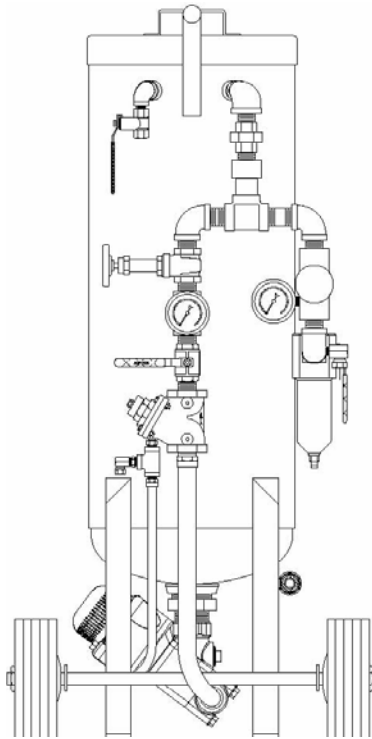


MINI M SERIES ABRASIVE BLASTER 0.9 - 1.8 Cu.ft.

OPERATION AND MAINTENANCE MANUAL

DECEMBER 2009



SCHMIDT®

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

Manual Part Number 7200-295 Rev 9-26-18



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11927 S. Highway 6, Fresno, Texas 77545
800.231.2085 * 281.431.0581 * fax 281.431.1717



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.



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.



BLACK LETTERS with ORANGE BACKGROUND

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



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.

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”.)
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 abrasive blaster 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 Abrasive Blaster.

No.	Qty.	Part no.	Description	Hazard
1.	1	7031-002	“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	7034-001	Welded “Warning” plate. General hazard and advisory notes.	Steel “Warning” plate welded to pressure vessel which is a general list of required actions to take before and during the operation of this equipment. See Section 1.0



1) 7031-002

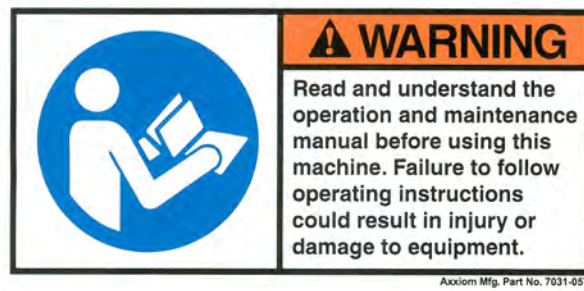


2) 7031-054

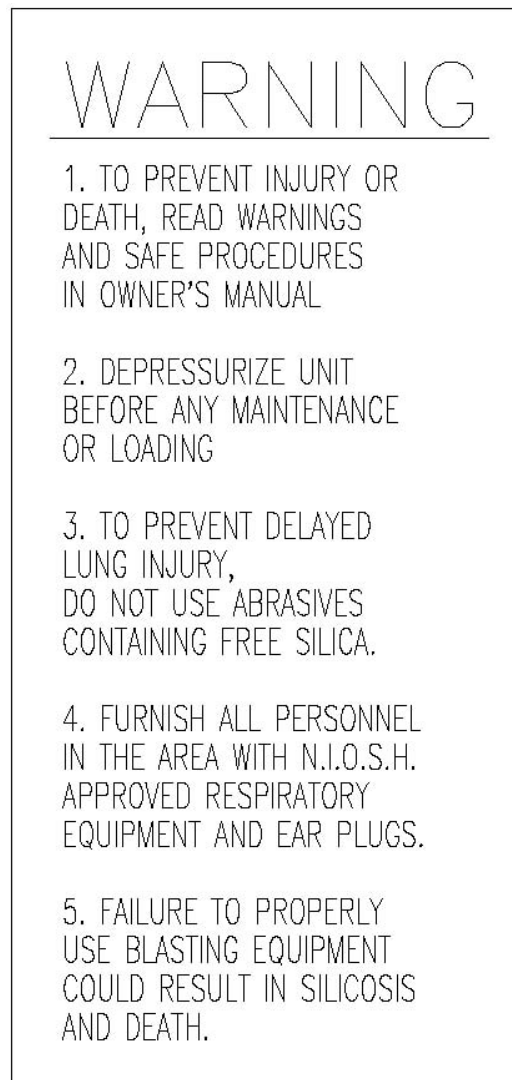


3) 7031-007A

Figure 0.1a –Warning decal summary



4) 7031-057



5) 7034-001

Figure 0.1b –Warning decal summary continued

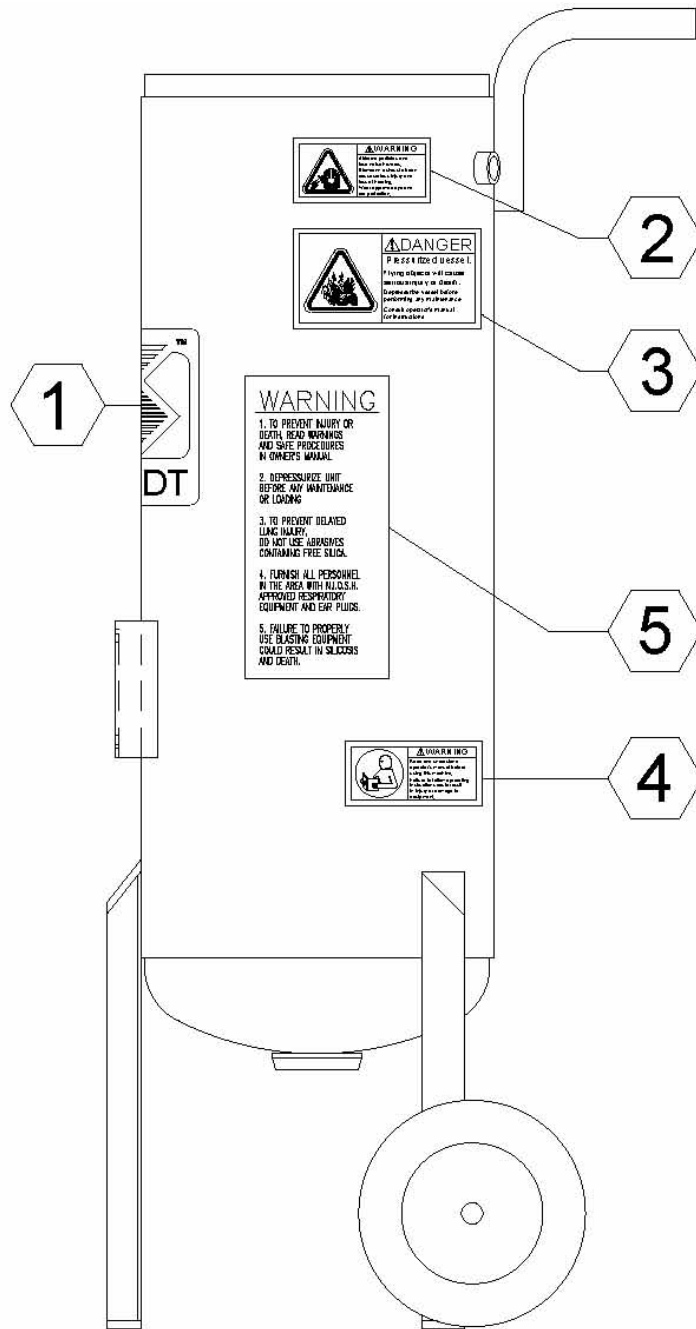


Figure 0.2 – Warning decal location

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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.



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 3.9 and OSHA 29 CFR 1910.136.



Heavy objects can shift while being blasted and may fall on operators. Wear foot protection to prevent injury. See Section 3.9 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 3.9 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. Wear OSHA approved safety glasses. See Section 3.9 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 if inhaled. 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 3.8, 3.9, 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. Wear OSHA approved respiratory protection. See Sections 3.8, 3.9, and OSHA 29 CFR 1910.134.

1.7. BREATHING AIR QUALITY.

Do Not use breathing air that does not meet OSHA Class D standards. Extreme caution must be taken when selecting a source of breathing air. Breathing air provided by an oil-lubricated air compressor can contain carbon monoxide and therefore use of a carbon monoxide detector is required (See Section 3.9). 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. 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 3.8, 3.9 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.

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 3.9 and refer to OSHA 29 CFR 1910.95.



Loud noise is generated by the blast nozzle and the blowdown operation of this equipment. Wear OSHA approved hearing protection. See Section 3.9 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 3.9 and refer to OSHA 29 CFR 1910.94 and 1910.134.

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 will 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 prevent 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 loose 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. ELECTRICALLY GROUND EQUIPMENT.

Static electricity is generated by the abrasive flow through the blast hose. To prevent static electrical shock to operating personnel only use static dissipating blast hose and install a grounding strap on the abrasive blaster. See Section 5.12 and 6.1.

1.21. 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 1.22 through 1.31 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.

1.22. 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 Section 2.2 and 8.1.

1.23. 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 6.1.2 for information regarding the pressure relief valve.

1.24. 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.

1.25. ASME NAMEPLATE REQUIRED.

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

1.26. 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 the ASME certification.

1.27. 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.

1.28. 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.

1.29. 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.

1.30. 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.

1.31. 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.

1.32. 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.



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.

1.33. 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).

1.34. 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.

1.35. CHECK FOR DAMAGED PARTS.

Do Not use this equipment with damaged components. Damaged components can fail during operation and result in serious injury or death to operating personnel. Periodically check all valves, hoses, and fittings to see that they are in good condition. Repair any component that shows any sign of wear or leakage. See Section 8.0.

1.36. 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 prevent accidental disconnections. Accidental hose disconnection can cause serious injury or death. See Section 5.15 and 8.7.

1.37. 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 operating pressure. Improper hoses and/or fittings used on, or connected to your 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.



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.

1.38. 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.



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 reservoir and moisture separator tanks must be ASME coded tanks.

1.39. NEVER AIM BLAST NOZZLE TOWARDS ANY PERSON.

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

1.40. 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 Section 3.9 and reference OSHA 29 CFR 1910.134.

1.41. 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.

1.42. 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.

1.43. 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 Section 0.0 and 8.12.

1.44. 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.

1.45. 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 cord), and the operation and maintenance manual are with the blaster vessel when it is received. Verify that the deadman, twinline (or cord), and the operation and maintenance manual are with the blaster vessel 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. Slings or other lifting devices must only be attached to the designated lifting points (See Section 2.7).
- 2.1.5. For further information contact:
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 Mini Abrasive Blasting System Operational Specifications

Maximum Working Pressure	125 or 150 psig @ 250°F (see ASME nameplate)
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 3.6
Abrasive capacity	1.8 cu ft

2.3 Important Reference Numbers

Fill in the Mini Abrasive Blaster model number and serial number in the blank spaces below. These will be used for reference whenever service or maintenance is required.

