

STRIPMASTER® SERIES 100

MEDIA BLAST MACHINES

**INSTALLATION, OPERATION, MAINTENANCE
AND REPLACEMENT PARTS MANUAL**

PUBLICATION NO. UM-SMS1-0100

Copyright 2000

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IMPORTANT NOTICE

This user's manual, and the recommendations for usage it contains, are based on proven techniques and also on test data believed to be reliable. It is intended that this manual be used by personnel having specialized training in accordance with currently accepted practice and normal operating conditions. Variations in environment, changes in operating procedures or extrapolation of data may cause unsatisfactory results. Since EnviroSystems LLC has no control over the conditions of service, we expressly disclaim responsibility for the results obtained or for any consequential or incidental damages of any kind incurred.

PREFACE

Media blasting is a process for the rapid, economic, safe and environmentally considerate removal of coatings from almost any product without the use of toxic chemical strippers, burn-off methods, sandblasting or hand or mechanical abrasion methods.

Although resembling sandblasting, media blasting does not use hard abrasives, such as silica sand. Rather, the process employs recyclable media crystals, which are pneumatically applied at low pressure of 20 to 40 psi (1,4 - 2,7 bars). The media crystals vary in hardness from 2.8 to 4.0 Mohs, as compared to hard abrasives that are in the 7.0 Mohs range.

Since the media crystals are harder than coatings but softer than underlying substrates, media blasting can quickly remove top-coats and primers without harming sensitive substrates, such as aluminum, brass, copper, magnesium, thin steel and titanium. Additionally, the process can be used on surfaces where chemical strippers cannot, or must be applied with caution, such as panels of honeycomb construction, engineered plastics, fiberglass and advanced composites.

Media blasting technology has been in use since 1983, principally for the stripping of strategic aircraft and aerospace components. However, with the increase in environmental awareness and stricter environmental regulations, the process has matured into a distinct technology, applicable to the de-painting requirements of a broad range of industries. Indeed, in the years to come, media blasting will become the method of first choice for many surface preparation tasks.

The objective of this user manual is to provide the customers of EnviroSystems, LLC (ES) with comprehensive information concerning the installation, operation, maintenance and ordering of replacement parts.

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INTRODUCTION

NOTE: Decimal expressions are followed by their metric equivalents, e.g. .001 in. (0,025mm). Blasting pressures, expressed in psi, are followed by their metric equivalent in bars. Example: 30 psi (2,0 bars).

Media blasting began in 1983 as a technology for rapid and environmentally safe removal of primer, paint, and other coatings from military aircraft substrates without the use of toxic chemical strippers. Today, media blasting is rapidly gaining acceptance as a method of first choice for many surface preparation tasks.

Because media is harder than coatings, but softer than underlying substrates, the blasting process can quickly remove primer, paint and even chemically resistant coatings without harming substrates. This includes those that are easily damaged by sandblasting and those on which chemical strippers cannot be used, or that can be used only with extreme caution.

The original three (3) types of media were all made from thermoset resins, rather than a thermoplastic resin. Thermoset resins, once cured, do not soften when heated and cannot be remelted. If sufficiently heated, they will char but will not remelt. Thermoplastic resins soften when heated and can be re-melted numerous times.

Media is classified into types as follows:

- Type I - Polyester (Thermoset)
- Type II - Urea Formaldehyde (Thermoset)
- Type III - Melamine Formaldehyde (Thermoset)
- Type IV - Phenolic Formaldehyde (Thermoset)
- Type V - Acrylic (Thermoplastic)
- Type VI - Poly (ally diglycol carbonate) (Thermoset)
- Type VII - Crystallized Wheat Starch (Natural Polymer)

All media are inert, and, in many applications, are reusable up to twenty (20) or more times. Those listed above which meet the military specification requirement for blast media are also non-toxic. Waste residue produced from the blasting process is a combination of the coatings removed and media fines, all of which are reduced to a fine powder similar in appearance to gray flour. This residue is generally non-hazardous, depending on the type of coating being removed. Additionally, the total volume of waste residue generated is a small fraction of that generated by other stripping methods, and can normally be disposed of in an approved landfill.

NOTE: Always make sure that waste residue is disposed of according to government environmental regulations.

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The major benefits of media blasting over chemical stripping are economical as well as environmental. It is not unusual to realize a 50 to 70 percent reduction in strip-ping man-hours. This can be converted directly to a reduction in downtime, a major cost factor in some operations.

NON-MEDIA BLASTING STRIPPING METHODS

Until the early 1980s, there were only three common methods for removing primer, paint and other coatings from substrates. These methods were:

- chemical stripping
- sandblasting
- hand or mechanical sanding

Each of these methods has specific drawbacks.

Chemical Strippers

Chemical strippers, commonly used for removing paint from metal and wood, are not effective on chemically resistant coatings. Also, chemical strippers should not be used on certain substrates, such as engineered plastics, fiberglass and advanced composites. When used on intricate parts, the use of chemicals may require extensive masking or disassembly to prevent damage to seals and sealants. Chemicals may also present the possibility of future corrosion from hidden chemical residue that has not been neutralized.

Most importantly, chemical strippers typically contain up to 75 percent organic solvents (acids, methylene chloride, methyl ethyl ketone (MEK), toluene or phenols). These chemicals pose a danger to workers, generate air and water pollutants and create major hazardous waste disposal problems. Because of this, the United States Environmental Protection Agency (USEPA) promulgated its Final Rule prohibiting the disposal of untreated chemical strippers in landfills throughout the U.S. This ruling has fostered the increased use of wheat starch blasting technology and its many applications.

Hard Abrasive Strippers

Hard abrasives, which are pneumatically blasted, include silica sand, glass beads, metal abrasives and synthetic media (such as aluminum oxide and silicon carbide). The use of these abrasives, which are applied at pressures of over 100 psi (6,8 bars), can cause serious damage to substrates. This damage can include changes in critical mechanical or surface dimensions, as well as etching, pitting and substrate penetration. Hard, abrasive media can also cause warping and stretching when used

on thin metals.

Certain metal abrasives may impart ferrous or other undesirable residue, increasing the likelihood of future rust or other corrosion.

The use of silica sand presents a major health problem to workers from possible silicosis exposure. This process generates large volumes of contaminated waste, which must be disposed of in an environmentally acceptable manner. Also, the use of copper slag may result in high concentrations of respirable arsenic.

MEDIA BLASTING APPLICATIONS

Media blasting technology is fast replacing highly toxic chemical strippers in the stripping of commercial and military aircraft airframes. Other important applications include the stripping of:

- aerospace components

- aerospace ground support equipment

- weapons systems such as missile airframes

- commercial and industrial products, including heavy machinery and equipment, computer housings, powder-coated fluorescent lighting fixtures, engines and other products, especially where critical surface or mechanical dimensions cannot be compromised

- components and panels fabricated of engineered plastics or advanced composites, either to remove coatings or to obtain a texture on the parts to ensure excellent paint bonding

- aluminum and fiberglass marine vessels and components

- injection molding screw-feeders and related hardware

- ground transportation vehicles, such as metal and fiberglass automobiles, trucks, tractors, trailers, vans and recreational vehicles (RVs)

Media blasting is an efficient and environmentally safe way to remove paint or other coatings from most substrates. It has been characterized by the military and independent consultants as "Best Available Technology" for the removal of coatings from most substrates.

NOTE: Media blasting is not a cure-all. It does have the potential for

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damage if reasonable care is not taken. The best way to avoid damage to an item being stripped is to be well trained in the technique

required for a specific task. If you have any doubts as to the best way to proceed, ask someone with experience in removing a specific coating from the target substrate.

There are some surfaces which, normally, should not be stripped with media. These include:

aircraft radomes

very thin aluminum or magnesium substrates

various types of resin-starved composites

This is not to say that these items cannot be stripped safely. However, these types of materials should raise a caution flag to any properly trained media blasting operator. No processing should be attempted until some testing has been done on a sample piece (scrap) first.

CHAPTER 2: DESCRIPTION AND SPECIFICATIONS

EQUIPMENT OVERVIEW

Media blasting requires the use of several types of equipment. These are:

- media blasting/reclaim/media storage system
- operator respiration equipment
- compressed air system

Photos, drawings and diagrams of these systems can be found in the Illustrations Section at the end of this manual.

MEDIA BLASTING/RECLAIM/MEDIA STORAGE SYSTEM

The StripMaster Series 100 Media Blasting Machine is a dry stripping machine with the capability to store, blast, reclaim and clean all types of low aggression, abrasive blast media. See the illustration section for the location of major components.

The media processing sequence begins by first loading media into the media loading/reclaiming hopper. Media then exits the base of the hopper through a small hole or holes, depending on hopper style, where it falls into an air stream drawn through a 5 in. (127mm) diameter metal duct attached to the base of the hopper. Media is then conveyed through the metal ducting into a cyclone separator. The cyclone separator uses centrifugal force and an adjustable air gate to separate reusable blast media from paint/coating residue and media fines. The cleaned media falls into the media storage hopper while the residue and media fines are conveyed in an air stream to a reverse pulsejet, dual filter cartridge unit which removes 99.96 percent of all particulates 0.5 micron or larger.

The StripMaster Series 100 Media Blast Machine is comprised of four (4) separate systems:

1. operator control system
2. pressure blast system
3. media reclamation and storage system
4. dust collection system

SMART Control System

StripMaster media blast systems use the exclusive SMART blast handle, which can remotely control blast pressure and media flow directly at the blast handle. The SMART blast handle rotates freely about the hose, eliminating hose twist and reducing operator fatigue.

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A high-intensity, quartz-halogen blast lamp mounted on the SMART blast handle provides workpiece lighting at the point of media 50X

1. Pressure Vessel. The pressure vessel meets ASME code and has a capacity of 6 cu. ft. (0,2 cu m) or approximately 300 lbs. (136kg). The design incorporates a

CHAPTER 2: DESCRIPTION AND SPECIFICATIONS

60-degree cone with a media outlet at the bottom and a media-air fluidizing section above the media outlet.

2. **Moisture Separator.** The moisture separator, located on the plumbing tree, removes moisture, aerosols and particulate as small as 40 micron from the incoming compressed air.
3. **Line Pressure Manifold Supply.** The line pressure manifold supply, located on the plumbing tree, supplies line pressure to several components located on the machine. These include: line pressure gage (SMART control panel), air reservoir tank (dust collector) and all pneumatic controls, operating valves and other components.
4. **Pilot and Pilot-Operated Pressure Regulator.** The Pilot Pressure Regulator, located in the SMART control panel, controls the larger Pilot- Operated Pressure Regulator using an air signal adjusted with a reversible electric motor.

