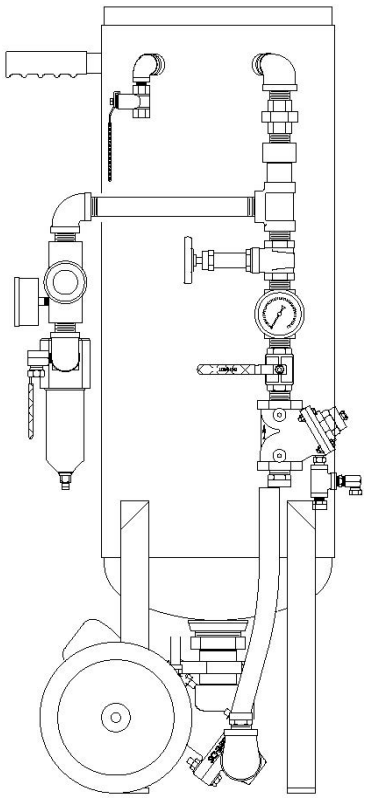
# Mini M-Series Abrasive Blaster 0.5 / 0.9 / 1.8 (Tera)
## Operation and maintenance manual
**January 2020**



SCHMIDT®

SAVE THIS MANUAL AND MAKE AVAILABLE
TO ALL USERS OF THIS EQUIPMENT!

Manual Part Number 7200-295-01

AXXIOM MANUFACTURING, INC.™
engineered abrasive systems


SCHMIDT®

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Visit us at www.SchmidtAbrasiveBlasting.com

Manual

# WARNING

1. **Any person intending to operate this equipment or any person intending to be in the vicinity during its operation must receive proper training from his/her supervisor, employer and/or supplier. If this equipment is to be leased or rented, the supplier must assure that the lessee or renter has received proper training before the lessee or renter takes possession of the equipment. Consult Axxiom Manufacturing, Inc.**

2. **Any person authorized to operate this equipment or any person intending to be in the vicinity during its operation and who is not capable of reading and understanding this manual must be fully trained regarding the *Rules for Safer Operation* and all operating procedures, and must be made aware of all the Dangers, Warnings, and Cautions identified herein. Consult Axxiom Manufacturing, Inc.**

3. **Do Not operate any abrasive blaster or blast equipment before reading and completely understanding all the warnings, operating procedures and instructions, and the *Rules for Safer Operation* contained in this manual.**

4. **Do Not operate any abrasive blaster or blast equipment without following the *Rules for Safer Operation* and all the operating procedures and instructions. Failure to properly use blast equipment could result in serious injury or death.**

5. **Do Not perform any maintenance on any abrasive blaster or blast equipment while it is pressurized. Always depressurize the abrasive blaster vessel before loading abrasive or performing any maintenance.**

6. **Do Not use abrasives containing free silica. Silica can cause silicosis or other related respiratory damage. You must wear personal protective equipment for all abrasive blasting operations. Observe all applicable local, state and federal safety regulations in conjunction with airline filters and respiratory protection. Reference OSHA 29 CFR 1910.134.**

7. **Do Not enter areas during abrasive blasting operations without breathing protection. All personnel in the vicinity of abrasive blasting operations should wear NIOSH approved air fed respirators, hoods or helmets.**

8. **Do Not modify or alter any abrasive blaster, blast equipment or controls thereof without written consent from Axxiom Manufacturing, Inc.**

9. **Do Not use bleeder type deadman valves on any Schmidt® abrasive blaster. The use of A-BEC, Clemco or a similar bleeder type deadman valve can cause unintentional start-up without warning, which can result in serious personal injury.**

10. **Do Not sell, rent, or operate abrasive blasters without remote controls. OSHA regulations require remote controls on all blast machines. Failure to use remote controls can cause serious injury or death to the operator(s) or other personnel in the blasting area. Reference OSHA 29 CFR 1910.244(b).**

11. **Do Not repair or replace any portion of Schmidt® equipment using components that are not Schmidt® original factory replacement parts. Use of replacement components that are not Schmidt® original factory replacement parts may result in equipment failure which can result in serious personal injury and in addition will void all warranties.**

# Instructions for use of manual sections

This manual contains information needed to operate and maintain your abrasive blaster. Read this entire operations and maintenance manual before using your abrasive blaster. Pay close attention to the *Rules for Safer Operation* (Section 1.0), and the Dangers, Warnings, and Cautions identified.

The purpose of safety symbols and explanations are to alert you of the possible hazards and explain how to avoid them. The safety symbols and explanations do not by themselves eliminate any danger. However, following the instructions given and taking proper accident prevention measures will greatly lower the risk of injury to personnel. Below are the three hazard levels as used in this manual.

**⚠ DANGER** WHITE LETTERS with RED BACKGROUND

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

**⚠ WARNING** BLACK LETTERS with ORANGE BACKGROUND

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

**⚠ CAUTION** BLACK LETTERS with YELLOW BACKGROUND

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices that may cause property damage.

**NOTICE** WHITE LETTERS with BLUE BACKGROUND

NOTICE: Indicates that equipment could malfunction or potentially become damaged if certain instructions are not followed.

This manual contains terms that may be specific to the abrasive blast industry. Understanding these terms will help you understand the procedures and instructions given in this manual. Please familiarize yourself with the following terms and refer to them as needed while reading this manual.

| Term | Definition |
|---|---|
| Pressure Vessel | A fabricated tank (or reservoir) that is part of the abrasive blaster which is filled with compressed air and abrasive. (Also referred to as “blast vessel” or “vessel”.) |
| Pressurize | To manually or automatically fill the abrasive blast vessel with compressed air. |
| Depressurize | To manually or automatically release all the compressed air from inside the abrasive blast vessel. (Also referred to as “blowdown”.) |
| Depressurized System | An abrasive blaster that is pressurized only when the deadman activates the blast operation. The blaster automatically depressurizes when the deadman is released. |
| Pressurized System | An abrasive blaster that is automatically pressurized when the air inlet ball valve is opened. The blaster remains pressurized when the deadman is released. |
| Blowdown | To manually or automatically release all the compressed air from inside the abrasive blast vessel. (Also referred to as “depressurize”.) |
| Deadman | A manually operated valve or switch that allows remote starting and stopping of the blast operation. [Also referred to as “deadman valve” (pneumatic blast controls) or “deadman switch” (electric blast controls.)] |
| Popup | An air pressure operated valve that seals the abrasive inlet at the top of the pressure vessel. Its operation may be manual or automatic. |
| Abrasive | A granular substance used in an air blast operation that is the means for blasting the surface of an object. (Also referred to as abrasive blasting media.) |
| Silica | The crystalline chemical compound silicon dioxide ($SiO_2$) which can be found in many natural abrasives and other substances. Breathing silica dust can cause respiratory diseases such as silicosis. (Also referred to as crystalline silica) |

# 0.0 Warning Decal Identification and Location

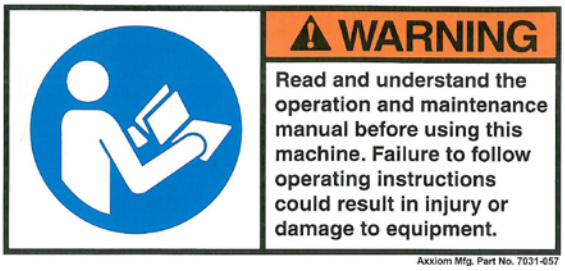
Listed below are the warning decals and the corresponding hazards related to this equipment. Refer to Figure 0.1a and 0.1b for images of the warning decals. Refer to Figure 0.2 for the locations of these warning decals on the Mini M-Series Abrasive Blaster.

| No. | Qty. | Part no. | Description | Hazard |
|---|---|---|---|---|
| 1. | 1 | 7031-002 | Small “Schmidt” | Not Applicable |
| 2. | 1 | 7031-054 | “Warning” Airborne particles and loud noise hazards | Airborne particles and loud noise from blast nozzle and blowdown can cause injury and loss of hearing. Wear approved eye and ear protection. See Section 1.0 and 3.9. |
| 3. | 1 | 7031-007A | “Danger” Pressurized vessel | Propelled objects will cause serious injury or death. Depressurize vessel prior to performing any maintenance. See Section 6.2. |
| 4. | 1 | 7031-057 | “Warning” Read manual before using this machine. | Read and understand operator’s manual before using this machine. Failure to follow operating instructions could result in injury or damage to equipment. See Section 1.0. |
| 5. | 1 | 7031-077 | “Warning” Pinch point hazard. | Vessel pressurization will close popup. Closing popup can pinch and crush. Keep hands and fingers away from popup. |
| 6. | 1 | 7031-084 | “Warning” plate decal. General hazard and advisory notes. | “Warning” decal applied to pressure vessel which provides a general list of required actions to take before and during the operation of this equipment. See Section 1.0 |


1) 7031-002


2) 7031-054

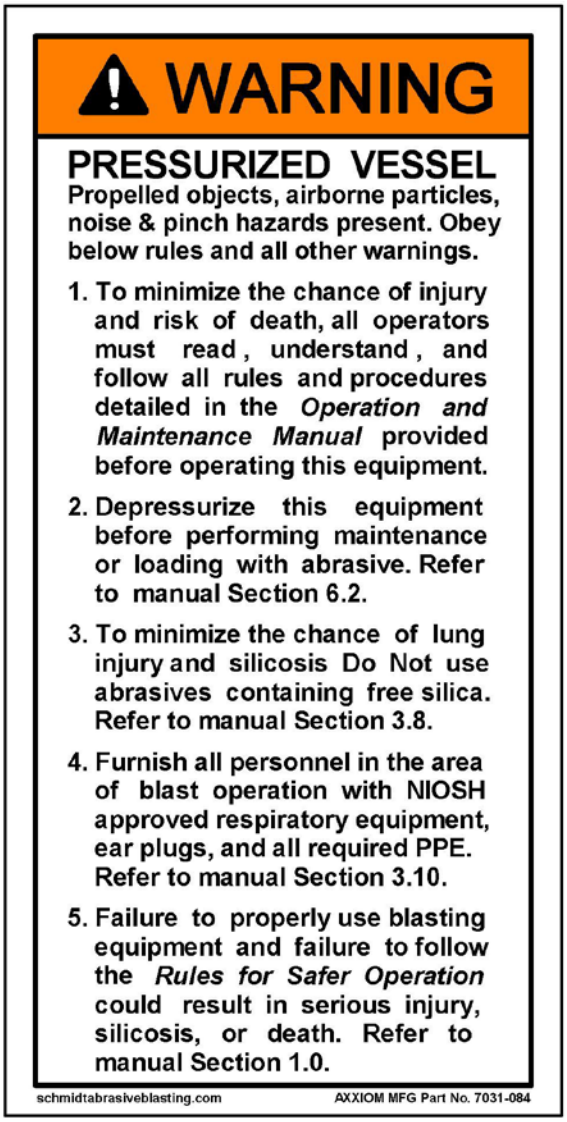

3) 7031-007A




4) 7031-057

**Figure 0.1a – Warning decal summary**


5) 7031-077




5) 7031-084

**Figure 0.1b –Warning decal summary continued**

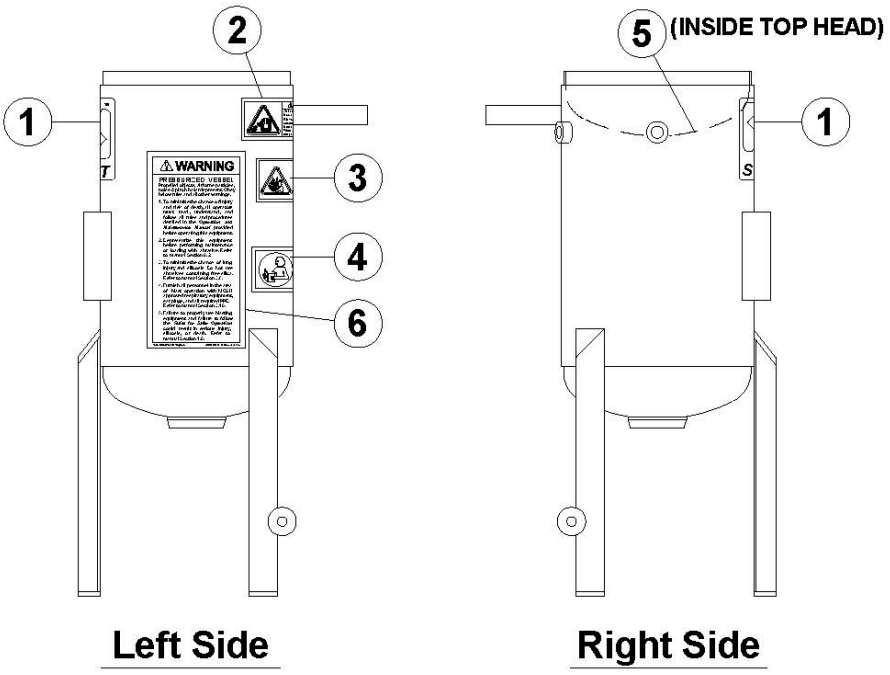



**Figure 0.2(a) - Warning decal placement (0.5cf)**

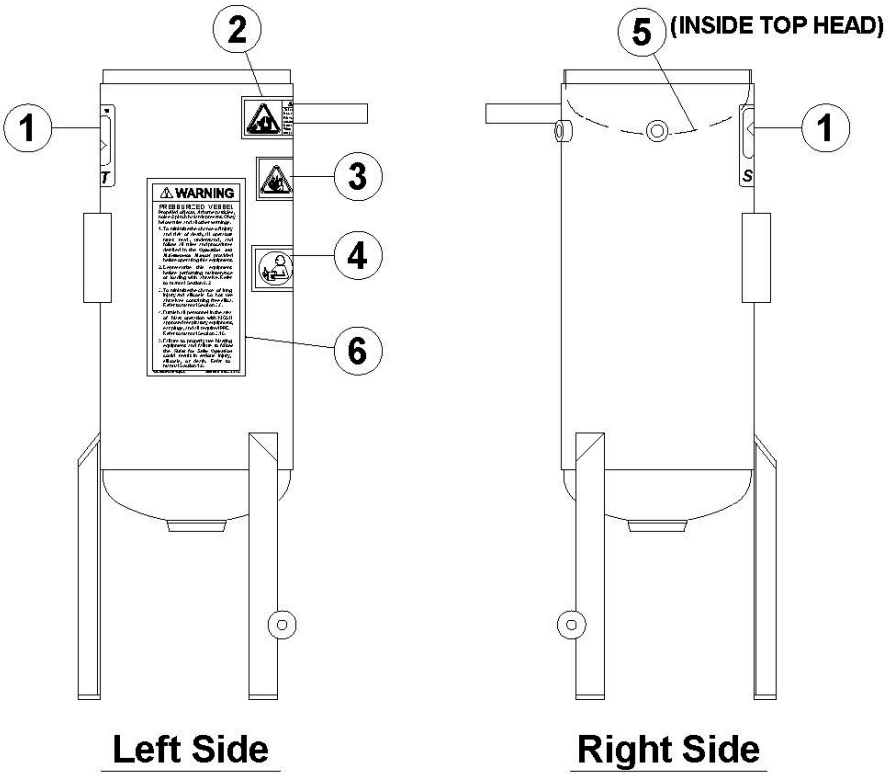



**Figure 0.2(b) - Warning decal placement (0.9 / 1.8cf)**

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# 1.0 Rules for Safer Operation

**1.1. GENERAL RULE FOR SAFER OPERATION.**

SCHMIDT® ABRASIVE BLASTERS HAVE BEEN DESIGNED TO BE SAFE WHEN USED IN THE PROPER MANNER. ALL ABRASIVE BLASTERS ARE POTENTIALLY DANGEROUS IF ALL SAFETY PRECAUTIONS ARE NOT RIGOROUSLY FOLLOWED. PROPER TRAINING IS REQUIRED BEFORE OPERATION. PROPER PROCEDURES MUST BE FOLLOWED. THE ABRASIVE BLASTER AND ALL COMPONENTS MUST BE PROPERLY MAINTAINED. FAILURE TO OPERATE, SERVICE AND MAINTAIN THE ABRASIVE BLASTER AS SET FORTH IN THIS MANUAL MAY CAUSE INJURY OR EVEN DEATH TO ANY PERSON USING, SERVICING OR IN THE VICINITY OF THE ABRASIVE BLASTER.

THIS MANUAL IDENTIFIES POTENTIAL HAZARDS BY DANGER, WARNING, AND CAUTION SYMBOLS. HOWEVER, ALL THE RULES, PROCEDURES AND RECOMMENDATIONS MUST BE FOLLOWED. FAILURE TO OPERATE PROPERLY IS VERY LIKELY TO PLACE PERSONS AND PROPERTY AT HIGH RISK OF DAMAGE, INJURY OR EVEN DEATH.

**⚠ DANGER**

ABRASIVE BLASTERS AND THE ABRASIVE BLAST OPERATION ARE POTENTIALLY DANGEROUS IF ALL SAFETY PRECAUTIONS ARE NOT FOLLOWED. FAILURE TO OPERATE THE ABRASIVE BLASTER WITHOUT FOLLOWING ALL THE *RULES FOR SAFER OPERATION* MAY RESULT IN SERIOUS INJURY OR DEATH TO OPERATING PERSONNEL OR PERSONS IN THE OPERATING VICINITY.

**1.2. KNOW YOUR EQUIPMENT.**

Do Not operate this equipment in a manner other than its intended application (see Section 4.0). Do Not operate this equipment or any other Schmidt® equipment without following the *Rules for Safer Operation* and all the operating procedures and instructions. Learn the applications and limitations as well as the specific potential hazards related to this machine. Failure to do so could result in serious injury or death.

**1.3. RECEIVE PROPER TRAINING.**

Do Not operate this equipment unless you have received operational and maintenance training. Begin by thoroughly reading and understanding this operation and maintenance manual and all included information. Consult an authorized Schmidt distributor or Axxiom manufacturing, Inc.

**1.4. PROTECT YOUR FEET.**

Do Not operate this equipment without wearing OSHA approved foot protection. Observe all applicable local, state and federal regulations. See Section 3.10 and OSHA 29 CFR 1910.136.

**⚠ CAUTION**

Heavy objects can shift while being blasted and may fall on operators. All operators and personnel in the vicinity must wear OSHA approved foot protection during the operation of this equipment. See Section 3.10 and OSHA 29 CFR 1910.136.

**1.5. PROTECT YOUR EYES.**

Do Not operate this equipment without wearing OSHA approved safety glasses. Observe all applicable local, state and federal safety regulations. See Section 3.10 and OSHA 29 CFR 1910.133.


When filling the blast vessel and during the blast operation, abrasive can be blown in the face and eyes of operators. All operators and personnel in the vicinity must wear OSHA approved safety glasses during the operation of this equipment. See Section 3.10 and OSHA 29 CFR 1910.133.

**1.6. PROTECT YOUR LUNGS.**

Do Not operate this equipment without wearing OSHA approved respiratory protection. Abrasive blasting produces dust contaminated with toxic substances from the abrasive used, the coating being removed, and the object being blasted. This dust may contain silica which can cause severe and permanent lung damage, cancer, and other serious diseases. Do Not breathe the dust. Do Not rely on your sight or smell to determine if dust is in the air. Silica and other toxic substances may be in the air without a visible dust cloud. If air-monitoring equipment for silica is not provided at the worksite, then all personnel MUST wear appropriate respiratory protection when using or servicing this equipment. Breathing air supplied to respirators must be of acceptable quality. Consult your employer and OSHA regarding the appropriate respiratory protection and breathing air quality. See Sections 3.9, 3.10, and OSHA 29 CFR 1910.134.


Abrasive blasting produces dust which may contain silica and other toxic substances that can cause severe and permanent lung damage, cancer, and other serious diseases if inhaled. All operators and personnel in the vicinity must wear OSHA approved respiratory protection during the operation of this equipment See Sections 3.9, 3.10, and OSHA 29 CFR 1910.134.

**1.7. BREATHING AIR QUALITY.**

Do Not use breathing air that does not meet OSHA Class D standards. Use extreme caution when selecting a source of breathing air. Breathing air provided by an oil-lubricated air compressor can contain carbon monoxide; therefore, a carbon monoxide detector is required (See Section 3.10). Carbon monoxide can be in the compressed air produced by an oil-lubricated air compressor when it is operated at extremely high temperature; therefore a high temperature alarm is required to alert the operators when this condition exists. See Section 3.9 and reference OSHA 29 CFR 1910.134(i).

Extreme caution must be taken when connecting to factory air sources. Factories can have sources of compressed gases such as nitrogen which is fatal if used as a breathing air source. Verify that the air source is breathable air.


Breathing air must meet OSHA Class D standards. Use of breathing air sources that do not meet Class D standards can cause asphyxiation and result in death. Verify that all air sources are breathable quality and use a high-temperature alarm and a carbon monoxide monitor when required. See Sections 3.9, 3.10 and OSHA 29 CFR 1910.134(i).

Enclosed blast areas must be ventilated to reduce airborne dust to an acceptable level as required by OSHA 29 CFR 1910.1000 and 1910.94

**1.8. PROTECT YOUR HEARING.**

Do Not operate this equipment without wearing OSHA approved hearing protection. Observe all applicable local, state and federal safety regulations. See Section 3.10 and refer to OSHA 29 CFR 1910.95.


Loud noise is produced by the blast nozzle and the blowdown operation of this equipment. All operators and personnel in the vicinity must wear OSHA approved hearing protection during the operation of this equipment. See Section 3.10 and refer to OSHA 29 CFR 1910.95.

**1.9. PROTECT YOUR PERSON**

Abrasive blasting produces dust contaminated with toxic substances from the abrasive used, the coating being removed, and the object being blasted. All blast operators and other personnel involved in the blast operation or in the vicinity of the blast operation should wear protective clothing. The protective clothing should be disposable or washable work clothes that should be removed at the worksite so that contaminated dust is not transferred into automobiles or homes. See Section 3.10 and refer to OSHA 29 CFR 1910.94 and 1910.132.

**1.10. ADHERE TO ALL REGULATIONS.**

Do Not operate this equipment without observing all local, state, and federal safety regulations including, but not limited to, OSHA (Occupational Health and Safety Administration).

**1.11. STAY ALERT.**

Do Not operate this equipment when you are tired or fatigued. Use caution and common sense while operating and/or performing maintenance on this equipment.

**1.12. DO NOT USE DRUGS, ALCOHOL, or MEDICATION.**

Do Not operate this equipment while under the influence of drugs, alcohol, or any medication.

**1.13. PROTECT BYSTANDERS.**

Do Not allow blast equipment operators and other personnel to enter the vicinity of the blast operation without providing respiratory protective equipment that meets OSHA regulations. If dust concentration levels exceed the limitations set in OSHA 29 CFR 1910.1000 then respirators are required.

**1.14. KEEP CHILDREN AND VISITORS AWAY.**

Do Not allow children or other non-operating personnel to contact this equipment or the connecting hoses and cords. Keep children and non-operating personnel away from work area.

**1.15. AVOID DANGEROUS ENVIRONMENTS.**

Do Not operate this equipment without familiarizing yourself with the surrounding environment. The blast operation creates high level of noise which may prevent the operator from hearing other possible dangers (i.e. traffic or moving equipment). In such situations a stand-by watch person may be necessary to protect against injury to personnel.

**1.16. AVOID DANGEROUS ENVIRONMENTS.**

Do Not use this equipment in areas cluttered with debris. Debris in the work area can create tripping hazards which can cause the operator to lose control of the blast hose and result in injury to operating personnel. Keep work area clean and well lit. When working at an elevated location, pay attention to articles and persons below.

**1.17. AVOID DANGEROUS ENVIRONMENTS.**

Do Not operate this equipment in elevated areas without using fall protection equipment. Certain applications of this equipment may require the use of scaffolding. Use of scaffolding creates hazardous situations such as tripping and fall hazards which can result in serious injury or death to operating personnel. Consult OSHA 29 CFR 1910 Subpart D.

**1.18. AVOID DANGEROUS ENVIRONMENTS.**

Do Not blast objects that are not properly secured. The blast operation can cause the blasted object to shift or move. Extremely large objects to be blasted can create a crush hazard to operating personnel which can result in serious injury or death. Properly secure the object to be blasted.

