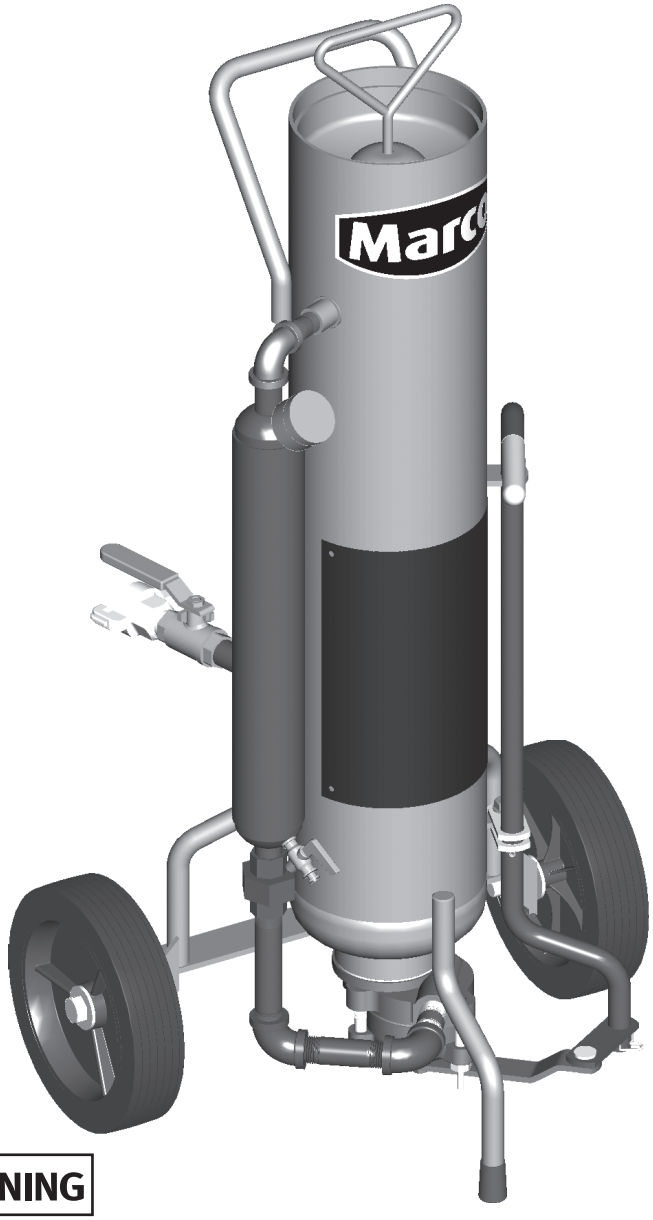
Marco®

experience, trust, service

Operator's Manual
Part # 1090040
Revision: March 18, 2009

.35 Cubic Foot L-Series Blast Machine



⚠ WARNING

Before using this equipment, read, understand and follow all instructions in the Operator's Manual. If the user or assistants cannot read or understand the warnings and instructions, the employer of the user and assistants must provide adequate and necessary training to ensure proper operation and compliance with all safety procedures pertaining to this equipment. If Operator's Manuals have been lost, contact your distributor or call (563) 324-2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

For more information call:

800-BLAST-IT

Phone: (800) 252-7848
Fax: (563) 324-6258
e-mail: sales@marcousa.com
www.marcousa.com

Vision Statement

To be the World's First Choice for Abrasives, Blasting, Painting, and Safety Equipment & Supplies.

Mission Statement

To provide leadership and innovation to the surface preparation industry. We will dedicate our efforts to the continuous improvement of our products, services, processes, people and most importantly the quality of our Customer's experience.

Quality Statement

Marco is committed to providing superior quality in the design, manufacturing, distribution and service of our products. As an ISO 9001:2000 registered company, Marco's quality systems assure our products will meet or exceed our Customer's expectations. Continuous Improvement in our processes and Supply Chain Integration comprise the core of our Business Strategy for delivering exceptional quality and value in every Marco product and service.

Management Philosophy

We are a Company dedicated to the success of every Customer and Associate. We will discuss, debate, challenge, measure and test our ideas. We will be boundless and limitless in our passion to improve. Through sound leadership and dedicated associates, we will ensure a long term, profitable future for Marco, our Associates, Customers and Suppliers.

Table of Contents

Definition of Terms

⚠ DANGER

This is an example of danger. This indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

This is an example of a warning. This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

This is an example of a caution. This indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It can also be used to alert against unsafe practices.

NOTICE

This is an example of a notice. This indicates policy or practice directly related to safety of personnel or protection of property.

⚠ WARNING

Failure to comply with ANY WARNING listed below could result in death or serious injury.

- Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during blasting operations, post-blast cleaning operations, and/or servicing equipment within the blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from medias or surfaces being blasted can remain suspended in the air for long periods of time after blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone blasting, handling or using the media, and anyone in the area of the dust.
- Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the respirator must be at least Grade D quality as described in Compressed Gas Association Commodity Specification G-7.1 and as specified by OSHA Regulation 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- Blast operators must receive thorough training on the use of media resistant attire which includes: supplied-air respirator, blast suit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions.
- Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.
- OSHA requires blast-cleaning nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a "deadman" control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed media and compressed air resulting in death or serious injury. (OSHA 29 CFR 1910.244(b))
- Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or media stream at yourself or others.
- Unless otherwise specified, maximum working pressure of Blast Pots and related components must not exceed 125 psi. Exceeding maximum working pressure of 125 psi could cause the Blast Pot and components to burst.
- Never weld, grind or drill on the Blast Pot (or any pressure vessel). Doing so will void ASME certification and manufacturer's warranty. Welding, grinding or drilling on the Blast Pot (or any pressure vessel) could weaken the vessel causing it to burst. (ASME Pressure Vessel Code, Section VIII, Division 1)
- This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location could cause an explosion or electrocution.
- This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFIC) for all electrical power source connections. Use of this product in wet environments could create a shock hazard.
- Frozen moisture could cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control lines could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air. In conditions where moisture may freeze in the control lines an antifreeze injection system approved for this application can be installed.
- Do not cut, obstruct, restrict or pinch pneumatic control lines. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air.
- Never hang objects from the Blast Pot handle. Doing so may cause the Blast Pot to become unstable and tip over.

⚠ WARNING

Failure to comply with ANY WARNING listed below could result in death or serious injury.

- Never attempt to move a blast pot containing media. Never attempt to manually move blast pots greater than 1.0 Cubic Foot capacity. Always use at least two capable people to manually move a blast pot on flat, smooth surfaces. A mechanical lifting device must be used if a blast pot is moved in any other manner.
- Use of Marco remote control switches with other manufacturer's remote control systems could cause unintended activation of remote control systems resulting in the release of high speed media and compressed air. Only Marco remote control switches should be used with Marco remote control systems.
- Always be certain to have secure footing when blasting. There is a recoil hazard when blasting starts that may cause user to fall and misdirect the media stream at operator or bystander.
- Never use a blast pot or attachments as a climbing device. The person could slip and fall. The blast pot could become unstable and tip over.
- The use of this product for any purpose other than originally intended or altered from its original design is prohibited.
- For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment.

⚠ CAUTION

Failure to comply with ANY CAUTION listed below may result in minor or moderate injury.

- Static electricity can be generated by media moving through the blast hose causing a shock hazard. Prior to use, ground the blast pot and blast nozzle to dissipate static electricity.
- High decibel noise levels are generated during the blasting process which may cause loss of hearing. Ensure appropriate Personal Protective Equipment and hearing protection is in use.

NOTICE

Failure to comply with ANY WARNING listed below could pose a hazard to personnel or property.

