2 SAFETY

From time to time the working practices of the operators are to be checked by a supervisor, especially regarding awareness of safety and hazards.

Operators must tie back long hair and not wear loose clothing or jewelry including rings. There is a risk of injury by items getting caught, or being drawn into moving machinery.



Use personnel protection equipment if necessary or required by local regulations! Take notice of all safety and hazard notices on the machine!

All safety and hazard notices at or on the machine must be kept complete and legible.

If safety-critical changes occur to the machine or its working method, the machine must be shut down immediately. The cause of the fault must be established and remedied.



Changes, additions or conversions to the machine must not be made, without the manufacturer's permission! This applies in particular to the fitting and adjustment of safety devices.

Spare parts must comply with the technical requirements specified by the manufacturer. This is always guaranteed if original spare parts are used.



Intervals for recurring checks and inspections specified in these Operating Instructions must be followed.

To perform maintenance work correctly, it is imperative to be equipped with the proper tools for the task.



The location and the operation of fire extinguishers must be made known on each work site.

Take note of the facilities for reporting and fighting fires.

## 2.3 PERSONNEL SELECTION AND QUALIFICATION

### Fundamental duties:

Work on the machine may only be undertaken by trained personnel.

Only trained personnel may be employed. Note the statutory minimum age. Clearly specify the responsibilities of personnel for operation, setting up, servicing and maintenance work.

Make sure that only authorized personnel operate or work on the machine.

Define responsibilities of the machine operator, with regard to traffic safety regulations, and inform him not to take instructions from third parties who may not be complying with the local safety requirements.

Personnel, who are being trained to operate equipment, may only use the machine under constant supervision of an experienced person.

## 2.4 GENERAL SAFETY PRECAUTIONS

Do not allow any method of working that impairs safety.

Recognized official procedures have to be used to ensure the machine is operated in the safest and best conditions.



Only operate the machine when all safety devices, and related safety equipment, are present and operational!

Check the machine visually for any damage and defects at least once a day.

In the event of operational malfunctions the machine must be shut down immediately and secured. This may be accomplished by pushing the top of the throttle assembly down and turning the ignition switch to the off position.



Secure the work area around the machine in public areas providing a safety distance of at least 6.5 feet (2 meters) from the machine.

Faults must be immediately remedied.

Carry out the switch on and switch off, operations in accordance with the operations manual.

Before turning on the machine verify that no one can be endangered when the machine starts up.

Do not turn off the dust collector while the machine is running.



All persons in the proximity of the machine must wear ear protection, safety glasses with side shields and safety shoes. In addition, the machine operator must wear close fitting protective clothing.

Do not wear loose fitting clothing or attempt to remove V-belt covers.

Do not stand to the side of the blast housing.

Do not operate this equipment on wet surfaces or in the vicinity of flammable liquids.



Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless and colorless and can cause injury or death if inhaled. Do not use equipment indoors without adequate ventilation. Refer to OSHA guidelines and regulations concerning maximum levels of exposure to carbon monoxide gases and other hazards associated with using internal combustion engines. It is highly recommended that a CO (carbon monoxide) detector be used to warn the user if levels become unsafe.



**Mechanical servicing work:**

Put the machine in the Safety off position as described in Section 2.5 before carrying out any service work on the machine.

Follow any special safety instructions in sections on servicing the machine. See Section 6.

Service and maintenance intervals specified in these Operating Instructions, as well as information on the replacement of parts must be followed.

These activities may only be undertaken by qualified personnel.

The operator must be given information about maintenance and work procedures before starting the cleaning process. This includes, but is not limited to the following:

- Procedures that are related to normal operation
- Methods of tool adjustments on the machine, and its safety devices
- All “ON and OFF” functions that have to be carried out according to the operation manual
- Methods for maintenance and repair.

If the equipment is switched off in order to carry out maintenance, repair, or adjustment, it must be secured against unintended restart.

See Section 2.5 Safety off position for specific details.

Always dispose of the contents of the dust bags or of a connected dust collector before loading the machine onto a vehicle.

Observe the local waste disposal regulations; in uncertain situations ask the next higher authority.

Do not use any aggressive cleaning materials.

Only use lint-free cleaning cloths.



Always verify that any bolted connections that were loosened during service and maintenance work are properly secure and tight.

Always verify that all V-Belts are in good condition.

If safety devices need to be removed or dismantled during service and repair, these safety devices must be reinstalled, and inspected immediately after completion of the servicing and repair work.

Make sure that process materials and replaced parts are disposed of safely and in an environmentally friendly manner.

Make sure that all components used for replacement purposes comply with the original parts and are correctly adjusted if necessary.

## 2.5 DEFINITION OF THE SAFETY OFF POSITION

**Definition:** The machine is in a safe condition where it cannot be a hazard.

Putting the equipment in the Safety off position involves:

- Close the shot valve.
- Switch off the machine.
- Wait for all drives to stop.
- Securing against unintended restart.



**CONTENTS – SECTION 3**

- 3.1 Operative range
- 3.2 Scope of supply
- 3.3 Description of the machine
- 3.4 Care and maintenance

# OPERATING MANUAL



## 3.1 OPERATIVE RANGE

The Blastrac 1-16DB is a downward blasting machine with a closed abrasive circuit designed for the pre-treatment of horizontal surfaces. The impact of metallic abrasive onto the surface to be treated thoroughly removes surface contaminants, coats of paint, sealants and thin coatings.

This machine has an on board dust collector that separates the dust from the abrasive. The specially designed dust collection system ensures dust-free operation of the machine and clean air at the workspace.

## 3.2 SCOPE OF SUPPLY

Scope of supply of the machine:

- Blast cleaning machine (1-16DB)
- Operating instructions

## 3.3 DESCRIPTION OF THE MACHINE

The 1-16DB Shot-Blast machine is powered by a 46 HP Duetz Diesel engine. The machine is capable of removing up to 1/4 inch of concrete in one pass. It is driven by a hydrostatic pump and motor system.

The 1-16DB has a 16 inch blast pattern using a patented blast wheel design which eliminates hot spots and grooves. The blast wheel is a paddle wheel design that is pulley driven by a mechanical clutch. The clutch engages at 1500 RPM and drives the blast wheel at a maximum speed of 5400 RPM continuously. Shot feeds through the shot valve to the blast wheel. The shot and debris rebound to the dust separator and the dust is removed to the dust collector. Clean shot falls back into the hopper for reuse. The machine recycles shot continuously after the clutch is engaged until the machine is shut off. The auto pulse dust collector cleans the six cartridge filters while the machine is running. This machine is capable of blasting up to 2500 square feet per hour while achieving a brush blast.



## 3.4 CARE AND MAINTENANCE

Special care and regular maintenance of the machine are imperative for proper function and safety.

In order to prevent unnecessary downtime, it is recommended to keep original spare and wear parts in stock, as listed in the later parts of this manual.

Before each use of the machine, verify the readiness of the machine by reviewing the checklist in Section 5.1.



All persons in the proximity of the machine must wear safety glasses with lateral protection and safety shoes while the machine is in operation. The machine operator must wear close-fitting protective clothing.

**CONTENTS – SECTION 4**

- 4.1 Unit specifications
- 4.2 General Transport of the machine
- 4.3 Operation Conditions

# OPERATING MANUAL



## 4.1 UNIT SPECIFICATIONS

Dimensions:

	1-16DB
Length	104 in
Width	62 in
Height	66 in
Weight	4170 lbs
Blasting Width	16 in

## 4.2 GENERAL TRANSPORT OF THE MACHINE

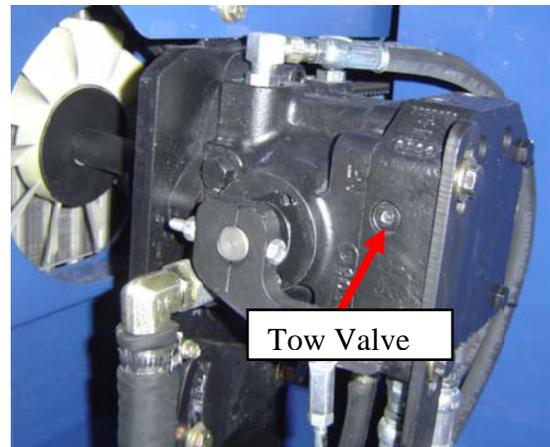


Before the machine is used for the first time, Blastrac authorized dealers offer a course to familiarize maintenance and operating personnel with all elements of the machine. We are not liable for damage caused by incorrect use of the equipment by personnel that have not trained by Blastrac.

Before the machine is transported, remove the abrasive from the machine and clean the dust out of the dust collector.

Always drive carefully and in a manner to avoid the machine shifting. Tighten the machine to the vehicle or trailer with straps or chains.

This machine is equipped with a Tow Valve. This valve allows fluid to pass through the hydraulic pump without the motor being started. This allows you to move the equipment without the use of the motor. If the valve is not closed, it will allow fluid to pass through the pump and not move when the engine is started. The valve is located on the side of the hydraulic pump (see picture). Turn clockwise to close (Normal Operation), turn 180° counter-clockwise to open (tow operation).



## 4.3 OPERATION CONDITIONS

Check the surface to be treated for loose parts (stones, screws, etc.). The surface must be swept, if necessary. Make sure that the machine can travel over all inequalities on the surface. Small inequalities like weld seams or floor joints are no barriers for the machine.