**1.19. AVOID DANGEROUS ENVIRONMENTS.**

Do Not blast objects used to store flammable materials. The blast operation can cause sparks which can ignite fumes or residual flammable materials inside enclosed containers which can explode resulting in serious injury or death to operating personnel.

**1.20. AVOID DANGEROUS ENVIORNMENTS**

It has been determined that blast abrasives approved for use in blast equipment are not ignitable nor do they present a dust explosion hazard in environments approved for use. However; airborne substances that make up the items and substrates being blasted can be ignitable when mixed with airborne dust from the blast abrasive. To mitigate risk of dust explosion avoid blasting in confined spaces without proper ventilation. Consult plant authorities, OSHA 29 CFR 1910.146 and 1910.94.


Explosion Hazard. Do Not operate blast equipment in confined spaces without proper ventilation. Consult plant authorities, OSHA 29 CFR 1910.146 and 1910.94.

**1.21. ELECTRICALLY GROUND EQUIPMENT.**

Static electricity is generated by the abrasive flow through the blast hose and/or vacuum hose. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose and/or vacuum hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster. See Section 5.12.

**1.22. MAINTAIN VESSEL INTEGRITY.**

Do Not operate this equipment with the pressure vessel damaged, or with any part of it worn or damaged. Do Not operate this equipment in a condition that may cause failure of the pressure vessel. See Sections 1.23 through 1.33 below.


An abrasive blaster is a Pressurized Vessel. Alterations, damage, or misuse of the pressure vessel can result in rupturing. Damaged or incorrect components used on the abrasive blaster can result in rupturing. The compressed air inside a pressurized vessel contains a dangerously high level of energy which can propel objects and cause serious injury or death.

**1.23. NEVER OPERATE OVER MAXIMUM WORKING PRESSURE.**

Do Not operate this equipment above maximum allowable working pressure (MAWP) at maximum operating temperature (°F) shown on the ASME nameplate attached to the vessel. See Sections 2.2 and 8.1.

**1.24. INSTALL PRESSURE RELIEF DEVICE.**

Do Not operate this equipment without a pressure relief device in place. The ASME Code requires that all vessels be equipped with pressure relief devices prior to installation. The pressure relief device must be set at the maximum allowable working pressure of the abrasive blaster. See the ASME nameplate attached to the vessel. See Section 3.11 for information regarding the pressure relief valve.

**1.25. NEVER OPERATE BEYOND ALLOWABLE TEMPERATURE RANGE.**

Do Not operate this equipment above the maximum allowable temperature at the allowable pressure or below the minimum design metal temperature (MDMT) shown on the pressure vessel nameplate. The characteristics of the pressure vessel metal are weakened when the temperature is outside the operating range. Operating the pressure vessel outside of allowable temperature range can result in rupturing and cause serious injury or death. See Section 2.2.

**1.26. ASME NAMEPLATE REQUIRED.**

Do Not operate this equipment if the ASME pressure vessel nameplate is missing. Contact Axxiom Manufacturing, Inc. for technical support.

**1.27. DO NOT MODIFY VESSEL.**

Do Not modify or alter any abrasive blaster, blast equipment, or controls thereof without written consent from Axxiom Manufacturing, Inc. Do Not weld, grind, or sand the pressure vessel. *It will not be safe to operate.* Non-authorized modifications could lead to serious injury or death. Non-authorized modifications will void the warranty and may void the ASME/NB integrity.

**1.28. DO NOT HAMMER ON VESSEL.**

Do Not hammer on or strike any part of the pressure vessel. Hammering on the pressure vessel can create cracks and cause rupturing.

**1.29. FIRE DAMAGE NOTICE.**

Do Not operate if the pressure vessel has been damaged by fire. If damaged, take out of service immediately and have it inspected and/or repaired by a qualified facility. Contact Axxiom Manufacturing, Inc. for technical support.

**1.30. INSPECT VESSEL REGULARLY.**

Do Not operate this equipment with damage to the pressure vessel. *It is not safe*. Inspect outside and inside of the pressure vessel regularly for corrosion or damage (i.e. dents, gouges or bulges). If damaged, take out of service immediately and have it inspected and/or repaired by a qualified facility. Contact Axxiom Manufacturing, Inc. for technical support. See Section 8.0.

**1.31. CHECK FOR LEAKS IN VESSEL.**

Do Not operate this equipment if there is a leak in the pressure vessel. If leaking, take out of service immediately and have it inspected and/or repaired by a qualified facility. Contact Axxiom Manufacturing, Inc. for technical support.

**1.32. INSPECT HANDWAY ASSEMBLY.**

Do Not operate the abrasive blaster without first inspecting the handway assembly. To insure proper operation all handway components must be the correct size for the vessel handway opening. See Section 6.4.

**1.33. NEVER MODIFY BLOWDOWN.**

Do Not connect the blowdown on this equipment onto a common header with any other unit of any description, or any other source of compressed air, without first making sure a check valve is used between the header and this unit. Do Not install this equipment sharing piping with another unit of higher discharge pressure and capacity. A safety hazard could occur in the form of a back-flow condition. Do Not install a muffler or silencer on the blowdown that is not designed for use on abrasive blast equipment it can cause a malfunction and can result in a hazardous condition. See Section 5.3 and Section 6.2.

**1.34. DEPRESSURIZE VESSEL BEFORE PERFORMING MAINTENANCE.**

Do Not remove, repair, or replace any item on this equipment while it is pressurized. Do Not attempt to perform maintenance or load abrasive while this equipment is pressurized or is even capable of being pressurized. This means the inlet ball valve should be closed and the air supply should be shut off or disconnected. Anytime the manual blowdown valve is closed it should be assumed that the abrasive blast vessel is pressurized.

**⚠ DANGER**

An abrasive blaster is a Pressurized Vessel. The compressed air inside a pressurized vessel contains a dangerously high level of energy which can propel objects and cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

**1.35. ALWAYS USE REMOTE CONTROLS.**

Do Not sell, rent, or operate abrasive blasters without remote controls. OSHA regulations require remote controls on all abrasive blasters. All abrasive blasters must be equipped with automatic (deadman) type remote controls (either pneumatic or electric). Failure to use remote controls can cause serious injury or death to the operator(s) or other personnel in the blasting area. Reference OSHA 29 CFR 1910.244(b).

**1.36. NEVER USE BLEEDER TYPE DEADMAN VALVES.**

Do Not use bleeder type deadman valves on any Schmidt® abrasive blaster. The use of A-BEC, Clemco, or a similar bleeder type deadman valve can, without warning, cause unintentional start-up which can result in serious personal injury. A particle of dirt from the air hose can plug the bleed hole in the deadman valve and cause the blast outlet to turn on.

**1.37. CHECK FOR DAMAGED PARTS.**

Do Not use this equipment with damaged components. Periodically check all valves, hoses, fittings, pipe, and pipe fittings (internal and external) to confirm that they are in good condition. Repair or replace any component that shows any sign of wear, leakage, or any other damage. See Section 8.0.

**⚠ DANGER**

Damaged components can fail during operation and result in serious injury or death to operating personnel.

**1.38. ALWAYS USE SAFETY PINS ON HOSE COUPLING CONNECTIONS.**

Do Not use this equipment without hose coupling safety pins in place and hose whip checks installed on all air and blast hoses. All blast hose couplings and air hose couplings have pin holes that must be safety pinned to protect against accidental disconnections. Accidental hose disconnection can cause serious injury or death. See Sections 5.15 and 8.7.

**1.39. ALWAYS USE CORRECT REPLACEMENT PARTS AND ACCESSORIES.**

Do Not use replacement parts or accessories that are not rated for pressures equal to or higher than the abrasive blaster's operating pressure. Improper hoses and/or fittings used on, or connected to the abrasive blaster can rupture and cause serious injury or death.

Do Not use replacement parts that are not Schmidt® original factory replacement parts. Non-original parts may not fit properly and can cause equipment damage and/or failure which can result in serious injury to operating personnel. Consult Axxiom Manufacturing, Inc. See Section 9.0 and Section 12.2.12.

**⚠ WARNING**

Use of replacement components that are not Schmidt® original factory replacement parts may result in equipment failure which can result in serious injury to operating personnel.

**1.40. ALWAYS USE CORRECT PRESSURE RATED ACCESSORIES.**

Do Not use air reservoirs or moisture separator tanks that are not rated for use in compressed air applications. Air reservoirs and moisture separator tanks larger than 6 inches inside diameter must have an ASME code stamp.

**⚠ DANGER**

An air reservoir or moisture separator tank is a Pressurized Vessel. The compressed air inside a pressurized vessel contains a dangerously high level of energy which can explode propelling objects and result in serious injury or death to operating personnel. Air reservoirs and moisture separator tanks must be ASME coded tanks.

**1.41. NEVER AIM BLAST NOZZLE TOWARDS ANY PERSON.**

Do Not aim the blast nozzle towards yourself or any person. A system malfunction or a blocked blast nozzle that clears can trigger accidental start up resulting in injury to personnel.

**1.42. NEVER USE ABRASIVE NOT INTENDED FOR BLAST EQUIPMENT.**

Do Not use abrasive blast media containing free silica. Silica can cause silicosis or other related respiratory damage. Verify that the abrasive is intended for use in blasting equipment. Personal protective equipment, including airline filters and respirators, must be used for all abrasive blasting operations. Observe all applicable local, state and federal safety regulations. See Sections 3.8, 3.10, and reference OSHA 29 CFR 1910.134.

**1.43. CHECK ABRASIVE FOR DEBRIS.**

Do Not use blast abrasive that contains trash or other debris. Trash or debris can create a blockage and cause equipment malfunction. Screen recycled abrasive to remove trash.

**1.44. STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.**

Do Not operate this equipment if anything abnormal is seen during operation. Stop operation immediately for inspection. Refer to Section 8.0 for maintenance and inspection details.

**1.45. DO NOT OVERLOAD THE LIFT EYES.**

Do Not load the lifting eyes above the rated capacity. Do Not lift this equipment by any point other than the lifting eyes or designated lift points. Do Not lift this equipment while it is pressurized. See Section 2.6.

**1.46. MAINTAIN WARNING DECALS.**

Do Not remove, cover, obstruct, or paint over any warnings, cautions, or instructional material attached. Warning decals must be installed, maintained, and located to be visible and with enough light for legibility. See Sections 0.0 and 8.13.

**1.47. SAVE THIS OPERATION AND MAINTENANCE MANUAL.**

Refer to this operation and maintenance manual as needed as well as any additional information included from other manufacturers. Never permit anyone to operate this equipment without having him/her first read this manual and receive proper training. Make this manual readily available to all operating and maintenance personnel. If the manual becomes lost or illegible replace it immediately. This operation and maintenance manual should be read periodically to maintain the highest skill level; it may prevent a serious accident. This operation and maintenance manual is available for downloading from SchmidtAbrasiveBlasting.com.

**1.48. SAFETY REFERENCES**

See Section 12.4 for safety information sources and contact information. Use these sources to obtain additional information regarding all aspects of blast operation safety.

# 2.0 Specifications and General Information

## 2.1 Notes to Distributors and Owners

2.1.1. Verify that the deadman, twinline (or cords), and the operation and maintenance manual are included with the abrasive blaster when it is received. Verify that the deadman, twinline (or cords), and the operation and maintenance manual are included with the abrasive blaster when it is delivered to the purchaser.

2.1.2. This equipment is intended for knowledgeable and experienced users. No person or persons should be allowed to operate this equipment without first receiving proper training in abrasive blasting operation and use of this equipment.

2.1.3. Immediately notify Axxiom Manufacturing, Inc. of any instances of use of this equipment in any manner other than the intended application. See Section 4.0.

2.1.4. Only qualified personnel should load and unload this equipment for shipping. Mini Blasters are not equipped for lifting with slings or other lifting devices. Equipment must be palletized for moving long distances. See the packing diagrams shown in Section 2.7.

2.1.5. For further information on options and accessories available for Schmidt® abrasive blasters visit the Axxiom website or contact us:

Axxiom Manufacturing, Inc.
11927 South Highway 6
Fresno, Texas 77545

Phone: 1-800-231-2085
Fax: 1-281-431-1717
Website: www.schmidtabrasiveblasting.com

## 2.2 Abrasive Blaster Operational Specifications

| | |
|---|---|
| Maximum Working Pressure | 125 or 150 psig @ 250°F (see ASME nameplate) |
| Maximum External Pressure | Not designed for external pressure |
| Minimum Metal Temperature | -20°F @ 125 or 150 psig (see ASME nameplate) |
| Air Consumption | See Section 13.0 table 1 |
| Abrasive Consumption | See Section 13.0 table 2 |
| Blast Hose Size | See Section 13.0 table 3 |
| Electrical requirements | See Section 3.7 |
| Abrasive Capacity | 0.5: 0.5 cu. ft., 0.9: 0.8 cu. ft., 1.8: 1.7 cu. ft. |

## 2.3 Important Reference Numbers

Fill in the Abrasive Blaster model number, serial number, and other information in the blank spaces below. This information will be needed for reference when service, maintenance, or technical support is required.

Blaster Model Number_____

Blaster Serial Number_____National Board Number_____

Blaster Piping Size_____

## 2.4 Vessel Information

2.4.1. All pressure vessels used in Schmidt® Abrasive Blasters are manufactured in strict accordance with the provisions of the ASME Code Section VIII, Div. 1.

2.4.2. In order to maintain the high level of quality and quality control used in the manufacture of this vessel, it is required that any and all welded repairs to this vessel be performed by a reputable shop holding a National Board "R" Stamp and/or an ASME "U" stamp, depending on state or city law. Welding on the vessel performed by welders not properly qualified per the ASME Code may void the ASME/NB integrity of the vessel.

## 2.5 Notes

## 2.6 Mini M-Series Abrasive Blaster Lifting/Dimensional Specifications

**⚠ DANGER**

A Mini M-Series Abrasive Blaster is a Pressurized Vessel. The compressed air inside a pressurized vessel contains a dangerously high level of energy which can propel objects and cause serious injury or death. Depressurize vessel and empty of abrasive before lifting, moving, or transporting.

**⚠ CAUTION**

Mini Blasters are not equipped for lifting with slings or other lifting devices. Equipment must be palletized for moving long distances. See the packing diagrams shown in Section 2.7.

| Model | Part Number | Length in. (mm) | Width in. (mm) | Height in. (mm) | Weight lb. (kg) w/ hoses | Weight lb. (kg) w/o hoses |
|---|---|---|---|---|---|---|
| 0.5 Cu.ft. | 8025-005 | 17 (432) | 18 (457) | 32 (813) | 125 (57) | 84 (38) |
| 0.9 Cu.ft. | 8025-010 | 17 (432) | 18 (457) | 38 (965) | 131 (59) | 90 (41) |
| 1.8 Cu.ft. | 8025-018 | 19 (483) | 20 (508) | 47 (1194) | 160 (73) | 119 (54) |

## 2.7 Mini M-Series Abrasive Blaster Strapping / Packing Details

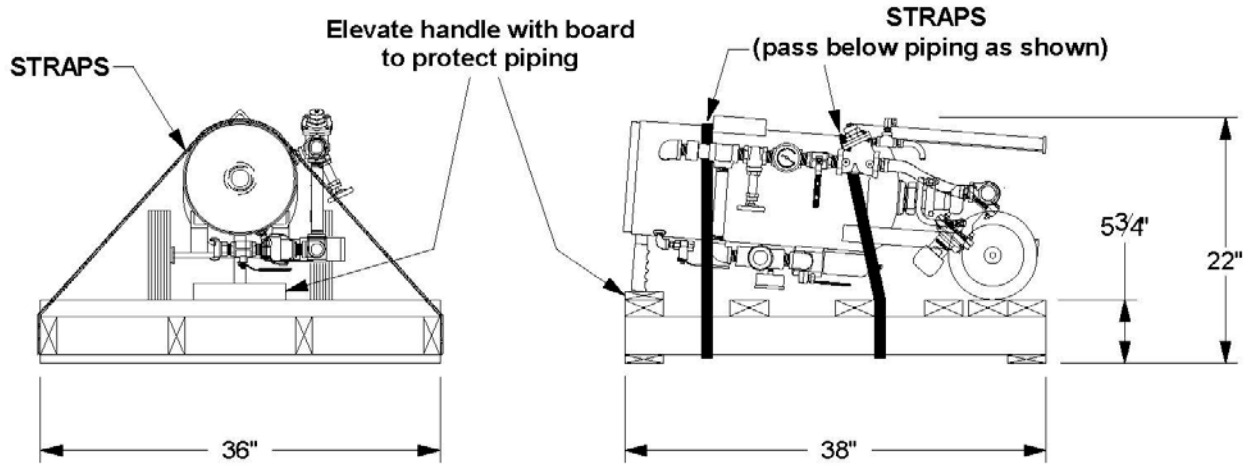



**Figure 2.7(a) - 0.5 / 0.9cf Shipping Detail**
**(refer to Section 2.6 for blaster empty weights)**

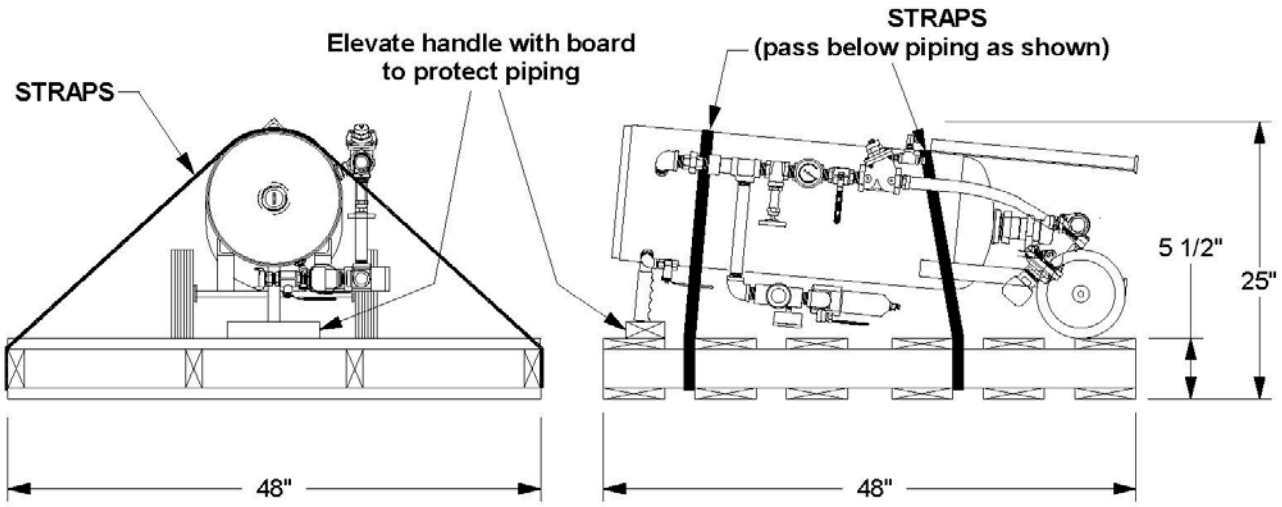



**Figure 2.7(b) - 1.8cf Shipping Detail**
**(refer to Section 2.6 for blaster empty weight)**

# 3.0 System Requirements and Personal Protective Equipment

Carefully read and follow all the recommendations regarding the abrasive blast system installation requirements. Improper installation can result in equipment malfunction and significant lost time expenses. Consult an authorized Schmidt® distributor or Axxiom Manufacturing, Inc.

## 3.1 Abrasive Blast System Installation Location

*i.* *Portable units:* Units equipped with handles and wheels are portable and can be rolled to locations where blast jobs are performed. Locate the unit to allow accessibility to the handway and for ease of abrasive filling. Pay close attention to objects that may be in the path of the pressure vessel exhaust air (depressurization). See Section 5.3 for system depressurization.

*ii.* *Stationary units*: Units that will be installed in permanent locations require careful consideration. Stationary units can be installed below an abrasive hopper with a support structure that can limit access to the abrasive blast system. Install stationary blast systems in a position that will allow access to the handway and the blaster piping. These areas must be accessible to perform required maintenance. Pay close attention to objects that may be in the path of the pressure vessel exhaust air (depressurization). See Section 5.3 for system depressurization. An exhaust hose assembly can be installed on TVXL Blast Systems to direct the exhaust air into the blast room. **Note:** A long blowdown exhaust hose can lengthen the blowdown time and also presents the possibility of blockage.

*iii*. Abrasive blasters 3.5cf and larger are provided with mounting holes in the bottom legs. These holes can be used for securing the blaster to the floor or mounting structure.

## 3.2 Compressed Air Requirements (blast nozzle)

The blast nozzle size and blast pressure determine the compressed air requirements. Available air flow capacity and/or air compressor size must be considered before selecting the blast nozzle size. An air source dedicated to the abrasive blast system is preferred to reduce system pressure drops and back flow of air. If an existing air compressor will be used or a limited air supply is available, then the blast nozzle must be selected based on these conditions. Be aware that as the blast nozzle wears the air demand will increase. See Table 1 in Section 13.0 for air consumption by nozzle size at various pressures. **Note:** 10cf and 20cf units can be upgraded to two blast outlets and therefore, this option should be considered when determining compressed air requirements.

## 3.3 Air Compressor Size

Air compressor size is crucial to the operation of the abrasive blast system. Blast nozzle selection and desired productivity must be evaluated to determine the air flow requirements prior to selecting the air compressor size. Sufficient air supply capacity is necessary to maintain the system air pressure. Insufficient air flow capacity will result in reduced blast nozzle pressure and lost productivity. The air compressor must be large enough to supply:

i. The sum of blast air requirements for each nozzle at the highest pressure that will be used (see Section 13.0, Table 1).

ii. The 12 CFM breathing air supplied to each blast operator respirator. **Note**: Reference OSHA regulations regarding requirements for breathing air, especially when an oil-lubricated air compressor is used.

## 3.4 Blast System Air Supply Line

The air supply hose and fittings must be rated at a minimum of 150 psi operating pressure. The air supply hose from the air compressor to the blast unit should be at least the same diameter as the air inlet piping (see Section 9.0). This size hose will be large enough to supply the required airflow to operate the blast unit controls and each blast nozzle. See Sections 5.1 and 5.15 for further information on air hose connection.

**Note:** If the abrasive blast system will be installed in a permanent location, the inlet connection can be hard piped. Do Not install hard piping that is smaller than the piping size of the blast system. Smaller piping size will reduce the air flow capacity. If other equipment will be using the same source of air as the abrasive blaster, install a check valve at the air inlet. This will protect against back flow of air pressure that can carry abrasive into the blast controls.

Hard piping connected to the abrasive blaster must be structurally supported so not to apply any loading on the pressure vessel at the points of connection. Unsupported piping can create bending loads at the connections on the pressure vessel and cause failure. Hard piping connections to the pressure vessel must be designed and installed by qualified personnel experienced with piping systems and the applicable codes pertaining to them.

**⚠ CAUTION**

External loading at piping connection can cause failure of the pressure vessel. Hard piping connected to the pressure vessel must include supports to eliminate the possibility of applying a load on the pressure vessel.

## 3.5 Blast System Air Pressure

The maximum allowable working pressure (MAWP) for the blast unit is stamped on the ASME nameplate attached to the vessel. For most abrasive blast systems the MAWP is 150psig. Do Not exceed the MAWP. An air pressure regulator can be installed to reduce air supply pressure that is higher than the MAWP. To prevent air pressure backflow only use a non-relieving air regulator. Air pressure backflow will carry abrasive from the blast vessel and contaminate the blast control system. **CRITICAL**: **Any inlet air valve or air pressure regulator added to the system must have sufficient air flow capacity for proper operation of the blast system. Insufficient air flow capacity will cause pressure drop in the blast system resulting in equipment malfunction, abrasive backflow, and reduced blast productivity. Select a valve that will operate with little or no pressure drop (5psi max.) at the required cfm air flow.**

Installing an air pressure regulator allows the option of blasting at low pressure. When blasting at low pressure the air supply to the deadman blast control system must be at least 80psig (see Figure 5.4). The valves in the abrasive blast system are “spring closed” and therefore require at least 80psig to operate properly. If the air pressure regulator is set below 80psig the air supply to the blast controls must be taken upstream of the regulator.