- Always use media that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, metering valve and blast nozzle.
- Moisture build-up occurs when air is compressed. Any moisture within the blast system will cause medias to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the blast pot. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open *(at all times)* petcock should be opened frequently to release water.
- To reduce media intrusion in the air supply hose, depressurize the Blast pot before shutting off air supply from compressor.
- Inspect nozzle before placing in service. Damage to nozzle liner or jacket may occur during shipping. If you receive a damaged nozzle, contact your distributor immediately for replacement. Nozzles placed into service may not be returned. Nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged blast nozzle.
- Blasting at optimal pressure for the media used is critical to productivity. Example: for a media with an optimal blasting pressure of 100 psi at the nozzle, one pound per square inch of pressure loss will reduce blast efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your media supplier for the requirements of your media.
- Replace Blast Nozzle if liner or jacket is cracked or damaged. Replace nozzle if original orifice size has worn 1/16" or more. Determine nozzle wear by inserting a drill bit 1/16" larger than original size of nozzle orifice. If drill bit passes through nozzle, replacement is needed.
- When it comes to media & air mixtures, more is not necessarily better. Optimum blasting efficiency takes place when a lean media & air mixture is used. To correctly set the metering valve, begin with the valve fully closed and slowly increase the amount of media entering the airstream. As you increase the media flow, watch for a "blue flame" *(Figure 1)* at the exit of the nozzle. Faster cutting, reduced media consumption and lower clean-up costs, are benefits of the "blue flame".
- See Media Consumption Chart for consumption rates and required air flow (cubic feet per minute). The system must meet these minimum requirements to ensure proper function and performance.

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Blasting at optimal pressure for the media used is critical to productivity. Example: For a media with an optimal blasting pressure of 100 psi at the nozzle, one pound per square inch of pressure loss will reduce blast efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your media supplier for the requirements of your media.

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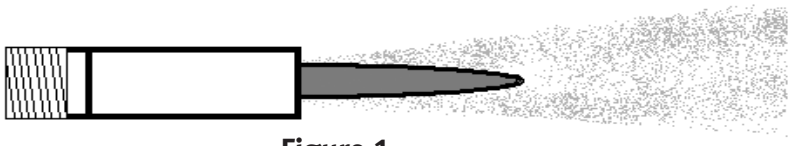


Figure 1

Media Consumption Chart*

Nozzle Orifice	Pressure at the Nozzle (psi) 50	60	70	80	90	100	125	140	Air (in cfm), Media & Compressor Requirements
No. 2 (1/8″)	11 67 2.5	13 77 3	15 88 3.5	17 101 4	18 112 4.5	20 123 5	25 152 5.5	28 170 6.2	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 3 (3/16″)	26 150 6	30 171 7	33 196 8	38 216 9	41 238 10	45 264 10	55 319 12	62 357 13	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 4 (1/4″)	47 268 11	54 312 12	61 354 14	68 408 16	74 448 17	81 494 18	98 608 22	110 681 25	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 5 (5/16″)	77 468 18	89 534 20	101 604 23	113 672 26	126 740 28	137 812 31	168 982 37	188 1100 41	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 6 (3/8″)	108 668 24	126 764 28	143 864 32	161 960 36	173 1052 39	196 1152 44	237 1393 52	265 1560 58	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 7 (7/16″)	147 896 33	170 1032 38	194 1176 44	217 1312 49	240 1448 54	254 1584 57	314 1931 69	352 2163 77	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 8 (1/2″)	195 1160 44	224 1336 50	252 1512 56	280 1680 63	309 1856 69	338 2024 75	409 2459 90	458 2754 101	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 10 (5/8″)	308 1875 68.5	356 2140 79.5	404 2422 90	452 2690 100.5	504 2973 112	548 3250 122	663 3932 146	742 4405 165	Air (cfm) Media (lbs/hr) Compressor Horsepower
No. 12 (3/4″)	432 2672 96	504 3056 112	572 3456 127	644 3840 143	692 4208 154	784 4608 174.5	948 5570 209	1062 6238 236	Air (cfm) Media (lbs/hr) Compressor Horsepower

*Media consumption is based on media with a bulk density of 100 lbs per Cu. Ft..

.35 Cubic Foot L-Series Blast Machine

⚠ WARNING

Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Never weld, grind or drill on the blast machine (or any pressure vessel). Doing so will void ASME certification and manufacturer's warranty. Welding, grinding or drilling on the blast machine (or any pressure vessel) could weaken the vessel causing it to burst. Failure to comply with the above warning could result in death or serious injury. (ASME Pressure Vessel Code, Section VIII, Division 1)

⚠ WARNING

Ensure the surface is stable and is sufficient to support the weight of a Blast Machine full of media. Unstable surfaces and surfaces that cannot support the gross weight of a full blast machine could cause the blast machine to tip over. Failure to comply with the above warning could result in death or serious injury.

NOTICE

Never use the filler plug to lift or move the blast machine.

Description

Rugged, relentless and reliable is what you get with a Marco .35 Cubic Foot L-Series Blast Machine. From quick touch-ups to complete jobs, the .35 Cubic Foot Blast Machine is up to the task. Compact design makes this machine highly mobile. Standard equipment includes an integrated moisture separator to produce dryer air, reducing clogs in the abrasive flow. The industry proven Two Hole Junior Metering Valve provides the operator with precise metering capabilities, reliable flow, reduced media usage and increased productivity. With the addition of the optional KwikFire 153 Remote Control Handle, you gain "instant on, instant off" control over your media flow and improved performance.

Features:

- Built in accordance with ASME Pressure Vessel Code - proven industrial grade durability
- 125 psi operating pressure - allows for a wider range of media and surface profile options
- Durable powder-coated finish - better protection against the elements
- Media/Air Control Lever - conveniently located for quick and easy adjustment
- Triangular Filler Plug Handle - provides an easy grip during pressurization
- Concave head - makes filling easier with less media spilled on the ground
- Moisture separator - standard equipment to help provide dry air
- Integrated pressure gauge - assures correct pressure for your blasting application
- Stable tripod design - three point design resists tipping on irregular surfaces
- Solid rubber tires - puncture proof and durable for reliable performance
- Dimensions - 14"W x 19"L x 35"H / Weight - 60 lbs

Operational Requirements

The following may cause safety hazards or reduced performance:

- Improper installation and/or maintenance of components
- Failure to place blast machine on a secure, flat surface
- Improper air supply pressure (minimum 30 psi, maximum 125 psi)
- Incorrect lifting / transporting of blast machine or incorrect or worn lifting devices
- Use of media too coarse for nozzle orifice
- Use of media coarser than 20 mesh will cause clogging in the Two Hole Junior Metering Valve