The Pilot-Operated Regulator, located on the plumbing tree, regulates the actual blast pressure. This regulator also provides two (2) gage ports for the monitoring of the blast pressure setting - one for the gage on the SMART control panel and one for an 8 in. (203mm) pressure gage mounted in the blast area.

5. **Air Signal Control Valve.** This 2-way solenoid valve controls air to the air inlet valve, the exhaust valve and the media shut-off valve.
6. **Air Inlet Valve.** The air inlet valve, located on the plumbing tree is normally closed (NC). Compressing the deadman switch control lever on the SMART blast handle sends an electrical signal to the air signal control valve, which then sends an air signal to the Air Inlet Valve. When the Air Inlet Valve is open, it allows air to enter the pressure vessel and the blast hose.
7. **Exhaust Valve.** The normally open (NO) exhaust valve is closed by the same air signal which operates the air inlet valve and is activated by the deadman switch control lever on the SMART blast handle.
8. **Choke Valve.** The choke valve, is located at the end of the plumbing tree. The choke valve is a ball type valve that works on a 0 to 90 degrees span. The valve is normally open (NO) (0 degree) when blasting and closed (90 degrees) when purging the system.
9. **Media Metering Device.** The media-metering valve incorporates a two component valve system for media shut-off and exact media flow.

The shut-off portion of the system includes an air-operated pinch sleeve media shut-off valve which is normally closed (NC) when a) there is no air to the system, or b) is activated by releasing the deadman switch control lever on the

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SMART blast handle. When the deadman switch control lever is pressed, pressure is vented from this valve allowing media to flow into the metering portion of the unit. This valve also prevents media from bleeding into the hose during pressure vessel decompression. This eliminates media "slugging" when blasting is resumed.

The second component in the valving system is an electrically operated, direct-driven, ball-type media metering valve. This metering valve is operated by a reversible, 24 VAC electric motor directed by 12 VAC control signals from the SMART control panel or SMART blast handle. This provides for fine gradations of media flow rates.

10. Peripheral Blast Components. Included in the pressure blast system are 50 ft. (15m) of blast hose, a nylon nozzle holder and hose coupling, and either a No. 7, 7/16 in. (11mm), or No. 8, 8/16 in. (13mm) long venturi blast nozzle. An optional double venturi nozzle is also available.

Media Reclamation and Storage System

The cost of media is a major factor in the media blasting process. Therefore, the ability to rapidly reclaim and clean the media is most important.

The StripMaster Series 100 Media Blast Machine uses a multiple-stage reclaim system consisting of :

- a. floor-mounted, vibrating, loading/reclaiming hopper with a screen to remove coarse debris
- b. high-efficiency cyclone separator to remove dust and spent media from the blast cycle
- c. large-area magnetic separator to remove damaging ferrous particles from the blast stream.

The system also includes the media storage hopper located above the pressure vessel.

The reclaim process begins with used media being loaded into the loading/ reclaiming hopper. Media first passes through a gross contamination-separation screen. This screen is located in the loading/reclaiming hopper. As reusable media falls into the hopper, it passes over the magnetic separator located at the bottom of the loading/ reclaiming hopper. This removes and captures any ferrous particles, which may have been picked up during the reclaim process or blown off the workpiece during blasting operations.

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Media is then pneumatically conveyed in an air stream, generated by a high-pressure fan, through hard ducting to a cyclone separator. This removes the paint dust and media fines. The paint dust and fines go from the cyclone separator through hard ducting into a 930 cfm (26 cu m/min.) dust collection system.

The media reclamation and storage system is comprised of the following components:

media loading/reclaiming hopper	cyclone separator
magnetic separator	media storage hopper
hard metal conveying ducting	

NOTE: Although the high-pressure fan creates the vacuum which transports media to the storage hopper, the fan is considered a part of the dust collection/air filtration system and is described in that section.

The following describes the individual components in the system.

1. Media Loading/Reclaiming Hopper. New or used media is deposited into this hopper for system loading or reclaiming. A vibrator is attached to the hopper to improve media flow into the system. The motor is controlled through a valve located on the loading/reclaiming hopper. A reclaim screen located in the hopper prevents debris larger than 1/6 in. (4mm) from entering the reclaim system.
2. Magnetic Separator. The magnetic separator is located inside the media loading/reclaiming hopper. The unit consists of three (3) large bar magnets, which attract the ferrous particles as media passes through the hopper. An optional single long-bar magnet is used in the low-profile media loading/reclaiming hopper.
3. Hard Metal Conveying Ducting. The reclaim system uses 5 in. (127mm) hard metal ducting, resulting in greater transfer efficiency. Hard metal ducting also eliminates the holes normally produced at the turns with flexible ducting runs.
4. Cyclone separator. Centrifugal action and an air wash which take place inside the cyclone separator remove paint coating residue and fines from the reusable media. Reusable media falls from the bottom of the cyclone separator, while the paint coating residue and fines are captured in the cyclone vortex and carried through the hard metal ducting into the dust collector.

The cyclone separator can be adjusted by the operator to determine at which size (usually 60 mesh or smaller) the fines will be pulled out of the reusable media. This adjustment is accomplished by opening or closing a

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small air gate located at the bottom of the cyclone separator. The larger the opening, the larger the particle size carried to the dust collector.

5. Media Storage Hopper. The media storage hopper, located above the pressure vessel, has a capacity of 54 cu. ft. (3 cu m) or approximately 2700 lbs. (1224kg) of plastic blast media.

Dust Collection System

This system is comprised of the following units:

dust collection section
high-pressure fan

1. Dust Collection Section. This system not only collects the dust from the reclaimed air but also provides the vacuum power which operates the reclaim process. The dust collection section contains two (2) vertically installed filter cartridges to provide up to 480 sq. ft. (45 sq m) of filter area.

The top end of each filter cartridge is sealed to a clean air plenum, requiring the dust-laden air to pass through the filter medium from the outside to the inside. Dust is deposited on the outside surface of the filter cartridges, creating a "dust cake" which further improves filtration. Filtered air then flows from the filter cartridges into the clean-air plenum above the filter cartridges where it is pulled into the fan inlet and exhausted.

Following each reclaim operation, and after the high-pressure fan has stopped, pressing the two (2) PULSE pushbuttons, one-at-a-time, will activate the filter cartridge cleaning system. This allows a short burst of compressed air to enter the inside of the filter cartridge, dislodging the dust which then falls into the disposal drawer located in the bottom of the filter section. A door in the filter section can be opened for drawer removal and emptying, and inspection/replacement of the filter cartridges.

2. High Pressure Fan. The high pressure fan creates the vacuum required to pull dust and media from the media loading/reclaiming hopper through the cyclone separator where the dust and fines are directed to the dust collector and the cleaned media falls into the media storage hopper.

The 930 cfm (26 cu m/min.) fan is driven by a TEFC (totally enclosed, fan cooled), 3-hp (2.2kW), 3-phase, 60 Hz electric motor. This fan motor is wired to accommodate 208/230/480 VAC service, and is controlled from a magnetic starter control panel located on the side of the dust collector unit. Single phase motors are available for installations not having 3-phase

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service. Two (2) pushbuttons marked START and STOP control the reclaim fan.

OPERATOR RESPIRATION SYSTEM

Air respiration equipment is designed to provide the wearer with respiratory protection against inhalation of airborne contaminants. All respiration equipment should be OSHA and NIOSH approved. The air respiration equipment is comprised of:

positive pressure blast helmet	waist-length cape
air conditioner	optional CO monitor
airline filter unit	

A centrally supplied air respiration system relies on the compressed air system for its source of breathing air. OSHA regulations (Section 1910.134) require that when an oil-lubricated compressor is used as a source of breathing air, it must be equipped with a high temperature alarm or carbon monoxide monitor/alarm, or both. If only a high temperature alarm is used, it is imperative to frequently test the compressor air for carbon monoxide to insure it meets the following Grade D requirement for breathing air:

oxygen	19.5 - 23.0%
hydrocarbons (condensed) in Mg/m(3) of Gas	5 mg/m(3) max.
carbon monoxide	20 ppm max.
carbon dioxide	1000 ppm max.
no toxic contaminants at levels which would make the air unsafe to breathe	

NOTE: Refer to American National Standards Institute (ANSI) Standard Z88, or the C.G.A. Commodity Specifications G7.1 available from:

**Compressed Gas Association
500 Fifth Avenue
New York, NY 10036**

The helmet airline respirator supplied is a Type CE supplied-air respirator with continuous flow. This maintains a positive pressure in the helmet at all times and is less apt to permit inward leakage of contaminants. The cape is constructed so that it will cover the neck and shoulders to protect the wearer from rebounding media. When this type air respirator is used, the airflow rate must be at least 6 cfm (0,2 cu m/min.). Refer to the Illustration Section for the assembly of the helmet airline respirator and Chapter 4, OPERATION, for the operation of the helmet airline respirator.

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Federal law also requires that breathing air hose couplings be incompatible with outlets for other gas systems to prevent accidental connection of a supplied air respirator to non-respirable gases or oxygen.

Air supplied through a central air respiration system must first be filtered through a special filtering system to ensure the removal of moisture and oil which becomes atomized during the compression process. These contaminants can produce serious respiratory problems if they are not filtered out. This filtering requires special equipment that is supplied with the system.

NOTE: If there is a possibility that the compressed air source may become contaminated from a defective compressor, or from the possible collection of carbon monoxide fumes by the compressor from its environment (e.g. automobile exhaust), an on-line CO monitor with audible alarm should be installed.

Air pressure supplied to the filter inlet should not exceed 100 psi (6,8 bars). Air will be released by the pressure relief valve when pressure within the filter exceeds 125 psi (8,5 bars). Air discharging from the filter to the helmet airline respirator can be controlled by the pressure regulator adjustment knob to meet the specific air pressure requirements of the helmet airline respirator.

COMPRESSED AIR SYSTEM

All media blast systems use compressed air to convey the blast media from the pressure vessel to the workpiece. The minimum recommended compressed air system for a one (1) nozzle media blast system is a 50 hp (37,3kW) rotary screw air compressor with at least a 200 cfm (6 cu m/min.) capacity at a rated pressure of 100 psi (6,8 bars). The system should incorporate an efficient air/oil separation unit and built-in aftercooler. Appropriate filters should be installed to remove oil aerosols and particulates.

NOTE: Media blast systems, especially those using crystallized wheat starch, are not moisture-tolerant. Therefore, in most locales it is usually necessary to install a refrigerated air dryer to assure clean, dry compressed air.

To reduce pressure drops between the compressor system and the blast generator, install the compressor as close as possible to the media blast system. Also, it is recommended that a minimum of 1 1/2 in. (38mm) plumbing be used.