Mini Abrasive Blaster Part Number_____

Mini Abrasive Blaster Model Number_____

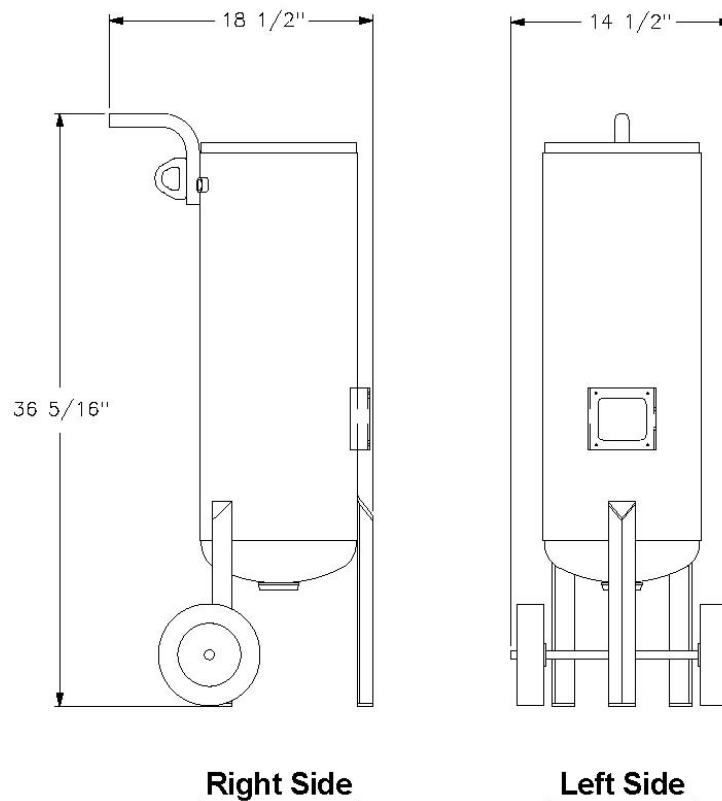
Mini Abrasive Blaster Serial Number_____

2.4 Vessel Information

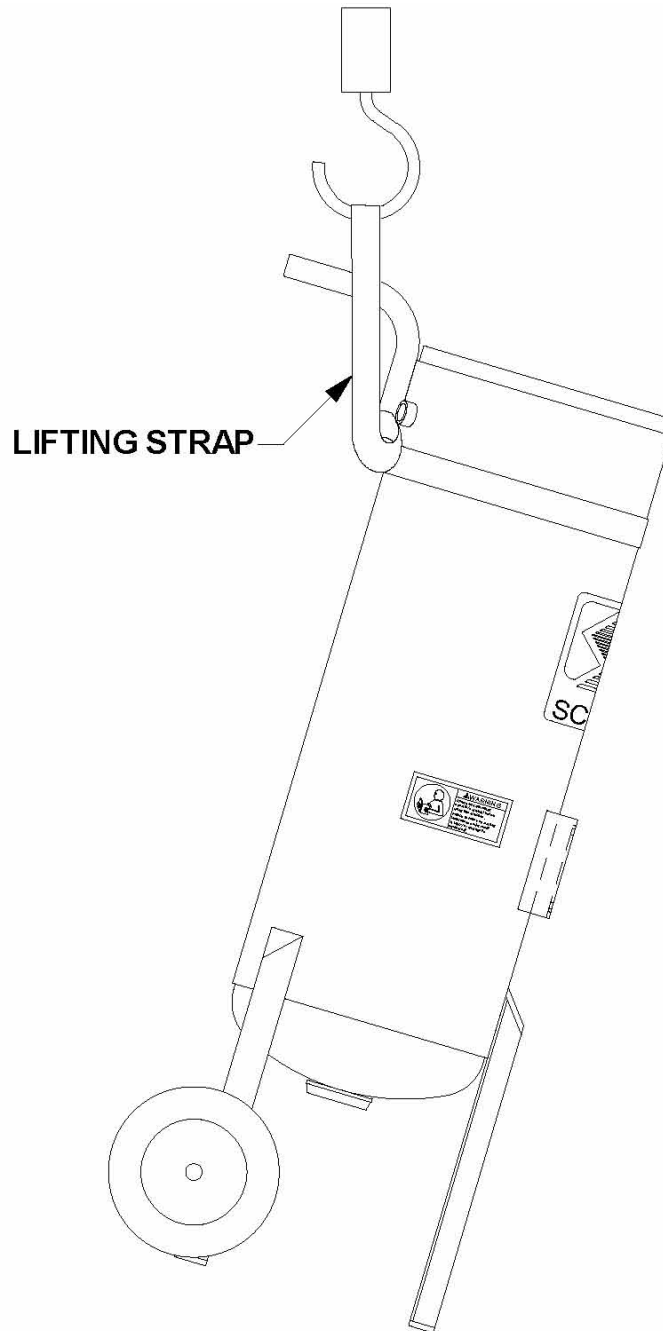
- 2.4.1. All pressure vessels used in Mini Abrasive Blasters are manufactured in strict accordance with the provisions of the ASME Code Section VIII, Div.1. Should Manufacturer's Data Reports be required, they may be obtained from Axxiom Manufacturing, Inc. for a small fee.
- 2.4.2. In order to maintain 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 voids the ASME/NB integrity of that particular vessel.

2.5 Notes

2.6 Mini Abrasive Blaster Dimensional Specifications



2.7 Mini Abrasive Blaster Lifting Diagram



**USE LIFTING STRAP WRAPPED AROUND TANK
AND LOOPED BELOW HANDLE AS SHOWN
(APPROX. EMPTY WEIGHT = 78 LBS)**

***CRITICAL: THIS DRAWING IS FOR REFERENCE
ONLY. ALL LIFTING MUST BE PERFORMED BY
QUALIFIED PERSONNEL IN CONJUNCTION WITH
ALL APPLICABLE SAFETY CODES.**

3.0 System Requirements and Personal Protective Equipment

3.1 Compressed Air Requirements

Blast nozzle

The primary air consumption is by the blast nozzle(s). This usage can vary greatly depending upon the number of blast outlets, nozzle size of each outlet, and the blast pressure. See Table 1 in Section 13.0 for air consumption by nozzle size at various pressures.

3.2 Air compressor size

The air compressor must be large enough to supply:

- i. The blast air requirements for the nozzle at the highest pressure that will be used (see Section 13.0, Table 1).
- ii. The 12 CFM breathing air supplied to the blast operator respirator. **NOTE:** Reference OSHA regulations regarding requirements for breathing air, especially when an oil-lubricated air compressor is used.

3.3 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. **Note:** 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 prevent back flow, which would carry abrasive into the control system.

3.4 Blast System Air Pressure

The maximum operating pressure for the abrasive blaster is stamped on the ASME nameplate attached to the vessel. The Mini abrasive blaster is equipped with a system air pressure regulator to adjust blast pressure however, it is important that the air supply to the control system be a minimum of 55 psig. For that reason the air supply to the blast controls is taken upstream of the regulator. See Figure 5.1.

3.5 Blast System Air Quality

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. Therefore, a moisture removal device 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.

3.6 Electrical Requirements

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

1-outlet without abrasive cut-off:	7 watts
1-outlet with abrasive cut-off:	14 watts

3.7 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, coating requirements, characteristics of object to be blasted, cost, 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.

The Mini Abrasive Blaster is designed for high production open abrasive blasting and is best for use with mineral and slag 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.

3.8 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 3.9.



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 3.9). 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.



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).

3.9 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 3.9 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 - 1989



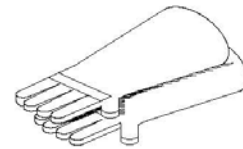
Safety Boots

Reference OSHA 29 CFR 1910.136
Must meet ANSI Z41.1 - 1991



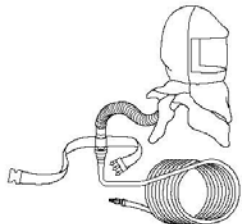
Ear Plugs

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



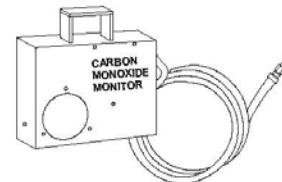
Protective Clothing

Reference OSHA 29 CFR 1910.138
No Applicable ANSI Standard



Airline Filter

Reference OSHA 29 CFR 1910.134
Must be NIOSH approved



Carbon Monoxide Monitor

Figure 3.9 - Personal Protective Equipment

4.0 Abrasive Blast System General Operation

The function of the Schmidt® Mini 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 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 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 Thompson Valve® II. This equal pressure is needed to allow the blast abrasive to flow downward by gravity. The abrasive flow is controlled by the abrasive Thompson Valve II 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 is 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.