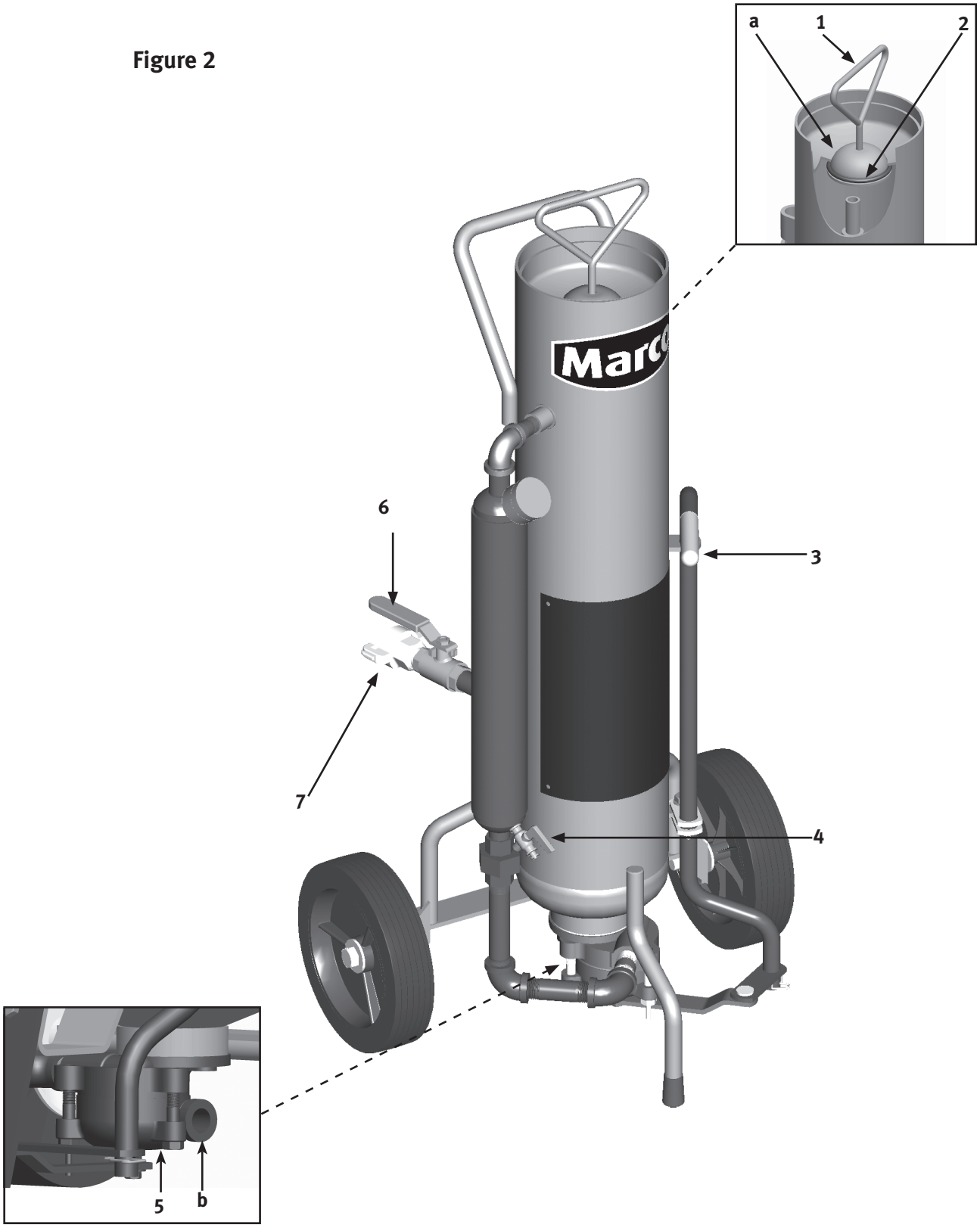
Operating Instructions (Figure 2)

Before using:

- Confirm Air Inlet Ball Valve (6) is closed and Moisture Separator Petcock (4) is open.
- Inspect Blast Machine for damage. Do not use Blast Machine if damaged.
- Inspect Filler Plug O-ring (2) and Filler Plug (1) for damage.
- Test movement of Media/Air Control Lever (3) by rotating to "Purge" position, then back to "Off". (*see label on side of Blast Machine)* Do not use Blast Machine if the Media/Air Control Lever (3) does not completely return to the "Off" position. See Two Hole Junior Metering Valve Operator's Manual for troubleshooting instructions.
- Connect Blast Hose to Two Hole Junior Metering Valve (b).
- Connect air supply hose from compressor to 2-Lug Coupling (7). To provide best performance, an air supply hose with an inner diameter at least five times the size of blast nozzle orifice is recommended.
- Fill the Blast Machine through the Filler Plug Opening (a). Do not over fill.
- Clear any remaining media from around Filler Plug Opening (a), shake Filler Plug (1) to clear media and pull up on Filler Plug handle (1) to test sealing of Filler Plug O-ring (2).

.35 Cubic Foot L-Series Blast Machine

Figure 2



⚠ WARNING

Crushing and pinching are normal functions of this component. Do not place body parts or foreign objects in any area where there are moving parts. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or abrasive media stream at yourself or others. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Always be certain to have secure footing when blasting. There is a recoil hazard when blasting starts that may cause user to fall and misdirect the abrasive stream at operator or bystander. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Never hang objects from the blast machine handle. Doing so may cause the blast machine to become unstable and tip over. Failure to comply with the above warning could result in death or serious injury.

.35 Cubic Foot L-Series Blast Machine

Operating Instructions (Figure 3)

To Start Blasting:

- Close Moisture Separator Petcock (4).
- Pull Filler Plug (1) up and hold securely in place.
- Securly hold Nozzle Assembly (8) pointed away from operator, bystanders, and any property that might be damaged by inadvertent exposure to media.
- Open Ball Valve (6), wait for Blast Machine to fully pressurize.
- Slowly pull Media/Air Control Lever (3) away from Blast Machine to allow media and air mixture to exit Nozzle (8). Adjust flow until optimal air/media ratio is achieved. See Page 4 for further explanation.

To Stop Blasting:

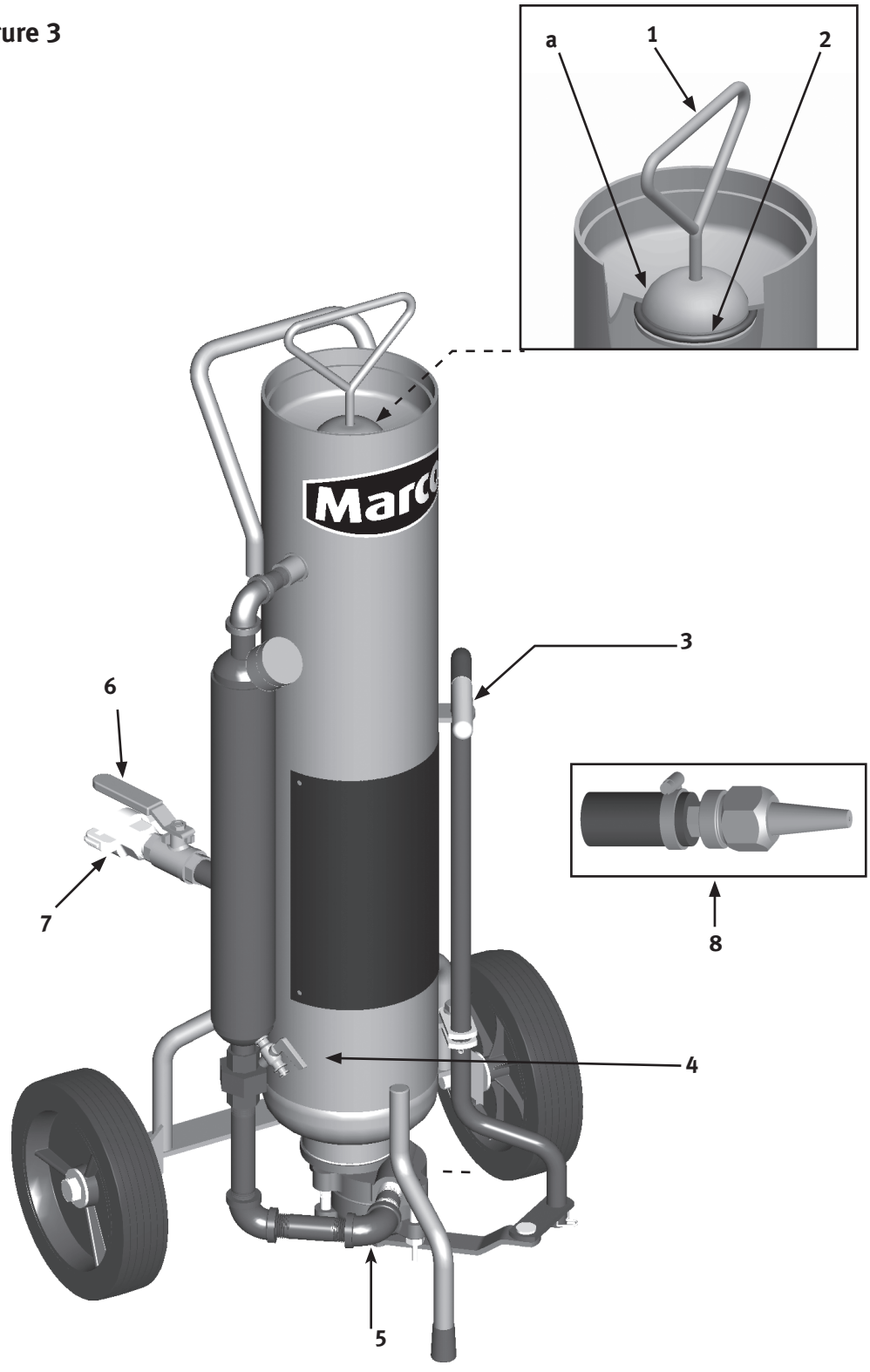
- Shut off media/air mixture by rotating Media/Air Control Handle (3) to the "Off" postion.
- Close Ball Valve (6).
- Open Moisture Separator Petcock (4).
- When air no longer exits Blast Machine, move Filler Plug handle (1) back and forth to release.