## 3.6 Blast System Air Quality

Air quality is crucial to the operation of an abrasive blaster. Moisture and contaminants can cause components to malfunction. Moisture condensation in a blast system causes abrasive flow problems. Condensation occurs when the hot vapor-filled compressed air cools as it reaches the abrasive blaster. Water droplets formed during condensation can be absorbed by the abrasive in the blast vessel which can cause erratic flow to the abrasive valve. Therefore, a moisture removal device installed for the blast system air supply is recommended (i.e. coalescing moisture separator, air-cooled aftercooler or deliquescent dryer). Contact a local authorized Schmidt® distributor or Axxiom Manufacturing, Inc. to locate one near you.

## 3.7 Electrical Requirements

On units equipped with electric blast controls the supply voltage is 12Vdc or 24Vac. The maximum power required is:

1-outlet: 7 watts  1-outlet with abrasive cutoff: 14 watts

**Note:** Insufficient electric power output will result in malfunctioning of the electric blast control system. A power transformer or power supply can be used if the above voltages are not readily available.

## 3.8 Abrasive Selection

Abrasive selection is likely the most difficult decision related to the blast operation. Choice of abrasive is based on factors such as blast application type, desired finish and coating requirements, characteristics of object to be blasted, cost and ability to recycle, available equipment, safety, and environmental constraints.

There are many abrasives available that are either natural, manufactured, or processing by-products. Abrasives are available in varying sizes, shapes, and hardness. These characteristics determine the resulting effect on the surface to be blasted and limitations of its use. The effects on the blasted surface are measured by its degree of cleanliness and the surface profile. Standards and required levels of these measurements are established by organizations such as Steel Structures Painting Council (SSPC), National Association of Corrosion Engineers (NACE) and coating manufacturers. See Section 12.5 for contact information of these organizations. Use these sources to obtain information regarding all aspects of surface preparation and abrasive selection guidelines.

Schmidt® abrasive blasters are designed for high production open abrasive blasting with a wide range of abrasives. It is the responsibility of the employer and operators to select the proper abrasive. It is the responsibility of the employer to make certain that the abrasive selected is safe to use for abrasive blasting.

**Critical:** Always obtain the Material Safety Data Sheet (MSDS) for the abrasive to be used. The MSDS provides the chemical makeup of the abrasive. Do Not use abrasives containing toxic materials. Refer to OSHA 29 CFR for acceptable limits of various toxic substances and additional measures to be taken to protect operating personnel. Always use abrasives containing less than 1% of crystalline silica. Always use a NIOSH approved respirator when handling, loading and cleaning up abrasives. Organic substances which are combustible may only be used in automated blast systems with ventilation that meets OSHA 29 CFR 1910.94.

## 3.9 Breathing Air Quality

All blast operators must be supplied with and required to use NIOSH approved air-fed respirators. Breathing air supplied to these respirators must meet Grade D air quality standards as specified by OSHA 29 CFR 1910.134(i) and the Compressed Gas Association Specifications ANSI/CGA G-7.1. Consult these specifications when selecting a source of breathing air.

Breathing air must be clean, dry, contaminant-free, and provided at a pressure and volume specified by NIOSH. Use NIOSH approved air filters on all sources of breathing air. See Section 3.10.

**⚠ DANGER**

Breathing air filters do not remove carbon monoxide or any other toxic gases. Use a carbon monoxide monitor to detect unacceptable levels. Consult OSHA 29 CFR 1910.134(i).

Many sources of breathing air are available such as air cylinders, free-air pumps, oil-less air compressors, and oil lubricated air compressors. The most commonly used is the same air compressor that is used for the blast air which most often is oil lubricated. Breathing air provided by an oil-lubricated air compressor can contain carbon monoxide and therefore requires the use of a carbon monoxide detector (See Section 3.10). Carbon monoxide can be in the compressed air produced by an oil-lubricated air compressor when it is operated at extremely high temperature; therefore, a high temperature alarm is required to alert the operators when this condition exists.

**⚠ DANGER**

Oil lubricated air compressors can produce carbon monoxide. Carbon monoxide can cause asphyxiation and result in death. Use a high-temperature alarm and a carbon monoxide monitor when an oil lubricated air compressor is used to supply breathing air. Consult OSHA 29 CFR 1910.134(i).

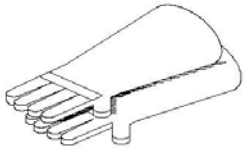
## 3.10 Personal Protective Equipment (PPE)

Abrasive blasting has many hazards that may cause injuries to operators. To protect operators from injury each must be supplied with, and required to use Personal Protective Equipment. The Occupational Health and Safety Administration (OSHA) requires the employer to assess the workplace to determine what PPE is necessary and supplied to each operator (Reference 29 CFR 1910 Subpart I). OSHA requires that this equipment meet or be equivalent to standards developed by the American National Standards Institute (ANSI). Figure 3.10 below identifies the minimum personal protective equipment required for each abrasive blast operator. Also identified are the OSHA references for each and the ANSI standard each PPE item must meet. All PPE clothing and equipment should be selected for safe design and quality of construction. Select each for proper fit and for comfort which will encourage operator use.

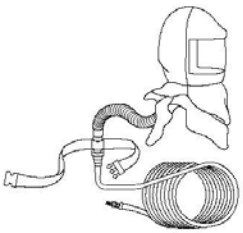
**Safety Glasses**
Reference OSHA 29 CFR 1910.133
Must meet ANSI Z87.1

**Safety Boots**
Reference OSHA 29 CFR 1910.136
Must meet ANSI Z41.1

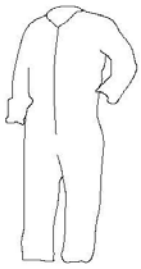
**Ear Plugs**
Reference OSHA 29 CFR 1926.101
Must meet ANSI S3.19
(Also see OSHA 29 CFR 1910.95)



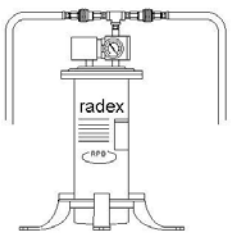
**Gloves**
Reference OSHA 29 CFR 1910.138
No Applicable ANSI Standard



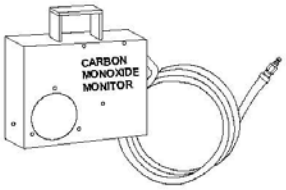
**Respirator**
Reference OSHA 29 CFR 1910.134
Must be NIOSH approved



**Protective Clothing**
Reference OSHA 29 CFR 1910.132
No Applicable ANSI Standard




**Airline Filter**
Reference OSHA 29 CFR 1910.134
Must be NIOSH approved




**Carbon Monoxide Monitor**
Reference OSHA 29 CFR 1910.134

**Figure 3.10 - Personal Protective Equipment**

## 3.11 Pressure Relief Valve Installation

Do Not operate this equipment without a pressure relief device installed to protect the blaster pressure vessel from over-pressurization. The ASME Code requires that all vessels be operated with pressure relief devices in place.

If the compressed air system does not provide for the installation of a pressure relief valve one can be installed on the blowdown port on the pressure vessel. Refer to Figure 3.11 for an alternate location of the air pressure relief valve.

Local regulations set the specifications for pressure relief valves; therefore, it is the responsibility of the owner of the abrasive blaster to install a pressure relief valve that meets *all* applicable regulations. The pressure relief device must be set at the maximum allowable working pressure of the abrasive blaster pressure vessel See the ASME/CE vessel nameplates attached to the pressure vessel.

**⚠ DANGER**

Rupture Hazard. Operating the pressure vessel above the maximum allowable working pressure can result in rupturing the pressure vessel. Install an air pressure relief valve to protect against over pressurization of the blast vessel.

**⚠ WARNING**

Airborne particles and loud noise hazards from relief valve exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of exhaust air path. DO NOT place hands or other body parts in the exhaust air path. Make sure no personnel are in the exhaust air path. Direct the relief valve exhaust away from work area.

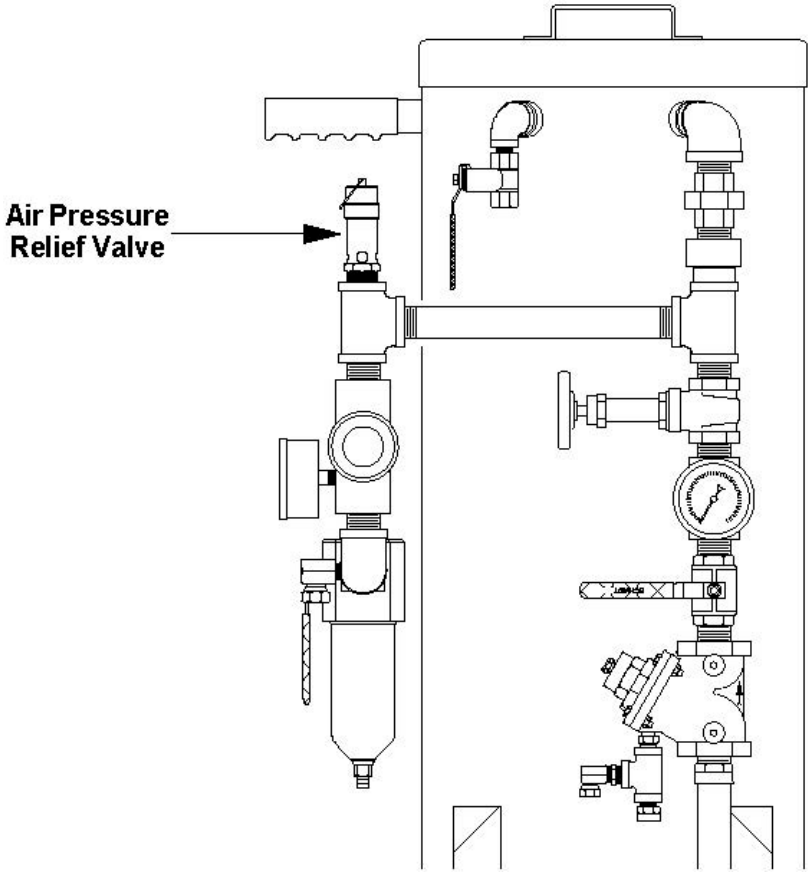



**Figure 3.11 – Suggested location for air pressure relief valve**

## 3.12 INSTALLATION CHECKLIST (Photocopy this page to use as an installation worksheet.)

☐ ***Deadman/Twinline (or cords):*** confirm delivery with the abrasive blaster.

☐ ***Blast accessories:*** confirm receipt as purchased with the blaster.

☐ ***Inspect blaster:*** check for possible damage during shipment. See Section 8.0 for inspection instructions.

☐ ***Popup alignment:*** remove popup dust cover from top head and check popup alignment. Shifting of popup is possible during shipment. See Section 8.4 for inspection & alignment instructions.

☐ ***Clean blaster:*** remove TeraValve™ XL™ at the pipe union and check for debris inside. Trapped debris can vibrate loose during shipment and later block abrasive flow. If necessary vacuum the bottom of tank.

☐ ***Accessible location:*** Install stationary blasters so that handway is accessible for maintenance. See Section 3.1 for additional information.

☐ ***CFM available:*** determine available air supply (cfm) and record here._____
See Sections 3.2, 3.3, and 3.5 for information on determining air requirements.

☐ ***Air supply connection:*** install air supply piping or connect an air supply hose that is the same size as the blaster piping size or larger. See Section 3.4 for details.

☐ ***Air quality:*** install moisture separator or AirPrep System to remove moisture from blast air supply to protect against abrasive flow problems. See Section 3.6.

☐ ***Electric power:*** provide power source for electric deadman controls. See Section 3.7.

☐ ***Blast abrasive:*** select abrasive suited for application. See Section 3.8.

☐ ***Breathing air:*** provide Grade D air source for blast operators. See Section 3.9.

☐ ***PPE:*** provide all the necessary personal protective equipment. See Section 3.10.

☐ ***Pressure relief valve:*** install pressure relief valve if not provided on air compressor. See Section 3.11 for information on pressure relief valve installation.

☐ ***Blast nozzle:*** select size based on available cfm noted above. See Section 5.10.

☐ ***Blast hose:*** select size three times the nozzle size to be used. See Section 5.12.

☐ ***Install ground:*** install earth ground and bond nozzle/hose/blaster. See Section 5.12.

☐ ***Operator training:*** all operators must completely read and understand the operation and maintenance manual and be properly trained in equipment and blast operations.

☐ ***Abrasive Blaster Setup:*** Follow procedures in Section 6.1.

# 4.0 Abrasive Blast System General Operation

The function of the Schmidt® Mini M-Series Abrasive Blaster is to provide a mixture of dry abrasive and compressed air to a blast nozzle. The abrasive blast stream through the blast nozzle is used for removing rust, paint, or other unwanted surface defects. After abrasive blasting, the surface is ready for new paint or coating.

The Mini M-Series Abrasive Blaster is one of a group of components used in an abrasive blasting job. The typical components are an air compressor, moisture removal device, an abrasive blaster, blast hose, a blast nozzle, operator personal protective equipment, and blast abrasive. See Figure 4.1.

The blast abrasive is loaded into the abrasive blaster through a top fill port. All the compressed air must be removed from inside the abrasive blaster before it can be filled with abrasive. The abrasive can be bag loaded, or loaded from a hopper or recovery device. To begin blasting the fill port popup valve is manually closed and the abrasive blaster is filled with compressed air from the air compressor. Since moisture creates problems in the blast operation, it is common for the compressed air to be fed through a moisture removal device, such as a Schmidt Air Prep System. The air pressure in the abrasive blast vessel is equal to the air pressure in the blast hose where it connects at the TeraValve™ XL™. This equal pressure is needed to allow the blast abrasive to flow downward by gravity. The abrasive flow is controlled by the abrasive TeraValve™ at the bottom of the blaster. At this point, the blast abrasive flows into the blast air stream and through the blast hose. The speed of blast air and abrasive mixture is greatly increased by the blast nozzle onto the work surface. The high speed of the air and abrasive is what gives it the energy to blast rust and paint off of surfaces. The abrasive blast stream and the dust it creates are harmful; therefore, all blast operators must use personal protective equipment during the blast operation.

All the components required for the blast operation (except for the air compressor) are available from Axxiom Manufacturing, Inc. Call Axxiom to locate a distributor.

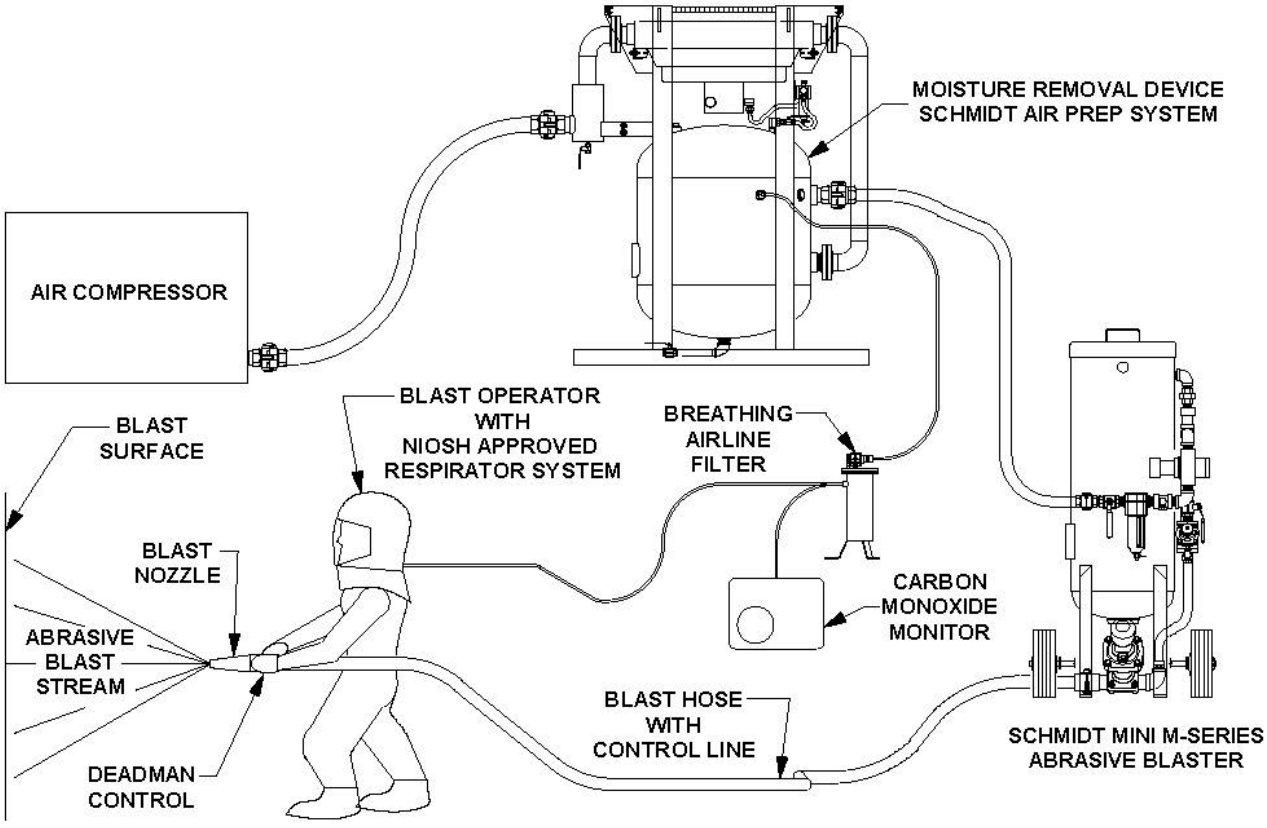



**Figure 4.1 – Typical Mini M-Series Abrasive Blast System**

# 5.0 Abrasive Blaster General Operation

See Figure 5.1 below to help understand the general operation. Do not attempt to operate the Mini M-Series Abrasive Blaster before reading all sections of this manual and following all setup procedures. See Sections 5.1 through 5.15 and Section 6.0.

The Mini M-Series blaster is a *pressurized system*; meaning the blaster remains pressurized when the deadman lever (#24) is released.

The Mini M-Series blaster is designed to be used with soft abrasives. It has features for blasting at reduced pressure and for fine adjustment of abrasive flow. The Mini M-Series Abrasive Blaster (#11) will pressurize when the blowdown ball valve (#1) is closed, the popup (#36) is closed, and the air inlet ball valve (#5) is opened. The compressed air enters the moisture separator (#7) and then is branched off to the blaster piping to pressurize the Mini M-Series Abrasive Blaster vessel (#11).

Blasting begins when the G2 Pneumatic deadman lever (#24) is pressed down. The deadman sends an air signal that opens both the automatic air valve (#15) and the TeraValve™ XL™ (#10). Compressed air will pressurize the blast hose (#23) when the automatic air valve (#15) is opened. At the same time the TeraValve™ (#10) will open to allow abrasive to fall through and into the blast air stream. The abrasive flow can be increased or decreased by turning the adjustment bolt on top of the TeraValve™.

Blasting stops when the deadman lever (#24) is released. Releasing the deadman will vent the air signal which will close the TeraValve™ (#10) and the automatic air valve (#15). When the signal air vents both valves spring return to the "normally closed" position to stop the blast air/abrasive flow. The Mini M-Series Abrasive Blaster (#11) remains pressurized when the blast operation is stopped.

The Mini M-Series Abrasive Blaster (#11) is depressurized by closing the air inlet ball valve (#5) and opening the blowdown ball valve (#1) to completely vent the compressed air.

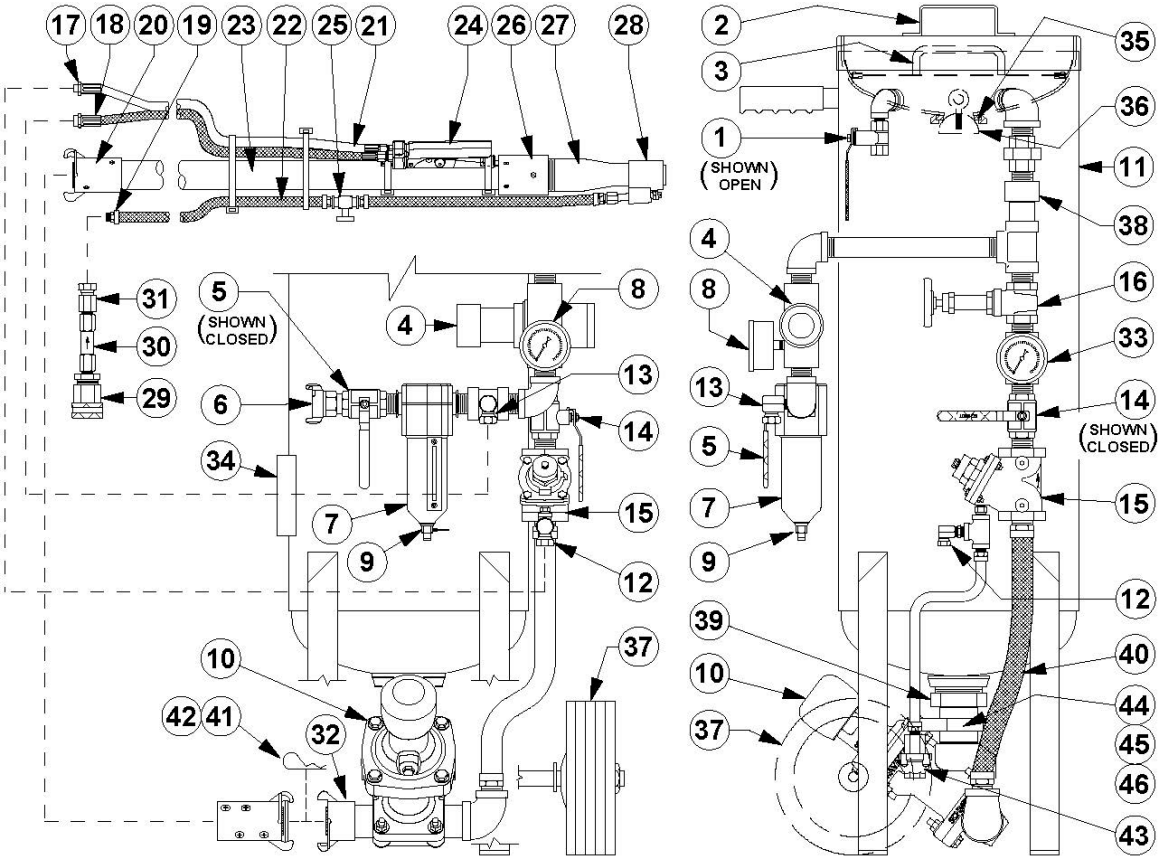



**Figure 5.1 – Typical Mini M-Series Abrasive Blaster**

## 5.1 Air Supply Connection

Air is supplied to the abrasive blaster through a hose connection at the air inlet crowfoot (#6). The air supply hose connected to the abrasive blaster must be the same diameter as the air supply piping. See the drawings and parts lists in Section 9.0 and refer to Sections 3.4 and 5.15.

## 5.2 Air Inlet Ball Valve (pressurize)

The air inlet ball valve (#5) is used to turn on and turn off the air flow to the abrasive blaster. When the inlet ball valve is opened air flow will pressurize the Mini M-Series Abrasive Blaster. The blowdown ball valve (#1) must be closed and the popup must be pulled up and held against the popup gasket before opening the air inlet ball valve (see Section 5.4).

**⚠ DANGER**

The Mini M-Series Abrasive Blaster is a pressurized vessel. Propelled objects will cause serious injury or death. Read and follow all pre-operation and operating procedures prior to pressurizing the abrasive blaster. See Section 6.0 and 7.0.

## 5.3 Blowdown Ball Valve (depressurize)

The blowdown ball valve (#1) is used to release all the compressed air (depressurize) from inside the abrasive blaster. The abrasive blaster must be depressurized to fill with abrasive or before performing any maintenance. The air inlet ball valve (#5) must be closed before depressurizing the abrasive blaster.

**⚠ WARNING**

Airborne particles and loud noise hazards from blowdown exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of blowdown air path. DO NOT place hands or other body parts in the blowdown air path. Make sure no personnel are in the blowdown air path.