In addition to supplying compressed air for the blasting and reclaim operations, the compressor also supplies air for:

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centrally-supplied air respiration unit
 reclaim/dust collector reverse-pulse cleaning system
 vibrator
 utility air connections in the blast and preparation areas

Air consumption for the compressed air system is as follows:

air respiration unit*	10 - 15 cfm @ 85 - 95 psi (0,3 - 0,4 cu m/min. @ 5,8 - 6,5 bars)
reclaim/dust collector	momentary pulse only
utility air connections**	10 - 15 cfm @ 85 - 95 psi (0,3 - 0,4 cu m/min. @ 5,8 - 6,5 bars)
centrally supplied air respiration unit*	10 - 15 cfm @ 85 - 95 psi (0,3 - 0,4 cu m/min. @ 5,8 - 6,5 bars)

* multiply by number of operators, media tenders

** multiply by number of connections

Compressed Air Consumption

Compressed air consumption depends on factors such as blast air pressure and nozzle size. The charts (Figure 2-19) approximate the requirements for the various size blast nozzles. Note that two No. 7 nozzles at 25 psi (1,7 bars) can be operated at nearly the same cfm consumption as one No. 8 nozzle at 40 psi (2,7 bars).

		CFM CONSUMPTION						
NOZZLE NO.	VENTURI SIZE	PSI						
		25	30	35	40	45	50	60
		CFM						
4	1/4 in.	28	32	37	41	45	49	56
5	5/16 in.	44	50	57	64	70	76	88
6	3/8 in.	63	73	82	91	100	109	126
7	7/16 in.	85	99	112	124	137	149	172
8	1/2 in.	112	129	146	163	179	194	225

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GENERAL EQUIPMENT SPECIFICATIONS

Height:	192 ins. (4876mm)
Width:	54 ins. (1371mm)
Length:	105 ins. (2667mm)
Net Weight:	2560 lbs. (1161kg)

Electrical Requirements:

Incoming service:	208/230/480 VAC, 3-phase, 60 Hz
High Pressure Fan:	TEFC, 3-hp (2,2kW), 220 VAC, 3-phase, 60 Hz., 930 acfm (26,3 acu m/min)

Optional 220 VAC single-phase motor for installations lacking 3-phase service

Optional:

SMART Blast Handle:	12 VAC
SMART Control Panel:	110 VAC, 60 Hz

Air Requirements:	A StripMaster Series 100 PMB system requires 200 acfm (5,7 acu m/min.) at 100 psi (6,8 bars)
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Air Consumption:

Blast equipment	70 acfm @ 40 psi with 1/2 in. (12,7mm) nozzle (4,8 acu m/min. @ 2,7 bars)
Air respiration unit*	10 - 15 acfm @ 85 - 95 psi (0,3 - 0,4 acu m/min. @ 5,8 - 6,5 bars)
Reclaim hopper	15 acfm @ 85 - 95 psi (0,4 acu m/min. @ 5,8 - 6,5 bars)
Reclaim/dust collector	momentary pulse only
Utility air connections**	10 - 15 acfm @ 85 - 95 psi (0,3 - 0,4 acu m/min. @ 5,8 - 6,5 bars)
Centrally supplied air respiration unit*	10 - 15 acfm @ 85 - 95 psi (0,3 - 0,4 acu m/min. @ 5,8 - 6,5 bars)

* multiply by number of operators, media tenders

CHAPTER 2: DESCRIPTION AND SPECIFICATIONS

** multiply by number of connections

Blower:

HP	3 (2,2kW)
ACFM	930 (26,3 acu m/min.)

Media Capacity

Pressure Vessel:	6 cu. ft./300 lbs. (0,2 cu m)/(136,1kg)
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Media Storage Hopper:	54 cu. ft./2700 lbs. (3,1 cu m)/(1224,7kg)
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Filter Cartridges	2
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Total Filter Area	480 sq. ft. (44,6 sq m)
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GENERAL INFORMATION

The StripMaster Series 100 Media Blast Machine will arrive at your facility un-assembled on six (6) pallets plus the ladder. The customer or his agent must reassemble those components, which were disassembled for shipment. Assembly, with the exception of the electrical and air connections, can usually be accomplished by anyone with a basic understanding of common hand tools. The pressure vessel is shipped in an assembled, but inverted, position. The SMART control panel will be attached to the pressure vessel.

The following is a list of the items needed for the proper assembly of the StripMaster Series 100 Media Blast Machine:

forklift/chain fall with 1000 lbs. (454kg) capacity	screw driver, crossed slot
pipe wrenches (2)	screw driver, straight slot
open end wrenches	tube of clear sealant
	electric drill and drill bits

NOTE: ES must rely on the skill and expertise of its customers and the customer's installation contractor to ensure that all electrical connections are made correctly and air connections and regulation devices are installed and operating properly.

UNCRATING AND INSPECTION

NOTE: Use extreme care when handling the unit and components. Careless handling can damage delicate parts, or affect alignments.

Carefully cut all banding straps. Remove all components from the pallets. Compare the number of items received against the carrier's Bill of Lading. Inspect all items for apparent damage. Immediately report any shortages or obvious damage to the carrier and to EnviroSystems, LLC, (ES) Tucson, AZ.

When the skids and all cartons are completely unpacked, check all items received against the packing lists. Further inspect all components for hidden damage. Again, report any shortages or damage to the carrier and to ES.

NOTE: Do not return any damaged components without first contacting ES, Tucson, Arizona.

Carefully inspect all packing material so that small parts are not inadvertently thrown away.

CHAPTER 3: INSTALLATION

ASSEMBLING THE STRIPMASTER SERIES 100 MEDIA BLAST MACHINE

Once the pallets are unpacked and the components inspected, identify each of the components on the assembly drawings. Use the following procedure to assemble the StripMaster Series 100 Media Blast Machine.

Storage Hopper Frame Assembly

1. Lay the square storage hopper support frame (shipped on the storage hopper) on the floor with the arrow side facing you and pointing down.
2. Locate the leg with single welded slash mark on the gusset. Position the leg at the left front corner of the storage hopper support frame. Note the single / welded slash mark at the corner top of the support frame.
3. Attach the leg to the support frame using four (4) 1 1/4 x 3/8 in. (325mm x 10mm) cap bolts and 3/8 in. (10mm) serrated flange nuts. Finger-tighten only.
4. Repeat steps 2 and 3 for the remaining three (3) legs, matching the //, /// and //// welded slash marks to the welded slash marks on the gussets and frame corners.
5. Locate the short brace, 2 x 2 1/4 in. (51 x 57mm) angle, with the two (2) short tabs for attaching the metal ladder. With the tabs pointing down, attach the brace horizontally across the top two (2) leg tabs on the left side of the leg assembly. Use the 1 1/4 x 3/8 in. (325mm x 10mm) cap bolts, flat washers and serrated flange nuts. Finger-tighten only since the side cross braces will attach to the same tabs.
6. Locate the six (6) long cross braces and two (2) short braces.
7. Attach two (2) long braces to the tabs on the sides and back of the leg assembly to form an "X" on each side of the leg assembly. Use the 1 1/4 x 3/8 in. (325mm x 10mm) cap bolts, flat washers and serrated flange nuts. Finger-tighten only.
8. Plumb the legs square and tighten all bolts.
9. Use a chain fall or similar lifting device to stand the hopper support assembly upright.
10. Attach the lifting device to the lifting lugs on the side of the media storage hopper, then raise the media storage hopper and position it in the storage

hopper brace assembly. Make sure the StripMaster logo is facing front (front side of leg assembly has the short cross braces).

11. Attach the ladder to the ladder-mount tabs on the square hopper support and the tabs on the left leg assembly bottom cross bar. Use the 1 1/4 x 3/8 in. (325mm x 10mm) cap bolts, flat washers and serrated flange nuts.

Dust Collector Assembly

The dust collector stand and drawer, if supplied, are shipped assembled but in an inverted position (drawer down).

1. Position the stand, with the drawer up, to the right of the machine according to the layout provided with the equipment.
2. Squeeze a bead of clear sealant completely around the top of the drawer flange.
3. Use a mechanical lifting device to set the dust collector (fan exhaust facing back) on the drawer. Secure it at the corners with four (4) 1 1/4 x 3/8 in. (325mm x 10mm) cap bolts, flat washers and serrated flange nuts.

Installation Of Metal Ducting, Reclaim Side

Use the following procedure to install the metal ducting. Separate all 5 in. (127mm) diameter metal ducting and rubber couplings out from the 6 in. (152mm) metal ducting and rubber couplings. The 5 in. (127mm) diameter ducting is used for the reclaim side; the 6 in. (152mm) diameter ducting is used for the dust collection side. All ducting assembly can be performed on the floor and the attached to the 5 in. (127mm) diameter inlet on the cyclone separator after it is set in place on the media storage hopper. Tighten all screw clamps firmly but do not over-tighten since damage to the ducting can result. Use this procedure to install the ducting for the reclaim system.

NOTE: Prior to attaching a rubber coupling to a metal duct, apply a small bead of clear sealant around the end of the metal duct. Insert the duct into the rubber coupling with a twisting motion to ensure a good seal between the duct and the rubber coupling.

1. Attach a rubber coupling to both ends of the 5 in. diameter x 11 in. (127mm x 2709mm) duct. Secure with screw clamps. This will be attached later to the 5 in. (127mm) diameter inlet on the cyclone separator.
2. Attach an elbow to the 5 in. diameter x 11 in. (127 x 2709mm) duct. Secure with a screw clamp.

CHAPTER 3: INSTALLATION

3. Lay the two (2) pieces of 5 in. x 70 in. (127 x 1778mm) long duct on the floor. Use rubber coupling and screw clamps to join them.
4. Attach a rubber coupling to each end of the duct assembly joined in Step 3 and secure with screw clamps.
5. Attach the long ducting assembly to the elbow assembly performed in Step 2 and secure with a screw clamp.
6. Attach an elbow to the other end of the long duct assembly. **DO NOT USE CLEAR SEALANT NOR TIGHTEN THIS JOINT.**
7. Attach the aluminum clamp to the support rod located at the right of the ladder. This will support the ducting assembly.
8. Apply a small, continuous bead of clear sealant to the bottom side of the base of the cyclone separator.

NOTE: Steps 9 through 11 require the use of a suitable elevated work platform. See WARNING.

WARNING

Make sure that the elevated work platform is properly located and securely in place. Failure to follow this instruction may result in severe personal injury.

9. Set the cyclone assembly over the studs. Finger-tighten the nuts.
10. Align the cyclone separator with the top coupling on the reclaim duct and tighten cyclone separator slip ring. Make sure to tighten the bolts firmly and evenly.
11. Place the "top" coupling over the 5 in. (127mm) diameter inlet on the cyclone separator. Secure it with a screw clamp.
12. When the ducting has been properly installed, check alignment and fit.