Whenever the machine is not used for blast cleaning, the abrasive valve must always be closed!

**CONTENTS – SECTION 5**

- 5.1 Preparation for Operation
- 5.2 Operator Awareness
- 5.3 Engine Startup
- 5.4 Operation Adjustment
- 5.5 Operation Sequence
- 5.6 Dust Collector Function
- 5.7 Shutdown Sequence

# OPERATING MANUAL



## 5.1 PREPARATIONS FOR OPERATION

Before start up, make sure that all existing protective housings are mounted and properly tightened.



All persons in the proximity of the machine must wear safety glasses with side shields, as well as safety shoes. The operator must wear close-fitting protective clothing!



Handle all plugs, cables, hoses and operating devices with care.

Check the surface to be treated for loose parts (stones, screws, etc.). The surface must be swept, if necessary. Make sure that the machine can travel over all inequalities on the surface. Small inequalities like weld seams or floor joints are no barriers for the machine.



Regular inspection is important in order to avoid unplanned downtime.

Carry out the following checks before any start-up. A printable checklist is provided in the back of this manual for your convenience.

- Check whether all machine parts are assembled safely and correctly.
- Verify that all bolted connections are secure and tight.
- Check the abrasive storage hopper and the blast wheel parts for foreign materials and remove them.
- Check the blast wheel blades, liners and fastening screws for damage and wear. *Important Note: The blades should be changed before they wear past the vanes on the blast drum.*
- Check the brush seals for wear.
- Check the pinch bar for clearance and uneven wear.
- Verify for proper gap between the pinch bar and the blades. See Section 5.4 on adjustment instructions.
- Check the Blast Wheel bearings set screws and grease.
- Check the shot valve for leaks.
- Make sure the filters are not clogged or torn.

## SECTION 5 OPERATION

- ☑ Check the wheels/tires for damage.
- ☑ Check the engine oil and change when dirty.
- ☑ Check the air cleaner and change when dirty.
- ☑ Check the hydraulic fluid and change when dirty.
- ☑ Check the engine oil and change when dirty.
- ☑ Check the Blast Seals for excessive wear.
- ☑ Check the Blower Bearings set screws and grease.
- ☑ Check the lining of the clutch.
- ☑ Check the chain tension in the steering assembly.
- ☑ Check the condition and tension of the belts.
- ☑ Check the bearing in the idler assembly.
- ☑ Make sure the dust bags are empty.

*Important Note: Please comply with the local waste treatment regulations considering the removed material.*

- ☑ Check the dust collector latches and ensure they firmly secure the door.
- ☑ Check the separator parts for wear and defects. Remove foreign bodies and dust deposits in order to prevent the separator from being blocked.
- ☑ Check the level of abrasive in the storage hopper. Refill if necessary.

Any items on this list that are not found to be in order must be repaired or replaced.



Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless and colorless and can cause injury or death if inhaled. Do not use equipment indoors without adequate ventilation. Refer to OSHA guidelines and regulations concerning maximum levels of exposure to carbon monoxide gases and other hazards associated with using internal combustion engines. It is highly recommended that a CO (carbon monoxide) detector be used to warn the user if levels become unsafe.

## 5.2 OPERATOR AWARENESS



The 1-16DB machine is designed to blast a concrete surface and reclaim all shot and dust. The machine can very easily destroy the concrete surface if not operated properly! The absence of Operator Awareness will create down time and can prove to be very costly.

- When the shot valve is open, the machine is throwing shot! Therefore, you must be sure the shot valve is closed prior to starting as well as any time the machine comes to a stop.
- The speed of travel controls the depth of your cut. You should run a test pattern to be sure you are not gouging the floor.
- Due to variances in concrete, it is necessary to check the pattern every ten feet as the concrete or coated surface may be softer in different areas.
- The maintenance check list in Section 5.1 is provided for blasting efficiency. This list should be completed after each day of blasting.
- The dust collector must be dumped approximately every two hours. If the dust collector gets too full, you will lose all of your suction. This will result in loss of all shot from the hopper.
- The gap between the Blades and the Pinch Bar is very important. If your gap exceeds 3/16 inch, you will begin to trail shot and eventually empty the shot hopper.
- The Shot Blast machine is equipped with blast seals. These seals provide a seal for the suction required. They contain shot that would otherwise be thrown from the machine. If the seals are worn out, you will lose your seal and shot could escape from the worn areas.



Before start-up, the operating personnel must be familiar with the safety regulations given in this manual.



## 5.3 ENGINE STARTUP



Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless and colorless and can cause injury or death if inhaled. Do not use equipment indoors without adequate ventilation. Refer to OSHA guidelines and regulations concerning maximum levels of exposure to carbon monoxide gases and other hazards associated with using internal combustion engines. It is highly recommended that a CO (carbon monoxide) detector be used to warn the user if levels become unsafe.



All persons in the proximity of the machine must wear safety glasses with lateral protection as well as safety shoes. The operator is obliged to wear close-fitting protective clothing.

**“Cold” Startup Procedure:**

- 1) Make sure the fuel shut-off switch located between the fuel tank and engine is turned so that the handle is parallel with the fitting.



FUEL  
SHUT  
OFF  
SWITCH

Figure 1: Fuel Shut-off Switch

*Note: Valve shown here in the off position.*

- 2) Turn the ignition switch to the run position and wait for the glow plug light to turn off.

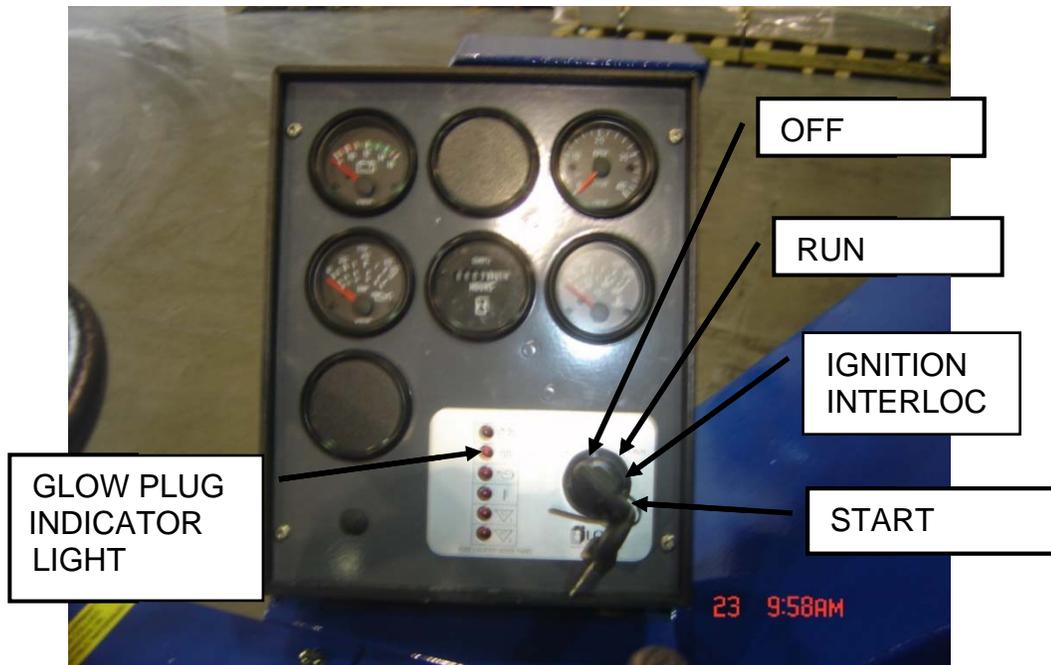


Figure 2: Control Panel

- 3) After glow plug light turns off, turn the key all the way to start.  
*Note: You must turn ignition past the ignition interlock for the starter to engage.*
- 4) Release key after engine turns over.
- 5) Place throttle to full/ open position and operate as normal.

**“Hot” Startup Procedure:**

- 1) Turn ignition to start position.  
*Note: Due to the engine being at operating temperatures you do not have to wait for the Glow plugs to warm the engine block.*
- 2) Release key after engine turns over.
- 3) Place throttle to full/ open position and operate as normal.

**“Dry” Startup Procedure:**

This procedure shall be followed if the fuel system has been run dry (out of fuel).

- 1) The engine must be primed using the priming plunger.



Figure 3: Fuel Pump Primer Location

- 2) After priming the engine, follow the “Cold” startup procedure.

## 5.4 OPERATION ADJUSTMENTS

The 1-16DB is equipped with a few fine tune adjustments to make blasting easier.

1. **Front End Lift:** This is used primarily for loading and unloading the machine. This feature may also be used to adjust your seals while operating the machine, opposed to stopping the machine and doing it manually.
2. **Vacuum Adjust Plate:** This plate is used to adjust the amount of vacuum pulled through the blast housing. It can be used to fine tune air flow to the specific application.
3. **Pinch Bar:** The pinch bar clearance must be checked before each operation. For best blasting results, adjust the pinch bar 1/8 inch clearance for all applications.
4. **Damper Plates:** This feature allows you to adjust the blast pattern if needing a thinner blast width such as in line stripe removal or other special applications.



After adjusting the pinch bar to blade gap, always spin the blast wheel to verify clearance on all blades.