## 5.4 Popup with Eyebolt (abrasive inlet)

The blaster is filled with abrasive through the opening at the top of the pressure vessel. This opening is sealed by the popup head (#36) when it is pulled up against the gasket (#35) and the blaster is pressurized. When the air inlet ball valve (#5) is opened, air will flow into the blast vessel and the air pressure will compress and hold the popup against the gasket. See Figure 5.2.

**⚠ WARNING**

Pinch point hazard. Vessel pressurization will close the popup. Keep fingers clear of the popup opening. Disconnect air supply prior to performing popup maintenance.

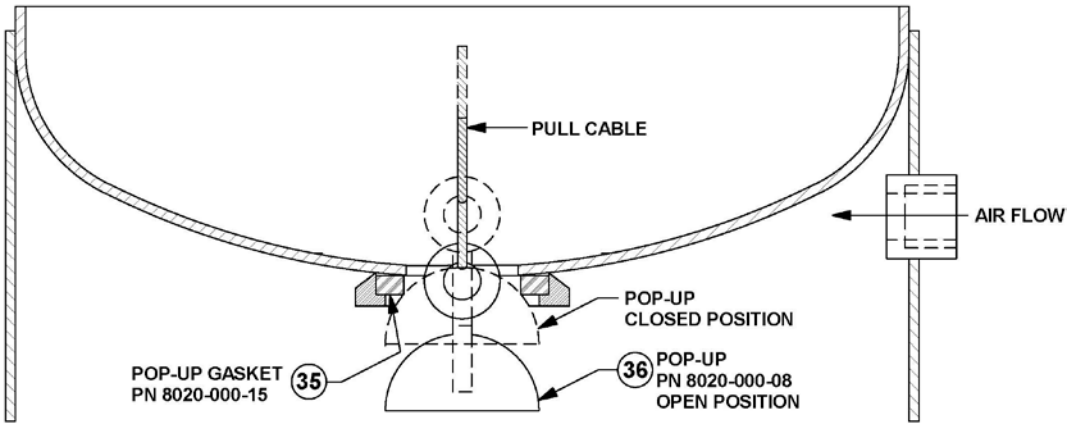



**Figure 5.2 – Mini Blaster Manual Popup Assembly**

## 5.5 Air Supply Filter

When the air inlet ball valve (#5) is opened the air flow passes through the air filter (#7) which removes moisture, oil and dirt particles. The water that is removed by the filter can be drained by opening the drain valve (#9) at the bottom of the filter. The drain valve should be left slightly open anytime the blaster is in operation. This allows water to be drained as it is filtered from the blast air. After passing through the air filter, the air branches off to supply the blast tank piping (#4), the deadman supply (#13) and pressurizes the blast vessel (#11).

## 5.6 Tank/Blast Pressure Regulator

To blast objects that are fragile it is necessary to reduce the blast air pressure. The tank and blast air pressure can both be adjusted by the pressure regulator (#4). The pressure is adjusted by turning the knob on top of the regulator valve body (clockwise to increases pressure, counterclockwise to decrease pressure). The tank/blast pressure is shown by the pressure gauge (#8). **Note:** The air pressure regulator (#4) is non-relieving which means that when the pressure is decreased by turning the knob the tank air pressure *will not* reduce on the pressure gauge. The pressure will reduce only while blasting. The non-relieving feature prevents air from flowing backwards from the tank to the regulator which would carry abrasive.

## 5.7 Gate Valve (Differential Pressure Control)

The purpose of the gate valve (#16) is to reduce the blast air pressure slightly below the tank pressure. This adjustment is called *"differential pressure"* (blast pressure lower than tank pressure). Differential pressure is used when blasting with fine abrasives which may not flow easily out of the blast vessel and through the TeraValve™ XL™. Turn the gate valve handle clockwise to close the valve and decrease blast pressure. This will increase the differential pressure which will increase abrasive flow. Turn the handle counter-clockwise to decrease differential pressure which will decrease abrasive flow. This differential pressure adjustment must be made while blasting so the effects are visible. The tank pressure is shown on the pressure gauge (#8) mounted on the pressure regulator (#4). The blast pressure is shown on the pressure gauge (#33). The differential pressure is the difference between the tank pressure and the blast pressure.

DIFFERENTIAL PRESSURE = TANK PRESSURE – BLAST PRESSURE

To minimize wear in the TeraValve™ keep the differential pressure below 5psi (0.35bar).

## 5.8 Choke Valve

The choke valve (#14) is used to clear any trash that may get into the blast vessel and block the TeraValve™ XL orifice. Whenever trash (paint chips, cigarette butts, etc.) blocks the orifice the procedure is to fully open the TeraValve™ by backing out the orifice adjustment bolt, then press down the deadman lever (#24) to begin blasting. While blasting, have an assistant close the choke valve completely for about one second. This creates differential pressure at the TeraValve™ (high pressure above; low pressure below). The higher pressure from the blast vessel should be enough to force the trash through the TeraValve™ orifice. Keep the choke valve fully open at all other times while blasting to prevent excess valve wear.

**⚠ WARNING**

Do not aim blast nozzle towards yourself or any person. System malfunction can cause accidental start up and result in injury to personnel.

A secondary purpose of the choke valve is as a manual shut off valve for the blast air supply. When the choke valve (#14) is closed it will shut off the blast air supply to the blast outlet.

## 5.9 Automatic Air Valve

The automatic air valve (#15) is a normally closed valve that opens to supply blast air to the blast hose and blast nozzle (#23 & #27). The automatic air valve opens when it receives air to its signal port. This happens when the deadman lever (#24) is pressed down which sends an air signal to the automatic air valve. When the deadman lever is released, the air signal in the control line vents and the automatic air valve spring closes to stop blast air flow (see Section 9.3).

## 5.10 TeraValve™ XL™

The TeraValve™ XL™ (#10) is a dual-purpose valve. First, it is a normally closed valve that opens to supply abrasive into the blast air stream. The TeraValve opens when it receives air to its signal port. This happens when the deadman lever (#24) is pressed down which sends an air signal to the TeraValve (#10). When the deadman lever is released the air signal in the control line vents and the TeraValve closes to stop abrasive flow (see Section 9.2).

Secondly, the TeraValve (#10) is an abrasive metering valve. When the TeraValve is open the abrasive flow is metered (controlled) by an adjustable orifice. The amount this orifice opens is controlled by turning the adjustment bolt at the top of the TeraValve. The bolt sets the stopping point of the plunger (See Section 9.2). Turn the adjustment bolt clockwise to reduce the orifice size and decrease abrasive flow. Turning the adjustment bolt counter-clockwise increases the orifice size which will increase the abrasive flow to the blast nozzle (#27). Adjustments to the abrasive flow should be made by turning the adjustment bolt a little at a time. Test the adjustment by starting the blast for a short period to determine if further adjustment is needed.

**⚠ DANGER**

The Mini M-Series Abrasive Blaster is a Pressurized Vessel. Propelled objects will cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

**Note:** Units manufactured prior to 2017 are equipped with a Thompson® Valve.

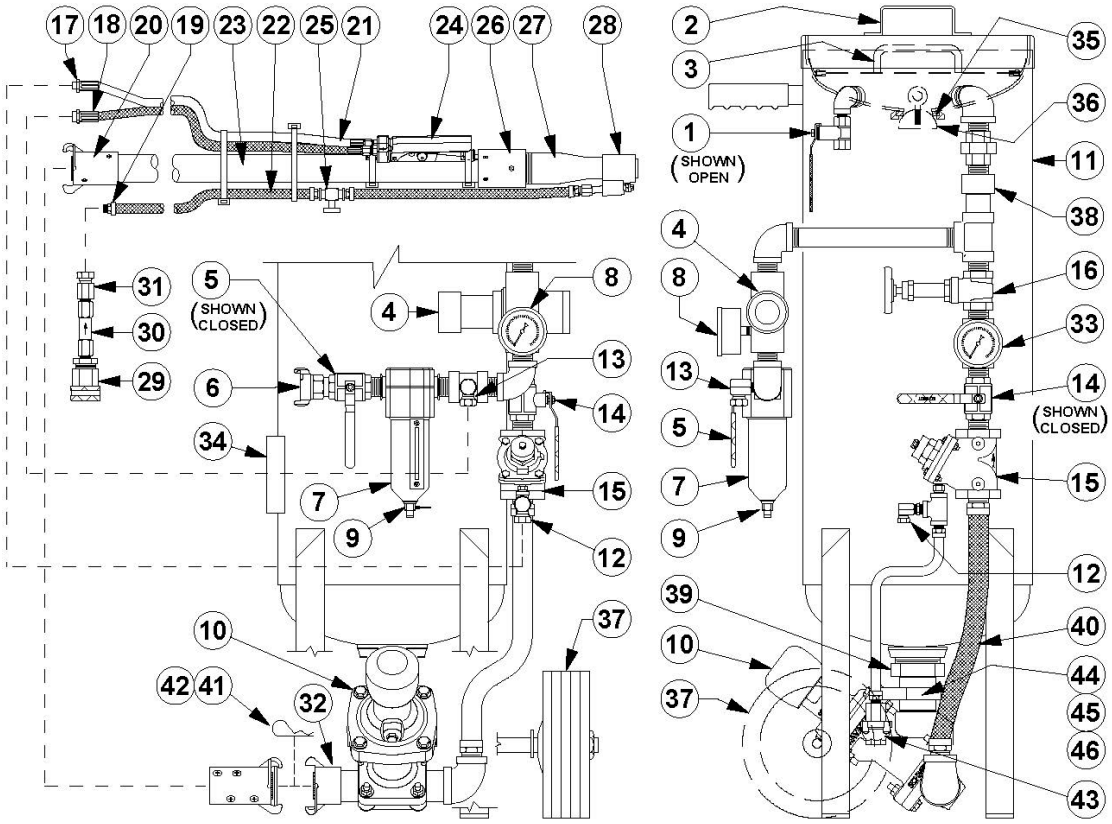



**Figure 5.3 – Typical Mini M-Series Abrasive Blaster**

## 5.11 Deadman Valve

The G2 Deadman valve is part of a system that controls the blast operation. The deadman valve (#24) allows the operator to remotely start and stop the blast operation. The Deadman is mounted at the end of the blast hose assembly (#23) close to the blast nozzle (#27) to give the operator easy control of the blast operation.

When the G2 pneumatic deadman lever is pressed down, air supply from the orange hose of the twinline hose (#21) flows into the black hose. Air flows through the black hose to send air signals to the Auto air valve (#15) and the TeraValve™ XL (#10). When the deadman lever is released, the air signal is cut off and the remaining air in the twinline vents through the deadman. See Figure 5.4 and the drawings in Section 9.0.

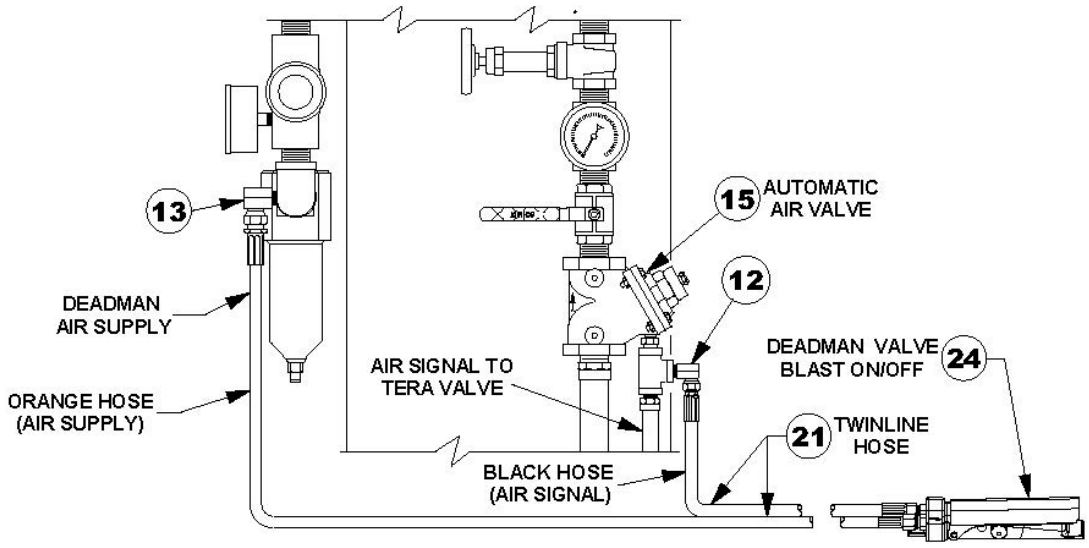



**Figure 5.4 – Pneumatic Blast Control System**

## 5.12 Blast Hose

The blast air and abrasive mixture flows from the TeraValve™ XL™ (#10) to the blast nozzle (#27) through the blast hose assembly (#23). The typical length of the blast hose is 50ft; however blast hose extensions can be added to increase length. For higher efficiency keep the blast hose as short as possible. Increased blast hose length causes pressure drop at the blast nozzle which reduces the blast efficiency. For higher efficiency use a blast hose with an inside diameter that is approximately three times the nozzle throat diameter. Keep blast hose as straight as possible. Sharp bends create high wear points. Static electricity is generated by the abrasive flow through the blast hose. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose and/or vacuum hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster.

**⚠ CAUTION**

Static electric shock hazard. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster.

**⚠ WARNING**

Longer blast hoses require longer time to dissipate the blast stream when the deadman is released to end the blast operation. This extended dissipation time increases the risk of injury should there be an accidental loss of control of the blast hose

## 5.13 Blast Nozzle

The blast nozzle (#27) is an important part of the blast operation since the nozzle size determines the air flow and abrasive requirement. The amount of air flow and abrasive determine how quick blasting can be done. The larger the nozzle, the greater the amount of air and abrasive will be needed. The larger the nozzle size the greater the blast productivity. However, for a fixed amount of air supply, increasing the nozzle size will reduce the blast pressure. For best performance the blast pressure must be maintained as high as possible. Therefore, select the nozzle size based on the amount of air available and then adjust the abrasive flow at the TeraValve™ XL™ accordingly.

The nozzle size can be identified by the small number molded into the outer nozzle jacket. Or in the case of ceramic nozzles, by measuring the throat diameter (the smallest inside diameter). The throat diameter is measured in sixteenths of an inch; for example, a #5 nozzle has a throat diameter of 5/16". See the tables in Section 13.0 for approximate air and abrasive consumption for each nozzle. **Note:** For the best possible mixture of air to abrasive, the blast hose and piping must be at least three times the size of the blast nozzle.

## 5.14 Wet Blast Water System

The water system of the Mini M-Series blaster gives the operator the option to wet blast. Fine abrasives such as sodium bicarbonate create a dust cloud that reduces visibility. The water mist created by the wet blast attachment (#28) reduces the dust cloud. A standard garden water hose is connected to the hose connection (#29). The water then flows through and is filtered by the strainer (#30). The strainer has a fine screen to remove small particles of debris that may clog up the atomizing tip of the wet blast attachment (#28). The petcock valve (#25) allows the operator to control how much water is used or to turn the water off completely.

## 5.15 Hose Connection

All air hose, blast hose, and threaded couplings have pin holes that align when connected. To prevent accidental hose disconnections, safety pins must be installed through these holes. As a secondary safety measure each hose connection should also include a hose whip check that will hold the hose if there is an accidental disconnection. Connect one loop to each side of the connection and stretch out as shown in Figure 5.5 below. All air hose, blast hose, and threaded couplings have a gasket that seals the connection and should be replaced when air is leaking.

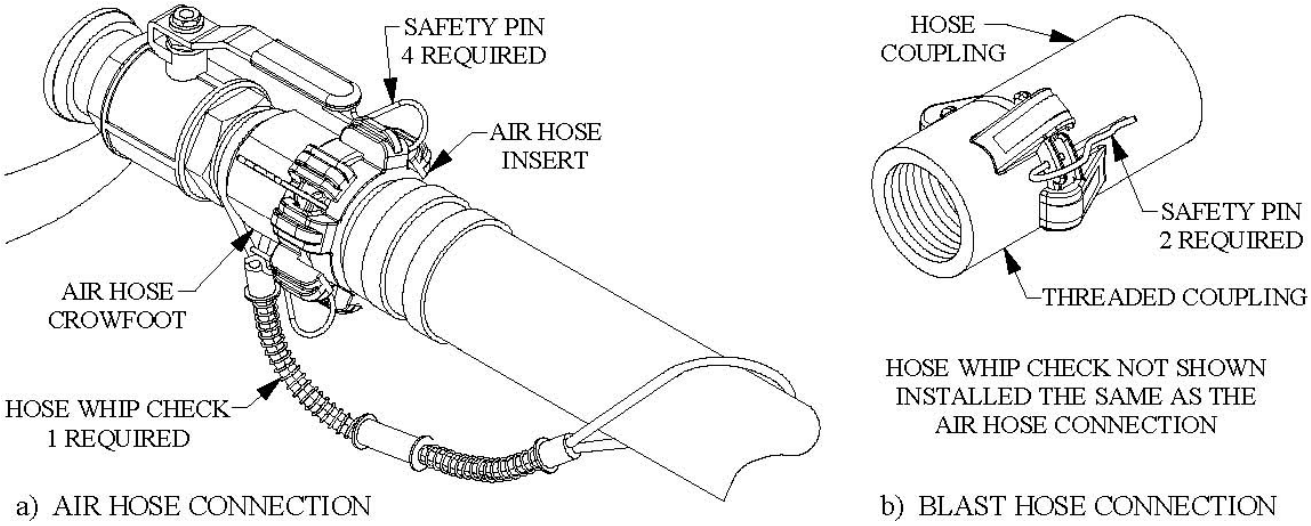



**Figure 5.5 – Hose Connection Disconnect Protection**

# 6.0 Pre-operation Procedures

**⚠ DANGER**

Failure to follow the procedures below could result in serious injury or death. In addition to these procedures, completely read and understand all sections of this *Mini M-Series Abrasive Blaster Operation and Maintenance Manual*.

**⚠ DANGER**

The Abrasive Blaster is a pressurized vessel. Propelled objects will cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

## 6.1 Mini M-Series Abrasive Blaster Setup Procedure (see Figure 6.1)

6.1.1. Confirm that the abrasive blaster is properly maintained and inspected as detailed in Section 8.0.

6.1.2. Static electricity is generated by the abrasive flow through the blast hose. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster. See Section 5.12.

**⚠ CAUTION**

Static electric shock hazard. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster. See Section 5.12.

6.1.3. To mitigate risk of dust explosion avoid blasting in confined spaces without proper ventilation. Consult plant authorities. See Section 1.20.

**⚠ DANGER**

Explosion Hazard. Self-Ignition of Dust. Do Not operate the AmphiBlast Abrasive Blast system in confined spaces without proper ventilation. Consult plant authorities. See Section 1.20.

6.1.4. Do Not operate this equipment without a pressure relief device in place. The ASME Code requires that all vessels be provided with pressure relief devices. See Section 3.11.

**⚠ DANGER**

Rupture Hazard. Operating the pressure vessel above the maximum allowable working pressure can result in rupturing the pressure vessel. Install an air pressure relief valve to protect against over pressurization of the blast vessel. See Section 3.11.

6.1.5. Make certain that the abrasive blaster is not pressurized. Follow the depressurizing procedure given in Section 6.2.

**⚠ WARNING**

Airborne particles and loud noise hazards from blowdown exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of blowdown air path. DO NOT place hands or other body parts in the blowdown air path. Make sure no personnel are in the blowdown air path.

6.1.6. Verify that all required personal protective equipment is available for each operator and in good operating condition (safety glasses, safety shoes, ear plugs, gloves, airline filter, respirator, & carbon monoxide monitor). ***Critical:*** *Adhere to all local, state, and federal regulations including, but not limited to, OSHA (Occupational Health and Safety Administration). Pay close attention to requirements regarding breathing air quality. When an oil-lubricated air compressor is used, additional requirements for a high temperature alarm and/or a carbon monoxide monitor become necessary. See Sections 3.9 and 3.10.*

**⚠ WARNING**

Failure to use personal protective equipment could result in serious injury or death.

6.1.7. Connect the wet blast attachment (#28) onto the blast nozzle (#27).

6.1.8. Screw nozzle (#27) into the nozzle holder (#26) at end of the blast hose assembly (#23).

6.1.9. Hose clamp the deadman (#24) to the blast hose assembly in a comfortable position behind the nozzle holder.

6.1.10. Connect the swivel fitting at the end of the water line (#22) to the fitting on the wet blast attachment (#28).

6.1.11. Wire tie the twinline hose (#21) and the water line (#22) to the blast hose assembly (#23).

6.1.12. Connect the blast hose coupling (#20) to the threaded coupling (#32) on the TeraValve™ XL™ (#10). Then install a safety pin (#41) and a hose whip check (#42) to prevent accidental disconnections during operation. See Section 5.15 and 8.7.

**⚠ WARNING**

Failure to install safety pins on all blast hose couplings could result in serious injury or death. See Sections 5.15 and 8.7.

6.1.13. Connect the twinline hose male fittings (#17 & #18) to the mating swivel connectors (#12 & #13) on the Mini M-Series Abrasive Blaster piping. See Figure 6.2.

Be sure that each hose is connected to the correct size 90º swivel fitting (#12 and #13).

6.1.14. Connect the water line hose insert (#19) to the mating swivel fitting (#31)

6.1.15. Connect a standard garden hose to the water inlet connection (#29).

6.1.16. Connect a 150 psi rated (minimum) air supply hose to the air inlet crowfoot (#6) and install a safety pin (#41) and a hose whip check (#42) to prevent accidental disconnections during operation. See Section 5.15 and 8.7.

**⚠ WARNING**

Failure to install safety pins on all air hose couplings could result in serious injury or death. See Section 5.15 and 8.7.

## 6.2 Mini M-Series Abrasive Blaster Depressurizing Procedure (Blowdown)

The Mini M-Series Abrasive Blaster is a *pressurized system*; meaning that the blaster remains pressurized when the deadman valve (#24) is released. The Mini abrasive blaster must be manually depressurized as detailed below.

**⚠ CAUTION**

Do not leave the abrasive blaster pressurized during long periods of no usage. Undetected air leaks can cause costly wear damage to the pressure vessel (i.e. at abrasive inlet).

6.2.1. Close the air inlet ball valve (#5). The ball valve is closed when the handle is fully turned to the position shown in Figure 6.2 (handle perpendicular to body). The handle tab will bottom against the ball valve body in the closed position.

6.2.2. Slowly open the blowdown ball valve (#1) located right of the vessel handle. This will depressurize the Mini M-Series Abrasive Blaster (#11).

**⚠ WARNING**

Airborne particles and loud noise hazards from blowdown exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of blowdown air path. DO NOT place hands or other body parts in the blowdown air path. Make sure no personnel are in the blowdown air path.

6.2.3. The Mini abrasive blast vessel (#11) is completely depressurized when the air inlet ball valve (#5) is closed and the blowdown ball valve (#1) is open with no airflow from it. The popup head (#36) will fall open when the blast vessel is completely depressurized.

