



experience,  
trust, service

## General Guidelines for Equipment Use

Manual # 1093322  
Revision D, 4/17/03



**Before using this equipment, read, understand and follow all instructions in this manual.**

**Serious injury or death can result if you fail to comply with 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.**

**NOTA: Si no le es posible leer o comprender el Manual del operador (Operator's Manual), se debe solicitar la ayuda de otra persona que le instruya en los métodos seguros y apropiados de manejo y uso del equipo de limpieza con chorro de arena.**

**REMARQUE: Si vous ne pouvez pas lire ou si vous ne pouvez pas comprendre le texte du manuel d'utilisation (Operator's Manual), veuillez demander ci une autre personne de vous expliquer les méthodes de manipulation et d'utilisation correctes et sécuritaires du matériel de sablage.**

### NOTICE TO PURCHASER

Read and understand all instructions in this manual before using this equipment. If the employee or workers do not understand all of this information, the employer is responsible for training all workers operating this equipment in safe operating procedures. Give special attention to the HAZARD ALERT SIGNAL WORDS given on page 2. Not following instructions can result in serious injury or death.

The product described in this manual is only a component in the complete abrasive blasting system. Do not modify or substitute original manufacturer parts with non-approved sub-assemblies. Operating information regarding other products is the responsibility of the manufacturers of those products.



**IMMEDIATE REPLACEMENT OF WORN COMPONENTS IS REQUIRED. FAILURE TO REPLACE WORN COMPONENTS COULD RESULT IN EXPOSING THE OPERATOR OR BYSTANDERS TO HIGH SPEED MEDIA AND COMPRESSED AIR WHICH COULD CAUSE DEATH OR SERIOUS INJURY.**

**FAILURE TO USE ORIGINAL MANUFACTURER REPAIR PARTS WILL VOID WARRANTIES, CAUSE MALFUNCTIONS AND COULD RESULT IN DEATH OR SERIOUS INJURY.**

### GENERAL INSTRUCTIONS

The very nature of the abrasive blasting operation can create hazards for the user. Read all operating and safety instructions BEFORE using equipment.

Protective equipment for the user and others exposed to the blasting process is the responsibility of the user and/or employer. User must consult with employer regarding potential hazards in the work environment and how to protect against those hazards. Potential hazards include but are not limited to:

- ◆ Dust containing toxic material from abrasive or material being blasted (free-silica sand, asbestos, lead paint, heavy metal paint and other toxins).
- ◆ Harmful dust can remain suspended in the air for long periods of time after blasting has ceased. Anyone in the blast area must use NIOSH-approved supplied-air respirators.
- ◆ Toxic fumes from adjacent coating operations, engine exhaust, chemicals, asbestos and contaminated water.
- ◆ Physical hazards such as poor visibility, excess noise, an uneven work surface and electrical hazards.

All components in a blasting operation must be installed, tested, operated and maintained by trained, qualified users.



**BREATHING DUST FROM SILICA SAND MAY CAUSE SILICOSIS, A FATAL LUNG DISEASE. BREATHING DUST DURING BLASTING OPERATIONS MAY ALSO CAUSE ASBESTOSIS AND/OR OTHER SERIOUS OR FATAL DISEASES. A NIOSH-APPROVED, WELL-MAINTAINED AIR-SUPPLIED ABRASIVE BLASTING RESPIRATOR MUST BE USED BY ANYONE BLASTING, ANYONE HANDLING OR USING THE SAND AND ANYONE IN THE AREA OF THE DUST. HARMFUL DUST CAN REMAIN SUSPENDED IN THE AIR FOR LONG PERIODS OF TIME AFTER BLASTING HAS CEASED, CAUSING SERIOUS INJURY OR DEATH. FOLLOW ALL APPLICABLE OSHA STANDARDS, OSHA REGULATION 1910.134 (d).**

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**! DANGER**

**IMPORTANT: KEEP THIS MANUAL IN A CONVENIENT LOCATION FOR FUTURE REFERENCE.**

### SUPPLIED-AIR RESPIRATOR

**BREATHING DUST FROM SILICA SAND MAY CAUSE SILICOSIS, A FATAL LUNG DISEASE. BREATHING DUST DURING BLASTING OPERATIONS MAY ALSO CAUSE ASBESTOSIS AND/OR OTHER SERIOUS OR FATAL DISEASES. A NIOSH-APPROVED, WELL-MAINTAINED AIR-SUPPLIED ABRASIVE BLASTING RESPIRATOR MUST BE USED BY ANYONE BLASTING, ANYONE HANDLING OR USING THE SAND AND ANYONE IN THE AREA OF THE DUST. HARMFUL DUST CAN REMAIN SUSPENDED IN THE AIR FOR LONG PERIODS OF TIME AFTER BLASTING HAS CEASED, CAUSING SERIOUS INJURY OR DEATH.**