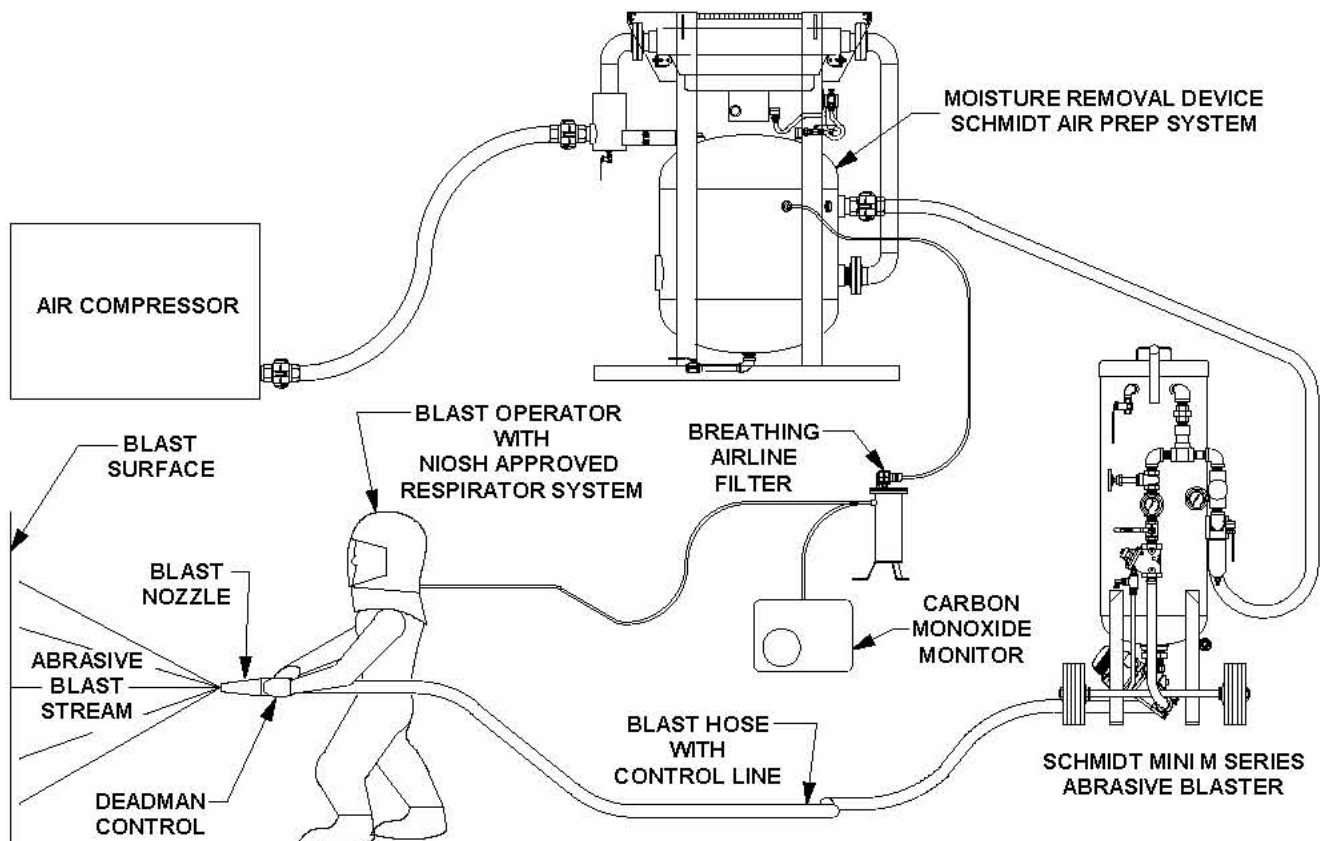


Figure 4.1 – Typical Mini Abrasive Blast System

5.0 Abrasive Blaster General Operation

See Figure 5.1 below to help understand the general operation. Do not attempt to operate the Mini 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 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 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 blast outlet and to pressurize the Mini 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 Thompson Valve® II (#10). Compressed air will pressurize the blast hose (#23) when the automatic air valve (#15) is opened. At the same time the TV II (#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 Thompson Valve II.

Blasting stops when the deadman lever (#24) is released. Releasing the deadman will vent the air signal which will close the Thompson Valve II (#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 Abrasive Blaster (#11) remains pressurized when the blast operation is stopped.

The Mini 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.

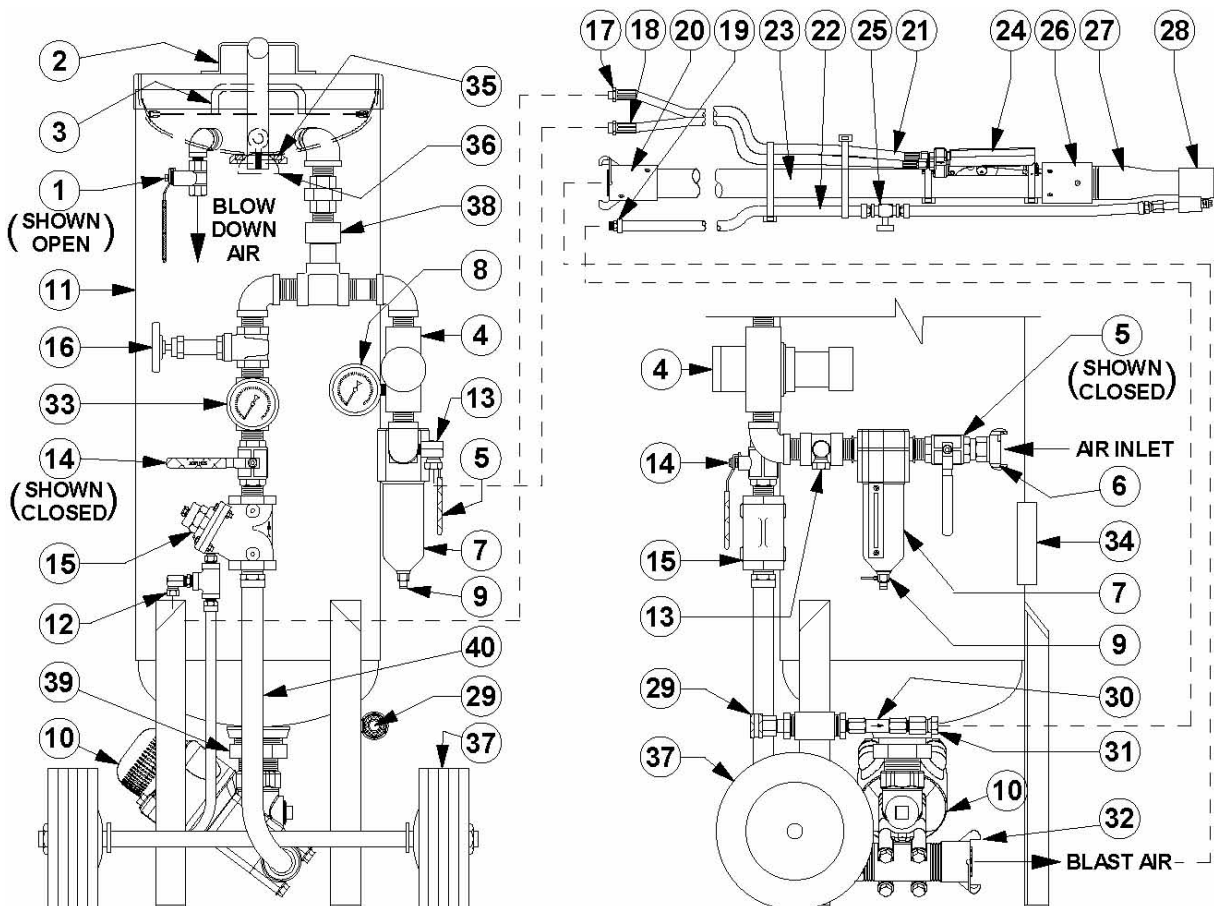


Figure 5.1 – Typical Mini Abrasive Blaster

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 3.3 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 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).



The Mini 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.



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.

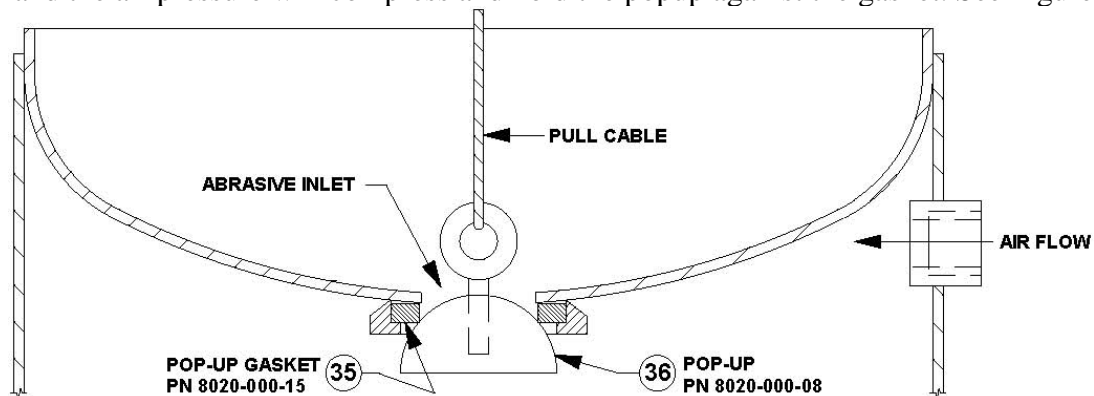


Figure 5.2 – Popup Assembly



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

5.5 Air Supply

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 increase 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 well out of the blast vessel and through the Thompson Valve® II. 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.

$$\text{DIFFERENTIAL PRESSURE} = \text{TANK PRESSURE} - \text{BLAST PRESSURE}$$

To minimize wear in the Thompson Valve 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 Thompson Valve II orifice. Whenever trash (paint chips, cigarette butts, etc.) blocks the orifice the procedure is to fully open the Thompson Valve 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 Thompson Valve (high pressure above; low pressure below). The higher pressure from the blast vessel should be enough to force the trash through the Thompson Valve orifice. Keep the choke valve fully open at all other times while blasting to prevent excess valve wear.



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 Thompson Valve® II

The Thompson Valve II (#10) is a dual-purpose valve. First, it is a normally closed valve that opens to supply abrasive into the blast air stream. The Thompson Valve II 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 Thompson Valve (#10). When the deadman lever is released the air signal in the control line vents and the Thompson Valve II closes to stop abrasive flow (see Section 9.2).

Secondly, the Thompson Valve II (#10) is an abrasive metering valve. When the TVII 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 Thompson Valve. 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.



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

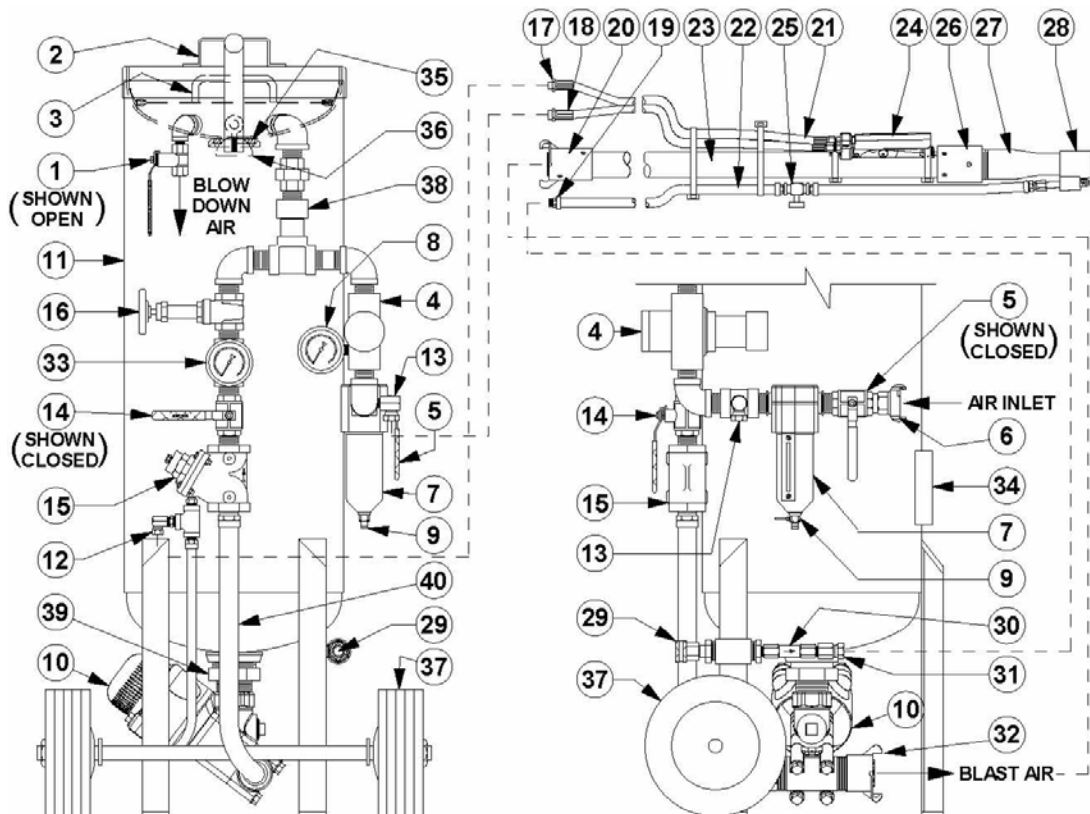


Figure 5.3 – Typical Mini Abrasive Blaster

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 Thompson Valve® II (#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.