## 5.5 OPERATION SEQUENCE

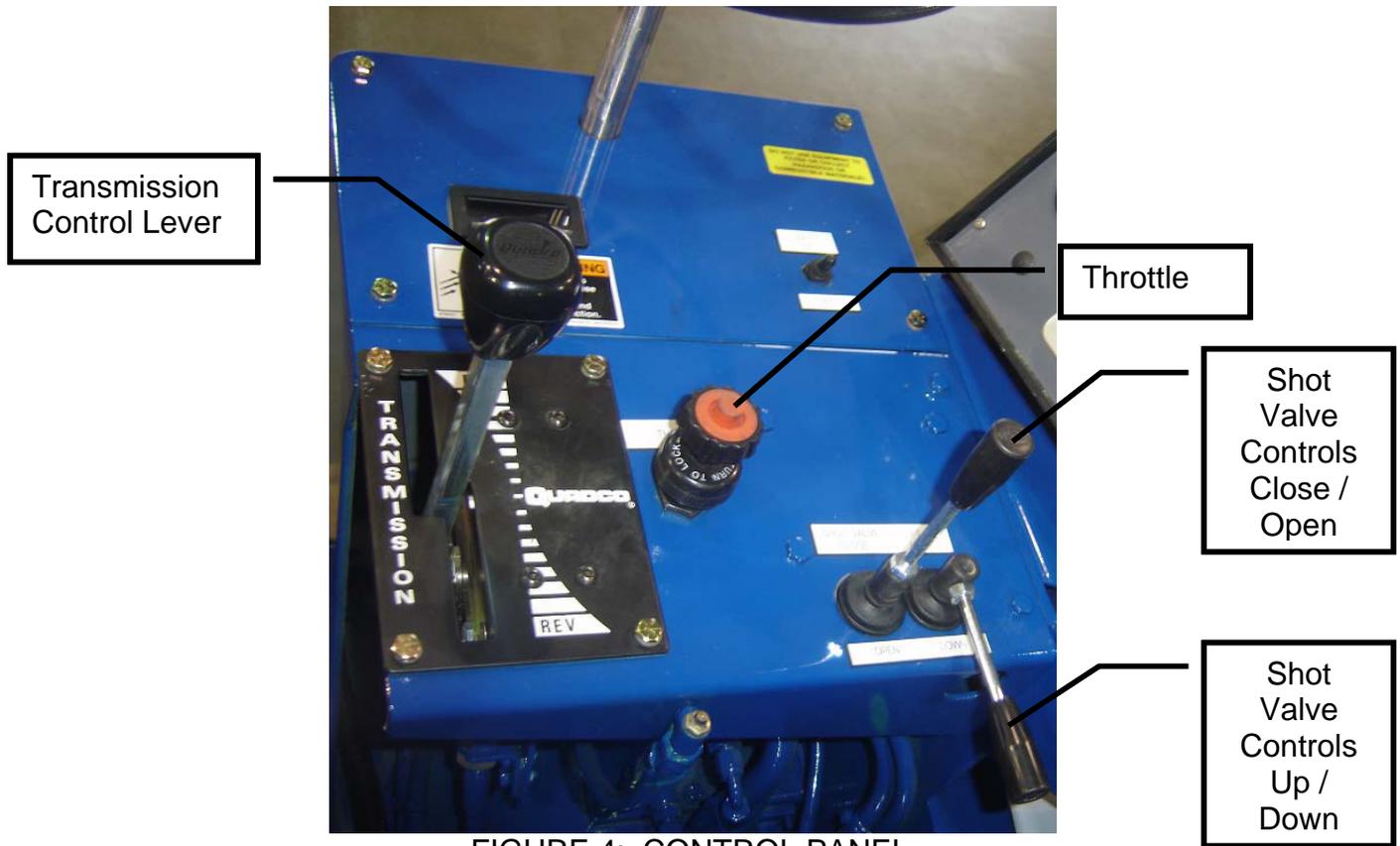


FIGURE 4: CONTROL PANEL

Refer to Figure 4 for the location of switches and controls identified in this procedure.

1. Complete the Operation/Maintenance Checklist (see section 5.1).
2. Place the transmission control lever in the neutral (center) position.
3. Follow the startup procedures in Section 5.3, as appropriate.
4. Pull the throttle to the wide open position.
5. Push the transmission lever forward for reverse motion and backward for forward motion.



Always blast in a forward direction!

6. Start the machine moving forward and slowly open the shot valve. The slower the machine travels while the shot valve is open, the deeper the profile.
7. When coming to the end of a pass, close the shot valve about five feet before stopping. This will allow you to clear the housing of shot keeping you from blasting a hole when you come to a complete stop.



The dust container of the dust collector must be emptied regularly. Comply with the local waste treatment regulations considering the removed material.

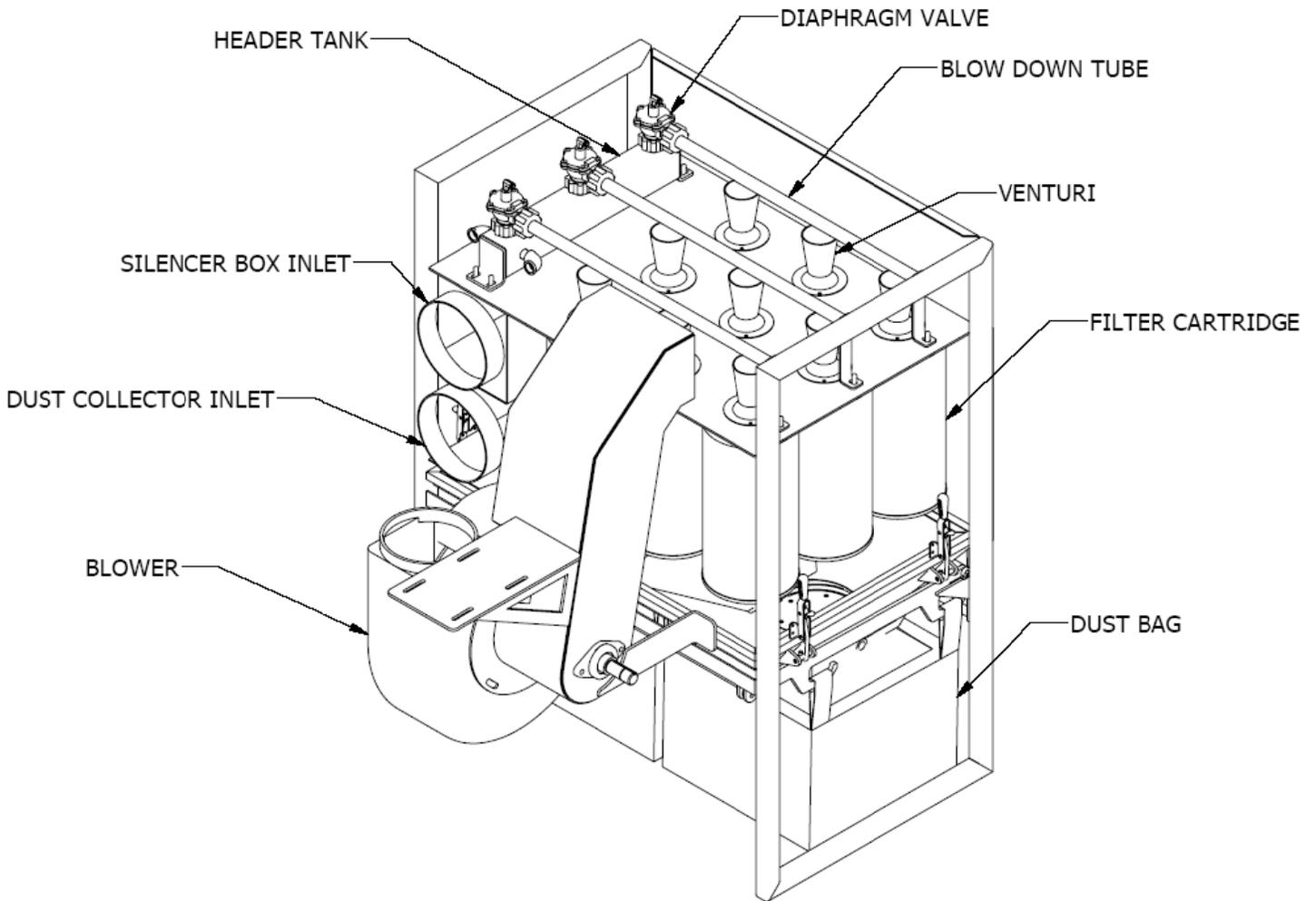
## 5.6 DUST COLLECTOR FUNCTION

This unit is equipped with an auto pulse dust collector that provides suction to separate the dust from the shot. Refer to Figure 5 for the location or items discussed in this section.

The central part of the dust collector is the filter chamber. Refer to Figure 6 for path of dust and air. Dust laden air enters the chamber from the blast head through the exhaust hose and into the dust collector inlet connection located on the left, front side of the dust collector. The dirty air passes through a plenum and flows through an array of nine vertically mounted, specially designed filter cartridges. Dust is captured on the surface of these filters allowing clean air to pass to the clean air portion of the dust collector where it exhausts to the open atmosphere through the silencer box.