NOTE: It is recommended not to secure the joints established in Steps 13 and 14 with clear sealant, as you may want to disconnect them while cleaning around the floor hopper.

-
13. After installation of the metal ducting is complete, attach the short section of 5 in. (127mm) conveying hose to the lower metal elbow.
 14. Attach the free end of the 5 in. (127mm) conveying hose to the outlet at the bottom of the reclaim hopper (side opposite the screen guard).
 15. Tighten the screw clamp to secure the joint assembled in Step 6.

Installation of Metal Ducting, Dust Collection Side

Use the 6 in. (152mm) diameter metal ducting and rubber couplings. Tighten all screw clamps firmly but do not over-tighten since damage to the ducting can result. Refer to Figure 3-1.

NOTE: Prior to attaching a rubber coupling to a metal duct, apply a small bead of clear sealant around the end of the metal duct. Insert the duct into the rubber coupling with a twisting motion to ensure a good seal between the duct and the rubber coupling.

Steps 1, 2 and 7 require the use of a suitable elevated work platform for assembly work near the cyclone separator. See WARNING.

WARNING

Make sure that the elevated work platform is properly located and securely in place. Failure to follow this instruction may result in severe personal injury.

1. Install the 9 in. (229mm) diameter elbow over the cyclone separator outlet, with the open end pointed towards the dust collector. Use the 9 in. (229mm) rubber coupling to attach the elbow to the outlet.
2. Use a 9 in. (229mm) rubber coupling to attach the 9 in. to 6 in. (229 - 152mm) reducer coupling to the open end of the 9 in. (229mm) metal elbow installed on the cyclone separator outlet.

NOTE: Steps 3 through 6 are to be performed laying the 6 in. (152mm) ducting and rubber couplings out on the floor. Assembly of the ducting to the reducer coupling on the cyclone separator outlet and to the dust collection unit requires two (2) people.

3. Attach rubber couplings, using screw clamps, to both ends of the 22 in. (559mm) long duct.

CHAPTER 3: INSTALLATION

4. Attach an elbow to one (1) end of the 22 in. (559mm) long duct.
5. Use a rubber coupling and screw clamps to join the two (2) 49 in. (1245mm) long duct sections together.
6. Place a rubber coupling on each end of the assembled ducting and secure with screw clamps.
7. Insert the free end of the elbow (Step 4) into the rubber coupling on one end of the long duct assembly and secure with a screw clamp.
8. With one person on the elevated work platform and another at the dust collection unit, position the straight end of the ducting assembly on the dust collector inlet and the short duct with rubber coupling on the reducer coupling. Secure both rubber couplings with screw clamps.
9. When the ducting has been properly installed, check for alignment and fit.

Connecting the Dump Valve Open/Close Rod Assembly

1. The dump valve is located at the bottom of the media storage hopper, and is activated by an open/close rod assembly. Use the coupling provided to attach the rod assembly to the dump valve. Tighten the setscrew(s).
2. The micro switch is pre-wired. Use the pre-drilled holes in the dump valve to mount the micro switch on the dump valve. A lever welded on the dump valve control rod depresses this switch.
3. Adjust the micro switch actuation bolt as required when the dump valve is in the closed position.

Pressure Vessel

Follow these steps to prepare the pressure vessel for use.

1. Remove the pressure vessel handhold cover and visually inspect the inside of the pressure vessel. Use a flashlight if necessary.
2. Carefully feel around the bottom of the cone, especially around the media outlet. Vibration encountered during shipment can dislodge particles of welding slag and abrasive used in the weld preparation. See WARNING.

WARNING

Carefully feel around the bottom of the cone for loose slag. Failure to follow this instruction may cause severe personal injury.

3. Thoroughly vacuum out any foreign material encountered.
4. Carefully install the handhold cover. Make sure the cover is centered inside the opening and the holding bolt and outside retaining crab are solidly seated.

INSTALLATION OF AIR SUPPLY LINES

NOTE: Prior to making any air or electrical connections to the Strip-Master machine, check all fittings and connections for tightness. While these were checked prior to shipment, vibrations encountered during shipment can cause fittings and connections to loosen.

Air Supply

Use this procedure for air hook-up to the plumbing tree.

1. Use the camlock quick-disconnect fitting provided to attach a 1 1/4 in. (32mm) air hose with a shut-off valve to the plumbing tree air inlet on the pressure vessel. The male end of the fitting is threaded for installation in the plumbing tree. The female end (camlock end) is a barbed fitting for insertion into the 1 1/4 in. (32mm) air hose. Use strong clamps for this connection.
2. Secure the camlock levers with cable wraps around the hose for safety. **DO NOT OPEN THE AIR HOSE SHUT-OFF VALVE AT THIS TIME. See WARNING.**

WARNING

Never disconnect this coupling while the system is pressurized. Failure to follow this instruction may result in severe personal injury.

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Blast Pressure Gage

Use this procedure for the mounting and hook-up of the 8 in. (203mm) blast pressure gage. See CAUTION.

CAUTION

Do not connect air pressure to the blast pressure gage until all air and electrical system checks have been performed and the system blast pressure has been established at no more than 40 psi (2,7 bars). Failure to follow this instruction may cause damage to the pressure gage and will not be covered by the machine warranty.

1. Mount the 8 in. (203mm) blast pressure gage (optional) in a convenient location in the blast area where it will be readily visible to the blast operator. Do not connect air pressure to this gage at this time. See previous CAUTION.
2. Install the air-snobber on the blast pressure gage's inlet air connection. The air-snobber is a buffer between the blast pressure gage and the airline.
3. Remove the 1/4 in. (6mm) hex plug, which was installed for shipment, from the port in the pilot-operated regulator. It is recommended that a quick-disconnect fitting be installed in the port.
4. Use 1/4 in. (6mm) airline to connect the blast pressure gage to the 1/4 in. (6mm) port (or quick-disconnect fitting) in the pilot-operated regulator.

Reclaim/Loading Hopper Vibrator

NOTE: Air manifold fittings are not supplied for the hopper vibrator.

An additional 1/4 in. (6mm) air source is required for the vibrator on the reclaim hopper. Tee this source off the air manifold. The air manifold is located on the brace supporting the SMART control panel. The vibrator was installed at the factory.

1. Locate the airlines sticking through the floor hopper. One is the air inlet; the other is the air exhaust. Determine the air inlet line by looking at the bottom of the vibrator for the arrow indicating direction of airflow.

2. Fasten the air valve to the air inlet line by sliding the brass nut over the line. Hold the line firmly in the valve and tighten the brass nut. The other end of the air valve is threaded for 1/4 (6mm) airline.
3. Connect an airline to this valve from the air manifold.

Blast Hose

A 50-foot (15m) section of blast hose is supplied with each StripMaster machine, along with a nozzle holder, and a quick-disconnect coupling. The following procedure includes the instructions to install the SMART blast handle onto the blast hose.

1. Twist the quick-disconnect coupling onto the blast hose until it bottoms out. Once the coupling is securely installed on the blast hose, tighten the setscrews into the coupling to lock the coupling onto the blast hose.
2. Install the quick-disconnect coupling on the brass fitting located at the bottom of the pressure vessel.
3. Moving to the free end of the blast hose, slide the SMART blast handle onto the blast hose approximately 2 ft. (0,6m) from the free end. Make sure the SMART cable is running toward the StripMaster Series 100 Media Blast Machine.
4. Twist the nozzle holder onto the blast hose until it bottoms out. Tighten the setscrews in the nozzle holder to lock the nozzle holder in place on the blast hose.
5. Slide the SMART blast handle against the nozzle holder.
6. Starting approximately 3 ft. (0,9m) away from the SMART blast handle, secure the SMART cable to the blast hose. Use zip ties or 1 in. (25mm) duct tape. (Securing the SMART cable closer than 3 ft. (0,9m) to the SMART blast handle prevents the SMART blast handle from freely rotating.) Secure the cable to the hose at 3 ft. (0,9m) intervals the entire length of the blast hose.

INSTALLING FILTER CARTRIDGES

The filter cartridges are located in the dust collector.

1. The filters are installed by inserting the support rod through the large open top of the filter and out of the 1/2" hole in the bottom plate. Attach a large flat washer, a lock washer and a wing nut, threading them on until approx. 1/2" of thread is through the wing nut.

CHAPTER 3: INSTALLATION

2. Taking the hooked end of the support rod with one hand and supporting the filter weight with the other, hang the hooked end of the support rod in the notch located in the center of the spider support located on the dust collector tube sheet.
3. Tighten the wing nut until the cartridge contacts the bottom of the tube sheet and the rubber seal is compressed by half its height, being careful to align the open end of the cartridge with the spider wings with hang below the tube sheet.. The filter should not be able to be rotated by hand.
4. Repeat steps 1 through 3 for the remaining cartridge.

The dust collection drawer was installed in the bottom of the dust collection section at the factory. Closing the door to this section completes this portion of the installation.

ELECTRICAL HOOK-UP, SMART CONTROL PANEL AND BLAST HANDLE

1. Insert the SMART cable through the strain relief fitting in the bottom left corner of the SMART control panel.
2. Connect the color-coded wires of the SMART cable to the color-coded terminals on the terminal block in the control panel.
3. Use the twist plug coupling located at the bottom left corner of the control panel to connect the SMART control panel to a standard 110 VAC, 60 Hz power supply.
 - a. Connect the mating plug coupling to 3-conductor, 14-gage shop electrical cord. Wire instructions are printed on the side of the coupling box and are reprinted here, steps (1) through (7).
 - (1). Cord grip range accepts conductor/cord sizes 18/3 Type SJ to 12/3 Type S .296 - .687 in. diameter (8 - 18mm). Wire with round cord only. Tighten cord clamp screws alternately 8 to 12 in. lbs. (0,9 - 1,4 Nm).
 - (2). Select the proper wire size and type for load and application. Refer to N.E.C. Tables, Article 400.
 - (3). Before wiring, select the proper end of the cord.

- (4). Use strip gage embossed on wiring carton or refer to Figure 3-8.
 - (5). Do not tin connectors.
 - (6). Loosen all terminal clamp screws and insert all conductors into proper wire entrance holes. Tighten screws securely 9 to 12 in. lbs. (1,0 - 1,4 Nm).
 - (7). Connect the green wire (ground) to the terminal with the green hex head screw. Connect the white wire (neutral) to the white (silver) terminal screw.
- b. Connect a standard 3-prong plug to the free end of the 14-gage shop electrical cord.

TESTING ELECTRICAL SYSTEMS, SMART CONTROL PANEL AND BLAST HANDLE

Check the SMART controls for proper operation prior to final wiring of the high-pressure fan unit. Perform the systems checks with the air supply to the system OFF. Moving the SMART blast handle close to the SMART control panel will save time and many steps since the following system checks require operation of both units.