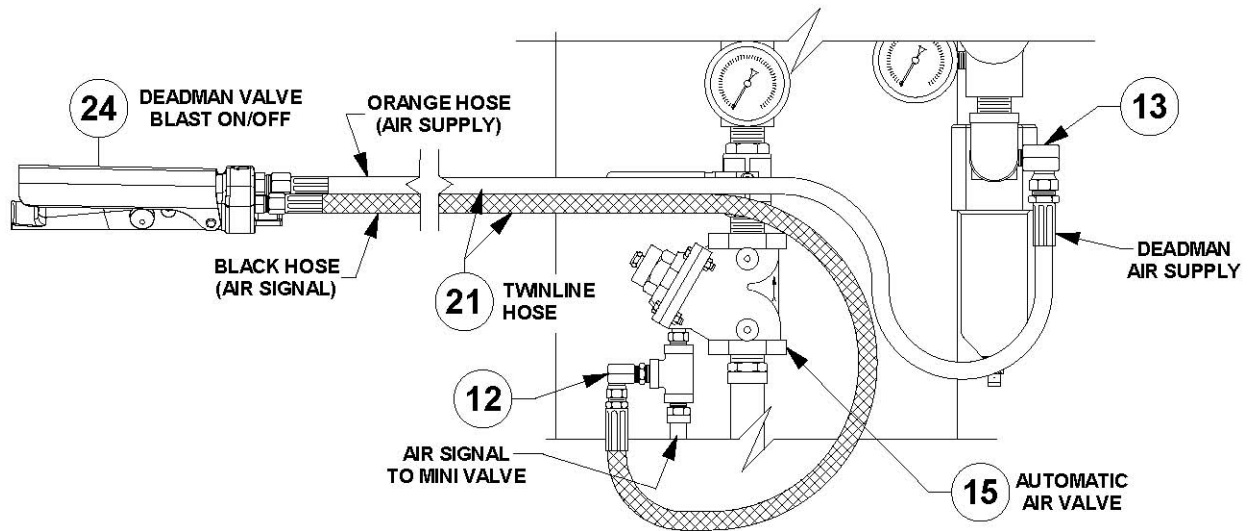


Figure 5.4 – Pneumatic Blast Control System

5.12 Blast Hose

The blast air/abrasive mixture flows from the Thompson Valve® II to the blast nozzle (#27) through the blast hose assembly (#23). The typical length of the blast hose is 25ft; however blast hose extensions can be added for longer lengths. 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 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 prevent static electrical shock to operating personnel only use static dissipating blast hose and install a grounding strap on the abrasive blaster.

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 Thompson Valve II accordingly.

The nozzle size can be identified 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 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.

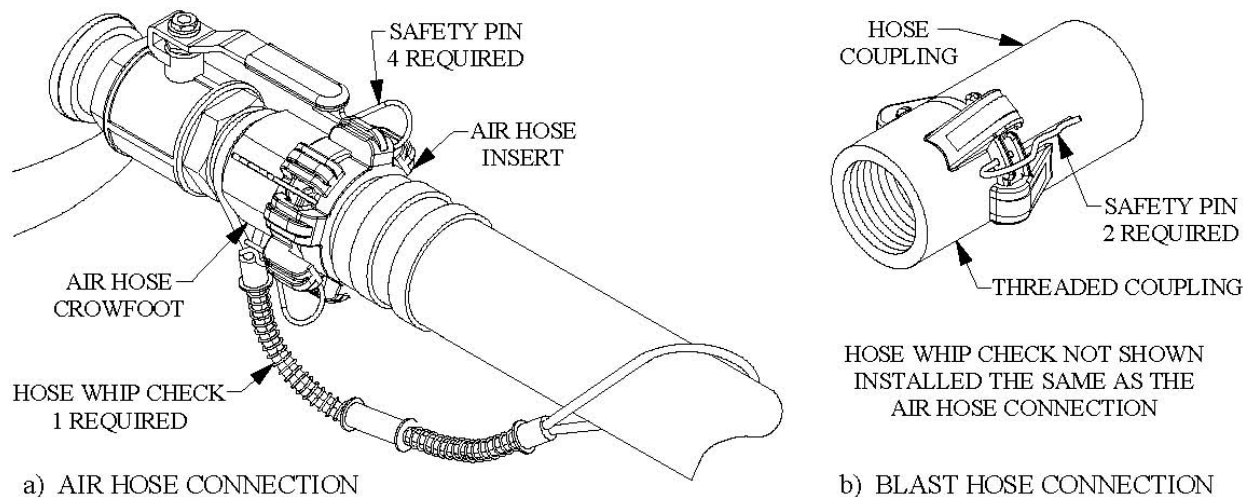


Figure 5.5 – Hose Connection Disconnect Protection

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 Abrasive Blaster Operation and Maintenance Manual*.

6.1 Mini Abrasive Blaster Setup Procedure (see Figure 6.1)

- 6.1.1. Static electricity is generated by the abrasive flow through the blast hose. To prevent static electrical shock to operating personnel only use static dissipating blast hose and install a grounding strap on the abrasive blaster.

- 6.1.2. Do Not operate this equipment without a pressure relief device in place. The ASME Code requires that all vessels be operated with pressure relief devices.

Local regulations set the specifications for pressure relief valves; therefore it is the responsibility of the owner of the Mini 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 Mini abrasive blaster. See the ASME vessel nameplate (#34).

- 6.1.3. Make certain that the Mini 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.

- 6.1.4. 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 3.7 and 3.8.

WARNING

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

- 6.1.5. Connect the wet blast attachment (#28) onto the blast nozzle (#27).
- 6.1.6. Screw nozzle (#27) into the nozzle holder (#26) at end of the blast hose assembly (#23).
- 6.1.7. Hose clamp the deadman (#24) to the blast hose assembly in a comfortable position behind the nozzle holder.
- 6.1.8. Connect the swivel fitting at the end of the water line (#22) to the fitting on the wet blast attachment (#28).

- 6.1.9. Wire tie the twinline hose (#21) and the water line (#22) to the blast hose assembly (#23).
- 6.1.10. Connect the blast hose coupling (#20) to the threaded coupling (#32) on the Thompson Valve® II (#10). Then install safety pins and a hose whip check 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.

- 6.1.11. Connect the twinline hose male fittings (#17 & #18) to the mating swivel connectors (#12 & #13) on the Mini abrasive blaster piping. See Figure 6.1.

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

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

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

- 6.1.14. Connect a 150 psi rated (minimum) air supply hose to the air inlet crowfoot (#6) and install safety pins and a hose whip check 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.

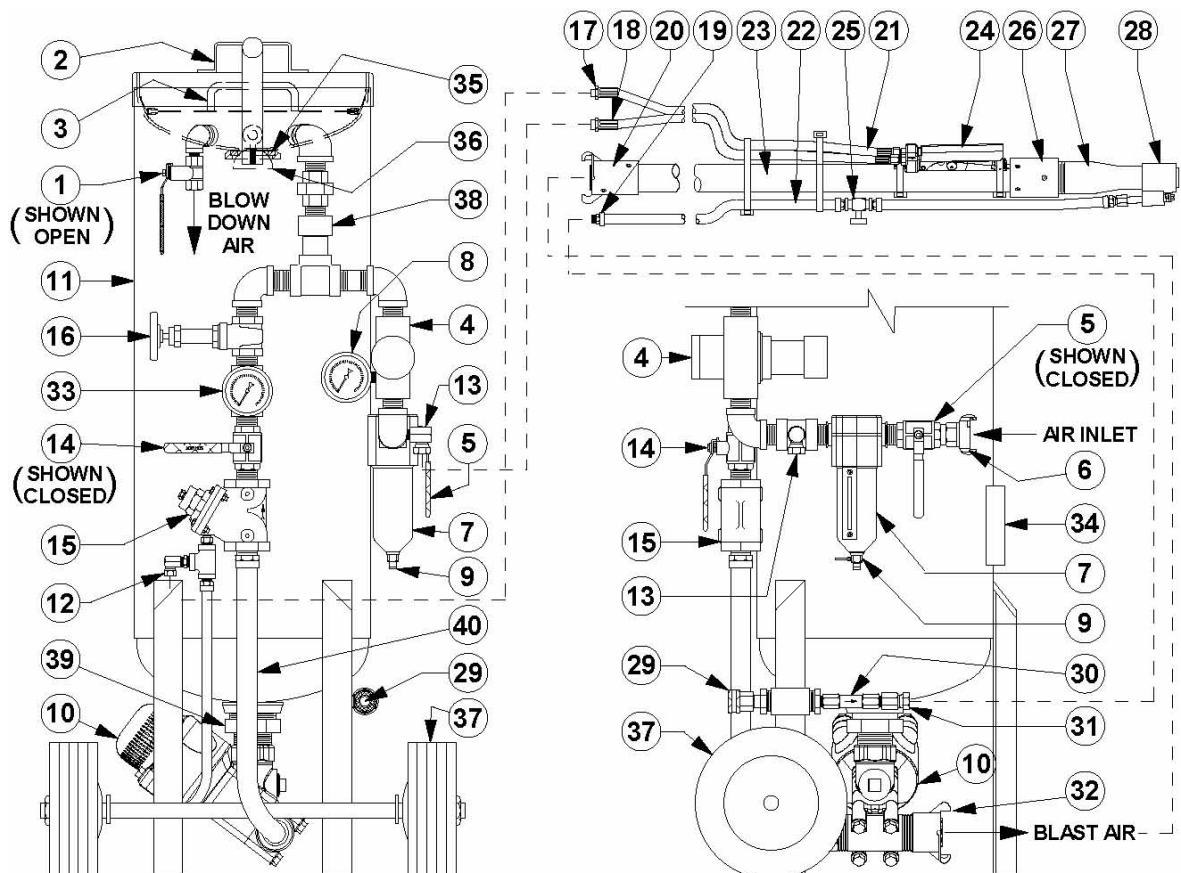


Figure 6.1 – Typical Mini Abrasive Blaster

6.2 Mini Abrasive Blaster Depressurizing Procedure (Blowdown)

- 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 left of the vessel handle. This will depressurize the Mini 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.

