BLASTONE
SUPERIOR PERFORMANCE

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

VACULOAD 1™ RECOVERY UNIT

MANUAL CONTENTS

⚠ CAUTION ⚠

Do not attempt to operate this equipment without first reading and understanding the manual enclosed with this device. Suitability for use of this device lies solely with user.

SAFETY WARNINGS

⚠ WARNING ⚠

This recovery unit does not extract lead from the contaminated material. Therefore, lead may be present in the dust and fines extracted during the processing.

Appropriate health and safety measures must taken to avoid exposure.

High lead levels may be encountered in the operation of this machine.

⚠ WARNING ⚠

When the Recovery Unit is operating, **DO NOT**:

- Place any part of your body inside the recovery unit, hoppers, or dust collector;
- Restrict the vacuum connection on the vacuum tank, vacuum pump, vacuum hose or vacuum head with any part of your body;
- Remove, repair, or replace any parts while equipment is operating;
- Use worn or inferior quality hoses;
- OVERFILL THIS RECOVERY UNIT;
- Operate this machine without thorough knowledge of the machines' operation;
- Attempt to lower or transport the unit whilst any product is inside.

⚠ CAUTION ⚠

The products described and illustrated in this manual are intended for experienced andknowledgeable users of similar equipment used in the blasting industry. The important safety instructions appearing in this manual cover normal conditions and situations. Unusual, unforeseeable use may occur and in these situations it must be understood that common sense, caution and care are to be followed. These factors are not built into the machine, but are supplied by the person(s) maintaining and operating it.

No representations are made or intended as to the useful life, maintenance cycles, efficiency or performance of this product or combination of products. It is the responsibility of the user to ensure that proper and comprehensive training of operators has beenperformed and all environmental and safety precautions observed.

⚠ CAUTION ⚠

Pinch point when unloading drum. Use caution when cleaning drum levels, loading/unloading drum.

- Before operating any abrasive blasting equipment, **REAL ALL** operating and maintenance instructions. Personal protective equipment is **REQUIRED** when using this type of equipment. Blasters **MUST** be equipped with heavy canvas or leather gloves, and blast overalls. Safety shoes and hearing protection **MUST** be worn when required.
- Many coatings contain lead and other heavy metals that are toxic to humans and other life forms. It is imperative when removing lead based coatings, that the operator be aware of the standard industrial hygiene program as referenced in Australian Standard 4361.1. At a very minimum, all operators performing maintenance on and blasting with the equipment **MUST** have approved respirators. Supplied air helmets or respirators must be furnished with breathing air in accordance with AS:1715, and **MUST** be used to prevent dust inhalation. Breathing air **MUST** be filtered and monitored for Carbon Monoxide. A thorough understanding of all applicable regulations are necessary before operating this equipment.
- This Recovery System is designed only to be used by trained operators and may only be used to vacuum lead contaminated abrasives when a proper hygiene program is in place. BlastOne warrants only that the equipment perform its intended function. Users of the system are required to provide for operator safety and hygiene.
- Avoid mixing combustible materials, such as, buffing lint, paper, wood, dust, aluminium and magnesium, with dust generated from blasting operations; due to the potential fire hazard caused by sparks in the dust collector.
- Under no conditions should lit cigarettes or any burning object be allowed into the hood or ducting of any dust control system.
- Whenever servicing the equipment make sure that all air lines are shut off and depressurised.
- Keep all equipment in good operating condition.
- Operation of this equipment may cause static charge build up. Use only approved static dissipating vacuum hose.
- **DO NOT** lift or shift the interceptor tank (if used) loaded.
- **DO NOT** stand under the unit while it is being lifted off of the ground or transported by crane in any fashion.
- Unrestricted air flow through a compressed air hose end will result in a whipping action which can cause severe injury or death. Always attach a ball valve to each hose "at the source of supply or branch line".

DESCRIPTION

The Vacuload Abrasive Loading Systems have been specifically designed to assist in reducing the time required to recover spent abrasive and waste from areas where manually filling would normally be the only option.

Enormous labour savings can also be achieved without additional worker fatigue or further exposure to hazardous dusts, resulting from additional exposure from handling abrasive waste.

Areas where the Vacuload will give a considerable cost advantage include the interiors of tanks, containment systems, ship's hulls - virtually anywhere that waste cannot be easily removed.

The BlastOne Vacuload Series 1 Vacuum system consists of a single cartridge pulse-jet dust collector, with a single Eductor vacuum producing pump mounted on a skid with forklift channels. The integral dust cartridge traps airborne dust, with all waste falling into the easily removed waste drum.