The dust that was trapped on the external surface of the filters is periodically removed by pulsing the filters with a burst of compressed air released from the header tank by a diaphragm valve. The air is delivered via one of three blow-down tubes. This momentary pulse of air allows the dust to fall into the dust bags at the bottom of the filter chamber. Three filters are pulsed at a time, in sequence, determined by a timer board located in the control box located on the front of the dust collector, just above the inlet. This timer board is usually set to pulse a three filter bank every ten seconds. The timer board determines the time between pulses and the length of each pulse. Venturi valves are located above each filter for maximum filter cleaning efficiency.





**FIGURE 5: Dust Collector Components**

## 5.7 SHUTDOWN SEQUENCE

1. Ensure the shot valve is fully closed.
2. Push the throttle to the closed position.
3. Ensure the transmission lever is in neutral position.
4. Turn the key to the off position.
5. Complete the maintenance check list.

### **Safety Shutdown**



The machine has to be in its Safety off position before starting repair work. See Section 2.5.



Before performing inspection or maintenance work make sure that all moving machine parts are stopped. Observe the Safety off position, Section 2.5.

The local safety regulations are valid in all cases regarding the operation of the machine and will always supersede any instructions provided in this manual.



**CONTENTS – SECTION 6**

- 6.1 Blade Replacement
- 6.2 Pinch Bar Removal, Installation, Re-Positioning
- 6.3 Blast Wheel Removal and Installation
- 6.4 Liner Removal and Stack-up
- 6.5 Blast Wheel Tensioner
- 6.6 Dust Collector Maintenance
- 6.7 Filter Cartridge Removal
- 6.8 Engine

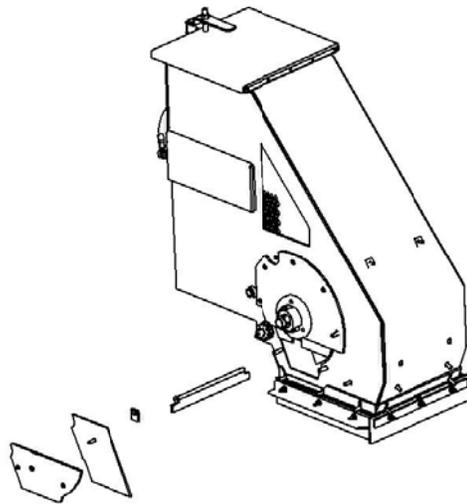
# OPERATING MANUAL



## 6.1 BLADE REPLACEMENT



All electric power must be disconnected and all rotating parts must come to a complete halt before attempting any maintenance procedure. Ensure you are in the Safety Off Position, as described in Section 2.5.



Item Number	Part Number	Part Description
1	WP093716	Pinch Bar Lower O/S Back Side Liner
2	WP143706	Pinch Bar Inspection Plate
3	WP013715	Dovetail Blades (4 per set)
4	WP123715	Blade Keepers
5	03110011	Bolts

**Blade Replacement:**

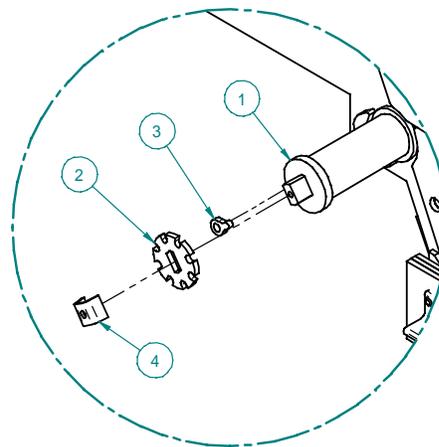
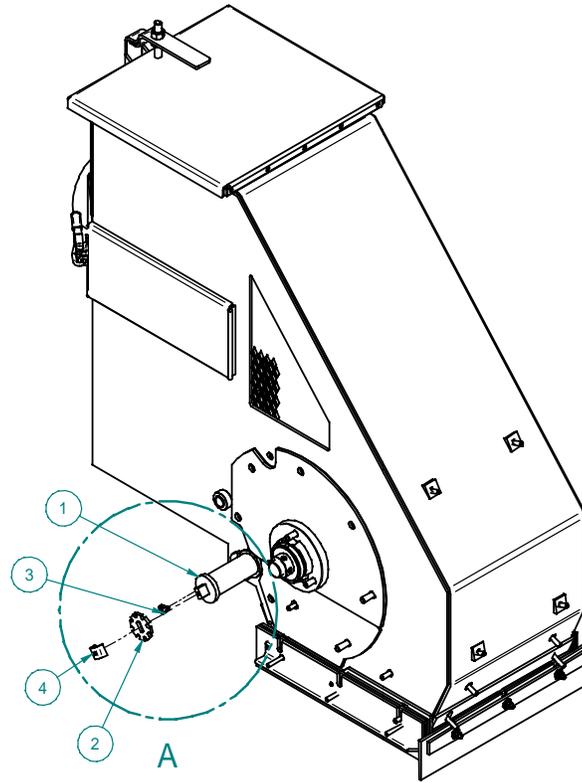
1. Remove the inspection plate below the blast wheel.
2. Rotate the blast wheel to bring the blade that is to be removed into reach.
3. Remove the two bolts and blade keeper at the end of the blade.
4. Blow dust and shot out of the threaded hole in the end of the blade.
5. Use a slide hammer to pull the blade out of the blast head.

*Important Note: A slide hammer is provided with all machines containing a pinch bar.*

6. Clean dust and shot out of the slot for the blast head for proper installation of the blades.
7. Insert the new blade and replace the blade keeper and bolt.
8. Inspect the gap between the blade and pinch bar. Adjust if necessary.
9. Install the inspection plate.



# 6.2 PINCH BAR REMOVAL, INSTALLATION AND REPOSITIONING



DETAIL A

FIGURE 7: Pinch Bar Exploded View

**PINCH BAR PARTS LIST:**

ITEM	QUANTITY	CATALOG NUMBER	DRAWING NUMBER	DESCRIPTION
1	1	WP033711	210-0035	PINCH BAR
2	1	08300042	220-0059	INDEX/PINCH BAR
3	1	08300044	220-0061	RETAINER/OUTER PINCH BAR
4	1	08300093	220-0110	RETAINER/PINCH BAR INDEXER





All electric power must be disconnected and all rotating parts must come to a complete halt before attempting any maintenance procedure. Ensure you are in the Safety Off Position, as described in Section 2.5.

**Pinch Bar Re-positioning:** (See Figure 7 for item descriptions and locations)

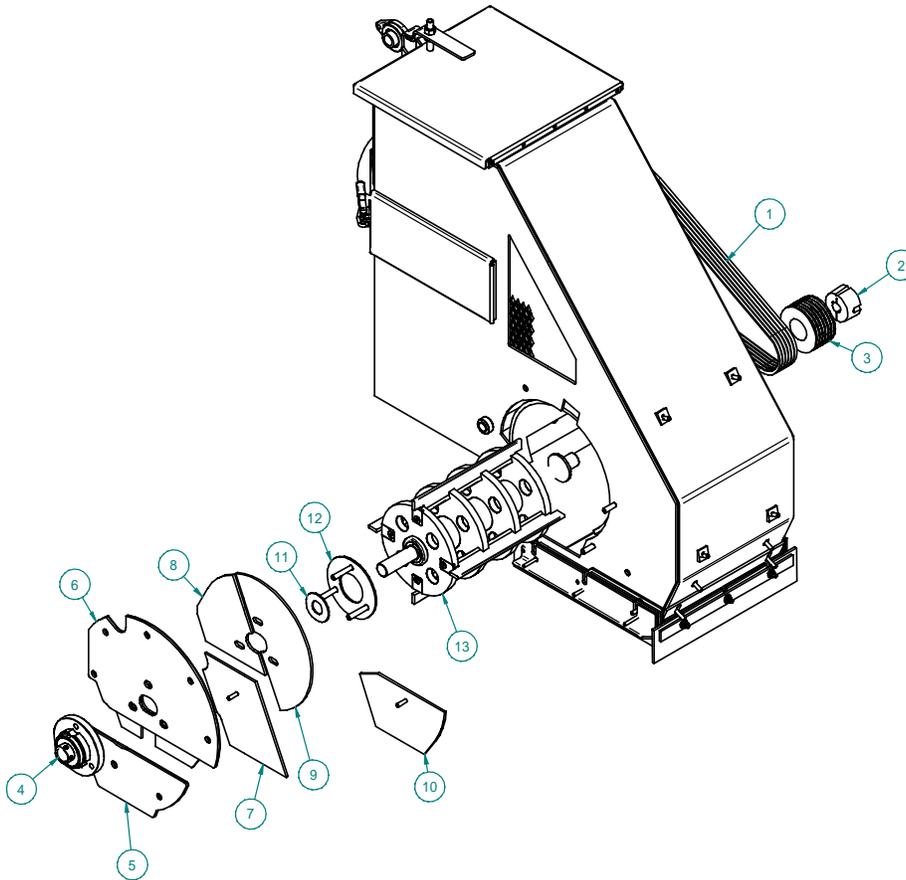
1. Remove Item #3, Retainer/Outer Pinch Bar.
2. Rotate pinch bar, item #1, one notch. If the distance from the pinch bar to the blast wheel blades is greater than 1/8" rotate the pinch bar another notch. Continue until distance is no greater than 1/8".
3. Reinstall Item #3.