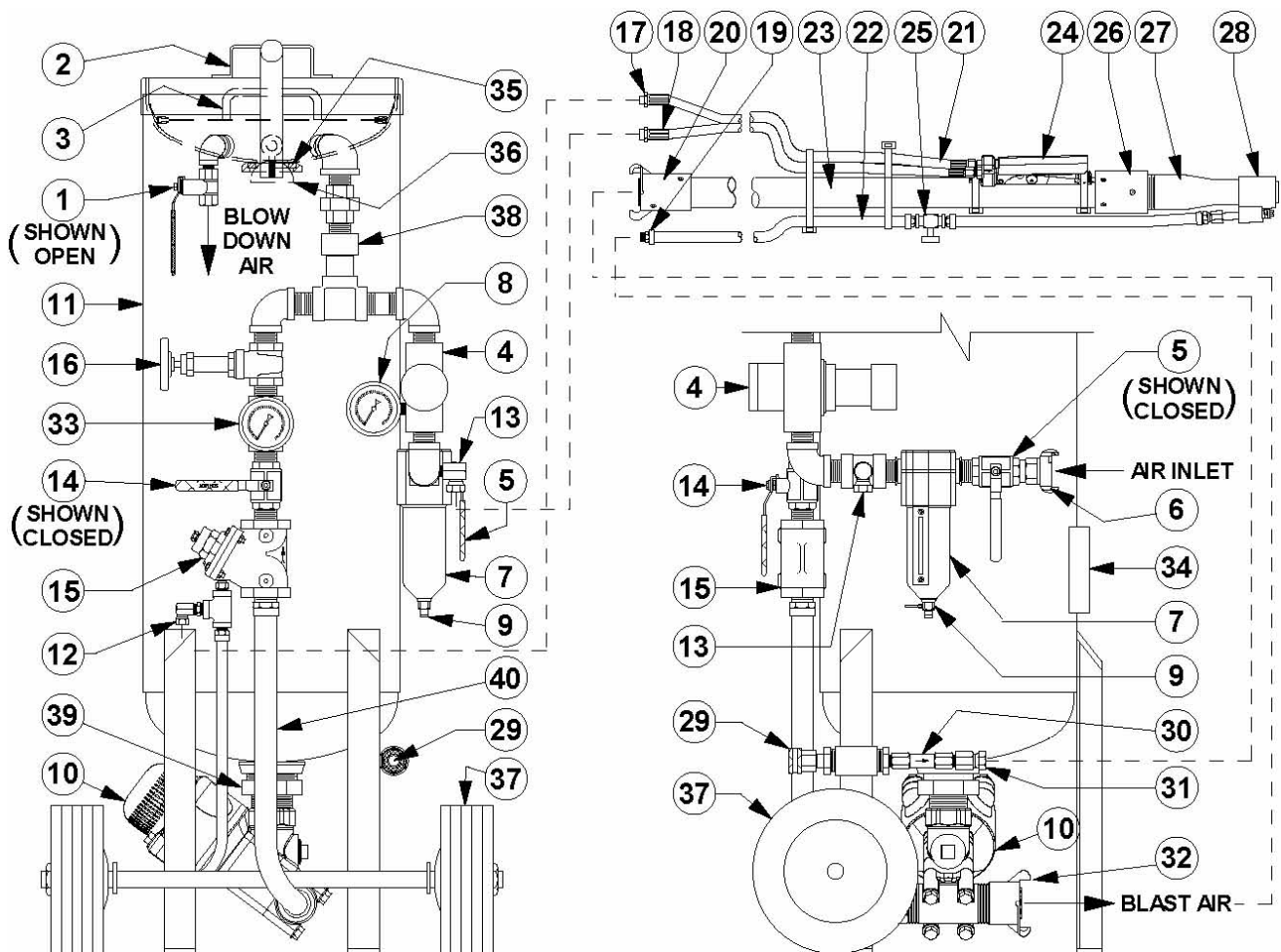


Figure 6.2 – Typical Mini Abrasive Blaster

7.0 Operating Instructions

7.1 Filling the Mini Abrasive Blaster with Abrasive

- 7.1.1. The Mini Abrasive Blaster must be completely depressurized before filling can begin. Depressurize the Mini 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 through 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 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.

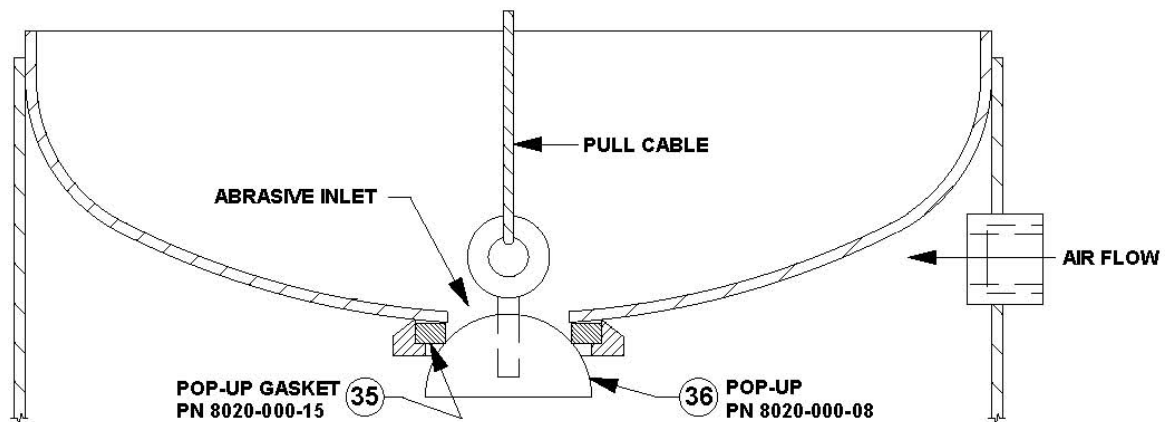


Figure 7.1 – Popup Assembly Detail

7.2 Beginning the Blasting Operation (See Figure 7.2)

- 7.2.1. The Mini 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.



The Mini 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 Thompson Valve® II (#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 (#4) 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 firmly 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.



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 Thompson Valve II (#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 fine particle abrasives, improved abrasive flow control is achieved by using 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 done 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 if further adjustment is needed. Release the deadman lever to stop blasting.

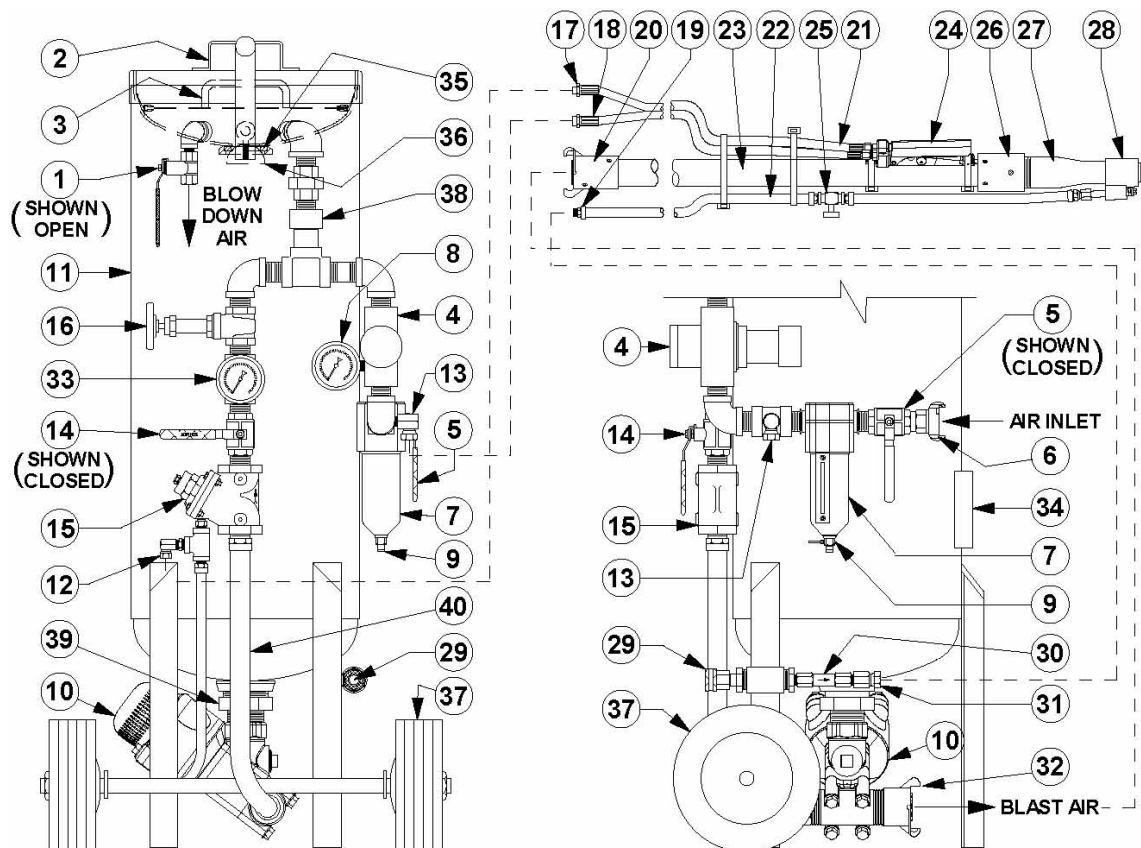


Figure 7.2 – Typical Mini Abrasive Blaster

7.3 Ending the Blast Operation (See Figure 7.3)

- 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.



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.



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.