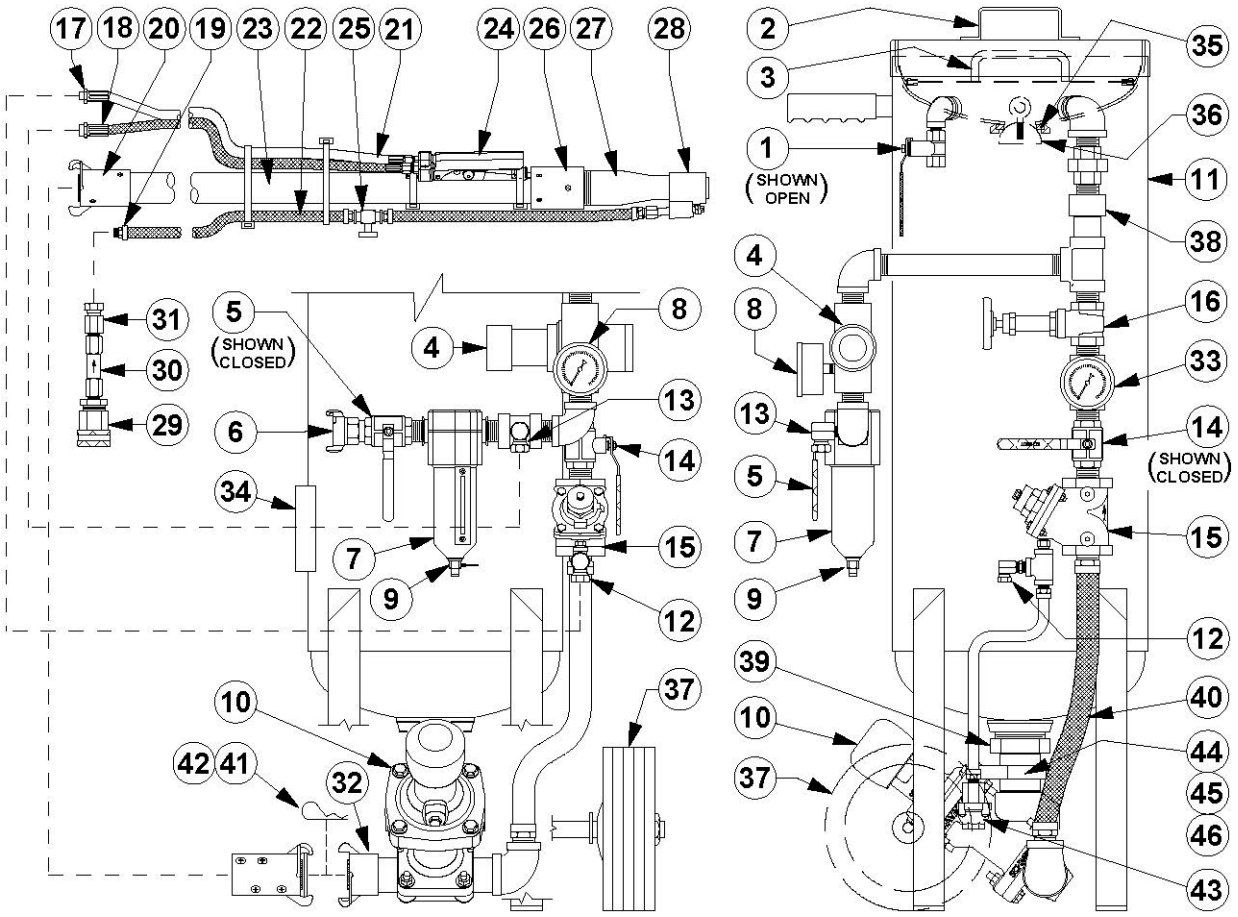



**Figure 6.2 – Typical Mini M-Series Abrasive Blaster**

# 7.0 Operating Instructions

## 7.1 Filling the Mini M-Series Abrasive Blaster with Abrasive

7.1.1. The Mini M-Series Abrasive Blaster must be completely depressurized before filling can begin. Depressurize the Mini M-Series Abrasive Blaster per the depressurizing procedure in Section 6.2.

**⚠ WARNING**

Airborne particles and loud noise hazards from blowdown exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of blowdown air path. DO NOT place hands or other body parts in the blowdown air path. Make sure no personnel are in the blowdown air path.

7.1.2. Remove the vessel lid (#2) and screen (#3) to check that the popup (#36) has dropped open. The popup dropped away from the popup gasket (#35) indicates that the blast vessel (#11) is depressurized. See Figure 6.2 and 7.1.

7.1.3. Replace the abrasive screen. Fill the Mini blaster with dry abrasive though the screen (#3) to remove unwanted trash. Fill the blast vessel up to about 3” below the popup gasket (#35). Do not over-fill the blast vessel. An excessive amount of abrasive piled above the popup (#36) may prevent the popup from sealing properly.

**⚠ WARNING**

Pinch point hazard. Vessel pressurization will compress the popup against the popup gasket. Keep fingers clear of the popup opening while pressurizing the blast vessel. Disconnect air supply prior to performing popup maintenance.

7.1.4 After completing all the pre-operation procedures in Section 6.0 and 7.1 pressurize the Mini M-Series Abrasive Blaster vessel per the instructions given in Section 7.2. After pressurizing the abrasive blaster check the popup for leaks. Periodically check the popup for leaks thereafter.

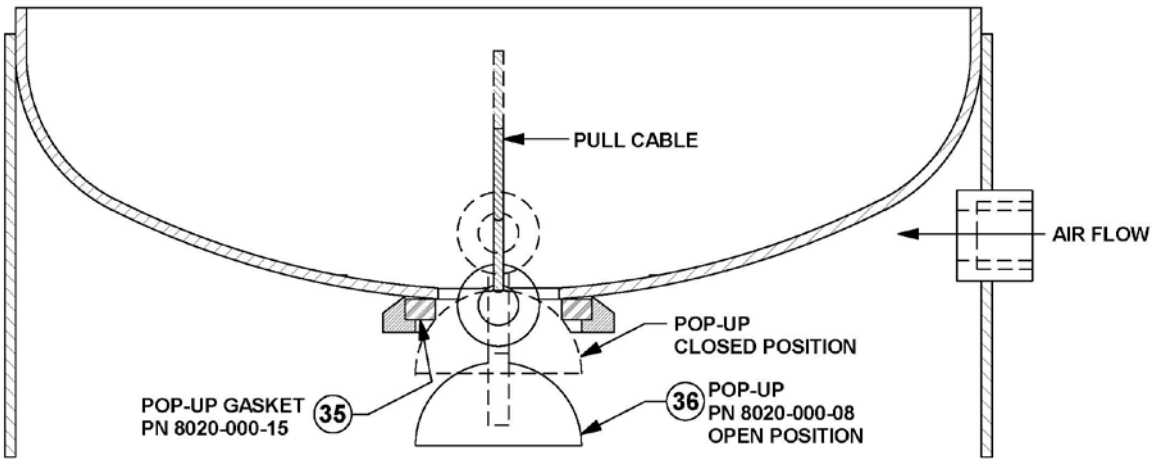



**Figure 7.1 – Mini Blaster Manual Popup Assembly**

## 7.2 Beginning the Blasting Operation (See Figure 7.2)

7.2.1. The Mini M-Series Abrasive Blaster must be properly prepared and all operating personnel must be thoroughly trained before beginning the blast operation. Completely read and understand all sections of this manual before beginning the blast operation. See the pre-operation procedures given in Section 6.0.

7.2.2. Perform the required inspections and maintenance before beginning the blast operation. See the instructions given in Section 8.0.

**⚠ DANGER**

The Mini M-Series Abrasive Blaster is a Pressurized Vessel. Propelled objects will cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

7.2.3. Completely open the gate valve (#16) by turning the knob counterclockwise.

7.2.4. If the wet blast system will be used turn on the water supply to the water system (#29).

7.2.5. For initial startup back the knob of the air pressure regulator (#4) all the way out by turning the knob counterclockwise until no resistance is felt. Then turn the knob clockwise a few turns for a low initial pressure setting. Further adjustment can be made later as needed.

7.2.6. Open the manual choke valve (#14). Leave the choke valve completely open at all times while blasting. Close the choke valve only for the “choke” procedure (see Section 11.3.2.). Do Not blast for long periods with the choke valve partially closed since this will cause excess wear in the TeraValve™ XL™ (#10).

7.2.7. Close the blowdown ball valve (#1) near the handle of the vessel. See Figure 7.2.

7.2.8. Pull the popup head (#36) up against the gasket (#35) and securely hold the popup in position by maintaining a tight pull on the cable. See Figure 7.1

7.2.9. The vessel may now be pressurized by slowly opening the air inlet ball valve (#5).

7.2.10. Check the popup and blast piping for leaks after pressurizing the abrasive blaster.

7.2.11. Slightly open the drain valve (#9) on bottom of the air filter (#7) allow moisture to continually drain during the blast operation. Once each day completely open the drain valve to blow out all moisture and dirt particles.

7.2.12. The following steps are for blast pressure and abrasive flow setting which may require several adjustments and testing of the blast flow. It is recommended that testing of the blast be made on a test piece so not to damage anything of value.

7.2.13. Set the required tank pressure by turning the knob on the tank/blast pressure regulator (#4). Turn clockwise to increase pressure or counterclockwise to decrease pressure. The air regulator is non-relieving therefore a reduction of tank pressure change will not be evident on the gauge until blasting begins. For the most accurate setting, this adjustment should be made while blasting with the gate valve (#16) fully opened. The tank pressure is indicated by the tank pressure gauge (#8) while blasting. **Note:** Further tank/blast pressure adjustment may be required when actual blasting is begun.

7.2.14. With one hand grip the blast hose assembly (#23) and with the other hand press in the deadman safety button. To begin blasting, aim the blast nozzle at the object to be blasted, then press down the deadman lever (#24). Air and blast abrasive will flow into the blast hose (#23) and out of the blast nozzle (#27). Release the deadman lever to stop blasting.

**⚠ WARNING**

Do not aim blast nozzle towards yourself or any person. System malfunction can cause accidental start up and result in injury to personnel.

7.2.15. The abrasive flow can be adjusted with the adjustment bolt on top of the TeraValve™ XL™ (#10). Turn clockwise for less abrasive flow and counter-clockwise for more abrasive. Due to the length of the blast hose there will be a slight delay in control of the abrasive flow at the nozzle, therefore allow a few seconds before adjusting further.

7.2.16. When using fine particle abrasives improved abrasive flow control is achieved by utilizing the differential pressure feature. Differential pressure is a slightly higher pressure in the blast pot over that of the blast hose. This differential pressure allows the operator to precisely control the abrasive flow.

Use the gate valve (#16) to set the differential pressure. Adjust the differential pressure by turning the gate valve handle clockwise (to decrease blast pressure) or counterclockwise (to increase blast pressure). Decreasing the blast pressure increases the differential pressure and abrasive flow. Conversely, increasing the blast pressure decreases the differential pressure and hence decreases the abrasive flow. The ideal differential pressure is about a 2 psi greater tank pressure than blast pressure. The blast pressure is indicated by pressure gauge (#33).

Optimum differential pressure adjustment is achieved while blasting; therefore, the operator should get assistance from a second person. It is important to remember that due to the length of the blast hose there will be a slight delay in control of the abrasive flow at the nozzle; therefore, allow a few seconds before adjusting further.

7.2.17. Open the petcock valve (#25) on the blast hose water line if wet blasting is required for dust prevention.

7.2.18. Re-test the blast air and abrasive mixture again on a test piece to determine is further adjustment is needed. Release the deadman lever to stop blasting.

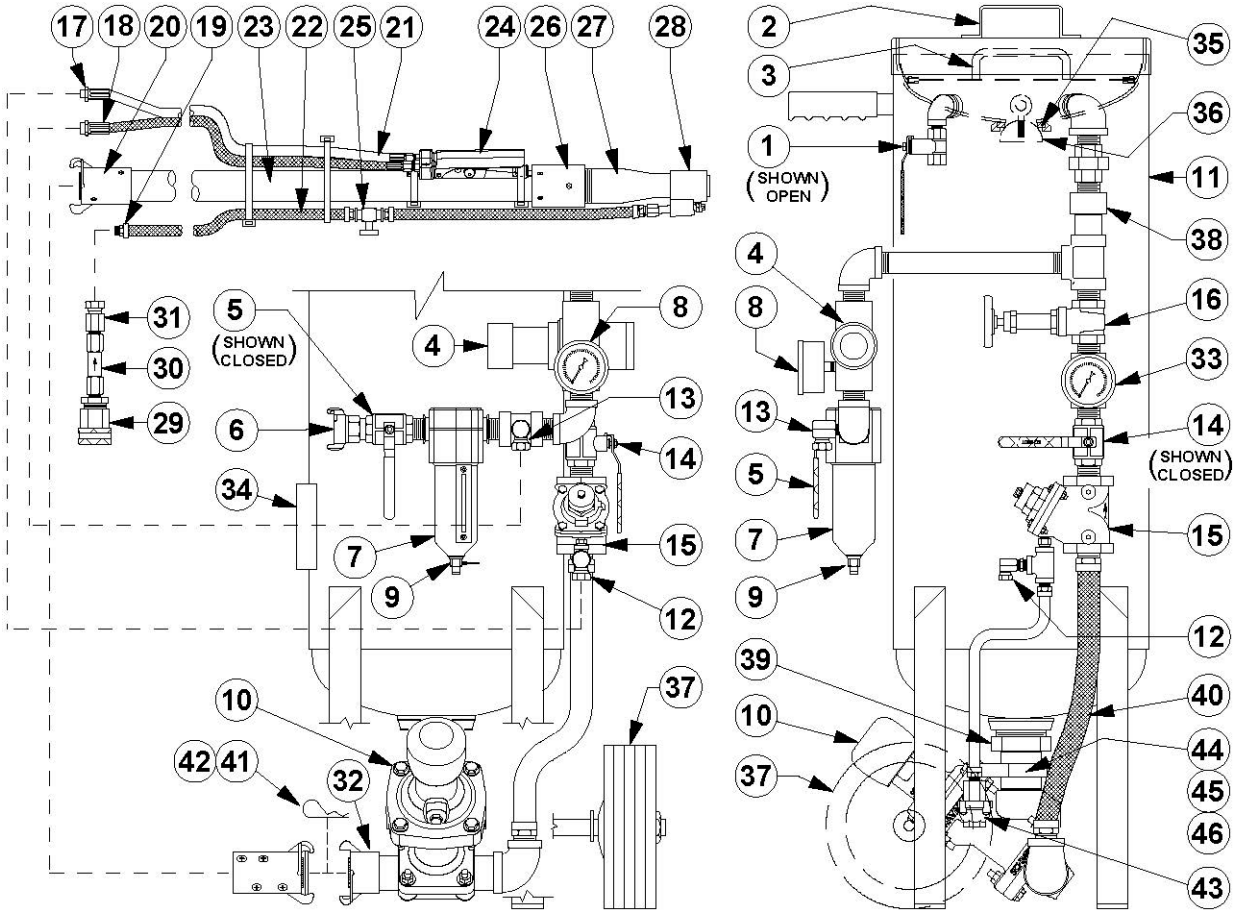



**Figure 7.2 – Typical Mini M-Series Abrasive Blaster**

## 7.3 Ending the Blast Operation (See Figure 7.3)

**⚠ CAUTION**

Do not leave the abrasive blaster pressurized during long periods of no usage. Undetected air leaks can cause costly wear damage to the pressure vessel (i.e. at abrasive inlet).

7.3.1. Close the air inlet ball valve (#5). The ball valve is closed when the handle is fully turned to the position shown in Figure 7.3 (handle perpendicular to body). The handle tab will bottom against the ball valve body in the closed position.

**⚠ CAUTION**

Do not turn off the air compressor and allow the abrasive blaster air pressure to back flow through the system. Back flow will carry abrasive into the air filter (#7) and contaminate the controls.

7.3.2. Completely open the drain valve (#9) at the bottom of the air filter (#7) to blow out all the accumulated moisture and dirt particles.

7.3.3. Completely depressurize the abrasive blast vessel (#11) by slowly opening the blowdown ball valve (#1) that is located left of the vessel handle. See Section 6.2 for blowdown procedure. Do Not leave the blast vessel pressurized while not in use.

**⚠ WARNING**

Airborne particles and loud noise hazards from blowdown exhaust air can cause serious injury and loss of hearing. Wear approved eye and ear protection. Stay clear of blowdown air path. DO NOT place hands or other body parts in the blowdown air path. Make sure no personnel are in the blowdown air path.

7.3.4. For long periods of non-usage remove remaining blast abrasive from blast vessel to prevent moisture contamination.

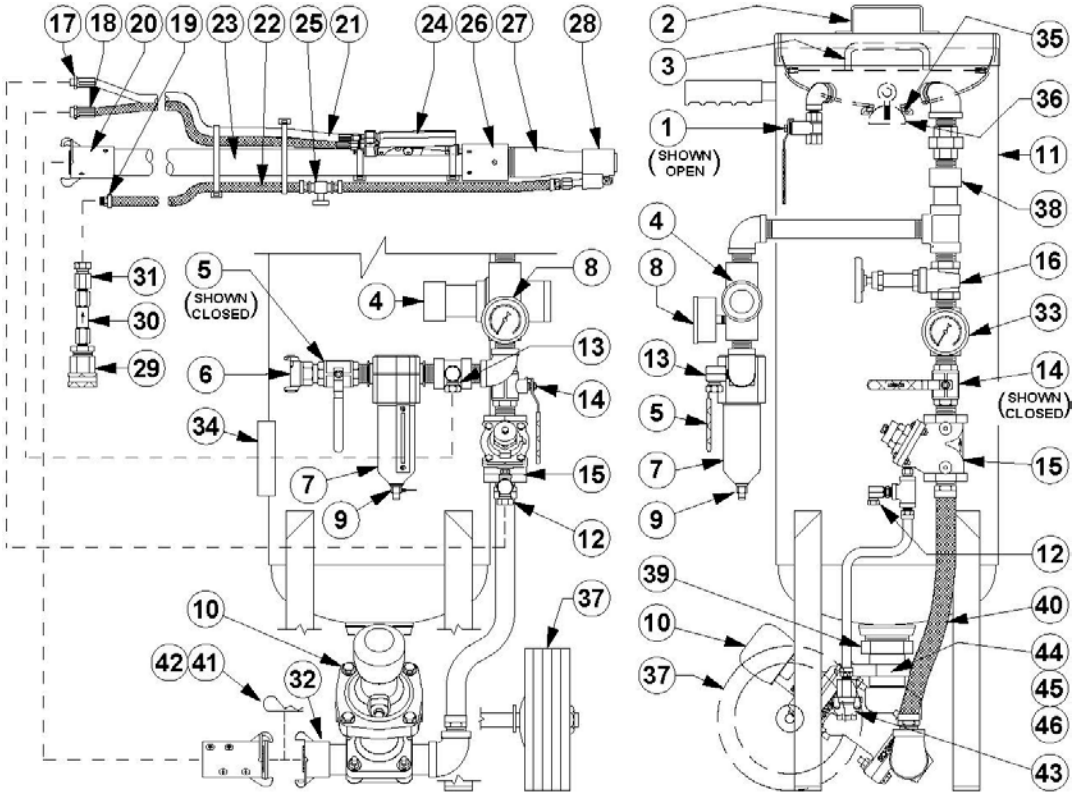



**Figure 7.3 – Typical Mini M-Series Abrasive Blaster**

# 8.0 Maintenance and Inspection Instructions

**DANGER**

The Mini M-Series Abrasive Blaster is a Pressurized Vessel. Propelled objects will cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

**WARNING**

For proper operation, maintenance should be performed by or with the assistance of a qualified serviceman.

8.1. ***Blaster Pressure Vessel:*** The ASME Code is a standard covering materials, design, fabrication, and installation of pressure vessels. Vessel integrity subsequent to purchase is the responsibility of the owner and/or user. At intervals required by state law and/or local authorities, the vessel should be subjected to a hydrostatic test as described in the ASME Code, Section VIII, Division 1. Do Not subject the abrasive blaster pressure vessel to a pneumatic proof test exceeding the maximum allowable working pressure. In no case should the hydrostatic test pressure exceed 1.3 times the maximum allowable working pressure (MAWP) shown on the pressure vessel nameplate (#34). Thoroughly clean and dry the vessel before re-assembly. Moisture or debris left in vessel can cause equipment malfunction.

8.2. ***Blaster Pressure Vessel:*** Any damage to an abrasive blaster can make it unsafe. Inspect the exterior of the abrasive blast vessel daily for corrosion, pitting, or other damage (i.e. dents, gouges or bulges). If damaged, take out of service immediately and have it inspected and/or repaired by a qualified facility. Contact Axxiom Manufacturing, Inc. for technical support.

8.3. ***Blaster Pressure Vessel:*** The interior condition of the abrasive blast vessel (#11) should be inspected quarterly. Pitting caused by corrosion will reduce the wall thickness of the vessel. If excessive corrosion is found, have the abrasive blast vessel inspected by a qualified facility. Contact Axxiom Manufacturing, Inc. for technical support.

8.4. ***Popup Assembly:*** Air leaks at the abrasive inlet will cause the air pressure in the blast vessel to drop. Pressure drop in the blast vessel can cause abrasive flow problems. The popup and popup gasket should be checked prior to initial use and weekly thereafter. Inspect the popup as follows:

a) Depressurize the Mini M-Series Abrasive Blaster per Section 6.2.
b) Disconnect air supply hose from the crowfoot (#6).
c) Inspect the popup gasket (#35) and popup head (#36) sealing surfaces for wear or deformations. Replace either if necessary.
d) Check the gasket alignment in the retaining ring. Proper gasket fit is necessary for the popup to seal the opening.
e) Pull the popup against the gasket and check for proper seating as shown in Figure 8.1.
f) After checking the alignment and gap, the blast vessel can be pressurized and the popup is then checked for leaks. If a leak is present, repeat the above steps to isolate the problem.
g) If the popup must be replaced it can be removed from the blast vessel through the abrasive outlet at the bottom of the vessel. Remove the TeraValve™ XL (#10) and the outlet bushing (#39). See Figure 7.3.

**WARNING**

Pinch point hazard. Vessel pressurization will compress the popup against the popup gasket. Keep fingers clear of the popup opening while pressurizing the blast vessel. Disconnect air supply prior to performing popup maintenance.

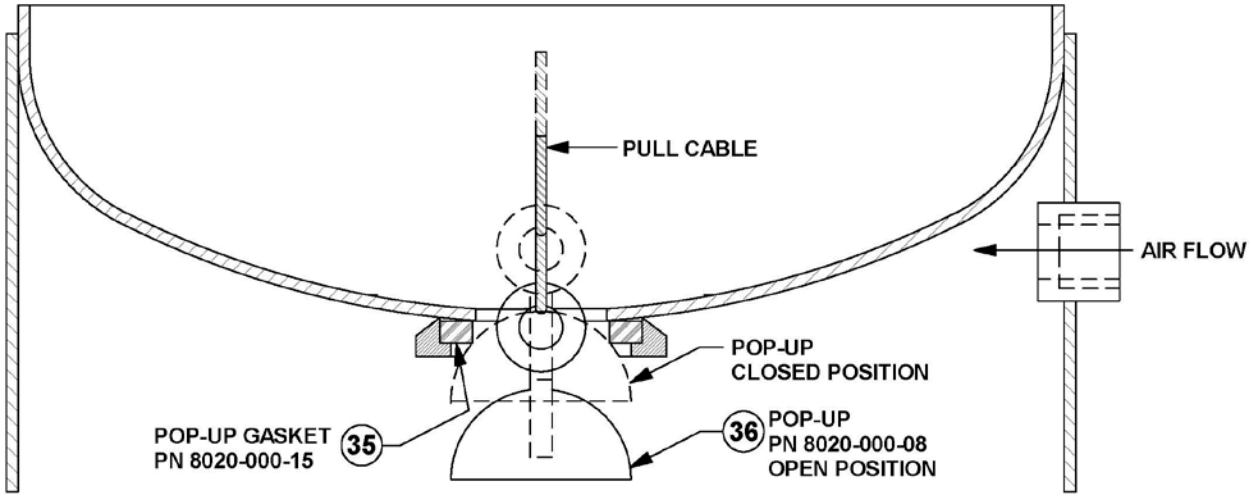



**Figure 8.1 – Mini Blaster Manual Popup Assembly**

8.6. ***Blast and Air Hoses, Piping, Pipe Fittings, and Wires:*** All air hoses, blast hoses, control hoses, pipe, pipe fittings, and wires are wear items on any abrasive blaster. These components should be inspected daily for air leaks, cracks, holes, dry rotting, cuts, or any other damage. Repair or replace any components that show any signs of wear or damage.

**⚠ DANGER**

Damaged hoses, piping, pipe fittings or wires can cause system malfunctions and can result in serious injury or death to operating personnel.

Blast hoses are a high wear component of the abrasive blast system. Sharp bends in the blast hose create high wear points resulting in soft spots where the blast hose wall has thinned. These areas can rupture while blasting. Check the full length of the blast hose assembly for soft spots caused by wear. To protect against serious injury to personnel replace blast hoses with soft spots. **Note:** Static electricity is generated by the abrasive flow through the blast hose. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster. See Section 5.12.

