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## General Guidelines for Equipment Use

Manual # 1093322  
Revision E, 5/03/04

### ADDITIONAL TECHNICAL DATA

The associations listed below offer information, materials and videos pertaining to abrasive 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 (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

For more information call:

**800-BLAST-IT**

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

### **⚠ DANGER**

**Keep this manual in a convenient location for future reference.**

**Death or serious injury could result if you fail to comply with ALL DANGERS, WARNINGS, CAUTIONS AND NOTICES listed within this manual.**

Before using this equipment, read, understand and follow all instructions in this manual. If the user or assistants cannot read or understand the warnings and instructions in this manual, 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 manuals have been lost, contact your distributor or call (563) 324-2519 for replacements.

You **MUST** comply with all local, City, State, Province or Country regulations, ordinances and standards, related to your particular work area and environment.

### **⚠ PELIGRO**

**Este manual deberá ser puesto en un sitio conveniente para futura referencia.**

**Un accidente serio o de muerte podrá ocurrir como resultado de usted no haber seguido TODAS LAS ADVERTENCIAS, ADVERTENCIA DE PELIGRO Y NOTIFICACIONES nombradas en este manual.**

Antes de usar el equipo, lea, entienda y siga todas las instrucciones en este manual. Si el Usuario y/o Asistentes no pueden leer o entender las advertencias e instrucciones en este manual, la Compañía del Usuario y/o Asistentes deberán proveer adecuado y necesario entrenamiento para asegurar la operación propia y estar de acuerdo con todas las precauciones de seguridad apropiadas que pertenecen a este equipo. Si los manuales se han perdido, póngase en contacto con su distribuidor o llame al (563) 324-2519 para ordenar reemplazos.

Usted **DEBERA** seguir las reglas locales, de la ciudad, provincia or país, reglamentos y estándares, relacionados con su área de trabajo particular y su ambiente.

### **⚠ DANGER**

**Gardez ce manuel dans un endroit accessible pour une future référence.**

**La mort ou une blessure grave peut résulter si vous ne vous conformez pas aux exigences de TOUS les dangers, AVERTISSEMENTS, PRÉCAUTIONS ET AVIS contenus dans ce manuel.**

Avant d'utiliser ce matériel, lisez, comprenez et suivez toutes les instructions dans ce manuel. Si l'utilisateur ou les assistants ne peuvent pas lire ou comprendre les avertissements et les instructions dans ce manuel, l'employeur de l'utilisateur et des assistants doit fournir une formation suffisante et nécessaire pour garantir un bon fonctionnement et la conformité avec toutes les procédures de sécurité relatives à ce matériel. Si des manuels ont été perdus, contactez votre distributeur ou téléphonez au (563) 324-2519 pour obtenir des remplacements.

Vous **DEVEZ** vous conformer à tous les règlements, consignes et normes locales, municipales, de l'état, du pays, de la province connexes à votre zone de travail et environnement particuliers.

## DANGER

### **Death or serious injury will result if you fail to comply with ALL DANGERS listed below.**

- ▶ Breathing dust from silica sand may cause silicosis, a fatal lung disease. Breathing dust during blasting operations may also cause asbestosis, lead poisoning and/or other serious or fatal diseases. A NIOSH-approved, well-maintained, supplied-air abrasive blasting respirator must be used by anyone blasting, anyone handling or using the abrasive and anyone in the area of the dust. Harmful dust containing toxic material from abrasive or material being blasted (*asbestos, lead paint, heavy metal paint and other toxins*) can remain suspended in the air for long periods of time after blasting has ceased. Follow all applicable OSHA Standards. OSHA Regulation 1910.134. If you have any questions regarding this or any OSHA Standard, contact OSHA directly.
- ▶ Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe. Contact local NIOSH or OSHA office to determine the proper respirator for your particular application. Wear NIOSH-approved supplied-air respirators only in atmospheres not immediately dangerous to life or health, with at least 19.5% oxygen, from which a user can escape without using the respirator. 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. You MUST consult the Operator's Manual supplied with your respirator for ALL applicable Warnings and Hazards. Marco makes no claims or representation for any respirators.
- ▶ Blast operators must receive thorough training on the use of abrasive resistant attire which includes: supplied-air respirator, blastsuit, safety shoes, leather gloves, ear protection and eye protection. Protect both the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- ▶ Failure to use original manufacturer repair parts and failure to replace worn components will void Warranties and cause malfunctions.
- ▶ Always depressurize and lockout/tagout the blast system before any maintenance or troubleshooting is attempted.
- ▶ OSHA requires the use of remote controls on all blast machines. The remote control handle must be held open (*in the blast position*) manually. Do not tie the control lever down nor attempt to bypass any part of the remote control system. Doing so will defeat the purpose of the fail-to-safe feature of the system, resulting in uncontrolled blasting. OSHA Regulation 29 CFR 1910.244(b).
- ▶ Never weld, grind or drill on the blast machine (*or any pressure vessel*) without a National Board 'R' Stamp. Doing so will void ASME certification codes as well as the manufacturer's warranty. Welding, grinding or drilling on the blast machine (*or any pressure vessel*) can weaken the vessel causing it to burst.
- ▶ Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or abrasive blast stream at yourself or others.
- ▶ 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 1996, Article 500. Use of this equipment in a hazardous location may cause an explosion or electrocution.



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## **WARRANTY**

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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**

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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.