System Power, Blast Lamp, and Deadman Switch Control

Use the following procedure to check the system power, and the blast lamp and deadman switch control on the SMART blast handle.

1. Turn the SYSTEM POWER switch on the SMART control panel to the ON position.
2. Turn the BLAST LAMP switch to the ON position. The blast lamp on the SMART blast handle should illuminate. Turn the switch to the OFF position to turn off the blast lamp.
3. With the system power ON, move to the SMART blast handle and press the deadman switch control lever located on the inside of the SMART blast handle. Listen for a "click" from the air signal control valve outside the SMART control panel.

CHAPTER 3: INSTALLATION

Blast Pressure Switch

Use this procedure to check the blast pressure increase/decrease functions. The BLAST PRESSURE switch will return to the center (O) position when released. See DANGER next page.

DANGER

The following steps require working with the door of the SMART control panel open and the circuits energized (hot). Do not reach inside the panel or insert anything inside the panel while the circuits are energized. Failure to follow this instruction may result in death or serious personal injury.

1. Release the two (2) retaining clamps on the right side of the SMART control panel door.
2. Open the SMART control panel door a few inches. **DO NOT REACH INSIDE OR INSERT ANYTHING IN THE CONTROL PANEL.** See previous DANGER.
3. The pilot regulator is located in the lower right hand corner of the SMART control panel. Visually locate the drive shaft coupling between the motor and the pressure regulator.
4. Watch for clockwise rotation of the drive shaft coupling while momentarily turning the PRESS switch on the SMART control panel to the UP (pressure increase) position.
5. Perform the same system check on the SMART blast handle by pressing the P+ pushbutton (pressure increase). Look for clockwise rotation of the drive shaft coupling.
6. Watch for counter clockwise rotation of the drive shaft coupling while momentarily holding the PRESS switch on the SMART control panel in the DOWN (pressure decrease) position.
7. Perform the same system check on the SMART blast handle by pressing the P- pushbutton (pressure decrease). Look for counter clockwise rotation of the drive shaft coupling.
8. Close the SMART control panel and secure the retaining clamps.

Media Switch

Use this procedure to check the media adjust increase/decrease functions. The MEDIA switch will return to the center position (0) when released.

1. While momentarily holding the MEDIA switch (SMART control panel) in the UP (media increase) position, ensure that travel of the media control valve (bottom of the pressure vessel) is toward the open position (line with small dots on end of valve shaft is moving to the vertical position). Shaft movement is slow so it is necessary to watch carefully.
2. Perform the same system check on the SMART blast handle by pressing the M+ pushbutton (media increase). Again, ensure that travel of the media control shaft is toward the open position.
3. While momentarily holding the MEDIA switch (SMART control panel) in the DOWN (media decrease) position, ensure that travel of the media control shaft is toward the closed position (line with small dots on end of valve shaft is moving to the horizontal position). Shaft movement is slow so it is necessary to watch carefully.
4. Perform the same system check on the SMART blast handle by pressing the M- pushbutton (media decrease). Again, ensure that travel of the media control shaft is toward the closed position.

High Pressure Fan

When all systems tests have been satisfactorily completed, line power can be connected to the high-pressure fan.

NOTE: Connecting line power to the high-pressure fan is to be completed by a qualified electrician in compliance with applicable codes.

System wiring was performed prior to shipment. Your electrician needs only to connect the line power wiring to the contactors in the magnetic starter enclosure and to connect the leads into the fan motor junction box. The conduit hole for the 3-phase

power into the starter box has not been opened in the magnetic starter assembly. This allows your electrician to place the wiring in compliance with applicable codes.

NOTE: Although the STRIPMASTER Media Blast Machine was wired for the voltage specified in your order, your electrician should confirm this voltage. Also instruct the electrician to ensure that the motor is properly wired for the available power supply.

CHAPTER 3: INSTALLATION

PREPARATION OF THE ES OPTIONALLY SUPPLIED HELMET AIRLINE RESPIRATOR

1. Make sure that all air respirator components are present. The respirator box contains the following:
 - a. helmet with chin strap, suspension and cape.
 - b. breathing hose, 10 ft. (3m) long.
 - c. air-supply hose, 25 ft. (8m) long; one female quick-disconnect fitting.
 - d. air-control valve with belt, optional air conditioner unit.
2. To adjust the helmet suspension, follow this procedure.
 - a. Remove the cape (Figure 3-9) and chin strap from the helmet.
 - b. Remove the headband from the helmet by unsnapping four white plastic tabs from the helmet interior.
 - c. Unfasten the vinyl sweatband.
 - d. Slip the headband tongue through the front holder until the correct head size is reached. Adjustment will fit head sizes 6 1/2 to 8 in. (165 - 203mm). Sizes are marked on the headband slots. Adjust evenly on both sides. Press the selected slots firmly onto the lugs on the front band.
 - e. Reattach the sweatband.
 - f. Re-install the suspension into the helmet by inserting the four (4) white plastic tabs into the wedge-shaped holders on the helmet interior.

NOTE: The suspension maintains a fixed distance between the head and the helmet. The suspension must be properly installed in the helmet to provide the protection and comfort for which it was designed. Do not tilt the helmet on your head.

3. Check the helmet lens system. The inner lens is held in place by a thick rubber gasket. The outer lens is held in place by three (3) clips. Refer to CHAPTER 5, MAINTENANCE, Air Respiration System for replacement instructions.

4. Thread the breathing hose onto the air inlet at the back of the helmet.
5. Using the same assembly technique as in Step 4, thread the air-control valve (attached to the operator belt), or the optional cool-air tube, or the optional climate control tube onto the free end of the breathing hose.
6. Attach the quick-disconnect coupling to the air-control valve, or the optional cool-air tube or the optional climate control tube.
7. Attach the air-supply hose to the quick-disconnect coupling. Use the adapter provided to attach the other end of the air-supply hose to an air filter.

NOTE: If additional air-supply hose is required, it must be approved air-supply hose. Extension hoses 25, 50 and 100 ft. (8, 15 and 31m) can be added to the standard 10 ft. (3m) starter hose or to an optional 25 ft. (8m) starter hose. Maximum hose length is 200-ft. (61m).

PREPARATION FOR SYSTEM STARTUP

Perform the following functions prior to starting up the StripMaster machine. Refer to photos, drawings and diagrams in the Illustrations section at the end of this manual for help in identifying components discussed.

1. Turn on the air compressor.
 2. Turn on the room dust collection/air filtration system.
 3. Turn on the blast room lighting.
 4. Inspect the dust collection drawer in the bottom of the media blast machine dust collection unit. Empty it if required. See WARNING.
-

WARNING

Always wear OSHA-NIOSH approved respiration equipment when emptying the dust collection drawer. Failure to follow this instruction may cause serious personal injury.

NOTE: Always make sure that waste material is disposed of according to federal, state and local environmental regulations.

MEDIA BLAST SYSTEM STARTUP PROCEDURE

1. Make sure that the workpiece and workstand are properly grounded to prevent static electricity build-up in the stripping process. Use approved grounding cable or the optional retractable reel grounding cable. See WARNING.
-

WARNING

Make sure that the workpiece and workstand are properly grounded to prevent static electricity build-up in the stripping process. Static electricity can cause electrical shock, and, in the proximity of fuel vapors or other potentially explosive environments, can be deadly. Failure to follow this instruction may cause serious personal injury or death.

2. Make sure the pressure vessel is full of media.

CHAPTER 4: OPERATION

3. Turn the SYSTEM POWER switch on the SMART control panel to the ON position.
4. Press the RESET pushbutton on the SMART control panel to zero the minute meter.
5. Turn the BLAST LAMP switch on the SMART control panel to the ON position. The BLAST LAMP will illuminate.

NOTE: Never lay the SMART handle down in the media when the blast lamp is on. The media will act as an insulator, preventing the lamp from cooling properly and causing premature failure.

6. Initially set the blast pressure using the PRESSURE switch on the SMART CONTROL PANEL. This allows setting the blast pressure without activating the deadman switch control lever.

Actual blasting techniques are covered in the TECHNICAL TRAINING MANUAL for StripMaster media blast machines.

RECLAIMING BLAST MEDIA

Follow the steps outlined in this procedure to reclaim blast media.

1. Clean any large debris from the reclaim hopper scalping screen.
2. Remove the magnet separator, located in the bottom of the recovery hopper. Clean and re-install it.
3. Open the access door on the dust collection unit.
4. Remove any media carry-over in the dust collection drawer. See WARNING.

WARNING

Always wear OSHA-NIOSH approved respiration equipment when emptying the dust collection drawer. Failure to follow this instruction may cause serious personal injury.

NOTE: Always make sure that waste material is disposed of according to federal, state and local environmental regulations.

5. Install the dust collection drawer and close the front access door.
6. Momentarily press each FILTER PULSE pushbutton one-at-a-time to clean the filter cartridges. Repeat to make sure that the cartridges are clean.
7. Empty the dust collection drawer. See previous WARNING and NOTE.
8. Install the dust collection drawer and close the front access door.
9. Press the START pushbutton on the dust collector starter panel to turn on the reclaim fan.
10. Open the needle valve (counter-clockwise direction) on the side of the reclaim hopper to turn on the vibrator.
11. Continue to fill the reclaim hopper until all media is reclaimed.
12. Close the needle valve (clockwise direction) on the side of the reclaim hopper to turn off the vibrator.
13. Press the STOP pushbutton on the dust collector starter panel to turn off the reclaim fan.

CLEANING THE FILTER CARTRIDGES

Use the following procedure to manually clean the filter cartridges.

1. Open the access door on the dust collection unit.
2. Remove any accumulation in the dust collection drawer. See WARNING.

WARNING

Always wear OSHA-NIOSH approved respiration equipment when emptying the dust collection drawer. Failure to follow this instruction may cause serious personal injury.

3. Install the dust collection drawer and close the front access door.

CHAPTER 4: OPERATION

4. Momentarily press the FILTER PULSE pushbuttons one-at-a-time to clean the filter cartridges. Repeat to make sure that the cartridges are clean.
5. Repeat steps 1 through 3 to remove any additional dust dislodged.

PURGING THE PRESSURE VESSEL

NOTE: WEAR SAFETY GLASSES AND AIR RESPIRATION WHEN PERFORMING THIS FUNCTION. THE BLAST OF AIR FOLLOWING THE LAST OF THE MEDIA AS IT LEAVES THE PRESSURE VESSEL WILL CAUSE A BRIEF CLOUD OF PLASTIC TO BE BLOWN INTO THE AIR AND POSSIBLY INTO THE EYES.