After Use:

- Empty media from Blast Machine when blasting is concluded for the day. To remove media from Blast Machine :
  - Remove Nozzle Cap, Nozzle, and Nozzle Washer (8) from Nozzle Assembly.
  - RotateMedia/Air Control Lever (3) to "Purge" (full open) position.
  - Close Moisture Separator Petcock (4).
  - Securely hold Blast Hose, place hose end in a container suitable for catching the media. Ensure Operator is prepared for strong recoil, the blast hose will provide strong recoil as the media exits the blast hose.
  - Slowly open Ball Valve (6), when Blast Machine is empty, only air will exit the blast hose.
  - After Blast Machine is empty of media, follow the procedure outlined in "To Stop Blasting".
- Inspect Blast Machine components for damage. Replace damaged components before use.
- Cover Blast Machine when not in use to reduce debris and water intrusion.

.35 Cubic Foot L-Series Blast Machine

Figure 3



⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING

Crushing and pinching are normal functions of this component. Do not place body parts or foreign objects in any area where there are moving parts. Failure to comply with the above caution may result in minor or moderate injury.

⚠ CAUTION

Release of high speed media and compressed air occurs during depressurization of the blast machine. Ensure appropriate Personal Protective Equipment is in use. Failure to comply with the above caution may result in minor or moderate injury.

NOTICE

Moisture build-up occurs when air is compressed. Any moisture within the blast system will cause media to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the blast machine. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open (at all times) petcock should be opened frequently to release water.

.35 Cubic Foot L-Series Blast Machine

Troubleshooting

If the Blast Machine does not function properly, check the following:

SYMPTOM (Cause)	**ACTION**
Blast Machine will not pressurize (Improper Air Supply, Damaged Components)	Insufficient air supply. Ensure air compressor provides sufficient air volume to operate Blast Machine and the Air Hose is of sufficient size to provide adequate air volume. Filler Plug or Filler Plug O-ring damaged. Inspect Filler Plug and Filler Plug O-ring for wear or damage. Replace damaged Filler Plug O-ring. If Filler Plug is damaged remove blast machine from service. Filler Plug not seated. Ensure Filler Plug is in proper position and a proper seal has been achieved. External Piping is damaged or loose. Inspect external piping for damage. Confirm all fittings are tight and free from damage.
Neither air nor media exits the blast nozzle (Obstructions, Wet Media, Metering Valve, Improperly Sized Media)	With Blast Machine pressurized, rotate Media/Air Control Lever to "Purge" to clear minor obstruction in Two Hole Junior Metering Valve, Blast Hose or Nozzle. Depressurize Blast Machine. Inspect Blast Nozzle and Blast Hose for obstruction. Never look directly down the exit port of the Blast Nozzle. Remove obstruction. Damp or wet media. Remove all media from Blast Machine and Metering Valve. Ensure dry media is used. Slightly open Moisture Separator Petcock to allow collected moisture to escape while Blast Machine is in use. Consult Ceramic Nozzles Chart (Page 16) for compatible media and nozzle selection. Refer to Two Hole Junior Metering Valve Operator's Manual for proper instructions.

.35 Cubic Foot L-Series Blast Machine

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Troubleshooting

If the Blast Machine does not function properly, check the following:

SYMPTOM (Cause)	**ACTION**
Only air exits Blast Nozzle (Obstructions, Wet Media, Metering Valve, Improperly Sized Media)	With Blast Machine pressurized, rotate Control Lever to "Purge" to clear minor obstruction inMedia/ Air Two Hole Junior Metering Valve, Blast Hose or Nozzle. Depressurize Blast Machine. Inspect Blast Nozzle and Blast Hose for obstruction. Never look directly down the exit port of the Blast Nozzle. Remove obstruction. Damp or wet media. Remove all media from Blast Machine and Metering Valve. Ensure dry media is used. Slightly open Moisture Separator Petcock to allow collected moisture to escape while Blast Machine is in use. Consult Ceramic Nozzles Chart (Page 16) for compatible media and nozzle selection. Refer to Two Hole Junior Metering Valve Operator's Manual for proper instructions.
Inconsistent media flow (Improper Air Supply, Damaged Components, Wet Media, Improperly Sized Media)	Insufficient air supply. Ensure air compressor provides sufficient air volume to operate Blast Machine and the Air Hose is of sufficient size to provide adequate air volume. Filler Plug or Filler Plug O-ring damaged. Inspect Filler Plug and Filler Plug O-ring for wear or damage. Replace damaged Filler Plug O-ring. If Filler Plug is damaged remove blast machine from service. External Piping Damaged or Loose. Inspect external piping for damage. Confirm all fittings are tight and free from damage. Damp or wet media. Remove all media from Blast Machine and Metering Valve. Ensure dry media is used. Slightly open Moisture Separator Petcock to allow collected moisture to escape while Blast Machine is in use. Consult Ceramic Nozzles Chart (Page 16) for compatible media and nozzle selection. Refer to Two Hole Junior Metering Valve Operator's Manual for proper instructions.

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Never weld, grind or drill on the blast machine (or any pressure vessel). Doing so will void ASME certification and manufacturer's warranty. Welding, grinding or drilling on the blast machine (or any pressure vessel) could weaken the vessel causing it to burst. Failure to comply with the above warning could result in death or serious injury. (ASME Pressure Vessel Code, Section VIII, Division 1)

NOTICE

Piping may loosen during transit. Ensure all piping is aligned and tightened before use.

NOTICE

Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

.35 Cubic Foot L-Series Blast Machine

Maintenance

Maintenance of the Blast Machine is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

.35 Cubic Foot Industrial Blast Machine

Filler Plug O-ring: (*Fig. 4*)

Disassembly:

1) Lift Filler Plug (1) close to Filler Plug Opening (a), leaning to one side for access to Filler Plug O-Ring (2)
2) Pull Filler Plug O-Ring (2) from recessed area on Filler Plug (1)
3) Pull Filler Plug O-Ring (2) over Filler Plug (1) handle one side at a time.