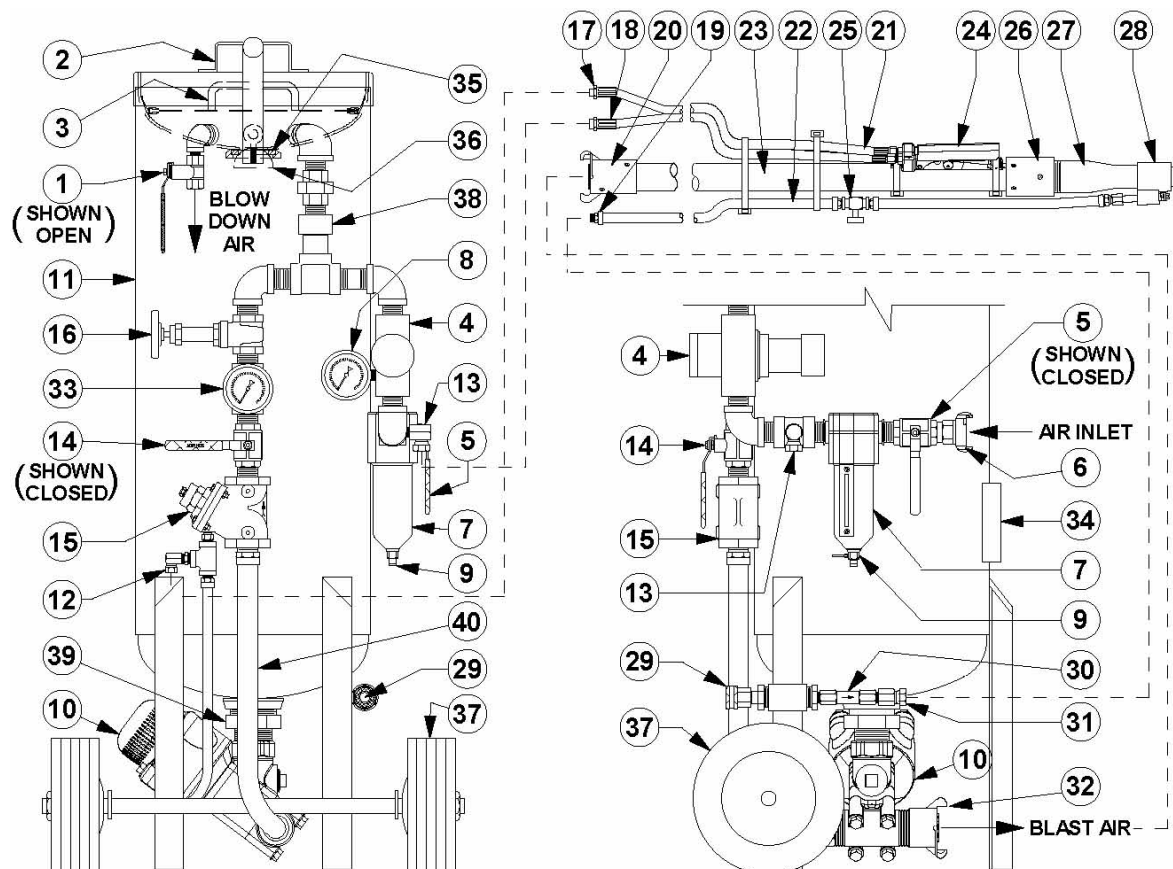


Figure 7.3 – Typical Mini Abrasive Blaster

8.0 Maintenance and Inspection Instructions

DANGER

The Mini 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. 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. 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. 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. 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. Prior to initial use and periodically thereafter, the popup and popup gasket should be checked. Inspect the popup as follows:
 - a) Depressurize the Mini 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 re-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 Thompson Valve® II (#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.

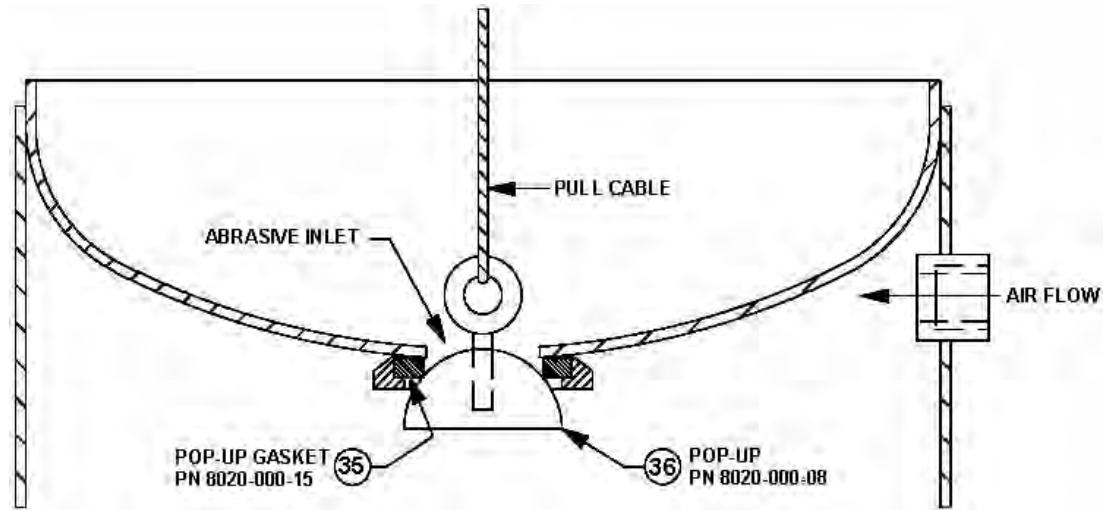


Figure 8.1 – Abrasive Inlet and Popup Detail

- 8.6 All air hoses, blast hoses, control hoses, and wires should be inspected daily for wear, dry rotting, cracking or leakage. Repair or replace any hoses or wires that show any signs of wear, leakage or other damage. Damaged wires and/or hoses 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 that can rupture while blasting. Check the full length of the blast hose assembly for soft spots caused by wear. To prevent serious injury to personnel replace blast hoses with soft spots. Note: Static electricity is generated by the abrasive flow through the blast hose. To prevent static electrical shock to operating personnel only use static dissipating blast hose and properly ground the abrasive blaster.

WARNING

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

- 8.7. 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 8.2 below. Check hose connections daily and replace missing or damaged pins and whip checks.

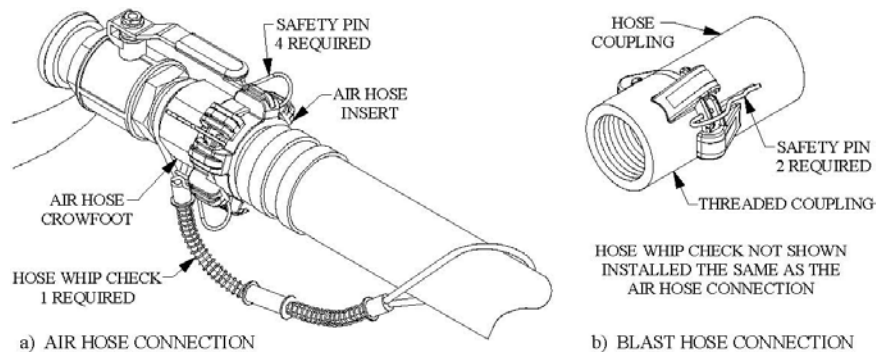


Figure 8.2 – Hose Connection Disconnect Protection

- 8.8. 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 8.3). 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).

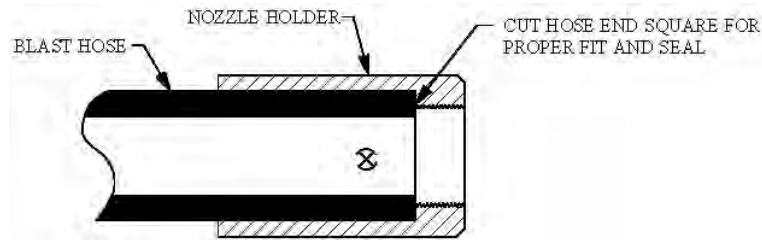


Figure 8.3 – Hose End Fit up

- 8.9. 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. The Thompson Valve® II, Automatic air valve, and deadman valve should be disassembled and inspected quarterly, or more frequently if heavily used. The Thompson Valve II 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. Periodically check if air is leaking from end of blast nozzle when the blast operation is off. A worn Thompson Valve II seat usually causes this. It is replaced by removing the three bolts in the top of the valve to allow disassembly. Refer to valve drawings in Section 9.0.

⚠ DANGER

Depressurize vessel before performing any maintenance. See Section 6.2. Removing the Thompson Valve 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. 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 3.8 and reference OSHA 29 CFR 1910 Subpart I.

⚠ WARNING

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

- 8.12. 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.

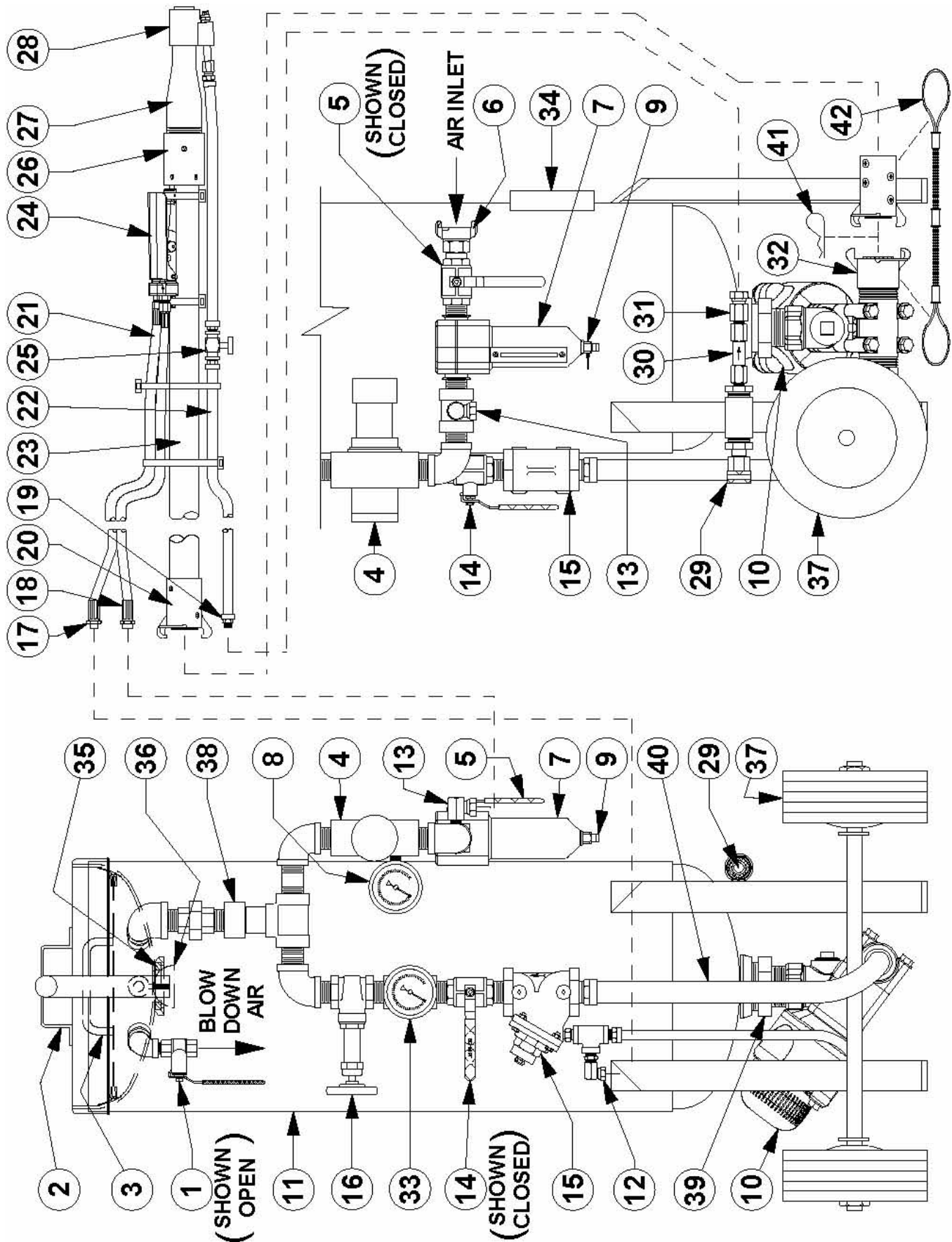
8.13. Maintenance Schedules Quick Reference Chart