**⚠ WARNING**

Worn blast hose assemblies can rupture while blasting and the resulting abrasive blast stream can cause serious personal injury.

**⚠ WARNING**

Longer blast hoses require longer time to dissipate the blast stream when the deadman is released to end the blast operation. This extended dissipation time increases the risk of injury if there is an accidental loss of control of the blast hose.

**⚠ CAUTION**

Static electric shock hazard. To minimize chance of static electrical shock to operating personnel only use anti-static blast hose, properly electrically bond the blast nozzle, blast hose couplings, and the equipment, and properly install a earth ground to the abrasive blaster. See Section 5.12.

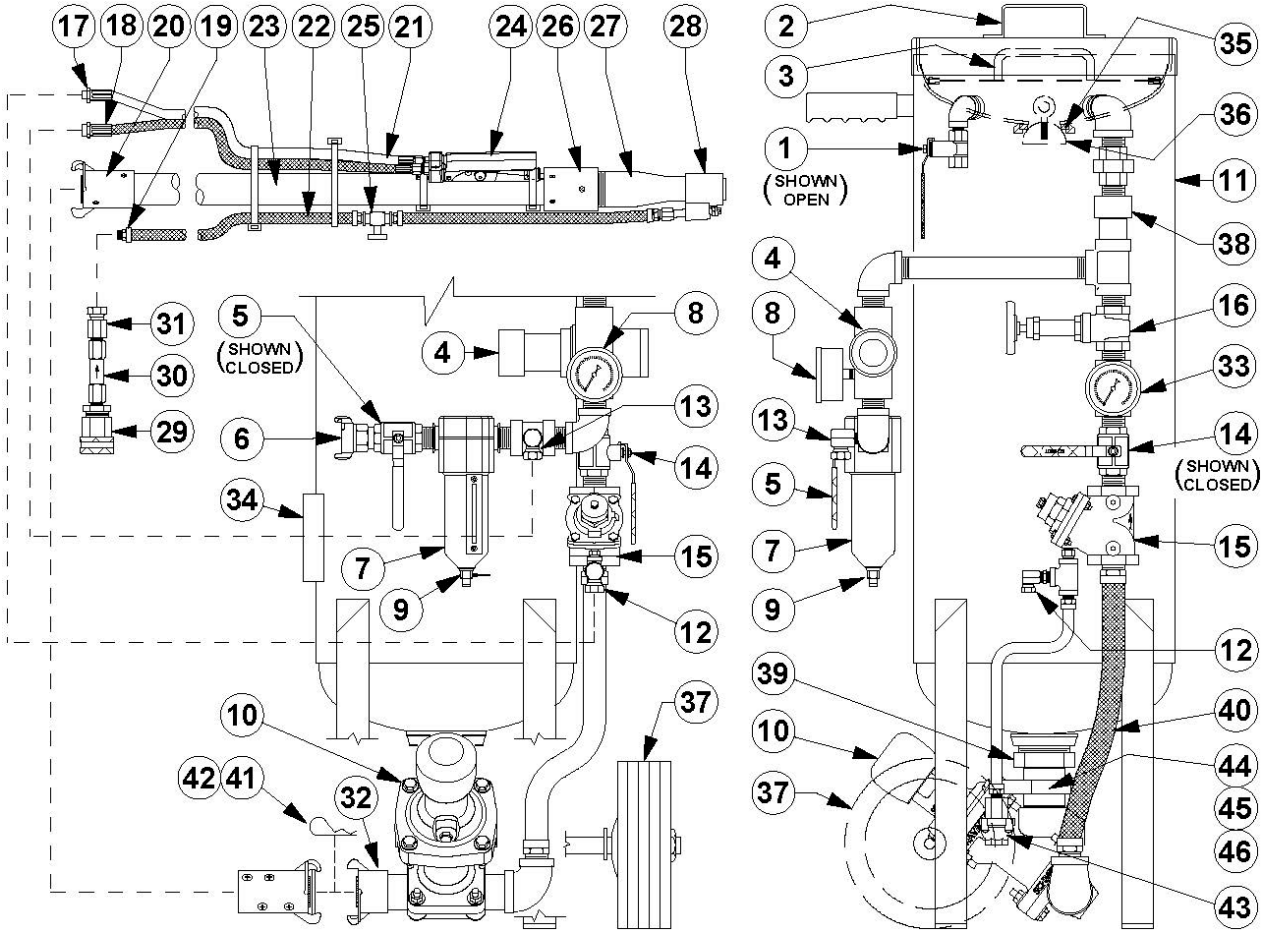



**Figure 8.2 – Typical Mini M-Series Abrasive Blaster**

8.7. ***Blast and Air Hoses:*** All air hose, blast hose, and threaded couplings have pin holes that align when connected. To prevent accidental hose disconnections safety pins must be installed through these holes. Each hose connection must also include a hose whip check that will hold the hose if there is an accidental disconnection. Connect one loop to each side of the connection and stretch out as shown in Figure 8.3 below. Check hose connections daily and replace missing or damaged pins and whip checks.

**⚠ WARNING**

Failure to install safety pins on all air and blast hose couplings can result in hose disconnects and could result in serious injury or death.

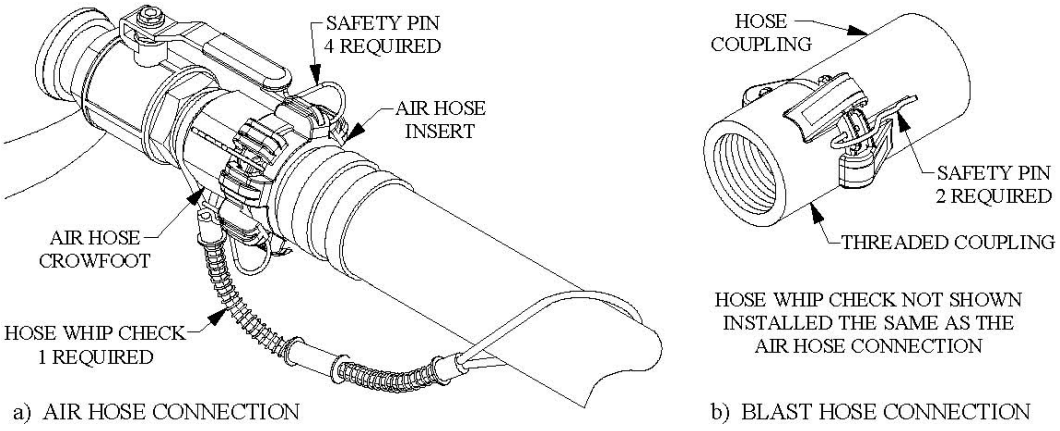



**Figure 8.3 – Hose Connection Disconnect Protection**

8.8. ***Blast and Air Hoses:*** All air hose, blast hose, and threaded couplings have gaskets that seal the connection. To prevent loss of air pressure and/or premature abrasive wear replace these gaskets when leaks are found. Inspect the couplings daily for leaks and wear. Replace gaskets when visible wear or leaks are found. When installing or replacing hose couplings cut the hose end square for secure fit (see Figure 8.4). To insure proper coupling connection always use fittings that are the same brand. See the drawings and part lists in Section 9.1(a) and 9.1(b).

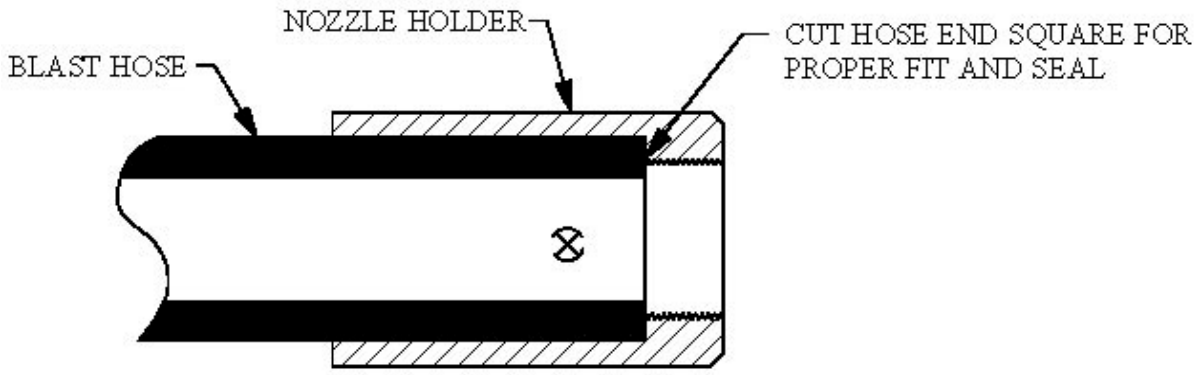



**Figure 8.4 – Hose End Fit up**

8.9. ***Blast Nozzle(s):*** Remove the blast nozzle daily and check the jacket and thread condition. Check nozzle throat diameter. An over-sized throat diameter reduces blast efficiency. Replace the blast nozzle if worn or damaged.

8.10. ***Valves:*** Thompson® Valves, TeraValve™ XL™, Automatic air valves, MV3® Valves, Combo Valve®, control valves, and deadman valves should be disassembled and inspected quarterly, or more frequently if heavily used. Ball valves should open and close without difficulty and should not leak air. Repair or replace any component that shows signs of damage. The Thompson® Valve cylinder should be cleaned and lubricated with an anti-seize compound. Replace parts as needed with Schmidt® original factory replacement parts furnished by an authorized Schmidt distributor. Refer to valve drawings in Section 9.0 and specific valve maintenance manual.

Once a day check if air is leaking from end of blast nozzle when the blast operation is off. A worn seat or trash in the Thompson or TeraValve™ usually causes this (See Section 11.3.5). Clean or replace by removing the four bolts in the base of the valve to allow disassembly.

**⚠ DANGER**

Depressurize vessel before performing any maintenance. See Section 6.2. Removing the TeraValve™ bolts with the abrasive blaster pressurized will result in serious injury or death.

**⚠ WARNING**

Use of replacement components that are not Schmidt original factory replacement parts may result in equipment failure which can result in serious personal injury.

8.11 ***Blowdown Ball Valve:*** The blowdown ball valve (#1) is used to depressurize the abrasive blaster pressure vessel (#11). See Figure 8.2. The blowdown air flow can carry abrasive from inside the pressure vessel which can wear the blowdown ball valve (#1) and piping. This wear will cause the blowdown ball valve (#1) to be difficult to open and/or close, and/or result in the inability to close properly (air leaks), and/or wear of the attaching pipe fittings. If and when any of these conditions develop they will be noticeable during daily blowdown operation. When any malfunction is detected the blowdown ball valve (#1) and attaching fittings should be replaced.

**⚠ WARNING**

Worn blowdown valve, piping, and pipe fittings can rupture during operation which can cause serious injury or death to operating personnel. Always repair or replace worn or damaged components.

The blowdown ball valve (#4) should be inspected for proper operation before each use of the abrasive blaster. Depressurize the abrasive blaster per Section 6.2 then confirm that the blowdown ball valve handle turns open and closed without difficulty. Difficulty in turning the blowdown ball valve handle indicates grit contamination within the moving parts of the valve. **Note:** Once maintenance is completed as detailed in Section 8.0 and the abrasive blaster is pressurized, confirm there is no air leakage when the blowdown ball valve (#1) is closed. The ball valve is closed when the handle is fully turned to the position shown in Figure 8.2 (handle perpendicular to body). When any malfunction is detected the blowdown ball valve (#1) and attaching fittings should be replaced.

8.12. ***PPE:*** Check daily to verify that all personal protective equipment is available for each blast operator. Check daily to verify that all personal protective equipment is in good operating condition. Consult the operating and maintenance instructions provided by the manufacturer of each PPE item. See Section 3.10 and reference OSHA 29 CFR 1910 Subpart I.

**⚠ WARNING**

Failure to use personal protective equipment could result in serious injury or death.

8.13. ***Warning Decals:*** Check monthly to verify that all the warning decals are in position and legible. See Section 0.0 for full descriptions and locations.

**⚠ DANGER**

Failure to maintain warning decals risks the possibility of not alerting the abrasive blaster operator to potential dangers which can result in serious injury or death. See Section 0.0.

8.14 ***Control Air Filter:*** With the air supply on, once a day completely open the control air filter (#7) drain valve (#9) to purge all moisture and debris. Purge for about one minute then close the drain valve.

## 8.15. *Maintenance Schedules Quick Reference Chart*

**Note:** The below schedule is the minimum requirements for inspection and maintenance; however, the equipment should be inspected and serviced immediately if abnormal operation is detected.

| ITEM | MAINTENANCE REQUIRED | DAILY | WEEKLY | MONTHLY | QUARTERLY |
|---|---|---|---|---|---|
| Blaster Vessel | Hydrostatic Test See Section 8.1 | As required by state law and/or local authorities | | | |
| Blaster Vessel | Check for exterior damage (corrosion, dents, bulges). See Section 8.2. | X | | | |
| Blaster Vessel | Check for interior damage (corrosion / pitting). See Section 8.3. | | | | X |
| Popup | Check sealing surfaces and popup alignment. See Section 8.4. | | X | | |
| Blast & Air Hoses | Check hoses for soft spots, wear, cracks, or air leaks See Section 8.6. | X | | | |
| Remote Control Hoses | Check hoses for soft spots, wear, cracks, or air leaks See Section 8.6. | X | | | |
| Blaster Piping & Pipe Fittings | Check pipe & pipe fittings for wear, cracks, or air leaks. See Section 8.6 | X | | | |
| Remote Control Wires | Check wiring for bare spots, fraying, or cracks See Section 8.6. | X | | | |
| Blast & Air Hose Couplings | Check for safety pins and whip checks See Section 8.7. | X | | | |
| Hose Coupling Gaskets | Check for air leaks at the air, blast and threaded coupling gaskets See Section 8.8. | X | | | |
| Blast Nozzle | Check blast nozzle threads and jacket for wear, damage, or air leaks See Section 8.9. | X | | | |
| Valves | With valves off and vessel pressurized, check for air leakage at blast nozzle. See Section 8.10 | X | | | |
| Valves | Disassemble, inspect, and lubricate. See Section 8.10. | | | | X |
| Blowdown Ball Valve | Check for proper opening and closing. Check for wear, damage, or air leaks. See Section 8.11. | At every use. | | | |
| Personal Protective Equipment | Check condition of all personal protective equipment See Section 3.10 and 8.12. | X | | | |
| Warning Decals | Check the condition of warning decals. See Sections 0.0 and 8.13. | | | X | |
| Control Air Filter | Fully open air filter drain valve to purge moisture and debris. See Section 8.14. | X | | | |

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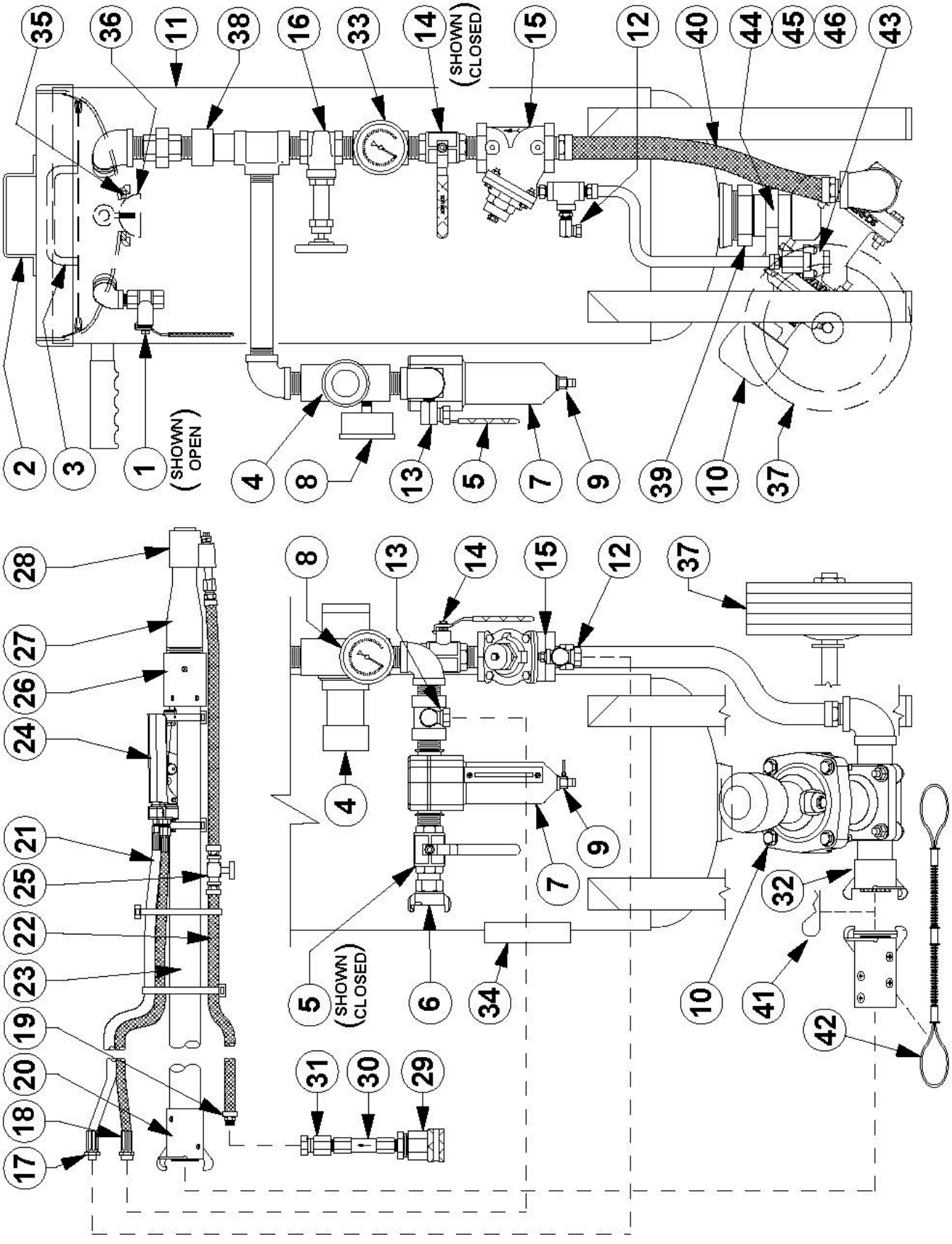
## 9.0 Drawings and Parts Lists

**The following pages contain drawings representing typical blast control systems and components. The Mini Abrasive Blast system is equipped with pneumatic controls. Reference the appropriate drawing and parts list to determine the required parts. To insure the proper operation of the blast system only use Schmidt® original factory replacement parts furnished by an authorized Schmidt distributor. See Section 1.39 and Section 12.2.12.**

# 9.1 (a) Mini Abrasive Blaster w/Pneumatic Control System

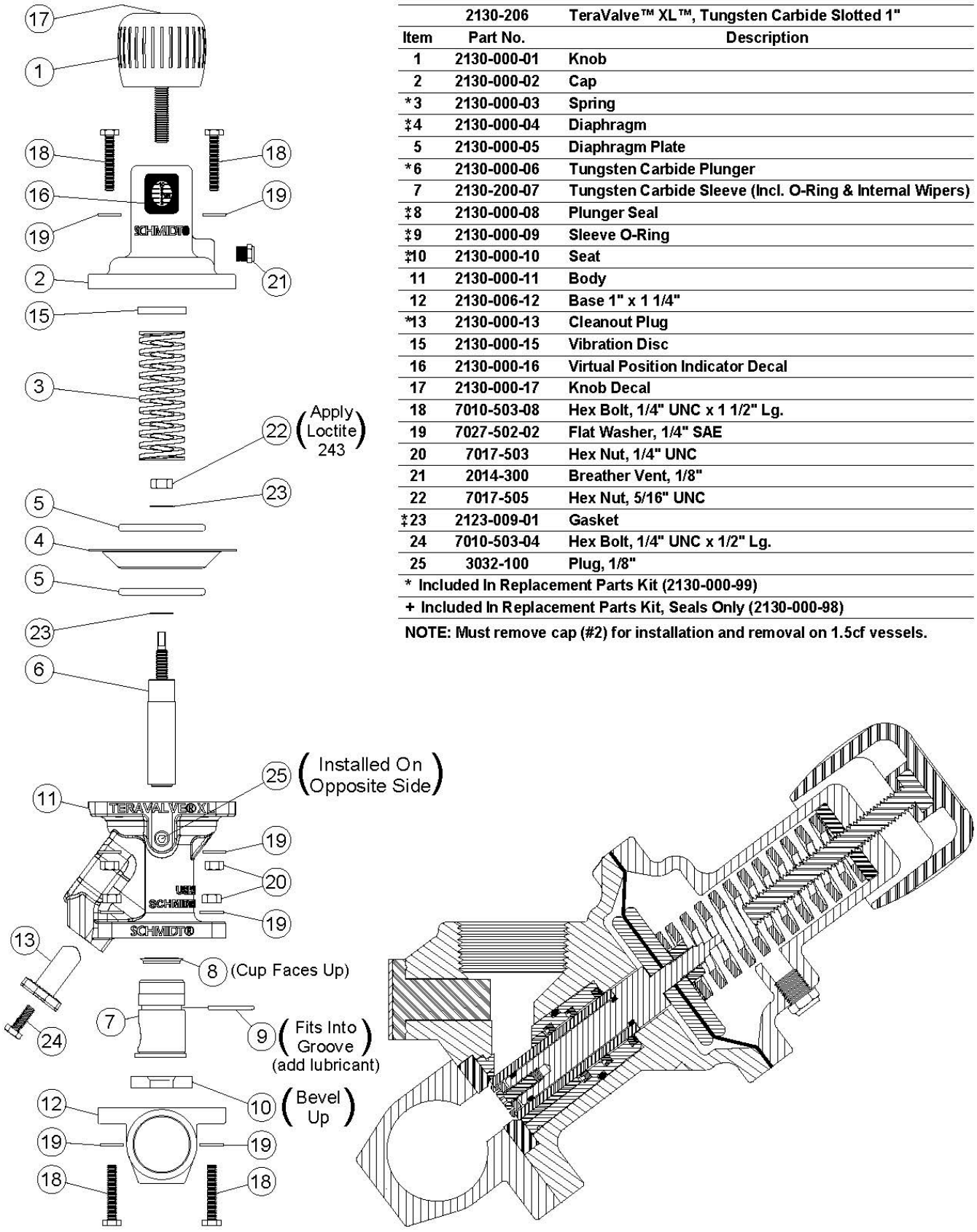


# 9.1(b) Pneumatic Control System Parts List

| Item | Part Number | Description |
|---|---|---|
| 1 | 2401-502 | Blowdown ball valve 1/4" |
| 2 | ---------- | Lid not available for 0.5/0.9 |
| | 5010-012 | Lid, 12" (optional for 1.8cf only) |
| 3 | 5011-071 | Screen, 10" (3/32" mesh) 0.5/0.9cf units |
| | 5011-012 | Screen, 12" (3/32" mesh) 1.8cf units |
| 4 | 2003-005 | Air pressure regulator, 3/4" |
| 5 | 2401-505 | Air inlet ball valve, 3/4" |
| 6 | 4208-105 | Crowfoot, 3/4" MNPT |
| 7 | 2302-205-50 | Air filter, 3/4" 50 micron |
| 8 | 2010-010-01 | Tank pressure gauge, 0-160 psi/bar |
| 9 | 2302-204-97 | Air filter drain valve |
| 10 | 2130-206 | TeraValve™ XLT™, 1" slotted |
| 11 | 8020-005-02 | Blast pot, 0.5 cu. ft. |
| | 8020-010-02 | Blast pot, 0.9 cu. ft. |
| | 8020-018-01 | Blast pot, 1.8 cu. ft. |
| 12 | 4203-500-00 | Swivel 90° 1/8" |
| 13 | 4203-502-02 | Swivel 90° 1/4" |
| 14 | 2401-505 | Choke ball valve, 3/4" |
| 15 | 2123-105 | Automatic air valve, 3/4" |
| | 2014-300 | Breather vent, 1/8" |
| 16 | 8710-98662 | Blast Pressure Control Gate valve, 3/4" |
| 17 | 4204-301-00 | Twinline hose male fitting, 1/8" |
| 18 | 4204-301-02 | Twinline hose male fitting, 1/4" |
| 19 | 4200-302-02 | Water line hose insert 1/4" |
| 20 | 4213-405 | Blast hose coupling |
| 21 | 4100-301 | Twinline hose assembly, 3/16 x 27.5' |
| 22 | 4101-002 | Water hose, 1/4" push on |
| 23 | 4104-305 | Blast hose assembly, 3/4" x 25' |

| Item | Part Number | Description |
|---|---|---|
| 24 | 2263-002 | G2 Deadman valve |
| | 2263-004 | G2 Trigger Deadman (optional) |
| 25 | 2024-001 | Petcock valve, 1/4"F x 1/4"F |
| 26 | 4215-405 | Nozzle holder, Al 3/4" |
| 27 | 5000-003 | Blast nozzle, #3 silicon nitride |
| 28 | 8020-000-02 | Wet blast attachment assembly |
| | 5009-016 | Water attachment nozzle tip |
| 29 | 4227-304-05 | Garden hose coupling |
| | 4227-305-99 | Garden hose gasket, 3/4" |
| 30 | 8710-98758 | Water line strainer, 1/4" (140 micron) |
| 31 | 4202-502-02 | Strait swivel, 1/4" |
| 32 | 4214-107 | Threaded coupling, 1-1/4" NPT |
| 33 | 2010-010-01 | Blast pressure gauge, 0-160 psi/bar |
| 34 | ---------- | Pressure vessel nameplate |
| 35 | 8020-000-15 | Popup Gasket |
| 36 | 8020-000-08 | Popup Head w/ eye bolt |
| 37 | 8710-17024 | Wheel |
| 38 | 2497-705 | Grit suppression valve (optional) |
| 39 | 3026-009-07 | Bushing, 2" x 1-1/4" |
| 40 | 4101-005 | Push-on Hose, 3/4" |
| 41 | 7119-002 | Safety Pin, Air/Blast Hose Coupling |
| 42 | 8710-80558 | Hose Whip Check (1/8" x 20") |
| 43 | 2509-002 | Quick exhaust valve, 1/4" NPT |
| 44 | 8710-92301 | Tri-Clamp 1-1/2" |
| | 8710-98503 | Tri-Clamp O-Ring, 1-1/2" |
| 45 | 8710-98502 | Clamp fitting, 1-1/4" NPT |
| 46 | 8710-98502A | Clamp fitting, 1-1/4" NPT x 2-1/4" |
| 47 | 7031-999-29 | Safety Decal Kit, Mini Blasters |