Assembly:

1) Slip Filler Plug O-ring (2) over Filler Plug (1) handle one side at a time, taking care to not over stretch or otherwise damage Filler Plug O-ring (2).
2) Lift Filler Plug (1) close to the opening, leaning to one side to access recessed area that receives the Filler Plug O-Ring (2).
3) Starting on exposed face, roll Filler Plug O-ring (2) into recessed area on Filler Plug (1), rotating Filler Plug handle until Filler Plug O-ring (2) is completely seated.
4) Pull Filler Plug (1) in to place to test Filler Plug O-ring (2) seating.

Nozzle Assembly: (*Fig.4*)

Disassembly:

1) Unthread Nozzle Cap (3) from Nozzle Holder Base (6).
2) Remove Nozzle (4) from Nozzle Cap (3).
3) Remove Nozzle Washer (5) from Nozzle Holder Base (6).

Assembly:

1) Insert Nozzle Washer (5) into Nozzle Holder Base (6).
2) Insert Nozzle (4) into Nozzle Cap (3).
3) Thread Nozzle Cap (3) onto Nozzle Holder Base (6) .

Hose End Assembly: (*Fig. 4*)

Disassembly:

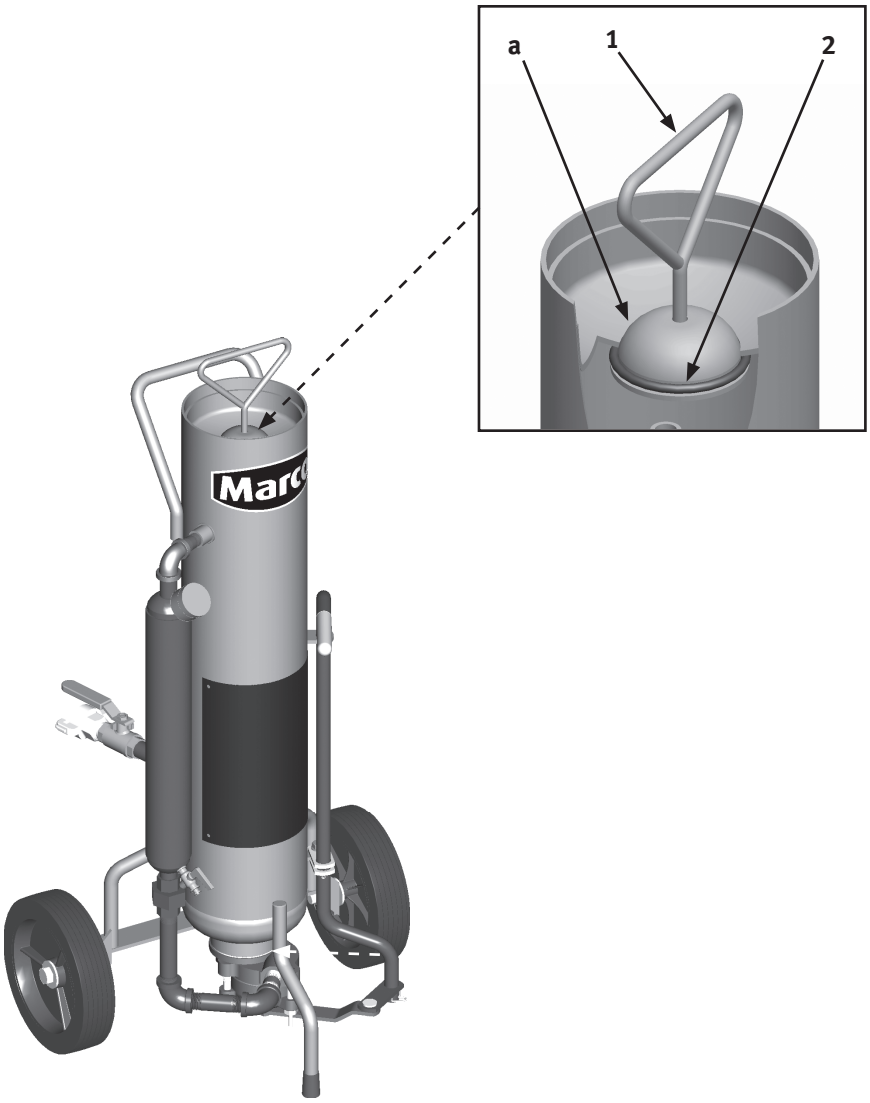
1) Remove Nozzle Assembly.
2) Unthread Nozzle Holder Base (6) from Blast Hose End (7).
3) Remove Hose Clamp (8) from Blast Hose (9).
4) Remove Blast Hose End (7) from Blast Hose (9).

Assembly:

1) Cut the Blast Hose (9) square, leaving a smooth and even end .
2) Wet barb of Blast Hose End (7) with a small amount of liquid detergent.
3) Insert Blast Hose End (7) into Blast Hose (9).
4) Place Hose Clamp (8) 1/4" from end of Blast Hose (9) and tighten.
5) Thread Nozzle Holder Base (6) on Blast Hose End (7).

.35 Cubic Foot L-Series Blast Machine

Figure 4



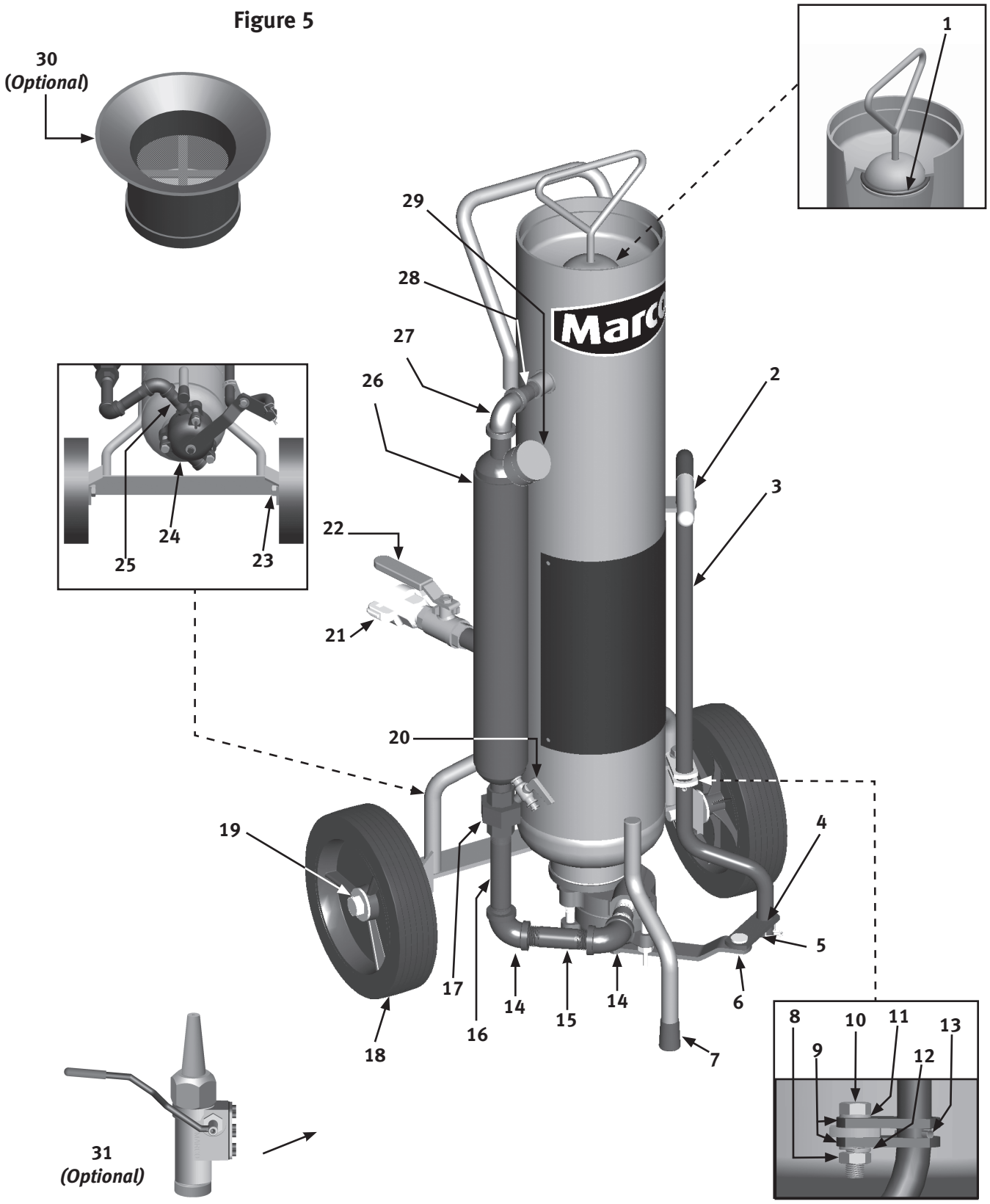
.35 Cubic Foot L-Series Blast Machine Schematic