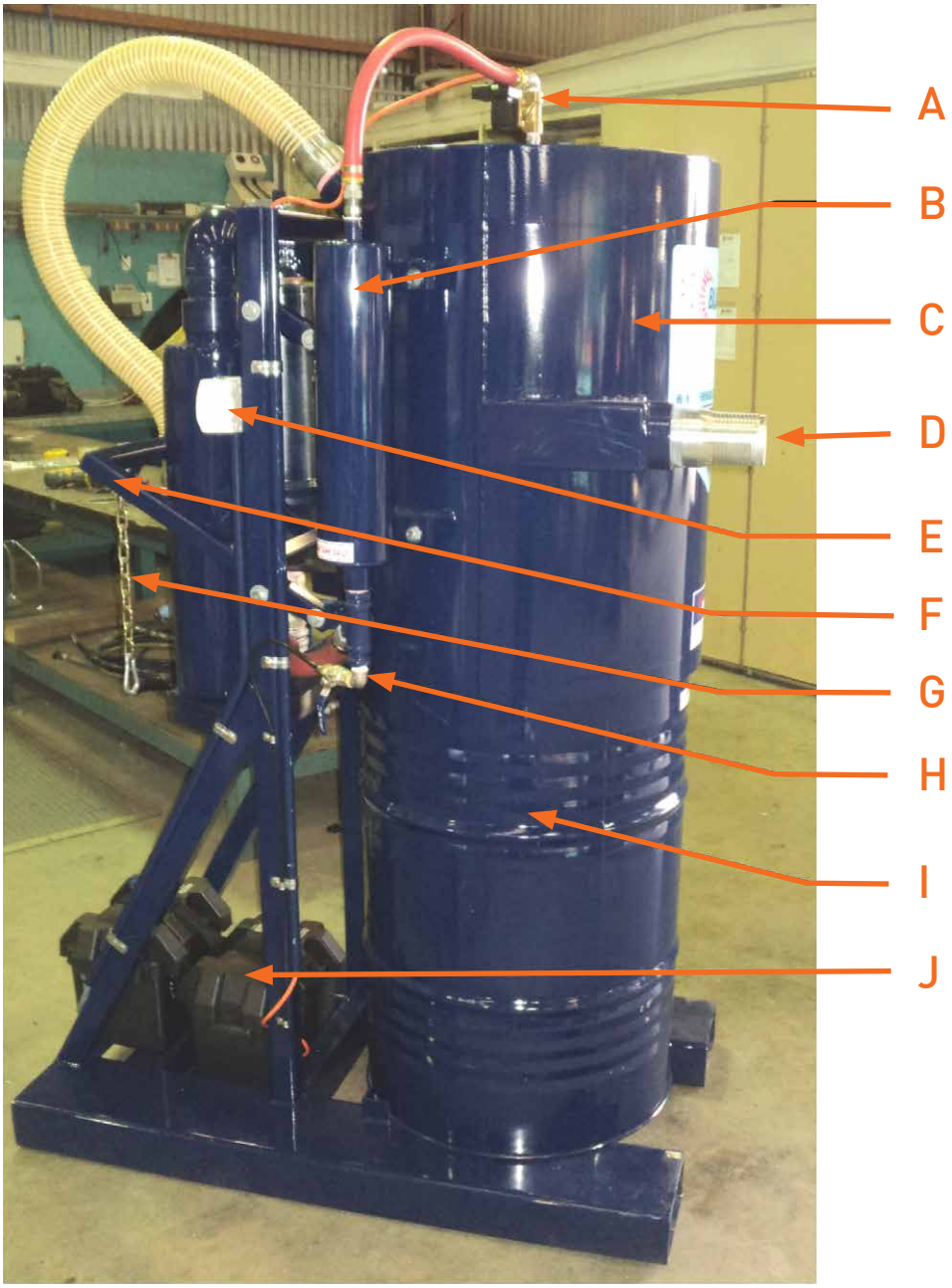
DESIGN FEATURES

- High filtration efficiency rated to remove at 99.99% of all particulate 0.5 microns or larger.
- Easily maintained.
- No moving parts.
- Abrasion resistant air induced venturi. The venturi chamber is the only component subject to wear and is easily replaced. Can operate dry indefinitely.
- Attached muffler greatly reduces exhaust noise.

The Eductor pump features a supersonic nozzle design and allows for maximum vacuum and air flow so that even heavy materials can be conveyed easily.