Mini ABRASIVE BLASTER MAINTENANCE SCHEDULE					
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			
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 leaky air and blast hose coupling gaskets See Section 8.8.	X			
Blast Nozzle	Check blast nozzle threads and jacket and for air leaks See Section 8.9.	X			
Valves	Disassemble, inspect, and lubricate. See Section 8.10.				X
Personal Protective Equipment	Check condition of all personal protective equipment See Section 3.9 and 8.11.	X			
Warning Decals	Check the condition of warning decals. See Sections 0.0 and 8.12.			X	

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 1.37 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
22	4101-002	Water hose, 1/4" push on
23	4104-305	Blast hose assembly, 3/4" x 25'
24	2263-002	G2 Deadman valve
25	2024-001	Petcock valve, 1/4"F x 1/4"F
26	4215-405	Nozzle holder, Al 3/4"
27	5000-003	#3 Blast nozzle 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	4214-108-01	Threaded coupling, 1-1/2" NPS
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	3026-011-07	Bushing, 3" x 1-1/4"
	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	8710-98778	Hose Whip Check (Safety Cable)

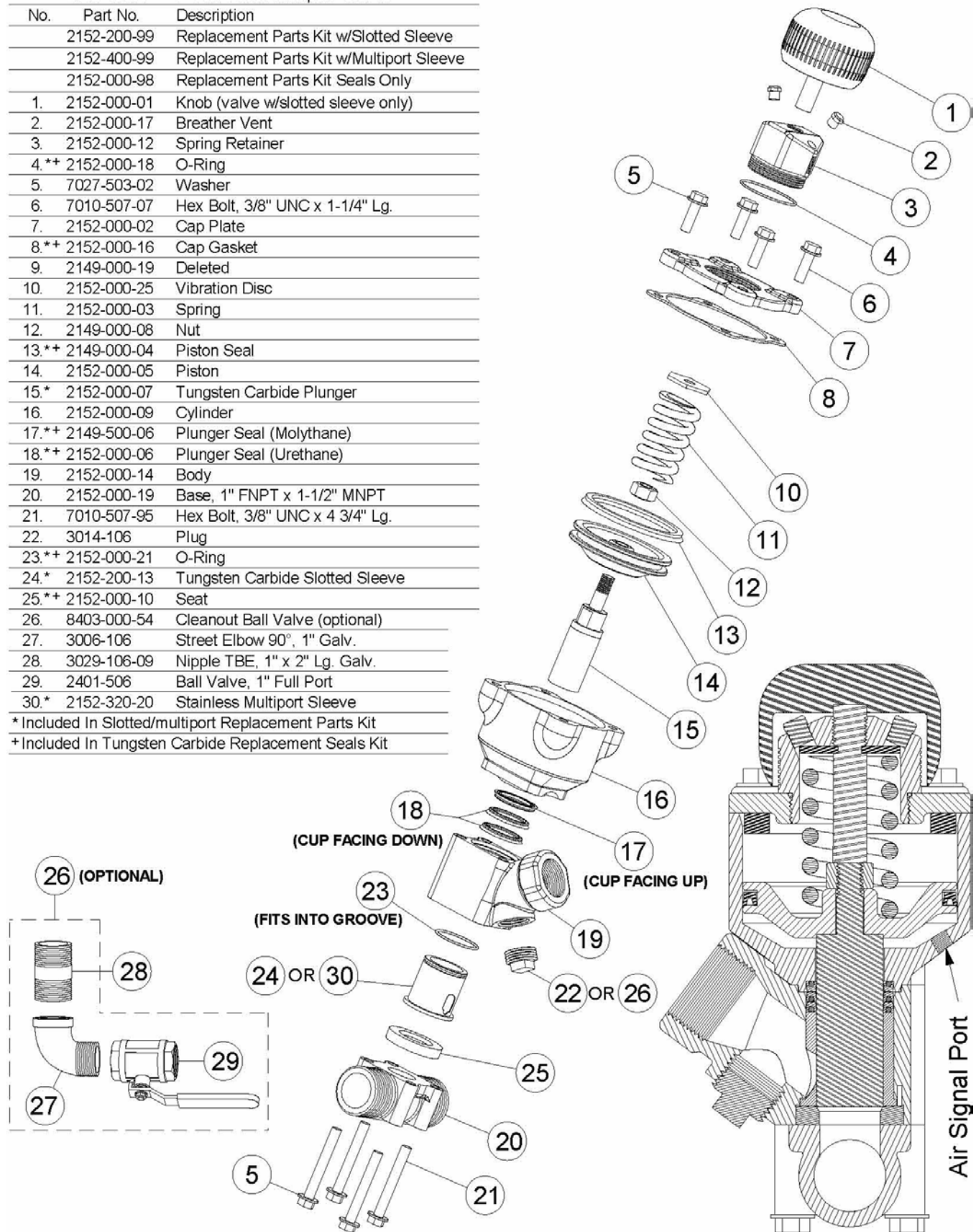
*Items not included with blaster assembly

ITEM	PART NUMBER	DESCRIPTION
1	2401-502	Blowdown ball valve 1/4"
2	5010-012	Lid, 12"
3	5011-012	Screen, 12" (3/32" mesh)
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	2152-216W	Thompson Valve® II, 1" slotted
	2152-406W	Thompson Valve® II, 1" multiport
11	8020-010-02	Blast pot, 0.9 cu. ft.
	8020-018-02	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
	2014-300	Breather vent, 1/8"
16	8710-98662	Gate valve, blast pressure control
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'

9.2 Thompson Valve® II (optional Sleeve)

	2152-216W	1" Valve With Slotted Sleeve
	2152-406W	1" Valve With Multiport Sleeve
No.	Part No.	Description
	2152-200-99	Replacement Parts Kit w/Slotted Sleeve
	2152-400-99	Replacement Parts Kit w/Multiport Sleeve
	2152-000-98	Replacement Parts Kit Seals Only
1.	2152-000-01	Knob (valve w/slotted sleeve only)
2.	2152-000-17	Breather Vent
3.	2152-000-12	Spring Retainer
4.**	2152-000-18	O-Ring
5.	7027-503-02	Washer
6.	7010-507-07	Hex Bolt, 3/8" UNC x 1-1/4" Lg.
7.	2152-000-02	Cap Plate
8.**	2152-000-16	Cap Gasket
9.	2149-000-19	Deleted
10.	2152-000-25	Vibration Disc
11.	2152-000-03	Spring
12.	2149-000-08	Nut
13.**	2149-000-04	Piston Seal
14.	2152-000-05	Piston
15.*	2152-000-07	Tungsten Carbide Plunger
16.	2152-000-09	Cylinder
17.**	2149-500-06	Plunger Seal (Molythane)
18.**	2152-000-06	Plunger Seal (Urethane)
19.	2152-000-14	Body
20.	2152-000-19	Base, 1" FNPT x 1-1/2" MNPT
21.	7010-507-95	Hex Bolt, 3/8" UNC x 4 3/4" Lg.
22.	3014-106	Plug
23.**	2152-000-21	O-Ring
24.*	2152-200-13	Tungsten Carbide Slotted Sleeve
25.**	2152-000-10	Seat
26.	8403-000-54	Cleanout Ball Valve (optional)
27.	3006-106	Street Elbow 90°, 1" Galv.
28.	3029-106-09	Nipple TBE, 1" x 2" Lg. Galv.
29.	2401-506	Ball Valve, 1" Full Port
30.*	2152-320-20	Stainless Multiport Sleeve

* Included In Slotted/multiport Replacement Parts Kit
 ** Included In Tungsten Carbide Replacement Seals Kit



9.3 Automatic Air Valve

2123-106 1" 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	Lock Nut
14.	7010-503-06	Cap Screw
15.*	2123-006-15	Diaphragm Plate
17.	7082-503	Lock Nut
18.	2123-006-18	Body, 1"
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 Replacement Kit

2123-107 1 1/4" Valve		
No.	Part No.	Description
2123-108 1 1/2" Valve		
No.	Part No.	Description
2123-007-99 Replacement Parts Kit		
2123-007-97 Hard Parts Kit		
1.*	2123-009-01	Gasket
2.*	2123-007-02	Diaphragm
3.*	2123-007-03	O-ring
4.	2123-007-04	Retainer Bushing
5.*	2123-007-05	O-ring
6.*	2123-007-06	Disk Retainer
7.*	2123-007-07	O-ring
8.	2123-007-08	Seat
9.*	2123-007-09	Disc Plate
10.	"Deleted"	Lock Washer, Internal
11.*	7082-504	Lock Nut
12.	2123-107-12	Cap
13.*	7082-506	Lock Nut
14.	7010-503-07	Cap Screw
15.*	2123-007-15	Diaphragm Plate
17.	7082-503	Lock Nut
18.	2123-007-18	Body, 1 1/4"
	2123-008-18	Body, 1 1/2"
19.**	2123-007-19	Shaft
20.*	2123-007-20	Gasket
21.*	2123-007-21	Disc
22.**	2123-107-22	O-ring
23.*	2123-107-23	Spring Retainer
24.	2123-107-24	Spring
25.*	2014-300	Vent, 1/8"
26.*	2123-009-01	Gasket