Figure 5

Item #	Part #	Description
-	1003501	.35 Cubic Foot L-Series Blast Machine (*includes: Two Hole Junior Metering Valve, 10 feet of 1/2"ID/1-3/16"OD Coupled Blast Hose, Nozzle End Assembly, #1-1/2 Ceramic Nozzle, #2 Ceramic Nozzle)*
-	1003502	.35 Cubic Foot L-Series Blast Machine (*includes: Two Hole Junior Metering Valve, 10 feet of 1/2"ID/1-3/16"OD Coupled Blast Hose, Nozzle End Assembly, KwikFire 153 Remote Control Handle, #1-1/2 Ceramic Nozzle, #2 Ceramic Nozzle)*
1	10L650R	Filler Plug O-ring
2	10L103LG	Control Lever Grip
3	10L100268	Media/Air Control Lever (*Includes items 2 & 13*)
4	10L103H	Hair Spring Clip
5	10LD24X	Control Link
6	10L201192	Control Link Pivot Assembly
7	10LA55RT	Rubber Leg Tip
8	10L804303	3/8”-24 Hex Nut
9	10L100058	Control Lever Bracket (*2 required*)
10	10L805318	3/8”-24 x 1 1/4” Bolt
11	1014241	3/8” Flat Washer
12	10L805015	3/8” Lock Washer
13	10L800085	Roll Pin, 3/16” x 1”
14	10L806004	1/2” x NPT 90° Elbow (*2 required*)
15	10L803041	1/2” NPT x 2-3/4” Nipple
16	10L803057	1/2” NPT x 7-1/2” Nipple
17	10L806176	1/2” NPT Union
18	10L855	Wheel and Tire Assembly (*2 required*)
19	10L805319	Cover Bolt without Pin (*2 required*)
20	10L348	1/8" Moisture Separator Petcock
21	10ME122	1/2" NPT Male 2-Lug Air Hose Coupling
22	10L363	1/2” NPT Full Port Brass Ball Valve
23	10L804305	1/2"-20 Hex Nut (*4 Required*)
24	10L100197	Two Hole Junior Metering Valve
25	10L803038	1/2" NPT x 2" Nipple
26	10L100129	Moisture Separator (*Includes items 20 & 29*)
27	10L806058	1/2” NPT x 3/8” NPT 90° Reducing Elbow
28	1011209	3/8” NPT Close Nipple
29	10L800719	Pressure Gauge
30	1003510	Media Funnel with Screen (*Optional*)
-	1003512	Replacement Screen for 1003510 (*Optional*)
31	10L66EVD	Kwikfire 153 Remote Control Handle (*Optional*)
-	1090041	.35 Cubic Foot L-Series Blast Machine Operator's Manual
-	1091034	"Off-Blast-Purge" Sticker
-	1091042	Marco Logo Sticker
-	1091045	Hazard Identification Tag

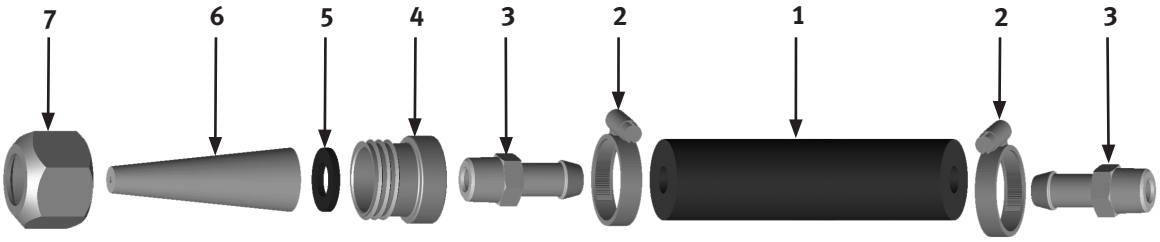
.35 Cubic Foot L-Series Blast Machine Schematic

Figure 5



1/2" Hose End Assembly

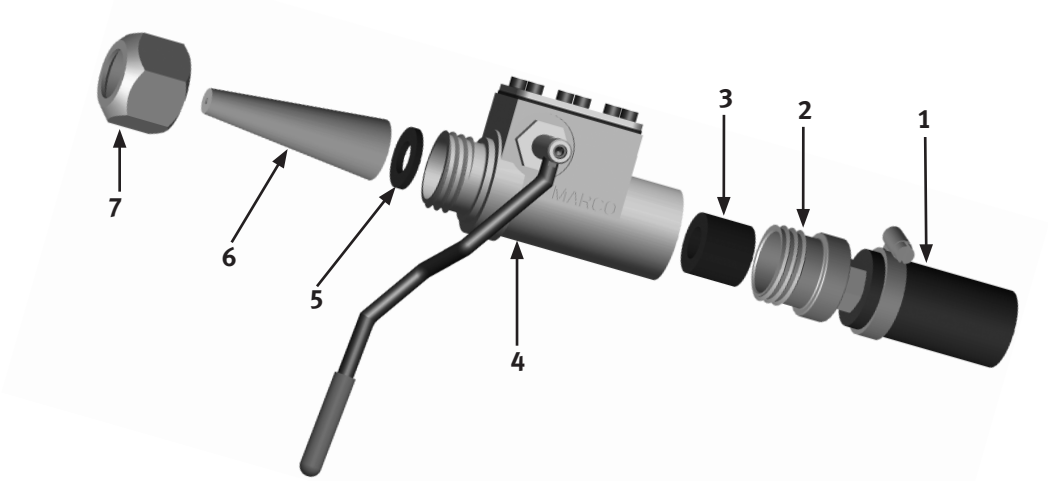
Fig. 6



Item #	Part #	Description
1a	10L850119	10' of 1/2" ID/1-3/16"OD Blast Hose with 2 each of items 2 & 3 installed
1b	10L850120	25' of 1/2" ID/1-3/16" OD Blast Hose with 2 each of items 2 & 3 installed
1c	10L850125	50' of 1/2" ID/1-3/16" OD Blast Hose with 2 each of items 2 & 3 installed
1d	10BH01210C	1/2" ID/1-3/16" Blast Hose - 10'
1e	10BH012125C	1/2" ID/1-3/16" Blast Hose - 12.5'
1f	10BH01225C	1/2" ID/1-3/16" Blast Hose - 25'
1g	10BH012C	1/2" ID/1-3/16" Blast Hose - 50'
2	10L800034	Hose Clamp for 1/2" ID Hose (*2 Required*)
3	10L174	1/2" I.D. Blast Hose End with 1/2" NPT threads (*2 Required*)
4	10L66B	Nozzle Holder Base (*Type 1*)
5	10L66CHW	Rubber Washer for Type 1 Nozzle
6		Type 1 Nozzle Type 1 Nozzle (*See Fig. 8 for size options*)
7	10L100164	Nozzle Cap (*Fits 10L366HE, 10L466HE and 10L66B*)