1. Raise the blast pressure to 30-psi (2,0 bars) using either the PRESS switch on the SMART control panel or pressing the P+ (pressure increase) pushbutton on the SMART blast handle.
2. Open the media metering valve by moving the MEDIA switch to the UP position.
3. Close the choke valve. The choke valve is located on the plumbing tree in back of the pressure vessel.
4. Remove the blast nozzle from the SMART blast handle.
5. Direct the nozzle opening into an empty media drum, then hold the dead-man switch control lever depressed until air starts escaping from the nozzle holder. This indicates that the pressure vessel has been emptied.
6. Re-install the blast nozzle into the SMART blast handle
7. Open the choke valve.
8. Reset the air pressure and media rate to their previous settings.

SYSTEM SHUTDOWN PROCEDURE

Use this procedure to shut down the StripMaster machine at the end of the shift.

1. Turn the BLAST LAMP switch to the OFF position. The BLAST LAMP light will go off.

NOTE: Never lay the SMART handle down in the media when the blast lamp is hot. The media will act as an insulator, preventing the lamp from cooling properly.

2. Reclaim any media remaining on the blast room floor.
3. Momentarily press each FILTER PULSE pushbutton one-at-a-time to clean the filter cartridges. Repeat to make sure that the cartridges are clean.
4. Open the access door on the dust collection unit.
5. Remove any accumulation in the dust collection drawer. See WARNING.

WARNING

Always wear OSHA-NIOSH approved respiration equipment when emptying the dust collection drawer. Failure to follow this instruction may cause serious personal injury.

6. Install the dust collection drawer and close the front access door.
7. Turn off the AirWall dust collection system or other room ventilation system. If the AirWall unit is the manual cleaning type, clean the filter cartridges and empty the dust collection drawers. See above WARNING. Refer to the AirWall Dust Collection System User Manual.
8. Turn off the air compressor.
9. Turn the SYSTEM POWER switch to the OFF position.
10. Open all moisture traps to remove any water from the system.
11. Record the time lapsed on the minute meter.

OPERATION OF THE AIR RESPIRATION SYSTEM

WARNING

Never use the helmet airline respirator without both the inner lens and outer perforated lenses in place. Failure to follow this instruction may cause serious personal injury.

CHAPTER 4: OPERATION

NOTE: Prior to operation of the helmet airline respirator, inspect the helmet air-supply hose, air entry ports and fittings for dust and debris. Clean the components. See CAUTION.

CAUTION

Never mix or substitute components from one respirator with those of another brand even though they may look similar or identical. Failure to follow this instruction will void the warranty.

1. Place the helmet on your head. Position the chin strap and knit cuff in the cape so that they fit snugly yet comfortably.
2. Pull the cape down around your chest and connect the four elastic belts (two on each side) under your arms. Tighten as required using the slides provided.
3. The air control valve is attached to a belt. After buckling the belt around your waist outside the cape, use the slide to tighten the belt.
4. The air control valve permits increasing or decreasing the supply of breathing air while the air respirator is in use. The valve provides a range of 9 to 14 cfm (0,3 to 0,4 cu m/min.) of breathing air to the wearer. To regulate the air supply, pull down and turn the large sleeve on the lower end of the valve in the desired direction to increase or decrease the airflow as required.

NOTE: A soft hissing sound is normal when the air control valve is in operation, as some air is allowed to escape underneath the sleeve to prevent entry of dust into the adjustment mechanism.

CHAPTER 5: PREVENTIVE MAINTENANCE

OVERVIEW

Most problems with media blasting can be avoided through a good preventive maintenance program. Good housekeeping habits will preclude the accumulation of tape and other debris from the workplace, saving time otherwise lost in cleaning out screens and metering valves. Items that most often cause work stoppage include:

- foreign material in the pressure vessel
- worn or punctured control or blast hose
- moisture accumulation in aeration valve or solenoids

For help in identifying components discussed in the following section, refer to the photos, drawings and diagrams in the Illustration Section at the end of this manual.

DAILY INSPECTION

Compressed Air System

The rotary screw-type compressor requires little maintenance, providing some daily checks are made. Referring to the compressor manual, items, which need to be checked daily, include:

- oil level
- filter restriction
- moisture content

Check the sight gage on the compressor oil reservoir to confirm a full system. If the sight gage registers less than full, fill it according to the compressor manufacturer's specifications. Check the air filter monitor, or the filter itself, to determine its condition.

Refer to your individual compressor manual for details and timing of these checks as well as less frequent checks. Also, check the manual anytime there is a noticeable difference in operating pressures without an increase in normal operating air demand, or if there is a sudden appearance of oil in the blasting or control lines.

Airline Filter Unit

The frequency of airline filter cartridge replacement depends on the conditions of the particular air system in which the filter is installed. However, the filter cartridge should be replaced immediately if:

- a. the user smells or tastes contaminants in the air being supplied to the air respiration system, or

CHAPTER 5: PREVENTIVE MAINTENANCE

- b. there is a large pressure drop in the system even though the compressor and other components appear to be operating correctly.

To correct the problem:

1. Shut off the air supply.
2. Drain any accumulated water and oil from the filter tank by opening the petcock valve. Normally the tank will need to be drained at least once a day or shift. However, in humid climates and if large amounts of water and oil are present in the air supply, drain the filter tank as often as required.
3. Disconnect the filter cartridge from the air source.
4. Replace the filter cartridge using the following procedure.
 - a. Separate the head from the tank by removing the fasteners.
 - b. After removing the filter cartridge, clean the inside of the tank to remove any remaining contaminants.
 - c. Insert a new filter cartridge as specified by the manufacturer.
5. Record the date the filter cartridge was replaced on the label attached to the airline filter tank. See WARNING.

WARNING

If changing the filter cartridge does not improve the condition of the breathing air, do not use the air respiration system until appropriate corrective measures have been taken. Failure to follow this instruction may result in serious personal injury.

Dust Collection System

1. Momentarily press the accumulator tank moisture drain pushbutton located on the upper left side of the dust collection unit.
2. Empty the dust collection drawer located in the bottom of the air filtration unit. See WARNING.

WARNING

Always wear OSHA-NIOSH approved respiration equipment when emptying the dust collection drawer. Failure to follow this instruction may cause serious personal injury.

3. Dispose of waste according to federal, state and local environmental regulations.

Media Blasting/Reclaim System

At the start of operations each morning, or at the beginning of each shift, open the drain on the pressure vessel moisture separator located on the plumbing tree. Also check the reverse-pulse accumulator tank on the reclaim dust collector for water accumulation. More than one or two teaspoons of water are cause for concern and the reason must be identified and corrected. Check the drains for blockage and also to ensure that the water trap and air drier on the air compressor are both working.

Make a thorough inspection of hoses and connections prior to beginning the stripping operation and again after pressurization. Replace or tighten as necessary. This is especially important on the main blast hose. A bulge in the hose indicates a weakened area, which could rupture, causing the hose to whip around. Nylon couplings provided with your system have a lock-wire built into them. Make sure these lock-wires have not been dislodged and are properly secured prior to pressurizing the system. See WARNING.

WARNING

Replace any hoses that have a bulge, indicating a weakened area. Make sure the lock-wires built into the nylon couplings have not been dislodged and that they are properly secured prior to pressurizing the system. Although the media blast system uses relatively low pressure, the volume of air moving through these hoses is considerable and can be potentially dangerous if a hose ruptures or the couplings unexpectedly come loose. Failure to follow this instruction can cause serious personal injury.

Make sure the pressure vessel has sufficient media. Several things can cause reduced media flow, but the most common is insufficient media in the pressure vessel.

CHAPTER 5: PREVENTIVE MAINTENANCE

TROUBLESHOOTING PROCEDURES

CONDITION: Main system power will not come on.

- CAUSES:**
1. Power not connected.
 2. Tripped circuit breaker.
 3. Short in main panel.

- CORRECTIONS:**
1. Connect the power.
 2. Reset the circuit breaker.
 3. Contact EnviroSystems.

CONDITION: System power comes on but system will not blast.

- CAUSES:**
1. No line pressure.
 2. No blast pressure.
 3. Obstruction in blast hose or nozzle.
 4. Air signal control valve stuck (SMART control panel).
 5. Short in transformer (SMART control panel).

- CORRECTIONS:**
1. Check the line pressure gage on the compressor or the SMART control panel. If no pressure, check for line pressure.
 2. Check blast pressure. If no pressure, adjust "UP" with the the switch on the SMART control panel.
 3. Disconnect airline and check for obstruction in blast hose and nozzle. See WARNING next page.
 4. Clean the air signal control valve on the bottom of the SMART control panel. For the disassembly and cleaning procedure, refer to the next condition "Deadman switch control lever will not start."

CHAPTER 5: PREVENTIVE MAINTENANCE

WARNING

Make sure that the air system is depressurized before disconnecting air fittings. Failure to follow this instruction may cause serious personal injury.

5. Replace the transformer in the SMART control panel.

CONDITION: Deadman switch control lever will not stop/start.

CAUSES:

1. Compressor not on.
2. System power not on.
3. Inlet valve is stuck in the closed position.
4. Blast pressure is set too low.
5. Air signal control valve stuck in the open position .
6. Faulty deadman switch control.
7. Faulty relay in the SMART control panel.

CORRECTIONS:

1. Turn on the compressor.
2. Turn the SYSTEM POWER switch to the ON position.
3. Disassemble the inlet valve. Look for burrs or debris causing the valve to stick.
4. Increase the blast pressure 5 to 10 psi (0,3 - 0,7 bars).
5. Clean the air signal control valve. Referring to the Illustration Section for a diagram of this valve. Disassemble and clean the unit using the following steps:
 - a. Shut off air to the system.
 - b. Locate the air signal control valve on the bottom left hand side of the SMART control panel (normally has a yellow electrical lead going into the valve).

CHAPTER 5: PREVENTIVE MAINTENANCE

- c. Remove the two (2) silver straight slot screws. This releases the magnet.
 - d. Remove the white bushing located in the center of the shaft.
 - e. Remove the O-ring that seals the magnet to the solenoid body.
 - f. Use needle nose pliers to carefully pull the shaft out of the solenoid body.
 - g. Remove sleeve from the solenoid body. The spring should come out with the sleeve. If it does not, use a small screwdriver or magnet to remove the spring.
 - h. Turn on the air to the system and leave it on for 10 to 30 seconds. This will blow any debris out of the solenoid body or the air supply lines.
 - i. Clean all components using 10 psi (0,7 bars) or lower air pressure.
 - j. Reassemble the components in reverse order.
6. Turn off power to the system. Follow this procedure.
 - a. Open the SMART control panel access door.
 - b. Locate the two (2) deadman switch control wires on the bussbar.
 - c. Loosen the screws and remove the two (2) wires.
 - d. Using a low-voltage continuity tester, hook the leads to the two (2) deadman switch control wires.
 - e. Press the deadman switch control lever. If the continuity checks okay, the deadman switch control is working and the problem is in the relay.
 7. Replace the relay in the SMART control panel.