**Pinch Bar Removal/Installation:** (See Figure 7 for item descriptions and locations)

1. Remove Item #3, Retainer/Outer Pinch Bar.
2. Remove Item #4, Retainer/Pinch Bar Indexer.
3. Remove Item #2, Indexer/Pinch Bar.
4. Insert slide hammer into the threaded hole in the end of the pinch bar, Item #1.  
Note: Slide hammer is provided with all pinch bar machines.
5. Withdraw the pinch bar from the blast head.
6. Insert new pinch bar and tap into place with hammer.
7. Reinstall Item #2.
8. Reinstall Item #4.
9. Reinstall Item #3.



## 6.3 BLAST WHEEL REMOVAL AND INSTALLATION



**FIGURE 8: Blast Wheel Exploded View**

ITEM	QUANTITY	CATALOG NUMBER	DRAWING NUMBER	DESCRIPTION
1	2	CP-10144	---	BELT/BANDED 3VX630/3
2	1	06300055	---	2517 X 1-7/16" T/L BUSHING
3	1	06150042	---	6GR3V 5.0-2517 T/L SHEAVE
4	1	02110015	---	3-BOLT FLANGE BEARING
5	1	P000331	210-0012	ACCESS-PLATE/BLAST HOUSING
6	1	P000330	210-0011	COVER-PLATE/BLAST HOUSING
7	1	WP093716	210-0027	LINER/SIDE - REAR OUTSIDE LOWER SLL
8	1	WP053708	210-0024	LINER/SIDE - REAR UPPER OUTSIDE SLL
9	1	WP053704	210-0023	LINER/SIDE - FRONT INSIDE/OUTSIDE UPPER SLL
10	1	WP093707	210-0026	LINER/SIDE - FRONT OUTSIDE LOWER SLL
11	1	08300171	210-0017	SEAL/SHAFT - BEARING
12	1	P002823	210-0221	OUTSIDE BOLT RETAINER/3-BOLT FLANGE BEARING
13	1	WP123717	210-0215	BLASTWHEEL/DOVETAIL - 10" DIA.

See Figure 8 for item locations and descriptions.

1. Belts:

- a. Remove the seat for better access to the work area.
- b. Remove the lower portion of the belt guard and take the six belts, Item #1, off of the blast wheel sheave using a flathead screwdriver.
- c. Check the belt tension as described in Section 6.

2. Taper Lock and Sheave Assembly:

- a. Remove the two set screws from the taper lock, Item #2.
- b. Install one set screw in the hole which did not originally have a set screw.
- c. Tighten the set screw until the taper lock “pops”. If the taper lock does not “pop”, tap the outside of it lightly with a hammer.
- d. Slide the taper lock off of the shaft. If the assembly does not slide off of the shaft easily, insert a screwdriver in the slot and pull off.



Do not pry the tap lock too far or it could split in half.

3. Bearing Collar:

Remove the two Allen head set screws on each of the two bearing collars.

4. Outside Blast Wheel Bearing:

- a. Remove the three nuts holding the bearing, Item #4.
- b. Pry the bearing off of the shaft.

5. Access Plate:

- a. Remove the two nuts which connect the access plate, Item #5, to the housing.
- b. Remove the nut in the center of the plate which holds the outside rear/lower side liner in place.
- c. Remove the inspection plate.
- d. Remove the lower liner, Item #7.



6. Cover Plate:

- a. Remove the five nuts which connect the cover plate, Item #6, to the housing.
- b. Remove the cover plate.

7. Side Liners:

Remove the outside side liners, Items #8 and #9. The side liners may be firmly in place and may require the use of a pry bar to be removed.

8. Blast Wheel:

- a. Slide the shaft seal, Item #11, and the bolt retainer, Item #12, off of the blast wheel shaft.
- b. Remove the blast wheel drum by pulling the drum shaft through the inside bearing.

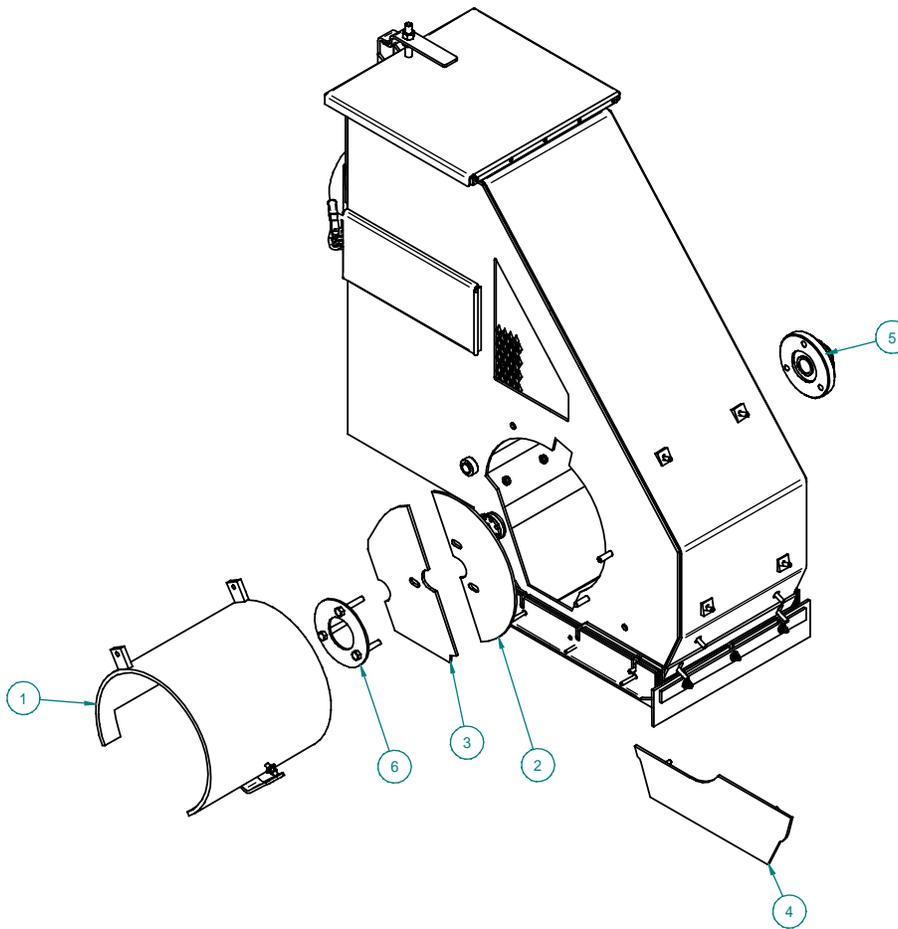
**Note: If the drum shaft is resistant to coming through the bearing, you may use a block of wood and a hammer to force it through.**

9. Blast Wheel Installation:

Reverse steps 1-8 to install a new blast wheel.



## 6.4 LINER REMOVAL AND STACKUP



**FIGURE 9: Liner Exploded View**

ITEM	QUANTITY	CATALOG NUMBER	DRAWING NUMBER	DESCRIPTION
1	1	WP113715	210-0030	LINER/TOP CURVED SLL
2	1	WP053704	210-0023	LINER/SIDE - FRONT INSIDE/OUTSIDE UPPER SLL
3	1	WP053712	210-0038	LINER/SIDE - REAR INSIDE UPPER SLL
4	1	WP093706	210-0025	LINER/SIDE - LOWER INSIDE SLL
5	1	02110015	--	BEARING/FLG3 1.4375"B 3-BOLT
6	1	P002823	210-0221	OUTSIDE BOLT RETAINER/3-BOLT FLANGE BEARING

### Top Liner Removal:

See Figure 9 for item locations and descriptions.



Before attempting to remove the Top Liner, steps 1-8 of Blast Wheel Removal must first be completed. If the Top Liner has completed more than 100 hours of blasting it will have expanded. In the event that the Top Liner has expanded too much to slide out, the best way to remove it is to cut it in half with a torch.

1. Remove the two bolts located at the top of the Top Liner, Item #1. These bolts are accessible from the outside of the housing.
2. Remove the one nut located toward the front of the Top Liner. This nut is accessible from the inside of the blast housing.
3. Slide out top liner, or cut if necessary.