KwikFire 153 Assembly

Fig. 7



Item #	Part #	Description
1	-	Blast Hose (*See Fig. 6 for length options*)
2	10L66B	Nozzle Holder Base (*Type 1*)
3	10L800236	Rubber Liner
4	10L66EVD	KwikFire 153 Remote control Handle - Complete
5	10L66CHW	Rubber Washer for Type 1 Nozzle
6		Type 1 Nozzle (*See Fig. 8 for size options*)
7	10L100164	Nozzle Cap (*Fits 10L366HE, 10L466HE and 10L66B*)

Ceramic Blast Nozzles

Fig. 8

Part #	Size	Orifice	CFM @ 100 PSI	Media Size (Mesh)	Blast Hose Internal Size
10CN051	1	3/32"	10	100 Mesh or finer	1/2"
10CN251	2	1/8"	20	60 Mesh or finer	1/2"
10CN21251	2-1/2	5/32"	33	50 Mesh or finer	1/2"
10CN351	3	3/16"	45	50 Mesh or finer	3/4"
10CN451	4	1/4"	81	40 Mesh or finer	3/4"
10CN551	5	5/16"	137	20 Mesh or finer	1"
10CN651	6	3/8"	196	12 Mesh or finer	1"

Maintenance Notes

DATE	TYPE OF SERVICE	PART NUMBER

.35 Cubic Foot L-Series Blast Machine

Maintenance Notes

DATE	TYPE OF SERVICE	PART NUMBER

ADDITIONAL TECHNICAL DATA

The associations listed below offer information, materials and videos pertaining to media blasting and safe operating practices.

- **American Society for Testing and Materials (ASTM)**
  100 Barr Harbor Drive
  West Conshohocken, PA 19428-2959
  Phone: (610) 832-9585
  FAX: (610) 832-9555
  www.astm.org

- **Occupational Safety & Health Administration (OSHA)**
  United States Department of Labor
  200 Constitution Avenue
  Washington, DC 20210
  Phone: (800) 321-OSHA
  (800) 321-6742
  www.osha.gov

- **The National Board of Boiler & Pressure Vessel Inspectors**
  1055 Crupper Avenue
  Columbus, Ohio 43229
  Phone: (614) 888-8320
  FAX: (614) 888-0750
  www.nationalboard.org

- **National Association of Corrosion Engineers (NACE)**
  1440 South Creek Drive
  Houston, TX 77084-4906
  Phone: (281) 228-6200
  FAX: (281) 228-6300
  www.nace.org

- **The Society for Protective Coatings (SSPC)**
  40-24th Street, 6th Floor
  Pittsburgh, PA 15222-4656
  Phone: (412) 281-2331
  FAX: (412) 281-9992
  www.sspc.org

WARRANTY

Seller warrants to the original purchaser that the Product covered by this Warranty will remain free from defects in workmanship or material under normal commercial use and service for a period of one year from the date of shipment to the original Purchaser. This Warranty shall not apply to defects arising, in whole or in part, from any accident, negligence, alteration, misuse or abuse of the Product, operation not in accordance with applicable instructions or manuals or under conditions more severe than, or otherwise exceeding, those set forth in the written specifications for the Product, nor shall this Warranty extend to repairs or alterations of the Product by persons other than Seller or Seller's authorized representatives, or to maintenance parts.

DISCLAIMER OF WARRANTY

The foregoing Warranty is exclusive and is in lieu of all other warranties of quality, whether oral or written and whether express or implied. All warranties of merchantability or fitness for a particular purpose are hereby excluded and are inapplicable to the Product. Seller makes no warranties or representations concerning respirators, or equipment made by other manufacturers.