CHAPTER 5: PREVENTIVE MAINTENANCE

CONDITION: **Decrease in operating pressure.**

- CAUSES:**
1. Operating pressure inadvertently reduced.
 2. Insufficient pressure in main air supply line.
 3. Pilot operated regulator in closed position, or faulty pressure control.
 4. Loose coupling between pilot regulator and servomotor.
 5. Pilot regulator stuck in full open or full closed position.
 6. Moisture or other contamination in pilot or pilot-operated regulator.

- CORRECTIONS:**
1. Reset blast air pressure.
 2. Check main air supply line and compressor. Make sure main air supply line has sufficient pressure.
 3. Check Pilot operated regulator. Make sure that the pilot regulator servomotor is turning while activating the pressure increase/decrease control. If the motor works from the SMART blast handle but not the SMART control panel, replace the switch.
 4. Tighten the coupling between the pilot regulator and servomotor (optional SMART control panel).
 5. Use pliers on the lower section of the coupling to gently turn the lower section to unbind the jam (full open or full close).
 6. Check for moisture or other contamination in the pilot and pilot regulators.

CONDITION: **Reduced Media Flow**

NOTE: Insufficient media in the pressure vessel is the most common cause of reduced media flow.

- CAUSES:**
1. Insufficient media in the pressure vessel.
 2. Incorrect position of media metering valve.

CHAPTER 5: PREVENTIVE MAINTENANCE

3. Media shut-off valve not depressurized.

4. Low line pressure.

- CORRECTIONS:
1. Make sure there is sufficient media in the pressure vessel before looking for a mechanical failure.
 2. Check position of the media metering valve. Activate the electric controls to ensure the valve is responding to the signals.
 3. Verify that the media shut-off valve has depressurized, allowing media to enter the metering valve. See **WARNING**. If necessary, disconnect the air pressure fitting at the media shut-off valve to ensure the valve is pressurized.

WARNING

Make sure that the air system is depressurized before disconnecting air fittings. Always handle the hose carefully. Failure to follow this instruction may cause serious personal injury.

4. If line pressure drops during blasting, consult ES.

CONDITION: Dust collector will not start.

- CAUSES:
1. Main supply power off at the disconnect.
 2. Overload heaters in the magnetic starter are tripped.

- CORRECTIONS:
1. Investigate cause for the disconnect being off.
 2. Reset the heaters by pressing the RESET pushbutton located on the lower front of the dust collector magnetic starter box under the operator pneumatic control panel. If the heaters trip a second time, a qualified electrician should determine and repair the cause of the tripping.

CONDITION: Media is not being conveyed from the loading hopper.

- CAUSES:
1. Reclaim fan not running.
 2. Scalping screen blinded by debris.

CHAPTER 5: PREVENTIVE MAINTENANCE

3. Reclaim hopper ball vibrator needle valve (side of the reclaim hopper) not turned on.
4. Magnetic separator is loaded with ferrous contamination.
5. Entrainment duct opening under the magnetic separator is obstructed.

CORRECTIONS:

1. Press the magnetic starter on the left side of the dust collector.
2. Clean the debris off the scalping screen.
3. Turn on the reclaim hopper air, using the needle valve on the reclaim hopper.
4. Lift the magnetic separator out of the media-loading hopper and clean it.
5. Remove the obstruction from the duct opening.

AIR RESPIRATION HELMET

Replacing The Inner Lens

To replace the inner lens, follow this procedure.

1. Unlatch and open window frame.
2. Reach inside the helmet. Push up the window gasket lip and push the gasket and lens out of the helmet window opening.
3. Remove the gasket from the old lens and place it on the new lens.
4. Place the new lens and gasket over the window opening. From the inside of the helmet, slowly work the gasket lip back onto the helmet.

Replacing The Outer Lens

To replace the outer lens, refer to Figure 5-5 and follow this procedure.

1. Unlatch and open the window frame.
2. Select a new outer lens, holding it with the short straight side toward the hinge.

CHAPTER 5: PREVENTIVE MAINTENANCE

3. Insert the short straight side under the two retaining clips.
4. Forming a bend in the lens, slide the short curved sides under the remaining retaining clip located on the end of the window frame opposite the hinge.
5. Close and latch the window frame.

Maintenance

The helmet, hoses, air entry ports and fittings should be routinely checked for dust and debris, and cleaned. See CAUTION.

CAUTION

Never mix or substitute components from one respirator with those of another brand, even though they may look similar or identical. Failure to follow this instruction will void the warranty.

Replace the suspension at the first sign of wear. Proper suspension is critical to helmet safety. The chinstrap wears out from normal use. Replace it at the first sign of wear.

When the acoustical foam on the inside of the helmet becomes dirty, wipe it off with a damp cloth. Do not use caustic solution or thinners. If necessary, pull off the acoustical foam and replace it.

Clean and disinfect the respirator on a regular basis. For personal hygiene, an approved respirator should be issued for the exclusive use by one worker and must be cleaned by that employee after each use, or more often if necessary. Respirators used by more than one worker must be thoroughly cleaned and disinfected by the user after each use. Use a hospital-grade quaternary-ammonium solution that is proven effective and has wide-ranging disinfecting qualities.

Store respirators in a convenient respirator storage unit where they are protected against dust, sunlight, heat, extreme cold, excessive moisture and in-plant hazards or chemicals that could harm the equipment. See CAUTION.

CHAPTER 5: PREVENTIVE MAINTENANCE

CAUTION

Never hang the helmet by the breathing hose. Use the strap at the top of the helmet for this purpose. Failure to follow this instruction may cause permanent damage to the hose-helmet connection.

REPLACING FILTER CARTRIDGES

WARNING

Always wear OSHA-NIOSH approved respiration equipment, coveralls and gloves when changing filter cartridges. Failure to follow this instruction may cause serious personal injury.

Two (2) filter cartridges are located in the dust collection section. If it is ever necessary to replace these filter cartridges, use the following procedure.

1. Make sure that power to the reclaim fan is off.
2. Open the access door to the dust collection section. See previous WARNING.
3. The filters are installed by inserting the support rod through the large open top of the filter and out of the 1/2" hole in the bottom plate. Attach a large flat washer, a lock washer and a wing nut, threading them on until approx. 1/2" of thread is through the wing nut.
4. Taking the hooked end of the support rod with one hand and supporting the filter weight with the other, hang the hooked end of the support rod in the notch located in the center of the spider support located on the dust collector tube sheet.
5. Tighten the wing nut until the cartridge contacts the bottom of the tube sheet and the rubber seal is compressed by half its height, being careful to align the open end of the cartridge with the spider wings with hang below the tube sheet.. The filter should not be able to be rotated by hand.
6. Repeat steps 3 through 5 for the remaining cartridge.

CHAPTER 5: PREVENTIVE MAINTENANCE

FAN MOTOR LUBRICATION AND TROUBLESHOOTING

The most common cause of premature bearing failure is improper lubrication. The fan motor provided with the reclaim dust collection system will be one of two types.

One type has sealed-for-life bearings and requires no maintenance. The other type motor provided with the fan has grease fittings on the top and bottom of the motor. If safety permits, the initial lubrication may be done while the motor is running until some purging occurs at the seals. Refer to the decal on the fan for the re-lubrication interval for normal operating conditions. Hours of operation, temperature and environmental conditions will affect the lubrication frequency. Adjust frequency depending on the condition of the purged grease.

Lubricate the grease fittings with a high quality NLGI No. 2 multi-purpose ball bearing grease having rust inhibitors and anti-oxidant additives. Suggested greases are:

Shell Alvania No. 2
Mobil Mobilith SCH 100
Texaco Premium RB2
American-Rykon Premium 2

Lubricate bearings prior to an extended shutdown or storage period. Rotate the motor shaft monthly to prevent corrosion. If the fan is to be shut down or stored for more than 30 days, it is important that the bearings are filled with grease and the fan rotated by hand from time-to-time so that the grease can be spread on the bearing components.

The following is a list of possible problems and their causes that may occur on start-up, or develop later during actual operation.

The following may cause noise:

- a. Impeller hitting the inlet of the fan or cutoff plate; loose impeller.
- b. Bad bearings are a common source of noise when defective, lacking lubricant or lubricant is dirty. Noise can also be caused when the bearings are loose on the bearing support or the shaft, seals misaligned or fretting corrosion occurs between the inner and outer bearing races.
- c. Bent or undersized shaft. If two (2) or more bearings are on the same shaft, they must be carefully aligned.
- d. An electrical AC hum caused by a defective starting relay.
- e. Obstruction in high velocity air stream can cause rattle or pure tone whistle.

CHAPTER 6: REPLACEMENT PARTS

ORDERING REPLACEMENT PARTS

To order replacements parts for your StripMaster Series 100 Media Blast Machine, write to:

ENVIROSYSTEMS MANUFACTURING, LLC
3202 E. President St.
Tucson, AZ 85714

or:

Phone: 1-800-999-0501 or 520-573-3064
Fax: 520-573-3068
E-Mail Envirosystems@worldnet.att.net

Be sure to include, or have access to, the following:

1. Your name, company name, complete shipping address and phone number
2. Model number
3. Serial number (this number is located on the data plate on the dust collector access door)
4. Purchase order number if non-warranty

REPLACEMENTS PARTS LISTING

StripMaster Series 100 Media Blast Machine

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
1	Clamp, aluminum 5 in. (127mm)	16-02-001
1	Coupling, brass, hose 1.25 in. (31,8mm)	35-02-001
1	Coupling, brass, tank 1.25 in. (31,8mm)	35-02-002
5	Coupling, rubber, 5 in. (127mm)	35-03-001
5	Coupling, rubber, 6 in. (152,4mm)	35-03-002
2	Coupling, rubber, 9 in. (228,6mm)	35-03-003
2	Ducting, elbow, solid, 5 in. (127mm)	13-39-001
1	Ducting, elbow, solid, 6 in. (152,4mm)	13-39-002
1	Ducting, elbow, solid, 9 in. (228,6mm)	13-19-001
1	Ducting, reducer, 9 to 6 in. (228,6 to 152,4mm)	14-02-001
1	Fan, 909 RBA	36-01-000
1	Film, masking, 54 in. x 1000 ft. (1372mm x 305m)	91-11-001
2	Filter cartridge, dust collector	60-01-009
1	Filter cartridge, respiration	90-11-001
1	Gage, line pressure, 2 in. (50,8mm)	37-01-002

CHAPTER 6: REPLACEMENT PARTS

1	Gate, blast, 2 in. (50,8mm)	12-04-001
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StripMaster Series 100 Media Blast Machine (continued)