## **EXCLUSIVE REMEDY FOR WARRANTY CLAIMS**

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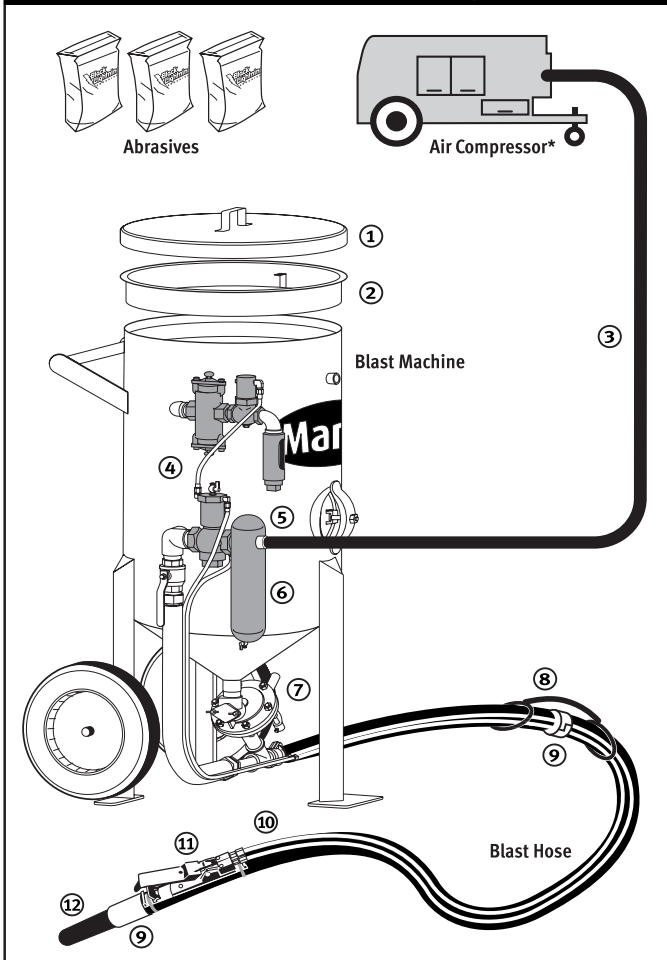
The sole and exclusive remedy of Purchaser for under the foregoing Warranty covering this Product shall be repair or replacement, free of charge, F.O.B. point of manufacture, of any defective part or parts of the Product that were manufactured by Seller, and which are returned to Seller at Seller's principal 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 Seller's 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 REMEDY**

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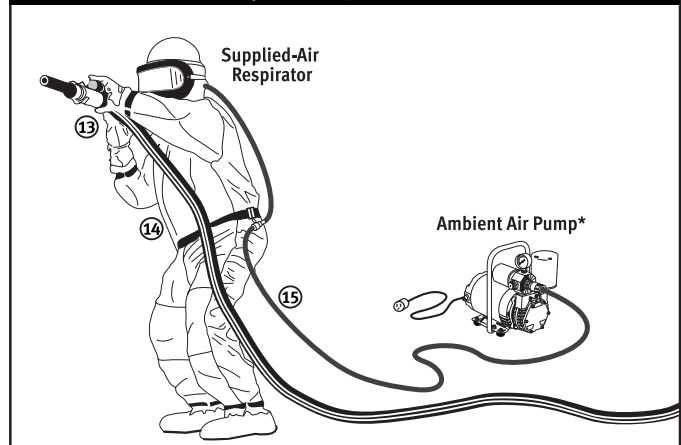
The foregoing stipulated exclusive remedy is in lieu of all other remedies for breach of Contract, Warranty and/or Tort. Seller shall not be liable for any loss or damage, directly or indirectly, from the use or loss of use of the Product without limiting the generality of the foregoing. Seller shall 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



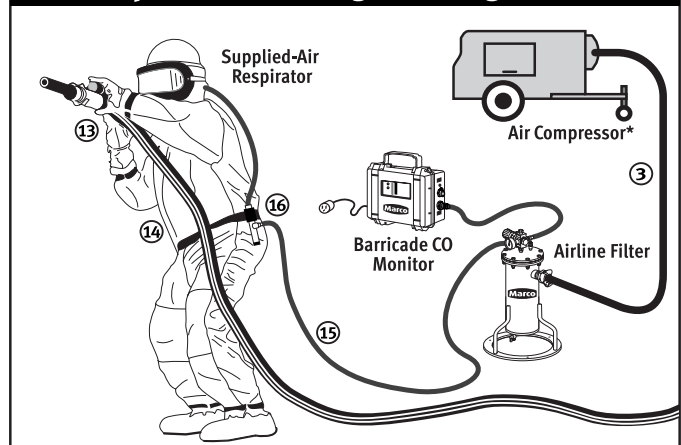
\* Grade D quality air in an atmosphere free of contaminants

## 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 remote control system
- ⑤ air hose couplings & gaskets
- ⑥ moisture separator
- ⑦ metering valve
- ⑧ safety cable
- ⑨ blast hose couplings & gaskets
- ⑩ remote control line
- ⑪ remote control handle
- ⑫ blasting nozzle
- ⑬ blasting gloves
- ⑭ abrasive resistant blastsuit
- ⑮ breathing line
- ⑯ climate control device

### ABRASIVES:

- Review the Abrasive MSDS (*Material Safety Data Sheet*) to ensure it is free of toxic or harmful substances such as lead, silica, cyanide or arsenic. Use properly sized Abrasive 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 Abrasive 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 Abrasive to flow smoothly from the Blast Machine to the work surface.

### 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 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. Marco makes no claims or representation for any Respirators.

### 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.
- Long Venturi Nozzles are most effective when the distance from Nozzle to work surface is 24-36".

### 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 and Nozzle Washers 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.