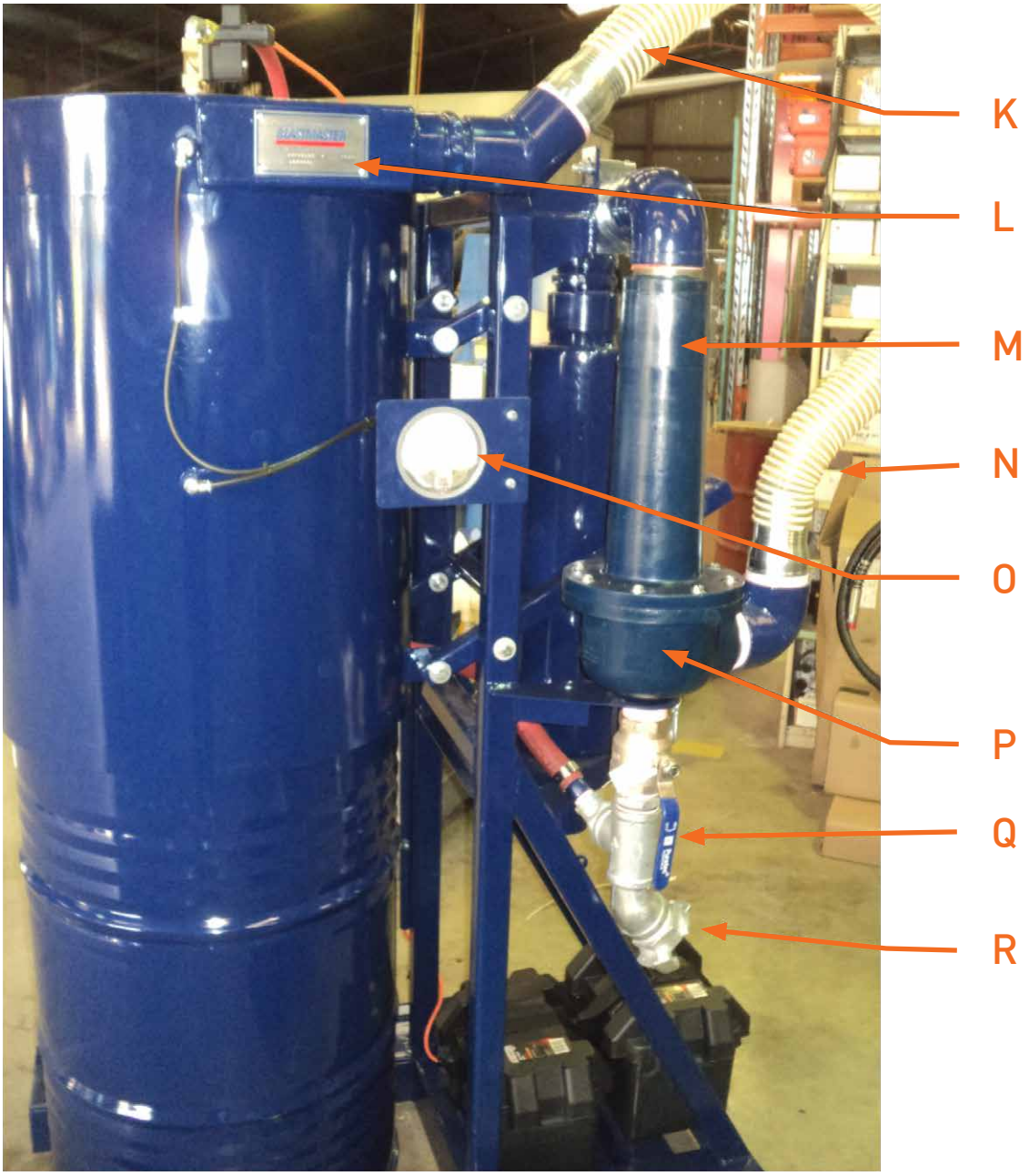
⚠ NOTE ⚠

The performance of the system is directly related to the conveying distance (vertical or horizontal), elevation, humidity, type of abrasive, number of bends in the suction line, type of suction line and the skill of the operator.



A	Reverse pulse valve & timer	A	Filter housing cantilever handle
B	Reverse pulse manifold	B	Cantilever handle chain. Allows handle to be held down using the carabiner on theend of the chain to the eyelet on the leg
C	Filter housing	C	Reverse pulse manifold drain valve
D	Suction inlet	D	Waste drum
E	Reverse pulse “Off-On” switch	E	Two 12 volt auto batteries wired in series to create 24 volts for reverse pulse valve

COMPONENTS



K	Vacuum suction hose from Eductor, connected to filter housing	A	Magnehelic gauge
L	Identification nameplate	B	Eductor body (removable jet inside)
M	Eductor	C	Eductor air isolation ball valve
N	Vacuum suction hose to filter housing	D	Compressed air inlet connector