**BEFORE REMOVING RESPIRATOR, USE AN AIR MONITORING INSTRUMENT TO DETERMINE IF ATMOSPHERE IS SAFE TO BREATHE. CONTACT LOCAL OSHA OR NIOSH 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 (d).**

These requirements are as follows:

Oxygen	19.5-23.5%
Hydrocarbons (condensed)	
in mg/m <sup>3</sup> of gas	5 mg/m <sup>3</sup> max.
Carbon monoxide	10 ppm max.
Carbon dioxide	1,000 ppm max.
Odor	No detectable odor

No toxic contaminants at levels that make air unsafe to breathe. **SUPPLIED-AIR RESPIRATORS DO NOT REMOVE OR PROTECT AGAINST CARBON MONOXIDE (CO) OR ANY OTHER TOXIC GAS.** Use a carbon monoxide removal device and monitoring device with the respirator to ensure Grade D quality air.

**! DANGER**

**ONLY PERSONS HAVING A NATIONAL BOARD "R" STAMP (ISSUED BY THE NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS) SHOULD BE ALLOWED TO WELD, DRILL, GRIND, OR ALTER THE BLAST MACHINE IN ANY WAY. IF ANYONE WITHOUT A BOARD "R" STAMP WELDS, GRINDS, DRILLS OR ALTERS THE BLAST MACHINE, THE ASME CERTIFICATION CODES AS WELL AS THE MANUFACTURER'S WARRANTY WILL BE VOIDED AND THE VESSEL CAN BE WEAKENED, CAUSING IT TO BURST, RESULTING IN DEATH OR SERIOUS INJURY (ASME PRESSURE VESSEL CODE, 2001, W / 2001 ADDENDUM).**

Locate compressors to prevent potentially dangerous air (such as CO from engine exhaust) from entering the air intake. Install an in-line air purifying absorbent bed, filter and CO monitor to assure air quality.

Use only NIOSH approved breathing air hose to connect an appropriate air filter to the respirator. Non-approved hose can release chemical agents harmful to the user.

Ensure air filter and respirator system hoses are NOT connected to non-air, in-plant lines that may contain nitrogen, acetylene or other non-breathable gases. Always test the content of the air line before using. Failure to ensure Grade D quality air is being supplied to the user may result in serious injury or death. The respirator lenses are designed to protect only against rebounding abrasive. They will not protect against flying objects, glare, liquids, radiation, or high speed heavy materials. Using lenses from sources other than the original manufacturer will void NIOSH approval of the respirator.

Wear approved safety glasses or goggles at all times.

**! DANGER**

**OSHA REQUIRES THE USE OF REMOTE CONTROLS ON ALL BLAST MACHINES. OSHA FURTHER REQUIRES THAT THE REMOTE CONTROL HANDLE MUST BE HELD OPEN (IN BLAST POSITION) MANUALLY. DO NOT TIE THE CONTROL HANDLE 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 AND CAUSING DEATH OR SERIOUS INJURY.. 29 CFR 1910.244(B)**

**! DANGER**

**NEVER USE A PRESSURIZED OXYGEN CYLINDER TO PROVIDE OXYGEN TO THE AIRLINE RESPIRATOR. FAILURE TO TEST THE AIR LINE MAY RESULT IN THE SUFFOCATION AND DEATH OF THE RESPIRATOR USER, OR SERIOUS INJURY DUE TO THE LACK OF BREATHABLE AIR.**

### BLAST MACHINES AND REMOTE CONTROLS

Check air control orifice DAILY for cleanliness. Use only twin-line control hose. Do not use welding hose as the internal diameter and rubber composition are NOT SUITABLE for remote control use.

UNLESS OTHERWISE SPECIFIED, the maximum working pressure of blast machines and their related components MUST NOT EXCEED 125 psig (8.5 BAR) as approved by the (ASME) National Board.

**! DANGER**

**ALWAYS USE AT LEAST TWO PEOPLE TO MANUALLY MOVE AN EMPTY BLAST MACHINE. NEVER ATTEMPT TO MANUALLY MOVE A BLAST MACHINE CONTAINING ABRASIVE. ALWAYS USE MECHANICAL LIFTING EQUIPMENT TO TRANSPORT ANY BLAST MACHINE CONTAINING ABRASIVE. FAILURE TO DO SO WILL RESULT IN DEATH OR SERIOUS INJURY.**



**DO NOT EXCEED MAXIMUM WORKING PRESSURE OF 125 PSI. FAILURE TO KEEP MAXIMUM WORKING PRESSURE BELOW 125 PSI CAN CAUSE THE BLAST MACHINE TO BURST, CAUSING DEATH OR SERIOUS INJURY.**