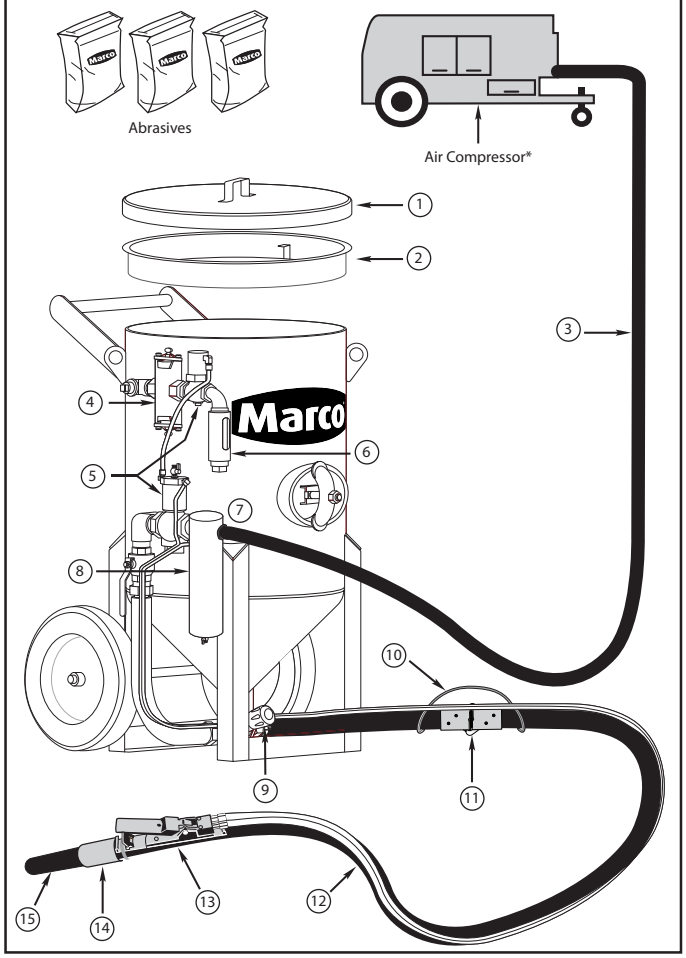
EXCLUSIVE REMEDIES FOR WARRANTY CLAIMS

THE SOLE AND EXCLUSIVE REMEDIES OF PURCHASER FOR UNDER THE FOREGOING WARRANTY COVERING THIS PRODUCT SHALL BE REPAIR OR REPLACEMENT, FREE OF CHARGE, F.O.B. POINT OF MANUFACTURE, OF ANY DEFECTIVE PART OR PARTS OF THE PRODUCT THAT WERE MANUFACTURED BY SELLER, AND WHICH ARE RETURNED TO SELLER AT SELLER'S PRINCIPAL PLACE OF BUSINESS, POSTAGE PREPAID. THIS SOLE AND EXCLUSIVE REMEDY IS CONDITIONED UPON PURCHASER'S PROMPT WRITTEN NOTICE TO SELLER AT SELLER'S PLACE OF BUSINESS THAT A DEFECT HAS BEEN DISCOVERED, TOGETHER WITH A REASONABLY DETAILED DESCRIPTION OF THE DEFECT IN THE PRODUCT, WITHIN THIRTY (30) DAYS AFTER DISCOVERY OF THE DEFECT, OTHERWISE SUCH CLAIMS SHALL BE DEEMED WAIVED. NO ALLOWANCE WILL BE GRANTED FOR ANY REPAIRS OR ALTERATIONS MADE BY PURCHASER OR OTHERS WITHOUT SELLERS PRIOR WRITTEN CONSENT. IF SUCH NOTICE IS TIMELY GIVEN, SELLER WILL HAVE THE OPTION TO EITHER MODIFY THE PRODUCT OR COMPONENT PART THEREOF TO CORRECT THE DEFECT, REPLACE THE PRODUCT OR PART WITH COMPLYING PRODUCTS OR PARTS, OR REFUND THE AMOUNT PAID FOR THE DEFECTIVE PRODUCT, ANY ONE OF WHICH WILL CONSTITUTE THE SOLE LIABILITY OF SELLER AND FULL SETTLEMENT OF ALL CLAIMS. PURCHASER SHALL AFFORD SELLER PROMPT AND REASONABLE OPPORTUNITY TO INSPECT THE PRODUCT FOR WHICH CLAIM IS MADE. THE SOLE PURPOSE OF THE FOREGOING STIPULATED EXCLUSIVE REMEDY SHALL BE TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR COMPONENTS THEREOF, OR TO REFUND PURCHASER THE PURCHASE PRICE THEREOF. THIS STIPULATED EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE SO LONG AS SELLER IS WILLING AND ABLE TO REPAIR OR REPLACE THE DEFECTIVE PARTS OR REFUND THE PURCHASE PRICE IN ACCORDANCE WITH THE TERMS HEREOF.

LIMITATION OF REMEDIES

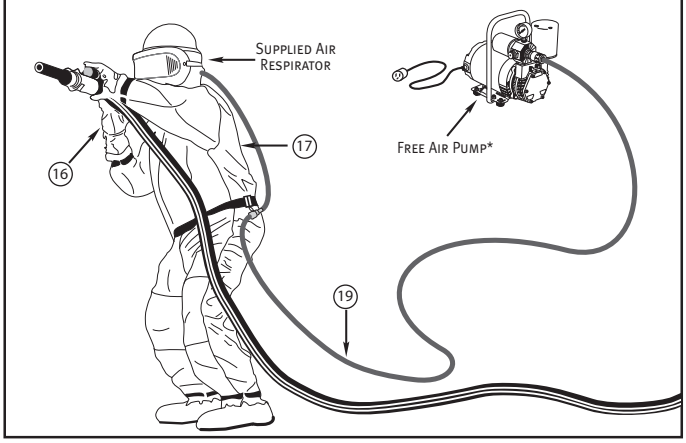
The foregoing stipulated exclusive remedies is in lieu of all other remedies for breach of contract, warranty and/or tort. Seller shall not be liable for the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons and/or entities, damages to property, and injury to or death of any persons and/or any claims for incidental or consequential damages, including but not limited to loss of profits, regardless of whether Seller has been informed of the possibility of such damages. Seller neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of any Products covered by the foregoing Warranty and Disclaimers, and there are no oral agreements relating to remedies which are collateral to or which affect this limitation.

Marco Blast Machine – Hose Configuration



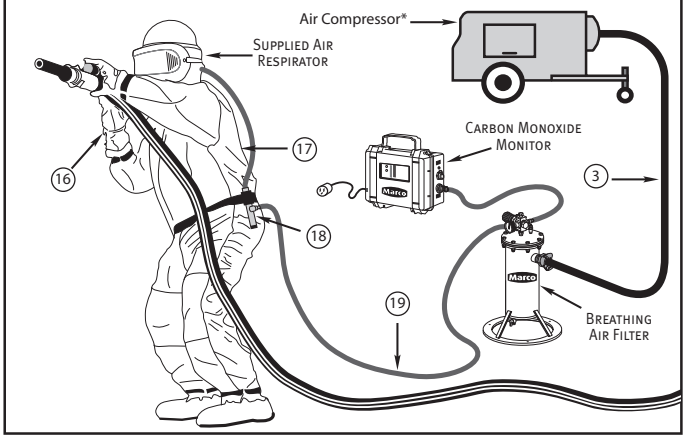
* Grade D quality air in an atmosphere free of contaminants

Ambient Air Pump Configuration



* Grade D quality air in an atmosphere free of contaminants

Air Compressor Breathing Air Configuration



* Grade D quality air in an atmosphere free of contaminants

DAILY PRE-OPERATION CHECKLIST

Additional Components

1. blast machine lid
2. blast machine screen
3. air hose
4. abrasive trap
5. remote control system
6. exhaust muffler
7. air hose couplings & gaskets
8. moisture separator
9. metering valve
10. whip check cable
11. blast hose couplings & gaskets
12. remote control line
13. remote control handle
14. blasting nozzle holder
15. blasting nozzle
16. blasting gloves
17. media resistant blastsuit
18. breathing line
19. climate control device

Phone: (800) 252-7848
Fax: (563) 324-6258
e-mail: sales@marcousa.com
www.marcousa.com

☐ MEDIAS:

- Review the Media MSDS *(Material Safety Data Sheet)* to ensure the material is free of toxic or harmful substances such as lead, silica, cyanide or arsenic. Use properly sized media to ensure required surface finish.

☐ BLAST MACHINE:

- Inspect the Blast Machine for internal and external wear, abrasions and leaks.
- Ground the Blast Machine to dissipate static electricity created by the Media moving through the Blast Hose.
- Install a Moisture Separator at the Inlet Port of the Blast Machine. Removing moisture from the Air Supply will allow Media to flow smoothly from the Blast Machine to the work surface.
- Inspect abrasive trap filter and empty trap frequently
- Inspect exhaust muffler and filter element before starting blasting operations. Replace filter element if exhaust air flow is restricted by residule dust

☐ AIR SUPPLY: Respirator

- Inspect Respirator Assemblies for worn components and replace as needed.
- You MUST consult the Operator's Manual supplied with your Respirator for ALL applicable Warnings and Hazards.

☐ BLAST NOZZLES:

- Replace Blast Nozzles if liner or jacket is cracked, damaged or an orifice size 1/16" larger than the original size.
  – Determine Nozzle wear by inserting a drill bit 1/16" larger than original size of the Nozzle orifice. If the drill bit passes, replacement is needed.
- Blast Nozzles with ½" I.D. or 1" I.D. Entry require use of a Nozzle Washer. Wide Entry (1-1/4" I.D.) Blast nozzles do not require a Nozzle Washer. Inspect and replace damaged Nozzle Holder or Nozzle Washer before use.

☐ AIR SUPPLY: Blast Machine

- Use an Air Compressor that will provide sufficient CFM *(Cubic Feet Per Minute)* volume of air to the Blast Nozzle and all other pneumatic tools, with an additional 50% to allow for Nozzle wear.

☐ AIR & BLAST HOSE:

- Inspect all Hoses for internal and external wear, abrasions and leaks.
- Lay out Air Hose and Blast Hose as straight as possible to remove restrictions which cause reduced performance and premature wear.
- Blast Hose I.D. should be 3-4 times the size of Nozzle orifice.
- Blast Hose and Air Hose Couplings are to mate securely using Gaskets to provide a positive seal without leaks. Inspect and replace any worn or damaged component before use.
- Install Safety Clips and Safety Cables at each connection.

☐ PROTECTIVE CLOTHING:

- Wear appropriate Protective Clothing and Equipment *(supplied-air respirator, blastsuit, safety shoes, leather gloves, ear protection and eye protection)* appropriate for the work environment.