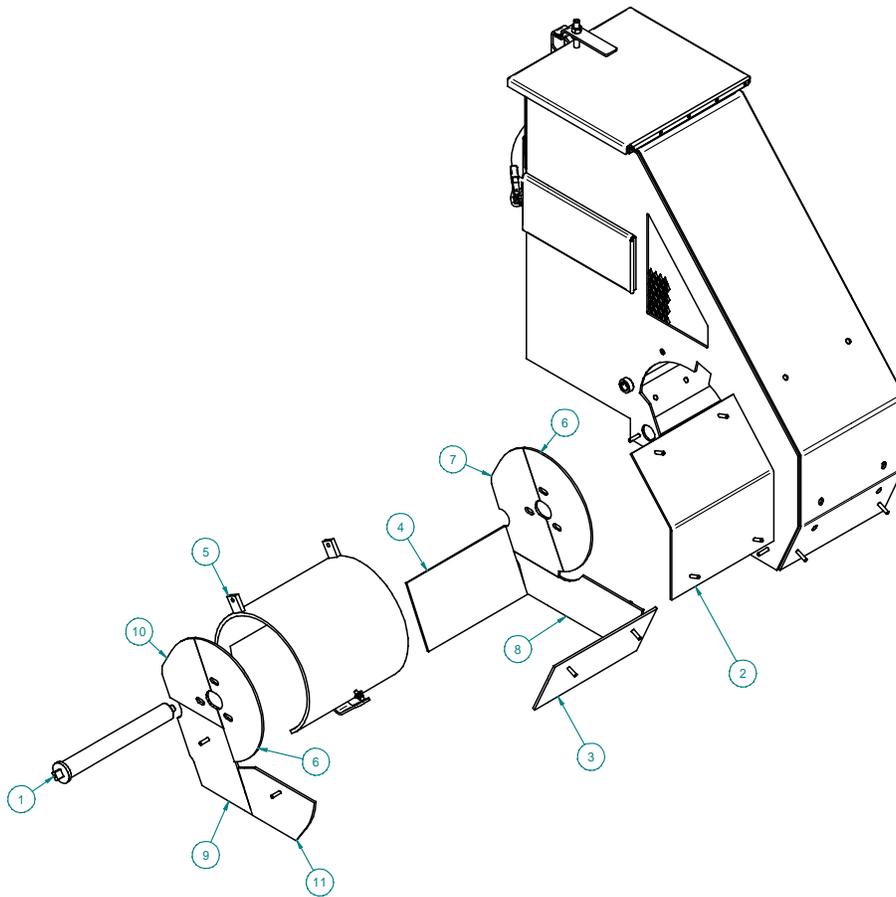
### Inside Liner Removal:

See Figure 9 for item locations and descriptions.



Before attempting to remove the Top Liner, steps 1-8 of Blast Wheel Removal must first be completed.

1. Remove nuts from bearing, Item #5, and remove bearing.
2. Remove the bolt retainer, Item #6.
3. Remove the inside side liners, Items #2 and #3.
4. Remove two nuts securing lower inside liner, Item #4, and the liner can be removed.


**Figure 10 – Liner Stack-Up**

ITEM	QUANTITY	CATALOG NUMBER	DRAWING NUMBER	DESCRIPTION
1	1	WP033711	210-0035	PINCH BAR
2	1	WP043709	210-0021	LINER/UPPER FRONT SLL
3	1	WP043715	210-0022	LINER/FRONT LOWER SLL
4	1	WP103712	210-0029	LINER/BACK WALL SLL
5	1	WP113715	210-0030	LINER/TOP CURVED SLL
6	2	WP053704	210-0023	LINER/SIDE - FRONT INSIDE/OUTSIDE UPPER SLL
7	1	WP053712	210-0038	LINER/SIDE - REAR INSIDE UPPER SLL
8	1	WP093706	210-0025	LINER/SIDE - LOWER INSIDE SLL
9	1	WP093716	210-0027	LINER/SIDE - REAR OUTSIDE LOWER SLL
10	1	WP053708	210-0024	LINER/SIDE - REAR UPPER OUTSIDE SLL
11	1	WP093707	210-0026	LINER/SIDE - FRONT OUTSIDE LOWER SLL

## 6.5 BLAST WHEEL TENSIONER

1. Place belt(s) over all pulleys.
2. Bolt the tensioner/idler assembly onto the mounting bracket. **Hand tighten only!** Check the alignment of the idler with the drive pulley and blast wheel pulley. **Any misalignment must be corrected.**
3. The tensioner spring is not yet under tension. Put the idler in light contact with the belt(s) and rotate the tensioner base clockwise if the arrow points to "CW" or counterclockwise if the arrow points to "CCW" until you feel light spring pressure. Use a marking pencil to mark a line on both the housing and base of the tensioner. This will be the starting point for establishing tensioner force and degrees of rotation. See Fig. 11.



FIGURE 11: TENSIONER MARKING

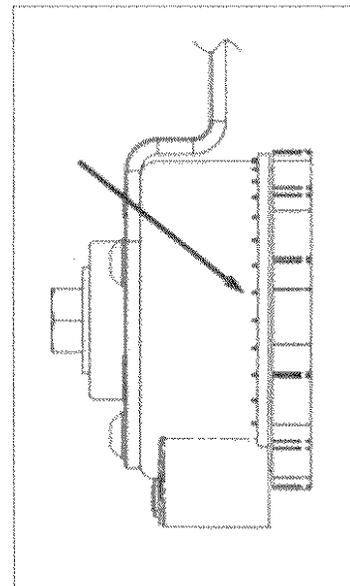


FIGURE 12: TENSIONER HOUSING

4. The housing of the tensioner has equally spaced graduation marks (every 10°) that can be used to establish rotational degrees and resulting tensioner force. See Fig. 12. For reference, you may want to place a mark on or near the desired graduation mark.

5. Using a 3 15/16" fixed head hook-style spanner wrench on the outside of the tensioner base, rotate the wrench (use the same direction as step 3) until the 0° marks are aligned. From the 0° mark, continue to rotate the base to 85-90 degrees of rotation (8-9 graduation marks). Holding the spanner wrench securely at the desired degree of rotation, tighten the 1/2" mounting bolt holding the tensioner to the bracket. Remove the spanner wrench. Tighten the 5/16" locking bolt and secure the locking nut.
6. Before starting drive, recheck drive alignment and check all mounting fasteners for tightness.



Once installed, the tensioner has considerable force. A spanner wrench must be used to hold the tensioner base when loosening the mounting bolt.

Note: Tensioner comes with a limited-use spanner wrench. To assemble, align arrows and push together.



## 6.6 DUST COLLECTOR MAINTENANCE

The dust collector should be monitored on a regular basis. Bad or improper ventilation can lead to poor component life and premature wear on a number of ventilation related items on the equipment. Some of the more important areas to monitor, relative to the ventilation system, are:

- Filter cartridges should be kept in good condition.
- The hose connections to the blast head and the dust collector should be tight and held in place with metal clamps.
- The hose should be kept in good repair. Flattened spots, holes and wear spots should be corrected immediately. Replace hose if necessary.
- Leaks on the blower housing assembly seal and especially the dust collector access door seal should be minimized. The dust collector access door seal can be checked by feeling for air leaks around the seal and evidence of dust leaks.

Poor dust collector performance can have an adverse effect on the overall performance and efficiency of the system. Improper ventilation can cause poor abrasive cleaning which in turn increases blast wheel and liner wear. An important fact that is often ignored or misunderstood is:



The steel abrasive causes minimum wear on the internal blast components. The dust and contaminants are the principal cause of component wear. A well-maintained dust collector can minimize abrasive contamination which helps reduce operating costs and increases the overall efficiency of the shot blasting system.

## 6.7 FILTER CARTRIDGE REMOVAL



Prior to attempting to change or inspect the filter cartridges, place 1-16DB on a level surface to prevent movement. Verify that the machine is in the Safety Off Position. See Section 2.5.

Access to the filter cartridges is gained through the door on the rear of the dust collector. To remove filter cartridges:

1. Remove rear access door from dust collector;
2. Remove wing nut from the bottom of the filter cartridge;
3. Slide filter cartridge down hanger rod;

To replace filter cartridges reverse steps 1-3 above.

Take care not to damage the filter cartridges during removal, installation or inspection.

## 6.8 ENGINE

Please reference the Duetz Engine manual included with your 1-16DB for maintenance information.