**POINT THE NOZZLE ONLY AT THE OBJECT BEING BLASTED. NEVER POINT THE ABRASIVE BLAST STREAM AT YOURSELF OR OTHERS. THE HIGH VELOCITY ABRASIVE PARTICLES MAY INFLICT SERIOUS INJURY OR DEATH. KEEP UNPROTECTED WORKERS OUT OF THE BLASTING AREA. 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.**

### **AIR HOSE, BLAST HOSE, COUPLINGS, AND NOZZLE HOLDERS**

Keep air hose length as short as possible and in a straight line. Inspect daily and immediately repair leakage. It is recommended the blast hose have an inside diameter 3 to 4 times the size of nozzle orifice diameter. Keep hose lengths as short as possible to reduce pressure loss. Inspect blast hose daily for soft spots and repair or replace immediately. Cut loose hose ends square when installing hose couplings and nozzle holders to provide uniform fit of hose to coupling shoulder. Only install couplings or nozzle holders that provide a tight fit on hose. Use only manufacturer's recommended coupling screws. Check all gaskets several times during a working day for wear, distortion and softness. Replace coupling gaskets FREQUENTLY to prevent leakage. Abrasive leakage can result in coupling failure. Install safety pins at all coupling connections to reduce risk of accidental disengagement during hose movement. Always attach safety cables at ALL air hose AND blast hose coupling connections. Cables relieve tension on hose and also control whipping action in the event of a coupling failure.

### **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, W. Conshohocken, PA 19428  
Phone: (610) 832-9500  
FAX: (610) 832-9555

#### **National Association of Corrosion Engineers (NACE)**

1440 South Creek Drive, Houston TX 77084  
Phone: (713) 492-0535  
FAX: (713) 492-8254

#### **Office of General Industry Compliance Assistance (OSHA)**

Room N - 3107 United States Department of Labor  
200 Constitution Avenue NW, Washington, DC 20210  
Phone: (202) 219-8041

#### **Steel Structures Painting Council (SSPC)**

40-24th Street 6th Floor, Pittsburgh PA 15222  
Phone: (412) 281-2331  
FAX: (412) 281-9993

## **MAINTENANCE**



**ALWAYS DEPRESSURIZE AND LOCKOUT THE BLAST SYSTEM BEFORE ANY MAINTENANCE OR TROUBLESHOOTING IS ATTEMPTED. FAILURE TO DEPRESSURIZE WILL RESULT IN RELEASE OF HIGH SPEED MEDIA AND COMPRESSED AIR CAUSING DEATH OR SERIOUS INJURY.**

**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 RESULTING IN SERIOUS INJURY OR DEATH.**

### **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 WARRANTIES**

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**

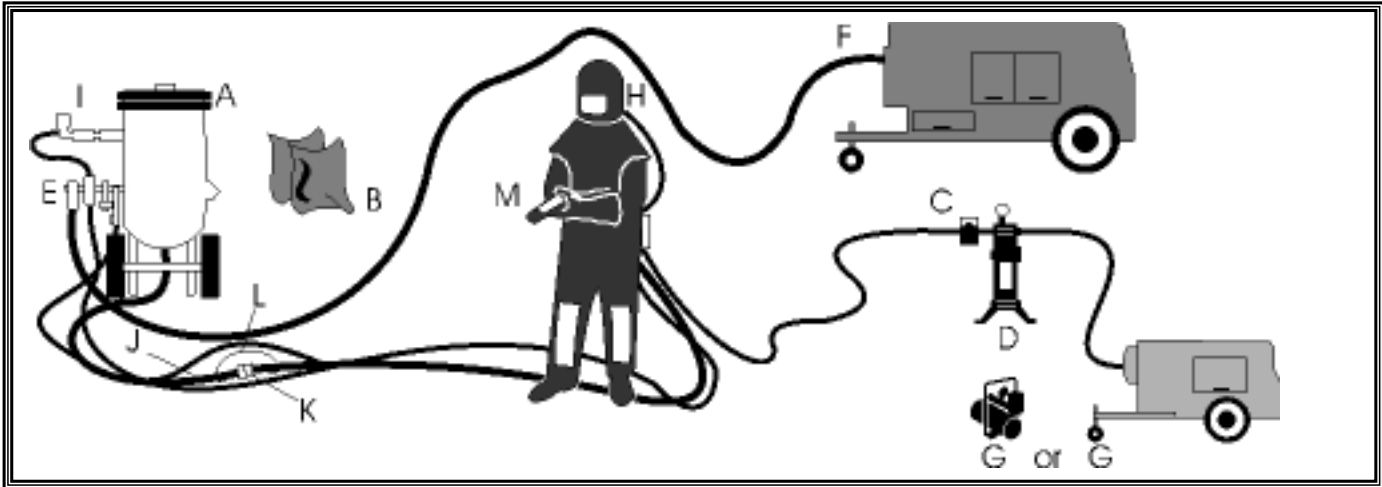
The sole and exclusive remedy of Purchaser for under the foregoing Warranty covering this Product shall be repair or replacement, free of charge, F.O.B. point of manufacture, of any defective part or parts of the Product that were manufactured by Seller, and which are returned to Seller at Seller's principal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