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
1	Grommet, 4 in. (101,6mm)	42-01-001
1	Holder, nozzle NY, 1.25 in. (31,8mm)	91-03-001
1	Hose, blast	91-01-001
1	Hose, recovery 5 in. (127mm)	32-03-000
1	Lamp, blast, airless, 3400	28-02-001
1	Lamp, blast, lens, Pyrex	28-02-002
1	Lamp, blast, stanchion	42-02-001
1*	Lamp, bulb, 789	28-02-003
1	Nozzle, TC, double venturi, No. 8	91-02-001
1	Nozzle, TC, No. 7	91-02-002
1	Nozzle, TC, No. 8	91-02-003
1	Reel, grounding cable, 20 ft. (6,1m)	91-13-001
1	Screen, scalping	12-07-007A
1	Separator, magnetic, grate	12-11-001
1	Separator, moisture, 1.25 in. (31,8mm)	31-10-001
1	Tank, accumulator	12-08-009
1	Tape, masking, No. 357, 1 in. (25,4mm)	91-10-001
1	Tape, masking, No. 357, 2 in. (50,8mm)	91-10-002
1	Transformer, 12.6 VAC	23-50-001
6	Valve, diaphragm	31-03-002
1	Valve, inlet, 1.25 in. (31,8mm)	31-23-001
1	Valve, outlet, 1 in. (25,4mm)	31-22-001
1	Vibrator, turbine	17-00-002
*	Box of 10 bulbs	

Air Respiration Equipment

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
Free-Air Pump (FAP) - One (1) Operator Only		
1	EDP-10, FAP (1 helmet)	90-15-002
1	Helmet, 88 series, 883235	90-15-001
1	Hose extension, 100 ft. (30,5 m) (V20100ST)	90-14-004

CHAPTER 6: REPLACEMENT PARTS

Air Respiration Equipment (continued)

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
Air Respiration		
1	Air conditioner, AC 108830	90-12-002
1	Air purifier, 2-man, 41P2	90-11-002
1	Helmet, 88 series, 883240	90-13-001
1	Hose extension, 25 ft. (7,6 m) 5454	90-14-001
1	Hose, starter, 25 ft. (7,6 m) 4696	90-14-005
1*	Lens, outer, 7702, .020 in. (0,5mm)	90-13-004
*	Box of 50	

CO Monitor Alarm

1	Calibration kit	90-16-011
1	Filter (included)	
1	ISA-34RAL, 10ppm, 03470-009	90-16-010

SMART Blast Handle And SMART Control Panel

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
1	Bezel, minute meter	25-01-001
1	Block, contact, KA4	23-00-001
1	Cord, control, air signal	31-02-001
1	Coupling, flexible, pilot regulator	12-04-002
1	Gage, blast pressure, 8 in. (203,2mm)	37-01-003
1	Handle, SMART, complete assembly	22-98-001
2	Light, indicator, red	28-01-001
1	Minute meter, resetable	25-01-002
1	Motor, gear, 115V	26-01-001
1	Pushbutton, 9999, SA3	23-20-001
1	Pushbutton, KR1U	23-10-001
1	Pushbutton, RB-HA-ST	23-11-001
1	Pushbutton, plate, aluminum	12-07-003
1	Regulator, miniature	31-01-001
1	Regulator, pilot	31-01-002
1	Regulator, pilot-operated	31-01-003

CHAPTER 6: REPLACEMENT PARTS

SMART Blast Handle And SMART Control Panel (continued)

<u>QUANTITY</u>	<u>PART DESCRIPTION</u>	<u>PART NO.</u>
5	Relay, solid-state	23-52-001
2	Switch, toggle	23-31-001
2	Switch, toggle, boot	23-41-001
1	Valve, control, air signal	31-20-001
1	Valve, media, actuator assembly	25-06-001
1	Valve, pinch, 1 in. (25,4mm)	31-06-001
1	Valve, pinch sleeve	31-06-002

GLOSSARY OF TERMS

A

A (Amp/ampere) - unit of electrical current strength

AC (ac) - alternating current (electrical)

ACFM - cubic feet per minute under standard (sea level) conditions

ACGIH - American Conference of Government Industrial Hygienists

ACu M/Min. (acu m/min.) - cubic meters per minute under standard (sea level) conditions

Acrylic (Thermoplastic) - classified as Navy Military Specification Type V. Less aggressive than Type II but offers the advantage of longevity because of its low breakdown rate

Aeration valve - valve that controls a small air nozzle allowing air to enter at the base of the pressure vessel to enhance the flow of the plastic media

Air inlet valve - normally closed (NC) valve; when open, allows air to enter the pressure vessel and blast hose

Air respiration equipment - equipment designed to provide the wearer with respiratory protection against inhalation of airborne contaminants

B

Ball valve - valve which determines the ratio of flow of plastic media into the blast air stream

Bar - metric unit of pressure equal to 14.7 psi

Bill of lading - a memorandum (form), signed by the carrier, showing the receipt of goods and the contract of transportation; its subsequent endorsement and transfer operate as a delivery of the goods

Blast gate - sliding damper on cyclone

Bleed (bleeding) - bleeding refers to letting the air pressure out of an air supply line or air storage tank. STI recommends bleeding off the pressure of the air supply line before servicing the equipment

C

CFM (cfm) - cubic feet per minute

Chemical stripping - stripping by chemical means containing organic solvents such as: acids, methylene chloride, methyl ethyl ketone (MEK), toluene or phenols

Choke valve - ball-type valve that works on a 0 to 45 degree span; normally open (NO) (0 degree) when blasting and closed (45 degrees) when purging the system

Cu M/Min. (cu m/min.) - cubic meters per minute

Crystallized starch media - blast media made from processed crystallized starch

Cyclone separator - device to remove paint coating residue and plastic fines from the reusable media by centrifugal action and an air wash which takes place inside the cyclone separator

D

dBa (decibel) - unit of power ratio equal to one tenth of a bel

DC (dc) - direct current (electrical)

Deadman switch control lever - located on the free end of the blast hose, this control lever sends an air signal to the air inlet valve when released, preventing air from entering the pressure vessel

Decibel (dBa) - unit of power ratio equal to one tenth of a bel

Dust collector - lower area of the dust collector/air filtration unit where the dislodged dust falls into the duct collection drawer

E

Exhaust valve - normally open (NO) valve which closes when activated by the deadman switch control lever

F

Fines, plastic - particles of plastic media which have been reduced to a U.S. mesh size of less than 60 micron

G

Grounding - attaching the equipment and workpiece to earth ground to prevent the buildup of static electricity

H

Hard abrasive strippers - silica sand, glass beads, metal abrasives and synthetic media

such as aluminum oxide and silicon carbide

High pressure fan - creates the vacuum required to pull dust and media from the media loading/recovery hopper through the cyclone separator where the dust and plastic fines are directed to the dust collector and the cleaned media falls into the media storage hopper

HP (hp) - horsepower; unit for measuring power

Hz (Hertz) - electromagnetic wave frequency expressed in one cycle per second

I

In. (in./inch/inches) - Decimal unit of length equal to 25.4mm

Inlet backflow eliminator - screen filter device designed to preclude media from backflowing through the media inlet line and on into the blast pressure hose during decompression of the pressure vessel when the vessel is full of media

Inlet valve - normally closed (NC) valve until activated by compressing the deadman switch control lever. When the inlet valve is open, it allows air to enter the pressure vessel and the blast hose

K

Kg (kg/kilogram) - metric unit of mass and weight equal to 1000 grams

Kw (kW/kilowatt) - unit of power equal to 1000 watts

L

LAB - low aggression blasting

Lbs. (lbs.) - pounds

M

M (m/meter/meters) - unit of length in the metric system, equivalent to 39.37 U.S. inches

Ma (mA/milliamp) - 1/1000 of an amp

Magnetic separator - bar magnets located in the bottom of the media loading/ recovery hopper to remove damaging ferrous particles from the blast stream

MEK - methyl ethyl ketone

Melamine - classified as Navy Military Specification Type III. Very aggressive and friable. Has an unacceptable breakdown rate when used at blast pressures above 30 psi (2 bars)

Mesh, U.S. - standard for screen sizing

Micron - unit of length; the millionth part of a meter, or thousandth part of a millimeter, 1/25,000 inch

MM (mm) - millimeter(s) - unit of length in the metric system, equivalent to 0.03937 inch

Moisture trap - a 40-micron element which removes moisture and fine aerosols in StripMaster and LAB PMB equipment

N

NIOSH - National Institute for Occupational Safety and Health

Nozzle size - venturi bore size expressed in sixteenths of an inch (No. 4 - 4/16 in. = 1/4 in. venturi bore size)

O

OSHA - Occupational Safety and Health Administration

P

Phenol formaldehyde - classified as Navy Military Specification Type IV. Very friable and has an unacceptable breakdown rate

Plastic fines - particles of plastic media which have been reduced to a U.S. mesh size of less than 60 micron

Plumbing tree - assembly of main plumbing components located on the rear of the pressure vessel

PMB - plastic media blasting

Poly allyl diglycol carbonate - classified as Navy Military Specification Type VI. Reasonable removal rate and well suited for sensitive substrates

Polyester - classified as Navy Military Specification Type I. Too soft and lacks the aggressiveness to efficiently remove most paint topcoats and underlying primers

Positive pressure - pressure maintained in the helmet air respirator to prevent inward leakage of contaminants

Pressure regulator - device used to reduce the compressed air pressure down to the air pressure selected during the PMB process

Pressure vessel - 6 cu. ft. (0,2 cu m) cylindrical metal container capable of holding 300 lbs. (136,1kg) of plastic media. The lower section has a 60 degree cone so that plastic

media can slide to the bottom without sticking. A media outlet is located at the bottom of the cone and a media-air fluidizing section is located above the media outlet

Primer - first coating applied to a substrate before the top coat

PSI (psi) - pounds per square inch equal to .06804 bars

PSIG (psig) - pounds per square inch gage (pressure above or below atmospheric pressure)

R

Recovery (reclaim) rate - pounds per hour media reclaim processing rate

Respirator - device designed to provide the wearer with respiratory protection against inhalation of airborne contaminants

S

Slugging - the expulsion of a dense stream of media without benefit of air to propel it against the surface to be stripped. Caused by media bleeding into the hose during decompression of the pressure vessel

Sound level dBa slow response - sound pressure reading expressed as decibels. Read as a time-weighted average to dampen out the highs and lows

STI - Stripping Technologies Inc.

Substrate - base material surface to which a primer and top coat have been applied

T

TEFC - totally enclosed, fan cooled

U

Urea formaldehyde - classified as Navy Military Specification Type II. Very aggressive for rapid removal rates, yet has a medium breakdown rate

U.S. Mesh - standard for screen sizing

USEPA - United States Environmental Protection Agency

V

VAC - volts alternating current