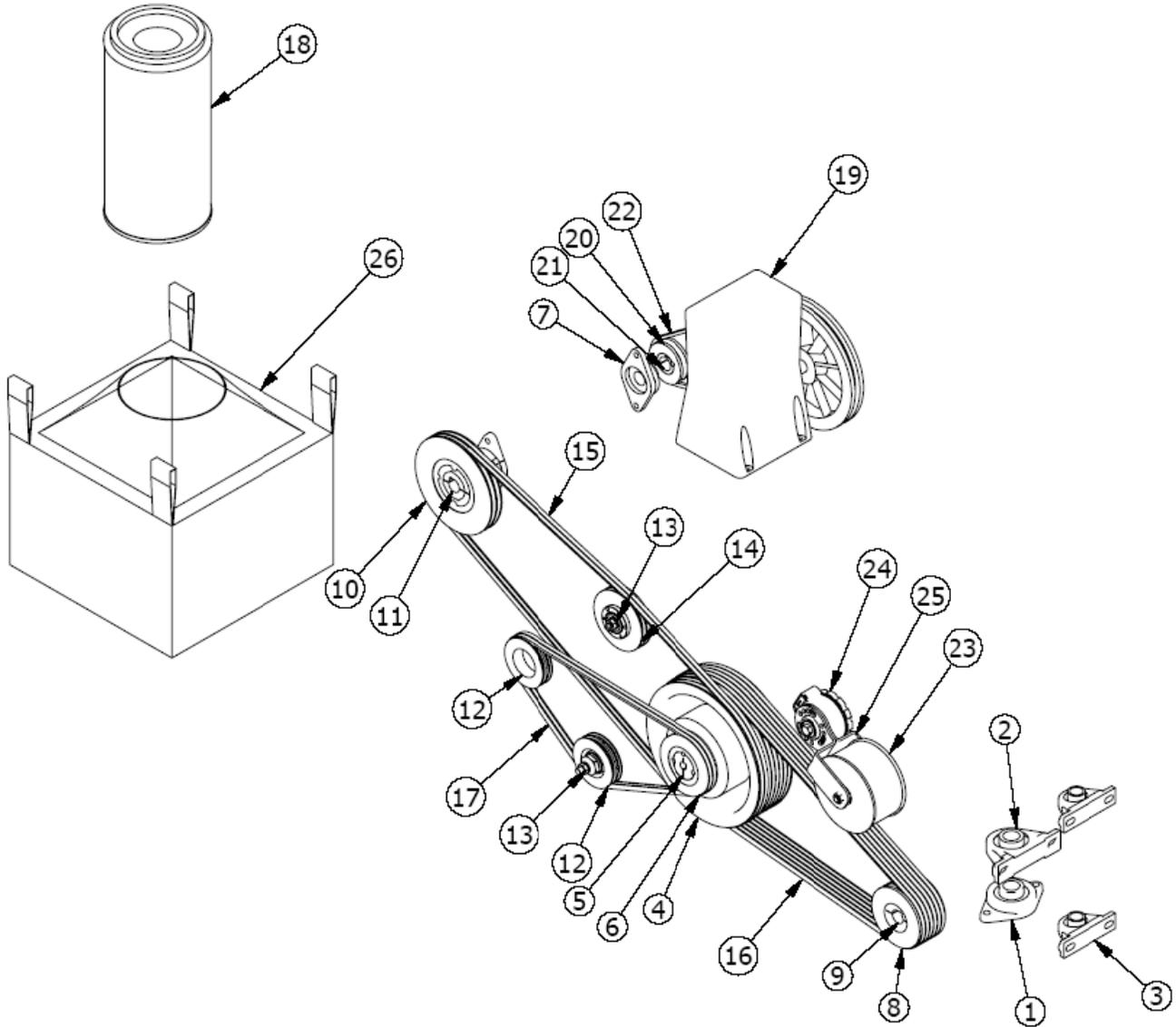
**CONTENTS – SECTION 7**

- 7.1 Belts, Bearings, Bushings and Sheaves
- 7.2 Blast Head Components
- 7.3 Blades

# OPERATING MANUAL



**7.1 BELTS, BEARINGS, BUSHINGS AND SHEAVES**



*SHOWN WITHOUT BLAST HEAD FOR CLARITY*

FIGURE 13A: BELT/SHEAVE ASSEMBLY – ISOMETRIC VIEW

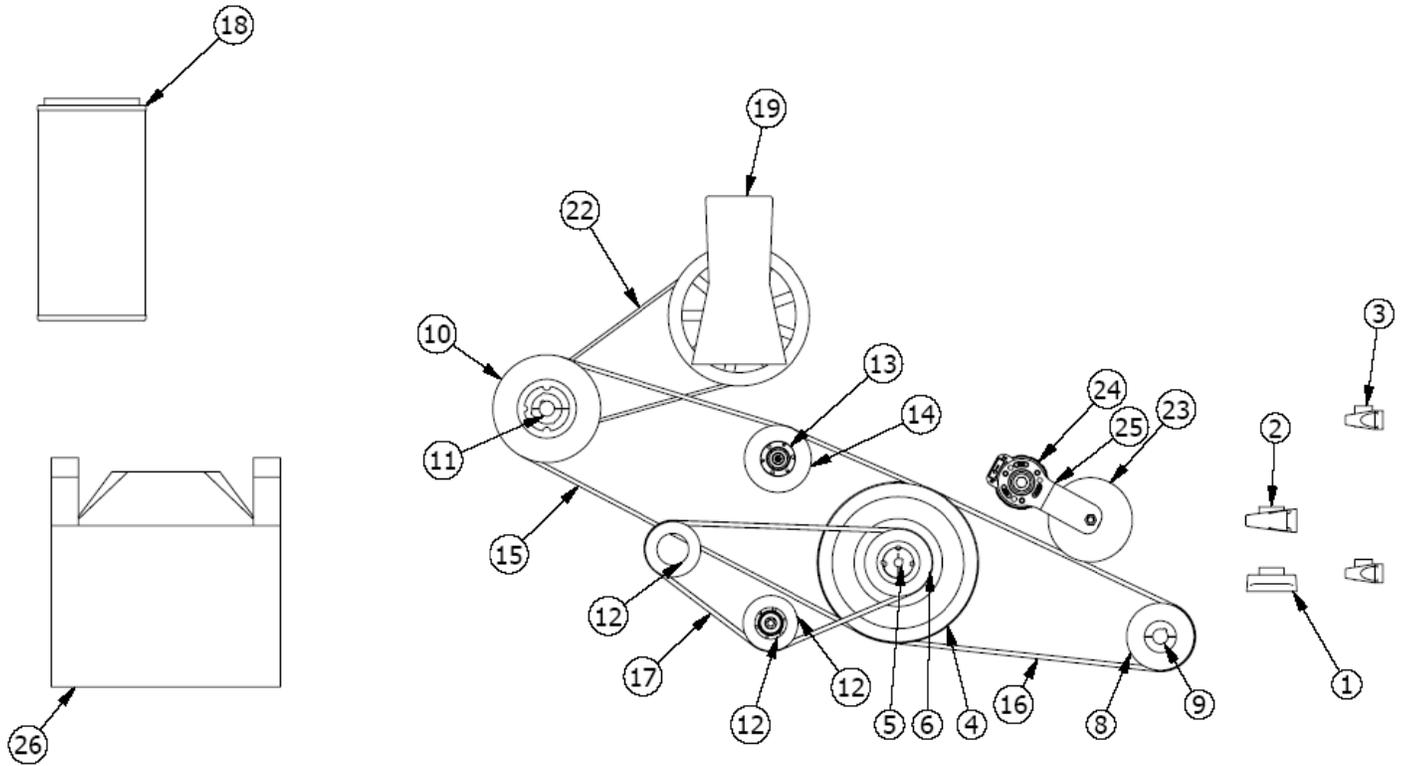


FIGURE 13B: BELT/SHEAVE ASSEMBLY – SIDE VIEW

**BELTS, BEARINGS, BUSHINGS AND SHEAVES PARTS LIST:**

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	02110004	BEARING 1-1/4" 2 BOLT FLANGE
2	1	02100004	BEARING 1-1/4" PILLOW BLOCK
3	2	02100002	BRG/ PB2 DODGE SC 1.000" B
4	1	06160002	CLUTCH/ CENTRIFUGAL 2106-03
5	1	6908380	BUSHING/ TAPER LOCK 1610 5/8 BORE
6	1	06150020	SHEAVE/ TAPERLOCK 2GR3V5.0-1610
7	2	CP-10033	D-LOK BEARING, 2-BOLT FLANGE 1.125"SHAFT
8	1	06150042	6GR3C 5.0-2517 T/L SHEAVE
9	1	06300055	2517 x 1 7/16" T/L BUSHING
10	1	06150024	2GR3V 8.0-2517 T/L SHEAVE
11	1	06300052	BUSHING/ TAPERLOCK #2517 X 1-1/8"B
12	2	06140004	2GR3V 4.12-SH Q/D SHEAVE
13	2	02180005	IDLER-HUB ASSEMBLY W/ SHBB BUSHING
14	1	06140003	2GR3V 5.0-SH Q/D WOODS SHEAVE
15	2	CP-10288	BELT/ METRIC (2360MM, APPROX 92.91")
16	2	CP-10144	BANDED BELTS 3VX630/3
17	2	06100006	3VX425 V-BELT
18	1	4932060	FILTER ELEMENT
19	1	P002945	COMPRESSOR/SINGLE STAGE XS-1 T-REX 40S
20	1	P002992	SHEAVE/1/B/3.4-120 T/L
21	1	P002993	BUSHING/1210 -1-1/8" T/L
22	1	06120005	A-ACCULINK BELT A25
23	1	CP-10091	FENNER PULLEY, F3B6280
24	1	CP-10092	TENSIONER, RT4000
25	1	PG-10120	WELDMENT, TENSIONER PULLEY ARM
26	1	CP-10303	17" x 17" x 12" DUST BAG