1. Using a forklift, place the unit within the working distance of the vacuum hose and pickup tool.
2. Position the Interceptor Tank (if used) as close as possible to the Vacuload 1.
3. If an Interceptor is used, refer to the manual supplied for that item of equipment for set up information.
4. The hoses used should be laid out in a straight line. Each bend of the hose will decrease the performance of the system.
5. The air compressor should be large enough to maintain 120 p.s.i. at the vacuumproducer. If the vacuum and a blast machine are to be used at the same time, the compressor must be large enough to maintain both pieces of equipment plus anyadditional c.f.m. required by the operator safety equipment.
6. The minimum air supply required is 350 c.f.m.
7. Ensure the filter housing (C) is resting securely on top of the empty waste drum (I).

OPERATION

Although every BLASTONE vacuum system is thoroughly tested and checked before leaving the factory, we recommend the following start up procedure before actuallyoperating the equipment

1. Connect the supply air hose to the “Surelock” fitting (R).
2. Close the ball valve (Q).
3. Check pump, piping, hoses (K) and (N), and Interceptor Tank (if used) to ensure all fittings are tight and secure. Ensure all vacuum hoses are connected correctly to the Interceptor Tank.
4. Ensure the battery power supply is switched on (E). When first switched on, it will immediately pulse, and then pulse at 30 second intervals thereafter.
5. With the main ball valve (Q) closed to the Eductor pump, air from the compressor maybe turned on. With the air on to this point, the pump will be off but the filter in the dustcollector will be pulsing, as the supply to the manifold is entering prior to the ball valve.
6. Make sure the filter housing (C) has been lowered onto the waste drum (I) and issitting correctly. The chain (G) should be hanging loose as shown in the illustration.
7. Turn on air to Eductor pump by opening the ball valve (Q). Exhaust air will be discharged into the skid base.

⚠ WARNING ⚠

Ear protection must be worn!

Location of the Interceptor Tank

The Interceptor vacuum tank (if used) may be located over a bulk bag or hopper for convenient dumping.

Vacuuming

BlastOne vacuum systems are designed to produce high vacuum and high air flow at the suction head. When vacuuming remember that it is air that is moving the material being vacuumed.

Abrasives can be vacuumed vertically upwards and downwards just as easily as horizontally. Best results will be achieved by using plastic pipe (rather than hose) and keeping the pipe vertical to minimise friction against the wall of the pipe.

Tips For Maximum Productivity

- Compressed air pressure at the unit while operating should be a minimum of 120 p.s.i. This means you need at least a 350 c.f.m. air compressor.
- The whole vacuuming system must be free of leaks.
- It is very important to fix all leaks. To fault find, go back through the system, disconnect hoses and test the vacuum on all components.
- Adjust the abrasive-to-air pickup mixture correctly. Efficient vacuum requires 80% abrasive and 20% conveying air mix in the hose. Typically this mixture is correct when the vacuum pressure when operating is around 18" Hg. The air mixture can be adjusted by slotting the pickup hose (allowing the air to enter in varying quantities) around 12 inches (300 mm) from the pick up end.
- It is far faster to blow or move all the abrasive into a pile and vacuum the pile, than to vacuum up abrasive spread over a large area.
- Check the reading on the Magnehelic gauge. If it rises to full scale (up to 3") rapidly, then the reverse pulse is not operating. A gradual rise over a period of time isnormal.

Vacuuming Rates

Actual vacuuming conditions are site related and depend on many factors, therefore BlastOne cannot guarantee vacuuming rates. Customers should conduct their own tests to determine actual on site capacities. Conveying rates are subjective, based on compressed air pressure, air temperature, abrasive density, and size and length of vacuum pipe.

Vacuuming Rates

When vacuuming is completed for the day:

1. Turn off air supply valve at the compressor (recommended).
2. If using the ball valve (Q) below the Eductor, the power switch (E) MUST be turned off, otherwise

pulsing will continue when the filter housing is lifted up, causing dust to be expelled, causing a hazard and possible injury.

3. Drain the moisture from the manifold (B) using the drain ball valve (H). Leave the ball valve open until all air is expelled.
4. Push the cantilever handle (F) down, raising the filter housing (C).

⚠ WARNING ⚠

Pinch point - Keep fingers clear and take care.

5. Clip the chain to the body using the carabiner (G).
6. A forklift with the tines close together can be used to lift and remove the waste drum (I).
7. Make sure the system is completely depressurised before disconnecting any air lines.
8. To clean the filter more thoroughly, pulsing with the waste drum in place can be performed, but with the Eductor ball valve (Q) closed. Some dust may be expected through the suction hose and base exhaust.