# 9.2 TeraValve™ XL™ (Slotted Sleeve)




| | 2130-206 | TeraValve™ XL™, Tungsten Carbide Slotted 1" |
|---|---|---|
| Item | Part No. | Description |
| 1 | 2130-000-01 | Knob |
| 2 | 2130-000-02 | Cap |
| *3 | 2130-000-03 | Spring |
| ‡4 | 2130-000-04 | Diaphragm |
| 5 | 2130-000-05 | Diaphragm Plate |
| *6 | 2130-000-06 | Tungsten Carbide Plunger |
| 7 | 2130-200-07 | Tungsten Carbide Sleeve (Incl. O-Ring & Internal Wipers) |
| ‡8 | 2130-000-08 | Plunger Seal |
| ‡9 | 2130-000-09 | Sleeve O-Ring |
| ‡10 | 2130-000-10 | Seat |
| 11 | 2130-000-11 | Body |
| 12 | 2130-006-12 | Base 1" x 1 1/4" |
| *13 | 2130-000-13 | Cleanout Plug |
| 15 | 2130-000-15 | Vibration Disc |
| 16 | 2130-000-16 | Virtual Position Indicator Decal |
| 17 | 2130-000-17 | Knob Decal |
| 18 | 7010-503-08 | Hex Bolt, 1/4" UNC x 1 1/2" Lg. |
| 19 | 7027-502-02 | Flat Washer, 1/4" SAE |
| 20 | 7017-503 | Hex Nut, 1/4" UNC |
| 21 | 2014-300 | Breather Vent, 1/8" |
| 22 | 7017-505 | Hex Nut, 5/16" UNC |
| ‡23 | 2123-009-01 | Gasket |
| 24 | 7010-503-04 | Hex Bolt, 1/4" UNC x 1/2" Lg. |
| 25 | 3032-100 | Plug, 1/8" |

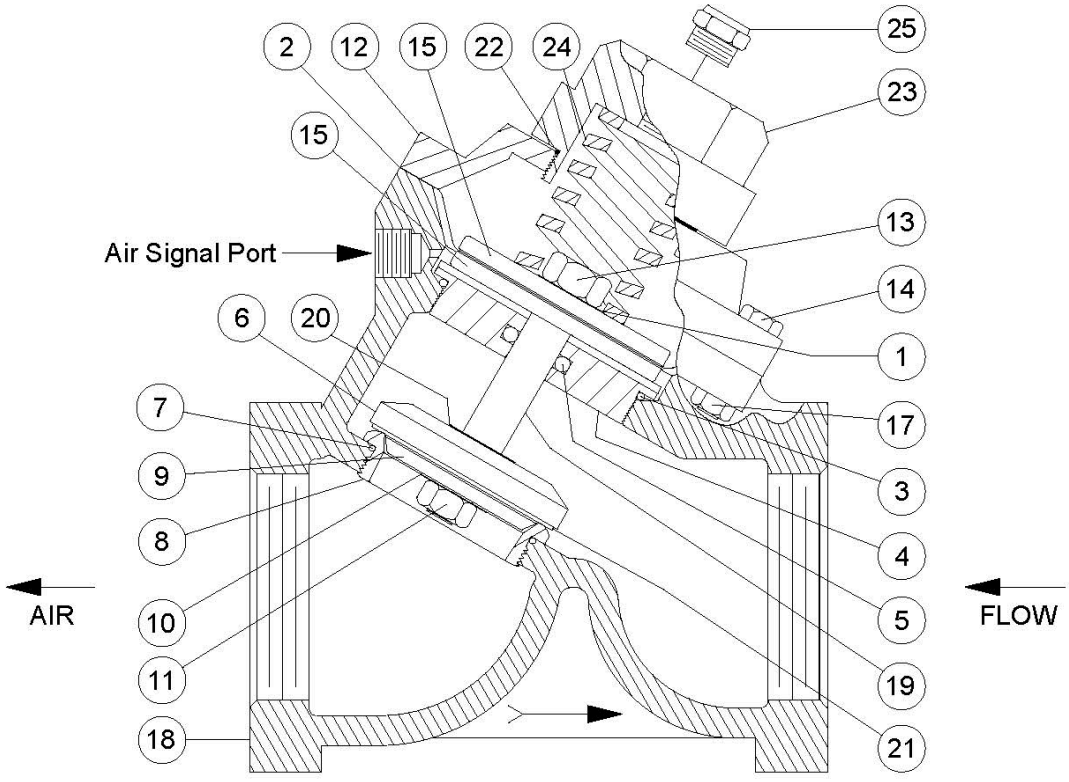
* Included In Replacement Parts Kit (2130-000-99)

\+ Included In Replacement Parts Kit, Seals Only (2130-000-98)

NOTE: Must remove cap (#2) for installation and removal on 1.5cf vessels.

# 9.3 Automatic Air Valve

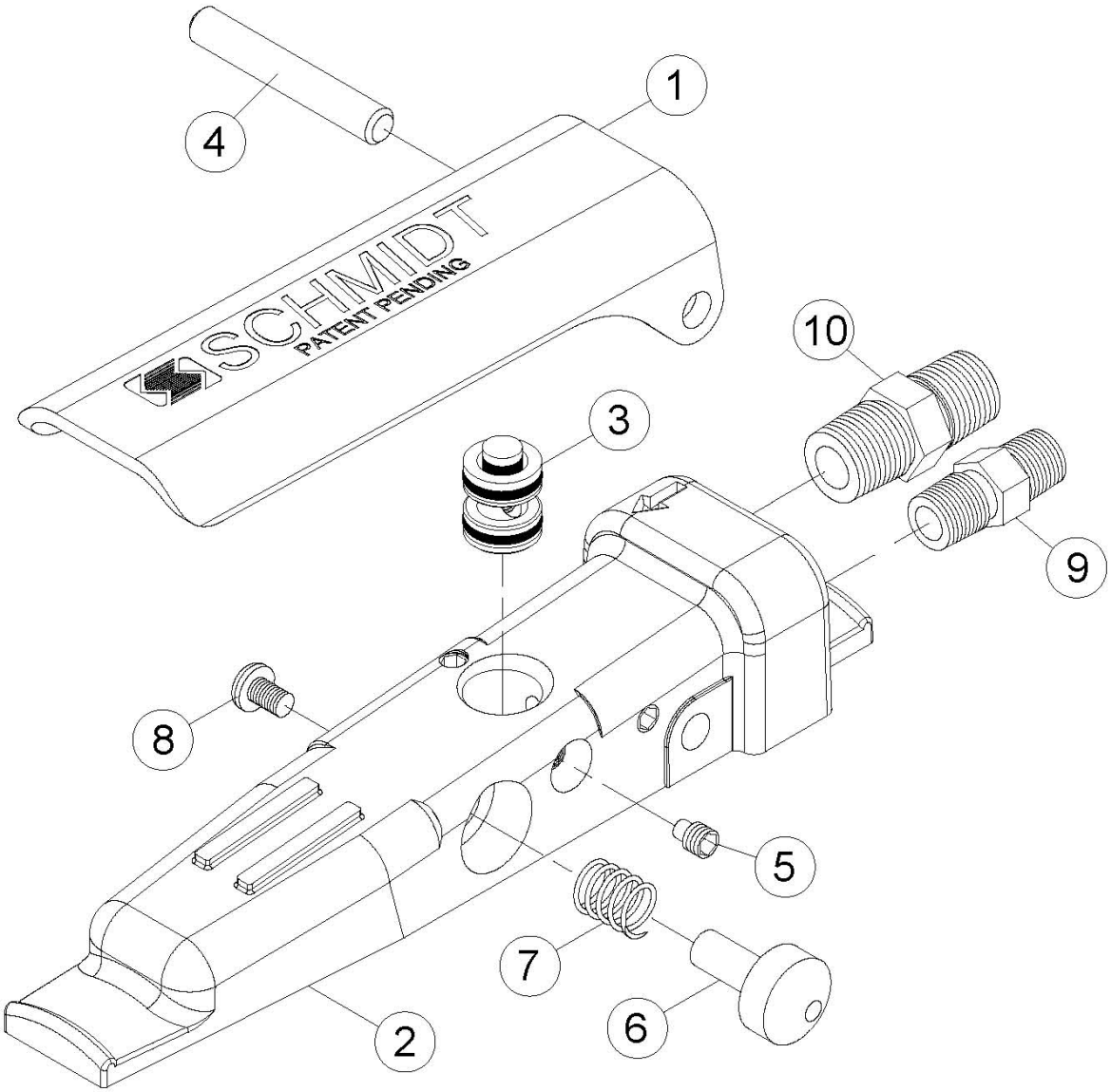
| | 2123-105 | 3/4" Valve |
|---|---|---|
| No. | Part No. | Description |
| | 2123-006-99 | Replacement Parts Kit |
| | 2123-006-97 | Hard Parts Kit |
| 1.* | 2123-007-20 | Gasket |
| 2.* | 2123-006-02 | Diaphragm |
| 3.* | 2123-006-03 | O-ring |
| 4. | 2123-006-04 | Retainer Bushing |
| 5.* | 2123-007-05 | O-ring |
| 6.+ | 2123-006-06 | Disk Retainer |
| 7.* | 2123-006-07 | O-ring |
| 8. | 2123-006-08 | Seat |
| 9.+ | 2123-006-09 | Disc Plate |
| 10. | "Deleted" | Lock Washer, Internal |
| 11.* | 7082-504 | Lock Nut |
| 12. | 2123-106-12 | Cap |
| 13.* | 2123-006-13 | Hex Nut (w/thread lock) |
| 14. | 7010-503-06 | Cap Screw |
| 15.+ | 2123-006-15 | Diaphragm Plate |
| 17. | 7082-503 | Lock Nut |
| 18. | 2123-005-18 | Body, 3/4" |
| 19.* + | 2123-006-19 | Shaft |
| 20.* | 2123-007-20 | Gasket |
| 21.* | 2123-006-21 | Disc |
| 22.* + | 2123-106-22 | O-ring |
| 23.+ | 2123-106-23 | Spring Retainer |
| 24. | 2123-106-24 | Spring |
| 25.* | 2014-300 | Vent, 1/8" |
| 26.* | 2123-007-20 | Gasket |
| * Included In Replacement Parts Kit | | |
| + Included In Hard Parts Kit | | |




NOTE: With spring closed valve air flow is in opposite direction from arrow on valve body.

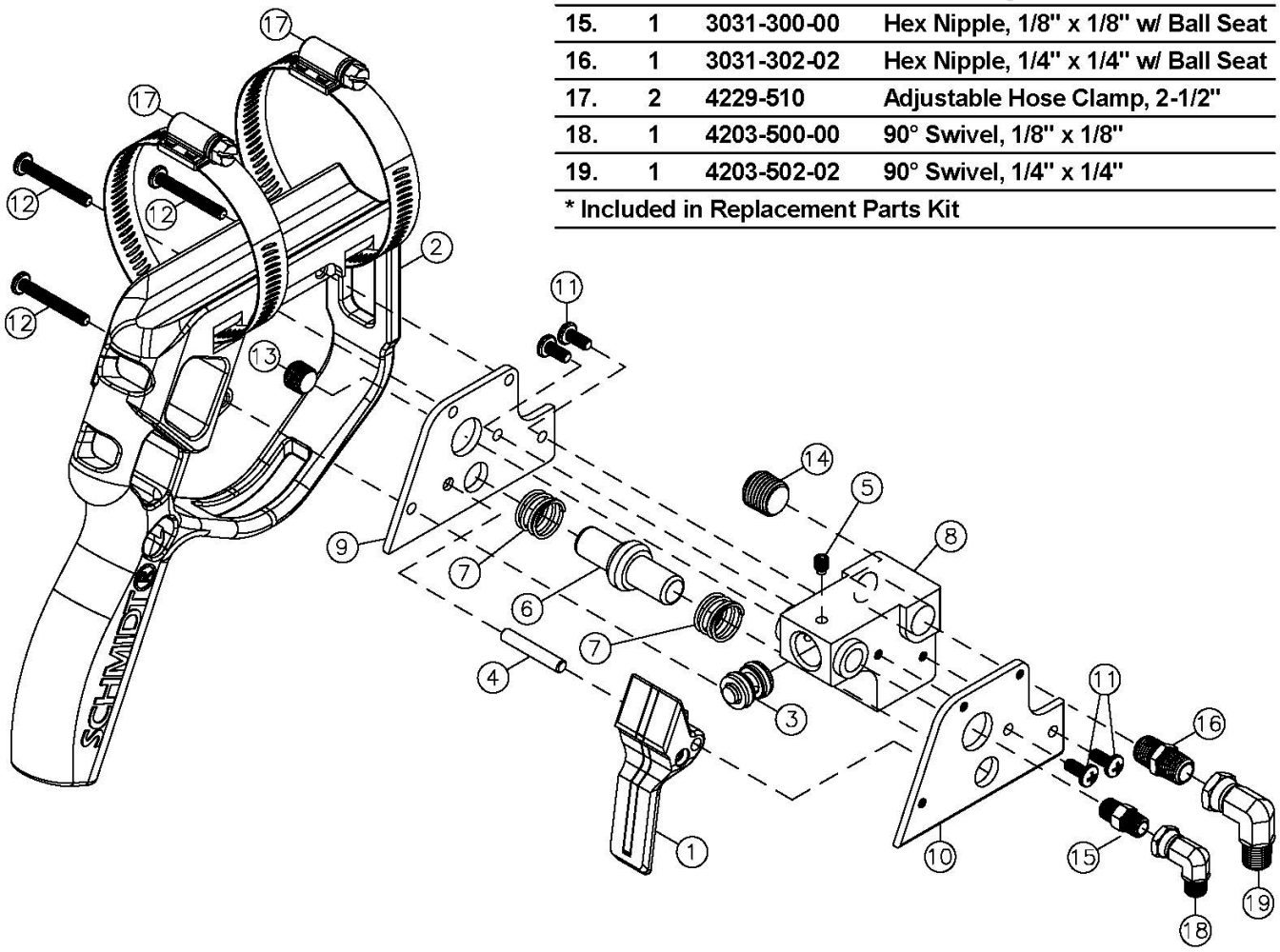
# 9.4(a) G2 Pneumatic Deadman

| | 2263-002 | G2 Pneumatic Deadman |
|---|---|---|
| Item | Part No. | Description |
| | 2263-002-99 | G2 Replacement Parts Kit |
| 1. | 2263-002-01 | G2 Deadman Lever |
| 2. | 2263-002-02 | G2 Deadman Body |
| *3. | 2263-002-03 | G2 Deadman Cartridge Assembly |
| 4. | 2263-002-04 | G2 Deadman Hinge Pin |
| *5. | 2263-002-05 | G2 Deadman Cartridge Set Screw |
| 6. | 2263-002-06 | G2 Deadman Button |
| *7. | 2263-002-07 | Deadman Spring |
| *8. | 2263-000-08 | Deadman Screw For Button |
| 9. | 3031-300-00 | Hex Nipple, 1/8" x 1/8" With Ball Seat |
| 10. | 3031-302-02 | Hex Nipple, 1/4" x 1/4" With Ball Seat |
| *Items included in Replacement Parts Kit | | |



# 9.4(b) G2 Pneumatic Trigger Deadman

| | | 2263-004 | G2 Pneumatic Trigger Deadman |
|---|---|---|---|
| No. | Qty. | Part No. | Description |
| | | 2263-004-99 | Replacement Parts Kit |
| 1. | 1 | 2263-004-01 | Deadman Trigger |
| 2. | 1 | 2263-004-02 | Deadman Handle |
| 3. * | 1 | 2263-002-03 | Deadman Cartridge Assembly |
| 4. | 1 | 2263-004-04 | Deadman Trigger Pin |
| 5. * | 1 | 2263-004-05 | Deadman Cartridge Set Screw |
| 6. | 1 | 2263-004-06 | Deadman Trigger Safety Button |
| 7. * | 2 | 2263-004-07 | Deadman Spring |
| 8. | 1 | 2263-004-11 | Trigger Module Body |
| 9. | 1 | 2263-004-12 | Trigger Module Side Plate (Left) |
| 10. | 1 | 2263-004-13 | Trigger Module Side Plate (Right) |
| 11. | 4 | 2263-004-14 | Phillips Head Screw, 3/8" Lg. |
| 12. | 3 | 2263-004-15 | Phillips Head Screw, 1-1/4" Lg. |
| 13. | 1 | 3032-100 | Socket Plug, 1/8" |
| 14. | 1 | 3032-102 | Socket Plug, 1/4" |
| 15. | 1 | 3031-300-00 | Hex Nipple, 1/8" x 1/8" w/ Ball Seat |
| 16. | 1 | 3031-302-02 | Hex Nipple, 1/4" x 1/4" w/ Ball Seat |
| 17. | 2 | 4229-510 | Adjustable Hose Clamp, 2-1/2" |
| 18. | 1 | 4203-500-00 | 90° Swivel, 1/8" x 1/8" |
| 19. | 1 | 4203-502-02 | 90° Swivel, 1/4" x 1/4" |
| * Included in Replacement Parts Kit | | | |



# 10.0 Recommended Spare Parts Lists

| Mini M-Series Abrasive Blaster Recommended Spare Parts [see Section 9.1(a)] | | | |
|---|---|---|---|
| **Item No.** | **Qty.** | **Part No.** | **Description** |
| 1 | 1 | 2401-502 | Blowdown Ball Valve, 1/4” |
| 4 | 1 | 2003-007-99 | Air Regulator Replacement Part Kit, 3/4" thru 1-1/2” |
| 5, 14 | 2 | 2401-505 | Air Inlet / Choke Ball Valve, 3/4" |
| 6 | 1 | 4208-105 | Air Inlet Crowfoot, 3/4" |
| 6 | 10 | 4209-999 | Crowfoot Gasket, 2-Lug |
| 7 | 1 | 2302-204-99 | Air Filter Replacement Parts Seals Kit, 1/2" & 3/4" |
| 7 | 1 | 2302-204-96 | Air Filter Replacement Parts Element Kit, 40u 1/2" & 3/4" |
| 7 | 1 | 2302-204-98 | Air Filter Replacement Parts Sight Glass Kit, 1/2" & 3/4" |
| 8, 33 | 2 | 2010-010-01 | Pressure Gauge, 0-160 psi/bar |
| 9 | 1 | 2302-204-97 | Air Filter Replacement Parts Drain Kit, 1/2" thru 1-1/2” |
| 10 | 1 | 2130-000-03 | TeraValve™ XL Spring |
| 10 | 1 | 2130-000-99 | TeraValve™ XL™ Replacement Part Kit |
| 10 | 1 | 2130-206 | TeraValve™ XL™ Assembly |
| 15 | 1 | 2123-006-02 | Auto Air Valve Diaphragm, 3/4" |
| 15 | 1 | 2123-006-99 | Auto Air Valve Replacement Part Kit, 3/4" |
| 15 | 1 | 2123-105 | Auto Air Valve, 3/4" |
| 15 | 1 | 2123-106-24 | Auto Air Valve Spring, 3/4" |
| 15 | 1 | 2014-300 | Breather Vent, 1/8” |
| 20 | 2 | 4213-405 | Blast Hose Coupling, 3/4" |
| 21 | 1 | 4100-301 | Twinline Hose, 27.5 ft. |
| 22 | 30ft | 4101-002 | Push-on Hose, 1/4" |
| 23 | 1 | 4104-305 | Blast Hose Assembly, 3/4” x 25’ |
| 24 | 1 | 2263-002 | G2 Pneumatic Deadman Valve |
| 24 | 1 | 2263-002-99 | G2 Pneumatic Deadman Valve Replacement Part Kit |
| 24 | 1 | 2263-004 | G2 Pneumatic Trigger Deadman Valve (optional) |
| 24 | 1 | 2263-004-99 | G2 Pneumatic Trigger Deadman Replacement Part Kit |
| 25 | 1 | 2024-001 | Petcock Valve, 1/4" |
| 26 | 2 | 4215-405 | Nozzle Holder, 3/4" |
| 27 | 2 | 5000-003 | Nozzle, 3/16” Silicon Nitride |
| 29 | 5 | 4227-305-99 | Garden Hose Gasket, 3/4" |
| 30 | 1 | 8710-98758 | Water line Strainer, 1/4" (140 micron) |
| 32 | 2 | 4214-107 | Threaded Coupling, 1-1/4” |
| 32 | 10 | 4214-999 | Coupling Gasket |
| 35 | 1 | 8020-000-15 | Popup Gasket |
| 36 | 1 | 8020-000-08 | Popup with eye bolt |
| 40 | 5ft | 4101-005 | Push-on Hose, 3/4" |
| 41 | 10 | 7119-002 | Safety Pin, Air/Blast Hose Coupling |
| 42 | 2 | 8710-80558 | Hose Whip Check, (1/8” x 20”) |
| N/A | 1 | 7031-999-29 | Safety Decal Kit, Mini Blaster |
| 44 | 2 | 8710-98503 | Tri-Clamp O-Ring, 1-1/2” |

# 11.0 Troubleshooting

This section lists probable causes of problems that may occur during operation of the abrasive blaster. Not all of the "probable causes" may apply to your particular abrasive blaster. The probable cause may not apply because of the control type and accessories on the abrasive blaster. Refer to Figure 11.1 and the drawings in Section 9.0.

**⚠ DANGER**

The Mini M-Series Abrasive Blaster is a Pressurized Vessel. Propelled objects will cause serious injury or death. Depressurize vessel before performing any maintenance. See Section 6.2.