THE FOREGOING STIPULATED EXCLUSIVE REMEDY IS IN LIEU OF ALL OTHER REMEDIES FOR BREACH OF CONTRACT OR WARRANTY SELLER SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE RESULTING, DIRECTLY OR INDIRECTLY, FROM THE USE OF LOSS OF USE OF THE PRODUCT WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THIS EXCLUSION EMBRACES THE PURCHASER'S EXPENSES FOR DOWNTIME OR FOR MAKING UP DOWNTIME, DAMAGES FOR WHICH THE PURCHASER MAY BE LIABLE TO OTHER PERSONS, DAMAGES TO PROPERTY, AND INJURY TO OR DEATH OF ANY PERSONS, AND IS ALSO EXCLUSIVE OF 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.

**OPERATOR:** Conduct the following maintenance procedures on a daily basis. Check all piping, fittings and hoses for tightness and leakage. Replace worn or damaged parts immediately.

**PERSONNEL:** Blast operators must receive thorough training on the use of abrasive resistant attire which includes: supplied air respirator, safety shoes, leather gloves, ear protection and eye protection. PROTECT both the operator and bystanders by complying with NIOSH and OSHA safety standards.



### DAILY PRE-OPERATION CHECKLIST

- ⇒ GROUND Blast Machine (A) to help reduce static electricity hazard. Fit Blast Machine with a screen and cover to prevent foreign matter and moisture from entering.
- ⇒ CHECK Abrasive (B) material safety data sheet (MSDS) for presence of toxic or harmful substances. USE only properly sized abrasives which are free of harmful substances such as lead, silica, cyanide, or arsenic. Test surface to be blasted for toxic substances.
- ⇒ USE a CO Monitor Alarm (C) at all times. The OSHA required breathing Air Filter (D) removes moisture and particulate matter. It does NOT detect or remove Carbon Monoxide.
- ⇒ INSTALL Air Line Moisture Separator (E) as close to blast machine inlet as possible. The separator must fit either the inlet piping or air supply line. CLEAN filter if necessary and DRAIN moisture.
- ⇒ READ and follow air compressor (F) manufacturer's instructions for maintenance. Use correct size compressor to provide adequate volume (cfm) for nozzle and other tools, with an additional 50% to allow for nozzle wear. Select a compressor outlet and air hose four times the size of the nozzle orifice.
- ⇒ SELECT an oil-free Breathing Air Compressor (air pump) (G), which is capable of providing Grade D quality air in an atmosphere free of contaminants. Pump must be located in an area suitable to transfer Grade D quality air. Oil-lubricated air compressors should only be used in conjunction with a CO (Carbon Monoxide) monitor (C).
- ⇒ CLEAN and carefully MAINTAIN NIOSH approved Supplied Air Respirator (H). OPERATE only with all components, outer lens and inner lens in place. INSPECT all components for dirt, wear or damage. Do NOT substitute any respirator parts with non-approved sub-assemblies, as doing so will void NIOSH approval.
- ⇒ CHECK Remote Controls carefully to keep them in operating condition. USE only approved spare parts. Including twin line hose. Do NOT use welding hose. TEST system operation before system pressurization.
- ⇒ CHECK Blast Line Hoses (J) for external and internal wear, soft spots and damage. KEEP hoses free of kinks and bends and as straight as possible. It is recommended the blast hose have an ID three to four times the size of the nozzle orifice.
- ⇒ CHECK Hose Coupling (K) and Nozzle Holders to ensure a snug fit and they are secured with correct coupling screws. Check gaskets and replace if worn, soft or distorted. PLACE coupling lugs in LOCKED position. Gasket must provide positive seal with safety pins inserted through pin holes. INSTALL safety cables (L) at every connection to prevent disengagement. Do NOT mix different brands of components. CHECK nozzle holder for worn threads.
- ⇒ INSPECT Nozzle (M) and Gasket for wear. Replace nozzle when liner is cracked, damaged or when 1/16" larger than original size.



**EVERYONE IN THE BLAST AREA SHOULD CORRECTLY USE AND MAINTAIN A NIOSH-APPROVED AIR-SUPPLIED RESPIRATOR AS REQUIRED BY OSHA, EVEN AFTER BLASTING HAS CEASED. HARMFUL DUST CAN REMAIN SUSPENDED IN THE AIR FOR LONG PERIODS OF TIME AFTER BLASTING HAS CEASED, CAUSING SERIOUS INJURY OR DEATH.**