FAULT FINDING

FAULT	POSSIBLE CAUSE	REMEDY
Clogged vacuum hose	Insufficient air at inlet	Check all hose connections for leaks. Adjust density controller (on pickup tool) to allow more air flow.
	Sharp bends in vacuum hose	Straighten out hose. The radius of any hose should be greater than 10 times it's diameter.
Low vacuum	Severe leaks in the system	Check the gauge lines for breaks.
	Filter hosing not sealed on waste drum	Close, check gaskets and replace as necessary.
	Insufficient supply air	Check p.s.i. and c.f.m. supplied.
	Suction hose is clogged or overfilled	Allow the system to operate, pulling the nozzle out of the abrasive & waiting 2-3 minutes. The hose should clear itself.
No reverse pulsing	Power switched "OFF"	Switch to "ON".
	Flat batteries	Recharge. A 24 volt DC charger is required to charge both batteries at once. If only a 12 volt charger is available, charge each battery separately, but for the same period of time each.
	Reverse pulse timer failure	Test the reverse pulse by turning the power off, then on again. If the battery & reverse pulse timer are OK, you will hear the solenoid clicking on & off. You can also press the **TEST** button on the timer repeatedly.
	No compressed air in manifold	Check air supply by turning manifold drain ball valve (H) on briefly.
	Faulty reverse pulse valve	Replace or repair.
Dust continuously blowing out of base plate	Dust filter cartridge has ruptured or split	Stop recovery immediately and replace.
	Damaged filter seal	Replace with a new one.

FAULT	POSSIBLE CAUSE	REMEDY
High suction which gradually diminishes	Poor air/abrasive mixture in the pickup nozzle	Check the nozzle to make sure it is not plugged with wet abrasive or any foreign object.
Magnehelic gauge reads 3 kPa or greater	Inaccurate gauge	Check the gauge lines for breaks.
	Moisture (wet filters)	This will cause the dust to cake on the filter preventing air from flowing through it. The cartridges should be removed and dried out. If left damp they will implode.
	Dust collector cartridge blocked	See "No Reverse Pulsing".
No vacuum (no air from base plate	No inlet air	Turn on air supply valve on vacuum skid.
No vacuum (air blows out of base plate)	Air jet not positioned correctly	Check and reset/install.
High compressed air use but low vacuum	Worn nozzle or venturi in Eductor	Remove Eductor and replace worn part.
High compressed air use on reverse pulse line	Faulty reverse pulse valve	The valves is jammed open, causing a high drain on the compressed air supply.

MAINTENANCE

The following suggested maintenance program should be implemented to ensure a long and effective unit life. Whenever servicing equipment, make sure that electrical power is disconnected from the battery and all air lines are shut off and bled. Person(s) servicing equipment should wear a respirator, face shield and protective clothing.

Daily

ITEM	INSPECTION
Inlet & outlet hoses	Check for wear, leaks and general condition.
Locking pins	Ensure all are fitted where required and secure.
Gauge	Ensure the Magnehelic gauge is readable and in good working condition.
Air manifold	Release any accumulated water.
Reverse pulse	Listen to the dust collector, making sure the filter is pulsing approximately ¼ second on and 30 seconds off.
Waste drum	Empty the drum daily, or whenever the drum is approximately ½ full of dust. Make sure the vacuum system and reverse pulsing is off when emptying the unit.
Batteries	Charge (if required).

Weekly

ALL THE DAILY ITEMS PLUS:

ITEM	INSPECTION
Inspection hatch	Check that it is closed firmly and the gasket is in place.
Hardware	Inspect all nuts and bolts, conduits, hoses and tubing, chain and carabiner, and all stress bearing welds for structural integrity periodically.
Drum seal	Check the drum seal (inside filter hosing) is in place, and seals the waste drum. Replace if necessary.

SPARE PARTS

ITEM	PART NUMBER	ITEM	PART NUMBER
Reverse pulse timer	KA-005	Reverse pulse solenoid	KA-016
Ball valve (2")	FBLV-50	Ball valve (1/2")	FBLV-15
Surelock coupling	FM-SL50TM	Suction hose	AHVO-075
Battery	LO-001	Battery Box	LO-004
Eductor	VC-2018-011	Eductor Nozzle (350)	VC-2018-311-01
Filter cartridge	DF ULTC	Magnehelic gauge	KA-007
Muffler	JV-028	Off-On switch	LB-071

REVISION STATUS

REVISION NUMBER	DATE	REVISION AUTHOR
Original	June	2015
A		
B		

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