7.2 BLAST HEAD COMPONENTS

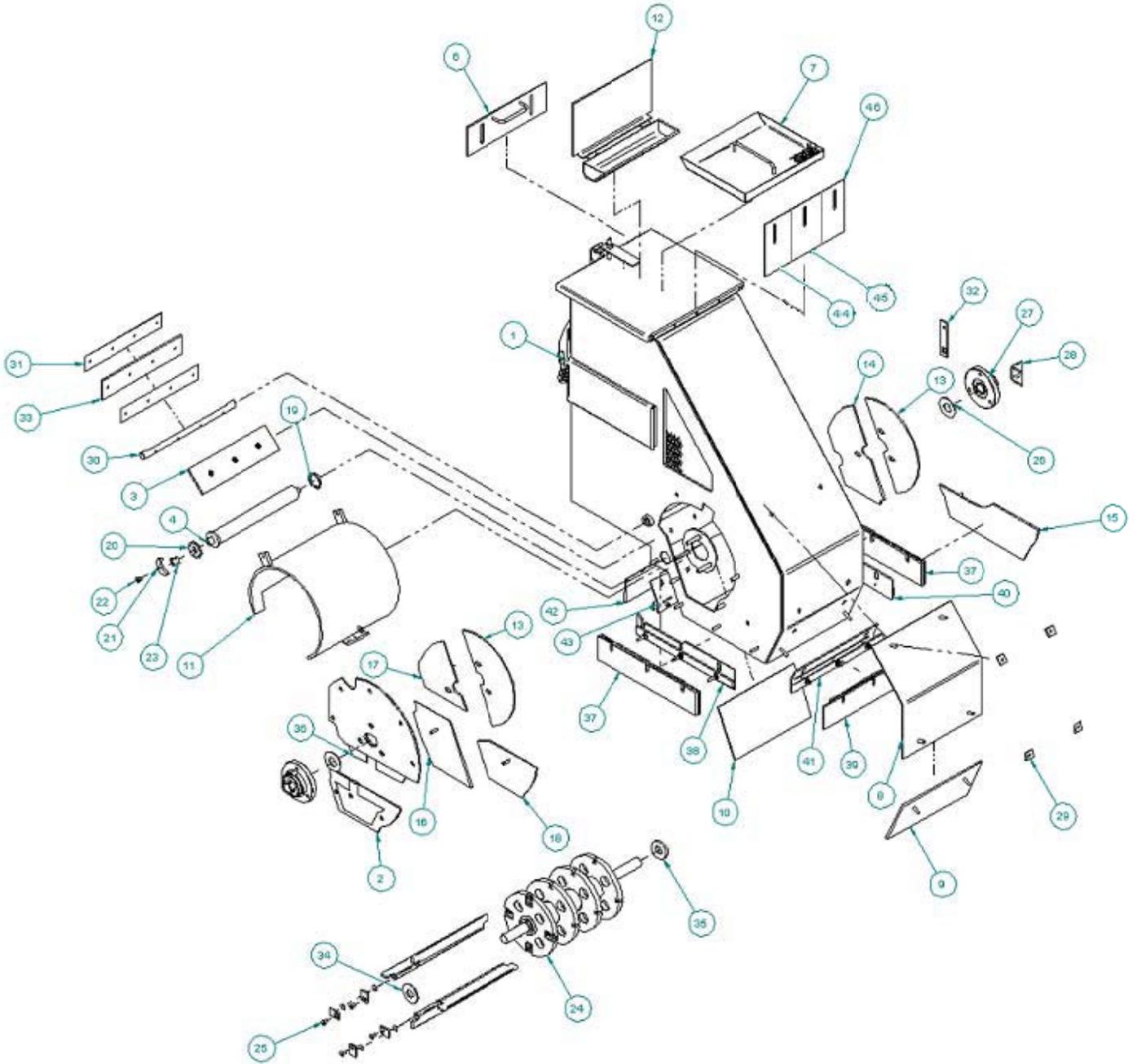


FIGURE 14: BLAST HEAD COMPONENTS EXPLODED VIEW

**BLAST HEAD COMPONENTS PARTS LIST:**

ITEM	QUANTITY	CATALOG NUMBER	DESCRIPTION
1	1	P000829	BLAST HOUSING SLL
2	1	P000831	ACCESS-PLATE/BLAST HOUSING
3	1	WP103711	LINER/PINCH BAR SLL
4	1	WP033711	PINCH BAR
6	1	08300190	DAMPER-PLATE/SEPARATOR
7	1	08300192	SCREEN/SHOT HOPPER
8	1	WP043709	LINER/UPPER FRONT SLL
9	1	WP043715	LINER/FRONT LOWER SLL
10	1	WP103712	LINER/BACK WALL SLL
11	1	WP113715	LINER/TOP CURVED SLL
12	1	08300133	TRAY/SHOT
13	2	WP053704	LINER/SIDE - FRONT INSIDE/OUTSIDE UPPER SLL
14	1	WP053712	LINER/SIDE - REAR INSIDE UPPER SLL
15	1	WP093706	LINER/SIDE - LOWER INSIDE SLL
16	1	WP093716	LINER/SIDE - REAR OUTSIDE LOWER SLL
17	1	WP053708	LINER/SIDE - REAR UPPER OUTSIDE SLL
18	1	WP093707	LINER/SIDE - FRONT OUTSIDE LOWER SLL
19	1	08300173	SEAL/PINCH BAR
20	1	08300042	INDEXER/PINCH BAR
21	1	08300043	RETAINER/INNER PINCH BAR
22	1	08300044	RETAINER/OUTER PINCH BAR
23	1	08300093	RETAINER/PINCH BAR INDEXER
24	1	WP123717	BLASTWHEEL/DOVETAIL - 10" DIA.
25	1	WKIT1665	BLADE KIT - SET OF (4) W/HARDWARE
26	2	08300171	SEAL/SHAFT - BEARING
27	2	2110015	BEARING/FLG3 1.4375"B 3-BOLT
28	1	08300158	BRACKET/SHOT VALVE ACTUATOR
29	4	03500001	WASHER/CHANNEL 3/8"
30	1	WP203709	SHAFT/ABRASIVE CONTROL VALVE
31	2	WP183715	RETAINER/ABRASIVE CONTROL VALVE SEAL
32	1	08300129	ARM/SHOT VALVE
33	1	WP183714	SEAL/ABRASIVE CONTROL VALVE
34	1	20000002	PROTECTOR RING 1/4" X 1-7/16"B
35	1	20000004	PROTECTOR RING 3/8" X 1-7/16"B
36	1	P000830	COVER-PLATE/BLAST HOUSING
37	2	WP023710	SEAL/SIDE GP 16-65
38	1	WP153707	BRACKET/OUTSIDE SEAL
39	1	WP023712	SEAL/FRONT GP/GPX 16-65, 16-75
40	1	WP153702	BRACKET/INSIDE SEAL
41	1	WP153704	BRACKET/FRONT SEAL
42	1	01950002	BRUSH STRIP 4" X 6.5"
43	1	WP153706	BRACKET/REAR SEAL
44	1	PG-10147	DAMPER PLATE/LEFT
45	1	PG-10148	DAMPER PLATE/CENTER
46	1	PG-10149	DAMPER PLATE/RIGHT



## 7.3 BLADES

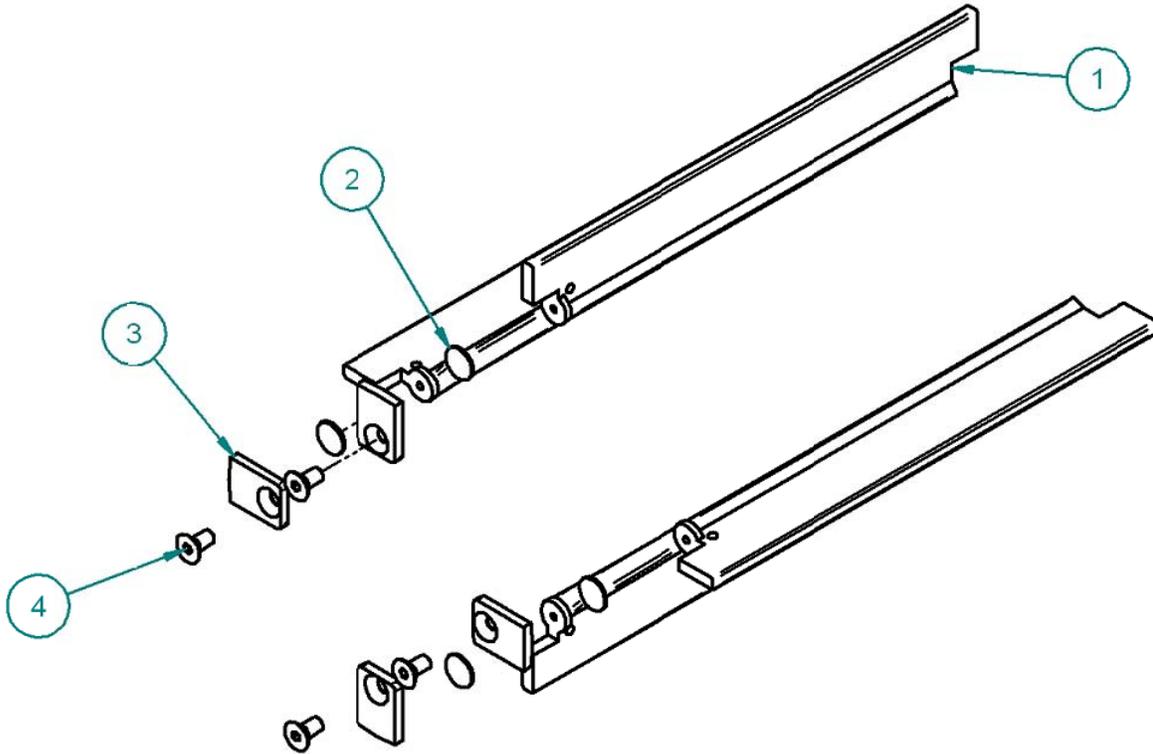


FIGURE 15: BLADES EXPLODED VIEW

ITEM	QUANTITY	CATALOG NUMBER	DESCRIPTION
1	1	WP013715	BLADE/DOVETAIL - 15" - SET OF (4)
2	4	08300172	SEAL/BLADE KEEPER
3	4	WP123715	BLADE KEEPER/GPX16-65 DOVETAIL
4	4	03110011	SCREW/CAP FLAT HEX SOCKET 3/8"-16UNC