## 11.1 Malfunction With Deadman Lever In The "Off" Position

### 11.1.1. Blast air stops but abrasive will not shut off

(1) Trash stuck between plunger and seat in TeraValve™ XL™ (#10) prevents closing.
(2) Defective valve plunger in TeraValve™ (worn by abrasive or broken).
(3) Defective sleeve in TeraValve™ (worn by abrasive).
(4) Blocked air hose to TeraValve™ (trash blockage or pinched hose).
(5) Defective or broken spring in TeraValve™ (check length of spring).
(6) TeraValve™ cap (or spring retainer) not screwed all the way down (hand tighten only).

### 11.1.2. Abrasive stops but blast air will not shut off (TeraValve™ blasters only)

(1) Defective or broken spring in automatic air valve (#15).
(2) Defective seat in automatic air valve.
(3) Blocked signal air hose to automatic air valve.
(4) Defective O-ring in automatic air valve (around shaft).
(5) Obstruction inside automatic air valve (#15) binding shaft movement.

### 11.1.3. Both blast air and abrasive will not shut off

(1) Twinline hoses to deadman valve (#24) are crossed.
(2) Non-Schmidt deadman (#24) has been installed
(3) Control valve stuck in "ON" position (electric units only).
(4) Blocked twinline hose (#21).
(5) Defective deadman valve (#24). Pneumatic deadman cartridge plunger stuck in the "ON" position (down). Cartridge plunger is visible below deadman handle.
(6) Defective or broken Combo Valve spring. (Combo blasters only)
(7) Defective Combo Valve lower rod guide seal. (Combo blasters only)

### 11.1.4. Blast outlet turns on accidentally

(1) The deadman lever (#24) is worn out.
(2) The safety button on the deadman is missing. See drawings in Section 9.4.
(3) A bleeder type deadman valve has been installed. A bleeder type deadman valve *is not safe* because a particle of dirt from the air hose can plug the bleed hole and cause the blast outlet to turn on. See *Warnings* and *Rules for Safer Operation* in Section 1.0.
(4) Defective electric deadman switch or electric wiring (check for an electric short).
(5) Defective Combo Valve lower rod guide seal (Combovalve blasters only).

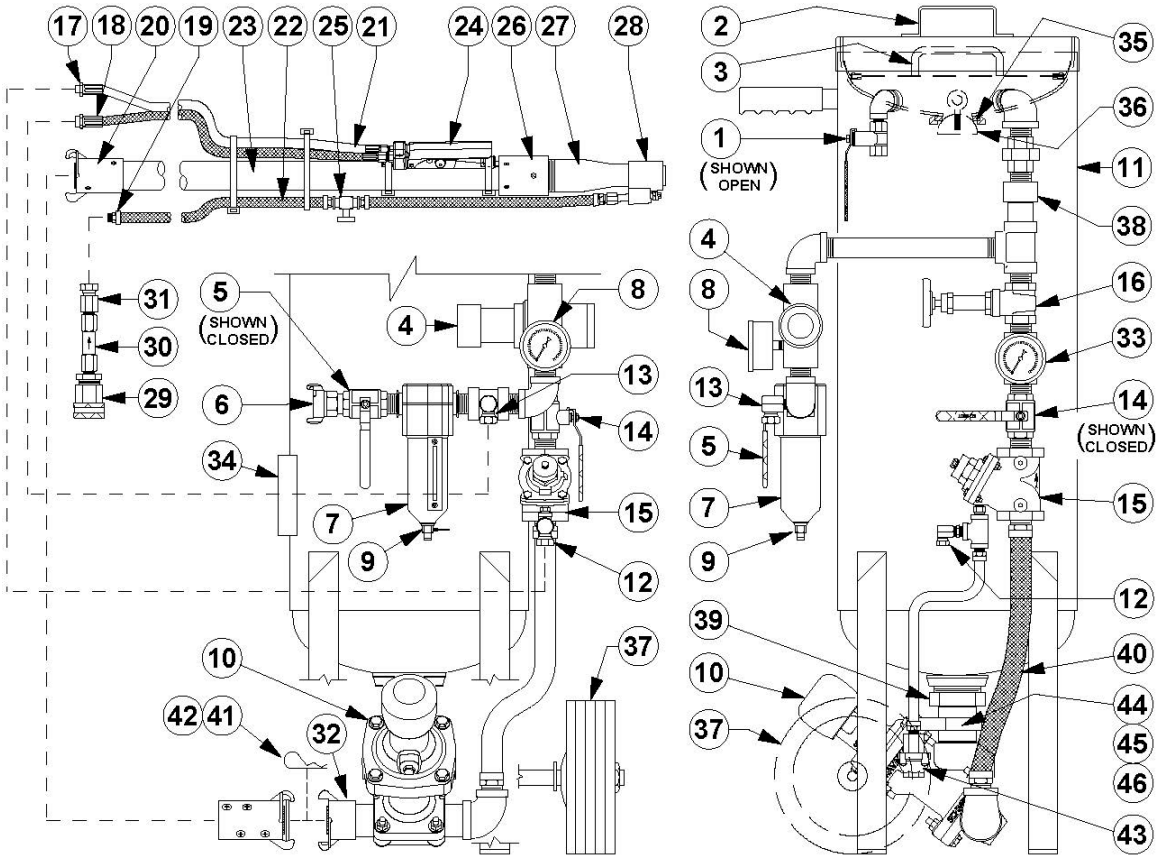



**Figure 11.1 – Typical Mini M-Series Abrasive Blaster**

## 11.2 Malfunction With Deadman Lever In The "On" Position

### 11.2.1. Air blasts with no abrasive

(1) Check abrasive level in blast vessel (even if optional second outlet blasts normally).
(2) Blocked control air hose to TeraValve™ XL™ (#10) prevents opening.
(3) TeraValve™ (#10) plunger stuck in closed position.
(4) Trash plugging opening from tank to TeraValve™ (#10). See Section 11.3.
(5) Insufficient air pressure to open TeraValve™ (fully open requires 80 psig).
(6) Abrasive flow problems. See Section 11.3.
(7) Defective TeraValve™ diaphragm (air will leak from breather).
(8) Blast vessel leak (popup or handway) reduces pressure slowing abrasive flow.
(9) Air leak at TeraValve™ (#10) cleanout plug. See Section 9.2.

### 11.2.2. Abrasive choking out of blast hose with low blast air pressure

(1) TeraValve™ (#10) abrasive adjustment knob is open too far.
(2) Control air hose to automatic air valve (#15) blocked, pinched, or leaking prevents opening.
(3) Choke valve (#14) is partially closed causes differential pressure increases abrasive flow.
(4) Low air compressor output cfm (unit may cycle on and off). See Section 3.0.
(5) Blocked automatic air valve (#15) breather vent prevents full opening.
(6) Obstruction inside automatic air valve (#15) binding shaft movement.

### 11.2.3. Reduced Pressure At The Nozzle (with or without abrasive flow)

(1) Low air compressor output CFM. See Section 3.0 to determine air requirements.
(2) Air supply hose to blaster is too small. See Section 3.0.
(3) TeraValve™ abrasive adjustment knob (#10) is open too far.
(4) Check for leaks in blast vessel (popup or handway) or control piping.
(5) Choke valve (#14) is partially closed.
(6) Blocked automatic air valve (#15) breather vent prevents full opening.

(7) Trash blocking the blast nozzle orifice (#27). Release deadman and allow the air pressure in the blast hose (#23) to dissipate. Close the air inlet ball valve (#5). **Note:** Only after the air in the blast hose has dissipated then remove the blast nozzle (#27) and clear blockage.

**⚠ DANGER**

Confirm the air in the blast hose has dissipated before removing the blast nozzle. Squeeze or step on the blast hose. Firmness or stiffness indicates that the blast hose is pressurized.
Do Not attempt to remove the blast nozzle. Allow the air to dissipate before proceeding.

**⚠ WARNING**

Do Not aim the blast nozzle towards yourself or any person. A system malfunction or a blocked blast nozzle that clears can trigger accidental start up resulting in injury to personnel.

**11.2.4. Blast is slow to turn on or will not turn on when deadman lever is pressed down.**

(1) Check twinline hose fittings (#17 & #18) to see if they are connected properly.
(2) Control valve stuck in exhaust position (air will leak from breather vent) (electric units only).
(3) Control air strainer blocked; restricts air flow to deadman (electric units only).
(4) Breather vent on TeraValve™ XL™ (#10) blocked.
(5) Twinline (#21) control hoses blocked.
(6) Cartridge in deadman valve (#24) is blocked.
(7) Low air compressor output cfm (unit may cycle on and off). See Section 3.0.
(8) Air leaks in control hose from the deadman valve (#24) to automatic air valve (#15).
(9) Blocked automatic air valve (#15) breather vent prevents full opening.
(10)Trash blocking the blast nozzle orifice (#27). See Item (7) in Section 11.2.3 above.

## 11.3 Notes on Abrasive Flow Problems

**11.3.1. TeraValve™ XL™ operation**

If abrasive flow is a problem, remember; the TeraValve™ only opens and closes. The total travel to full open is approximately 3/4 of an inch. This can be quickly checked with the adjustment knob on the abrasive valve.

For this procedure manually close the choke valve (#14) and the media shut-off valve to stop blast flow. This test is to verify that the TeraValve™ is opening.

With the deadman off, screw the TeraValve™ knob down until it stops. Notice that the knob turns easily when the deadman is off. Next, back the knob out 3/4 of an inch or slightly less, then press the deadman lever down to open the TeraValve™. The knob should get tight or more difficult to turn because the valve has opened against the adjustment. This guarantees that the valve is fully open. If the material will not flow with the valve fully open, you have an abrasive flow problem, not a problem with the TeraValve™. The abrasive may be wet, or there may be trash blocking the opening. Try choking the blast outlet to clear the opening. Proceed to step 11.3.2. If the knob does not get tighter during this test troubleshoot the controls and the TeraValve™ piston seal.

**⚠ DANGER**

Do Not hammer on any part of the pressure vessel to improve abrasive flow. This can cause cracks that may lead to pressure vessel rupture.

**11.3.2. Choking the blast outlet**

The choke valve (#14) is used to clear any trash that may get into the blast vessel and block the Tera abrasive valve orifice. Whenever trash (paint chip, cigarette butt, etc.) blocks the abrasive valve orifice, the procedure is to fully open the valve by turning the knob counterclockwise, then press down the deadman lever (#24) to begin

blasting. While blasting, have an assistant close the choke valve completely for about one second. This creates differential pressure at the abrasive valve (high pressure above; low pressure below). The higher pressure from the blast vessel should be enough to loosen the trash blocking the abrasive valve orifice and blast it through the blast nozzle (#27). To minimize excess wear of the TeraValve™ keep the choke valve fully open during normal blasting. If the blaster is equipped with the abrasive cutoff feature set the valve (or switch) to the on-position for the choke procedure (TeraValve™ blasters only).

**Note:** The TeraValve™ XL™ includes a cleanout port to use for this procedure. See the valve drawing in Section 9.2 (Item 13).

**Note:** Trash cleared during the choking process may block the nozzle orifice. Refer to Item (7) in Section 11.2.3 for procedure to clear nozzle.

### 11.3.3. Blast control hoses

Remember, the blaster controls and valves are normally closed. Therefore, the control hoses are depressurized to turn the blast off and pressurized to turn the blast on. If a needle gauge is available, it is the quickest way to check to see if there is pressure or not. If no needle gauge is available, disconnect each control hose fitting one at a time until the problem is located.

### 11.3.4. Contaminated Abrasive

Air quality is crucial to the operation of an abrasive blaster. Moisture and contaminants can cause components to malfunction. Moisture condensation in a blast system causes abrasive flow problems. Condensation occurs when the hot vapor-filled compressed air cools as it reaches the abrasive blaster. Water droplets formed during condensation can be absorbed by the abrasive in the blast vessel which can cause erratic flow to the abrasive valve. To minimize the chance of abrasive flow problems a moisture removal device installed for the blast system air supply is highly recommended (i.e. coalescing moisture separator, air-cooled aftercooler or deliquescent dryer). Contact a local authorized Schmidt® distributor or Axxiom Manufacturing, Inc. to locate one near you.

**⚠ DANGER**

Do Not hammer on any part of the pressure vessel to improve abrasive flow. This can cause cracks that may lead to pressure vessel rupture.

### 11.3.5. Recycled Abrasives

Used & recycled abrasives can contain trash & coating particles removed from previously blasted items (particularly sticky coatings) that can cause abrasive to clump together and block the metering valve orifice and stop flow. Prior to use recycled abrasive must be passed through a screen with openings no larger than 1/4” round. Some applications may require smaller openings. Refer to Section 11.3.4

Trash in recycled abrasive can also prevent the abrasive valve plunger from properly seat. The result will be air leakage at the blast nozzle in the off mode. This leak will gradually worsen due to the blasting effect of the leak. This leak will cause premature wear of the seat, plunger, and sleeve.

**NOTICE**

Recycled abrasive can contain trash that can cause equipment malfunction. Prior to use, recycled abrasive must be passed through a screen with openings no larger than 1/4” round. Some applications may require smaller openings.

# 12.0 Warranty and Reference Information

## 12.1 Warranty

This following section is to be used as a guide in determining warranty policies and procedures for SCHMIDT® products. It is to be used in determining whether a warranty is justified and as a procedural guide in completing a SCHMIDT warranty claim.

## 12.2 Warranty Policy

1. All SCHMIDT products are guaranteed to be free of defects in material and workmanship at time of shipment. Axxiom Manufacturing, Inc. warrants its products against defects in material and workmanship under normal and proper use for a period of ninety (90) days from the date of delivery. Such warranty is extended only to the buyer who purchases the equipment directly from Axxiom Manufacturing, Inc. or its authorized distributors. This warranty does not include expendable parts such as, but not limited to, hoses, nozzles, and seals.

2. The obligation under this warranty is strictly limited to the replacement or repair, at Axxiom's option, of machines and does not include the cost of transportation, loss of operating time, or normal maintenance services. Axxiom Manufacturing, Inc. shall have no liability for labor, consequential damages, freight or special charges.

3. This warranty does not apply to failure occurring due to abuse, misuse, negligence, corrosion, erosion, normal wear and tear, alterations or modifications made to the machine without express written consent of Axxiom Manufacturing, Inc.

4. Warranty requests must be submitted in writing within thirty (30) days after failure.

5. Written authorization to return merchandise under warranty must first be obtained from Axxiom Manufacturing, Inc. In no case is merchandise to be returned to Axxiom for credit without authorization. At the time of authorization, Axxiom will issue a return authorization number that must be included on all packages and correspondence. Any material returned without prior authorization will remain the property of the sender and Axxiom will not be responsible for it.

6. All returns must be shipped prepaid freight. All returns may be exchanged for other equipment or parts of equal dollar value. If goods are not exchanged, they are subject to a 20% restocking charge. Any cost incurred by Axxiom Manufacturing, Inc. to restore such goods to first class condition will be charged to the customer.

7. Axxiom Manufacturing, Inc. reserves the right to inspect and make the final decision on any merchandise returned under warranty.

8. Axxiom Manufacturing, Inc. offers no warranty with respect to accessories, including but not limited to, engines, motors, batteries, tires and any other parts not manufactured by Axxiom Manufacturing, Inc., but which the original manufacturer warrants.

9. Axxiom Manufacturing, Inc. reserves the right to make product changes or improvements without prior notice and without imposing any obligation upon itself to install the same on its products previously sold.

10. The above warranty conditions can only be altered by Axxiom Manufacturing, Inc. Axxiom must confirm alterations in writing for each specific transaction.

11. Axxiom Manufacturing, Inc. reserves the right to establish specific warranty terms for used or demo machines on an individual transaction basis. Invoices covering such merchandise will clearly state the provisions of the applicable warranty for each specific transaction.

12. USE OF NON-ORIGINAL SCHMIDT® FACTORY REPLACEMENT PARTS ON ANY SCHMIDT EQUIPMENT VOIDS ALL WARRANTIES.

13. AXXIOM MANUFACTURING, INC. DOES NOT AUTHORIZE ANY PERSON, REPRESENTATIVE OR SERVICE OR SALES ORGANIZATION TO MAKE ANY OTHER WARRANTY OR TO ASSUME ON BEHALF OF AXXIOM MANUFACTURING, INC. ANY LIABILITY IN CONNECTION WITH THE SALE OF OUR PRODUCTS OTHER THAN THOSE CONTAINED HEREIN.

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15. AXXIOM MANUFACTURING, INC. MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE SCHMIDT PRODUCTS SOLD PURSUANT THERETO.

## 12.3 Trademarks, Patents, and Proprietary Statements

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## 12.4 Safety Information Sources

***Axxiom Manufacturing, Inc***
This equipment and all Schmidt® equipment are manufactured exclusively by Axxiom Manufacturing, Inc. If any operational or safety related questions arise relating to this equipment contact Axxiom Manufacturing, Inc.

Phone: 1-800-231-2085
Website: www.SchmidtAbrasiveBlasting.com

Axxiom Manufacturing, Inc.
11927 South Highway 6
Fresno, Texas 77459

***Occupational Safety and Health Administration (OSHA)*** establishes and enforces regulations regarding safety practices in the workplace including the abrasive blasting industry. Any questions, reporting of work related injuries, or reporting of unsafe work practices can be made to the following contact information. Answers to most any safety related questions can be found at the OSHA website shown below.

Phone: 1-800-321-6742
Website: www.osha.gov

U.S. Department of Labor
Occupational Safety and Health Administration
200 Constitution Avenue, NW
Room Number N3626
Washington D.C. 20210

***National Institute of Occupational Safety and Health (NIOSH)*** is a federal agency responsible for conducting research and recommendations for the prevention of work related injuries and sickness.

Phone: 1-800-232-4636
Website: www.cdc.gov/niosh

National Institute of Occupational Safety and Health
Patriots Plaza 1
395 E Street, SW, Suite 9200
Washington, DC 20201

***American National Standards Institute (ANSI)*** coordinates the development and use of voluntary consensus standards including safety standards.

Phone: 1-202-293-8020
Website: www.ansi.org

American National Standards Institute
1899 L Street, NW
11th Floor
Washington, DC 20036

 

## 12.5 Surface Preparation Information Sources

***The Society for Protective Coatings (SSPC)*** consists of research and testing committees, conducts seminars and establishes industry standards on surface preparation methods, abrasive and coatings.

Phone: 1-877-281-7772
Website: www.sspc.org

The Society for Protective Coatings
800 Trumbull Dr.
Pittsburg, PA 15205

***National Association of Corrosion Engineers (NACE)*** develops test methods and recommended practices on surface preparation techniques and coatings.

Phone: 1-800-797-6223
Website: www.nace.org

National Association of Corrosion Engineers
15835 Park Ten Place
Houston, TX 77084

## 12.6 Table of Blast Abrasive Characteristics

| Abrasive Type | Hardness (Mohs) | Grain Shape | Density Lbs/ft3 | Color | Free Silica Content | No. of Recycles | Initial Cost | Typical Use |
|---|---|---|---|---|---|---|---|---|
| Corn Cobs | 2 | angular | 35-45 | tan | none | 4-5 | low | stripping paint from delicate substrates |
| Sodium Bicarbonate | 2.8 | crystal | 60 | white | none | 4-5 | medium | cleaning and stripping paint from delicate substrates |
| Walnut Shell | 3 | angular | 45 | lt. brown | none | 4-5 | low | stripping paint from delicate substrates |
| Plastic | 3.2 | angular | 45-60 | white | none | 8-10 | medium | Paint stripping, deburring, and cleaning |
| Glass Beads | 4.5 | spherical | 90 | crystal | none | 8-10 | low | cleaning finishing |
| Starblast XL | 6.5 | spherical | 128 | lt. brown | <1% | 4-5 | medium | outdoor blasting |
| Coal Slag | 7 | angular | 85 | black | none | 1-2 | medium | outdoor blasting |
| Copper Slag | 7 | angular | 112 | black | none | 1-2 | medium | outdoor blasting |
| Garnet | 7 | angular | 147 | pink | <2% | 4-5 | medium | outdoor blasting |
| Steel Shot | 8 | spherical | 280 | steel grey | none | 200 | low | cleaning and peening |
| Steel Grit | 8 | angular | 280 | steel grey | none | 200 | medium | removing heavy scale |
| Aluminum Oxide | 9 | angular | 120 | brown | <1% | 6-8 | medium | cleaning and finishing, deburring and etching |

# Notes

 

# 13.0 Blasting Data

## 13.1 Table 1 Approximate Air Consumption (cfm) Per Blast Nozzle

| | NOZZLE PRESSURE | | | | | | |
|---|---|---|---|---|---|---|---|
| **NOZZLE SIZE** | **60 psi** | **70 psi** | **80 psi** | **90 psi** | **100 psi** | **120 psi** | **140 psi** |
| No.2 1/8" | 14 | 16 | 18 | 20 | 22 | 26 | 30 |
| No.3 3/16" | 32 | 36 | 41 | 45 | 49 | 58 | 66 |
| No.4 1/4" | 57 | 65 | 72 | 80 | 90 | 105 | 121 |
| No.5 5/16" | 90 | 101 | 113 | 125 | 140 | 160 | 185 |
| No.6 3/8" | 126 | 145 | 163 | 182 | 200 | 235 | 270 |
| No.7 7/16" | 170 | 193 | 215 | 240 | 270 | 315 | 360 |
| No.8 1/2" | 230 | 260 | 290 | 320 | 350 | 410 | 470 |
| No.10 5/8" | 360 | 406 | 454 | 500 | 550 | 640 | 740 |
| No.12 3/4" | 518 | 585 | 652 | 720 | 790 | 925 | 1060 |

## 13.2 Table 2 Abrasive Consumption (lbs. per hour) Per Blast Nozzle

| | NOZZLE PRESSURE | | | | | | |
|---|---|---|---|---|---|---|---|
| **NOZZLE SIZE** | **60 psi** | **70 psi** | **80 psi** | **90 psi** | **100 psi** | **120 psi** | **140 psi** |
| No.2 1/8" | 90 | 105 | 115 | 130 | 140 | 165 | 190 |
| No 3 3/16" | 205 | 230 | 260 | 290 | 320 | 375 | 430 |
| No.4 1/4" | 365 | 420 | 460 | 500 | 560 | 660 | 760 |
| No.5 5/16" | 575 | 650 | 725 | 825 | 900 | 1050 | 1200 |
| No.6 3/8" | 840 | 945 | 1050 | 1155 | 1260 | 1475 | 1700 |
| No.7 7/16" | 1150 | 1300 | 1450 | 1600 | 1750 | 2050 | 2350 |
| No.8 1/2" | 1460 | 1660 | 1850 | 2000 | 2250 | 2650 | 3000 |
| No.10 5/8" | 2290 | 2600 | 2900 | 3125 | 3520 | 4100 | 4750 |
| No.12 3/4" | 3300 | 3750 | 4180 | 4500 | 5060 | 5950 | 6800 |

## 13.3 Table 3 Hose Selection Guide (blasting @ 100 Psi)

| **NOZZLE SIZE** | **No.4 1/4"** | **No.5 5/16"** | **No.6 3/8"** | **No.7 7/16"** | **No.8 1/2"** |
|---|---|---|---|---|---|
| **CFM @ 100psi** | 90 | 140 | 200 | 270 | 350 |
| **AIR HOSE** | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" | 2" |
| **BLAST HOSE** | 1" | 1 1/4" | 1 1/4" | 1 1/2" | 1 1/2" |
| **ABRASIVE ( lbs per hr)** | 560 | 900 | 1260 | 1750 | 2250 |

## 13.4 Additional Information on Blasting Productivity

Air volume and pressure are very important. The blasting production rate will increase with higher blasting pressures and decrease with lower blasting pressures. The National Association of Corrosion Engineers' data suggests that for each 1 psi reduction in nozzle pressure, there is a 1.5% production loss. Pressure drop through a Schmidt® blast unit is normally less than 1 psi, while blast units manufactured by some of our competitors have pressure losses as high as 12 psi resulting in an 18% loss of production. Air pressure loss can also be avoided by using the shortest possible hose of adequate size. The inside diameter of both the blast hose (other than whip hose) and the air hose should be approximately three times the diameter of the orifice in the blast nozzle.

Standard Schmidt blast units are rated for a maximum pressure of 150 psi. However, equipment manufactured prior to 2005 can be rated at 125psi. Refer to pressure vessel nameplate.