* Included In Replacement Parts Kit

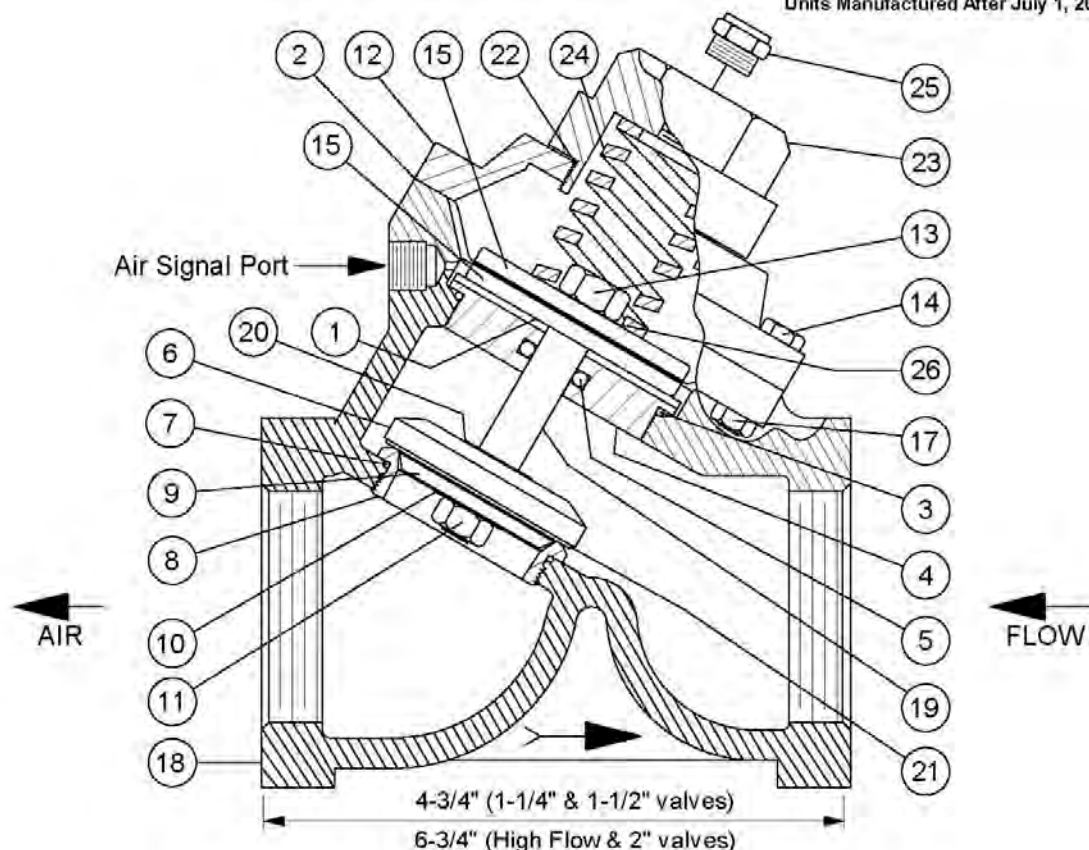
* Included In Hard Parts Replacement Kit

** 2123-108L 1-1/2" High Flow Valve		
2123-109 2" Valve		
No.	Part No.	Description
2123-009-99 Replacement Parts Kit		
2123-009-97 Hard Parts Kit		
1.*	2123-009-01	Gasket
2.*	2123-009-02	Diaphragm
3.*	2123-009-03	O-ring
4.	2123-009-04	Retainer Bushing
5.*	2123-009-05	O-ring
6.*	2123-009-06	Disk Retainer
7.*	2123-009-07	O-ring
8.	2123-009-08	Seat
9.*	2123-007-15	Disc Plate
10.	"Deleted"	Lock Washer, Internal
11.*	7082-506	Lock Nut
12.	2123-109-12	Cap
13.*	7082-506	Lock Nut
14.	7010-505-07	Cap Screw
15.*	2123-009-15	Diaphragm Plate
17.	7082-505	Hex Nut
18.	2123-009-27	Body, 1-1/2" high flow
	2123-009-18	Body, 2"
19.**	2123-009-19	Shaft
20.*	2123-009-01	Gasket
21.*	2123-009-21	Disc
22.**	2123-107-22	O-ring
23.*	2123-109-23	Spring Retainer
24.	2123-109-24	Spring
25.*	2014-300	Vent, 1/8"
26.*	2123-009-28	Washer

* Included In Replacement Parts Kit

* Included In Hard Parts Replacement Kit

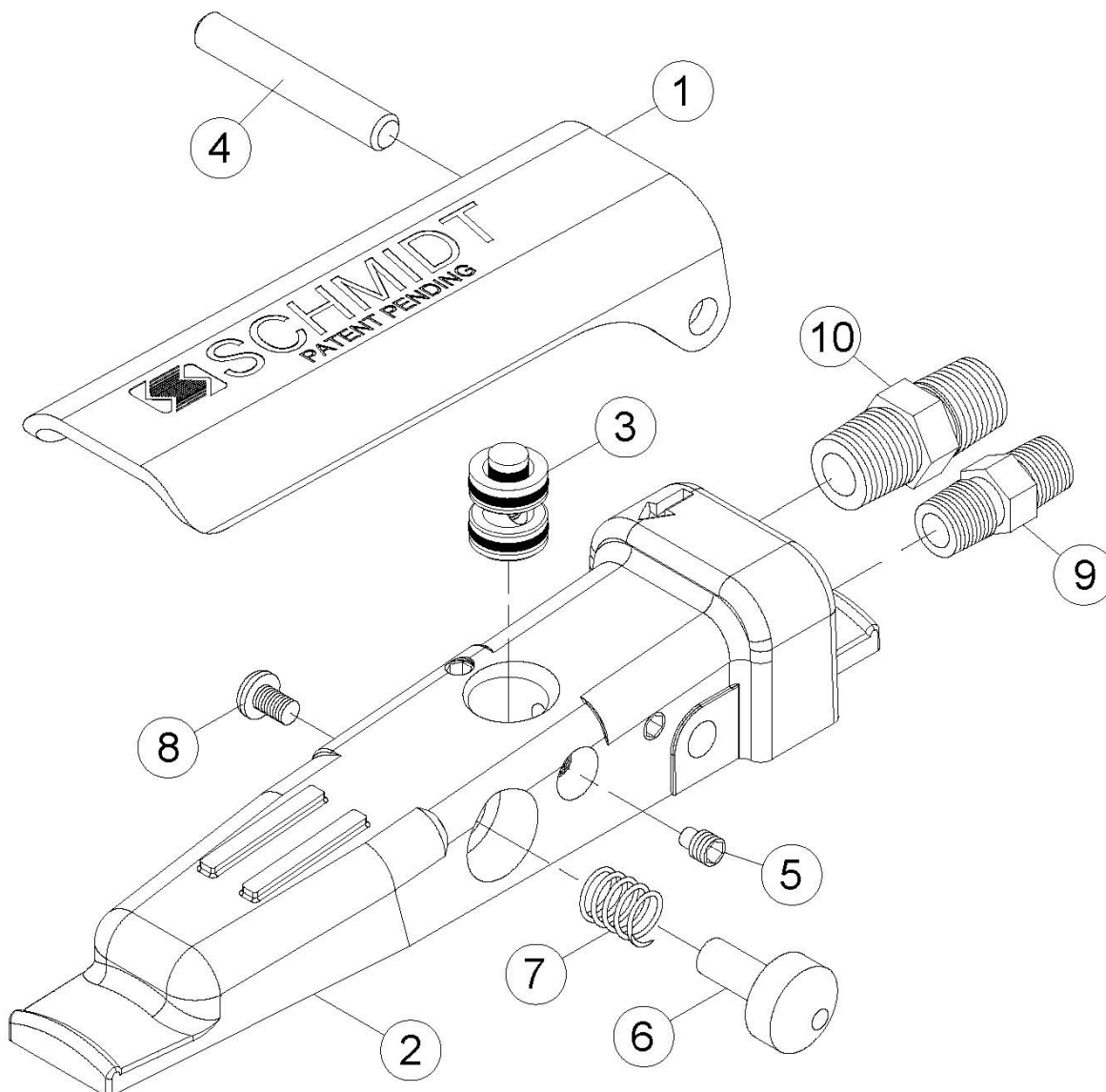
** 1-1/2" High Flow Valve is Standard On Units Manufactured After July 1, 2008



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

9.4 G2 Pneumatic Deadman

Item	2263-002 Part No.	G2 Pneumatic Deadman 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		



10.0 Recommended Spare Parts Lists

Mini Abrasive Blaster Annual Recommended Spare Parts [see Section 9.1(a)]			
Item No.	Qty.	Part No.	Description
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"
10	1	2152-000-03	Thompson Valve® II Spring
10	1	2152-XXX-99	Thompson Valve II Replacement Part Kit (specify type)
10	1	2152-XXX	Thompson Valve II Assembly (specify type)
1	1	2401-502	Blowdown Ball Valve, 1/4"
5, 14	2	2401-505	Air Inlet / Choke Ball Valve, 3/4"
25	1	2024-001	Petcock Valve, 1/4"
6	1	4208-105	Air Inlet Crowfoot, 3/4"
6	10	4209-999	Crowfoot Gasket, 2-Lug
32	10	4214-999	Coupling Gasket
8, 33	2	2010-010-01	Pressure Gauge, 0-160 psi/bar
36	1	8020-000-08	Popup with eye bolt
35	1	8020-000-15	Popup Gasket
41	10	7119-002	Safety Pin, Air/Blast Hose Coupling
4	1	2003-005-99	Air Regulator Replacement Part Kit
7	1	2302-204-99	Air Filter Replacement Parts Seals Kit
7	1	2302-204-96	Air Filter Replacement Parts Element Kit
7	1	2302-204-98	Air Filter Replacement Parts Sight Glass Kit
9	1	2302-204-95	Air Filter Replacement Parts Drain Kit
30	1	8710-98758	Water line Strainer, 1/4" (140 micron)
29	5	4227-305-99	Garden Hose Gasket, 3/4"
24	1	2263-002	G2 Pneumatic Deadman Valve
24	1	2263-002-99	G2 Pneumatic Deadman Valve Replacement Part Kit
21	1	4100-301	Twinline Hose, 27.5 ft.
22	30ft	4101-002	Push-on Hose, 1/4"
40	5ft	4101-005	Push-on Hose, 3/4"

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 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 Thompson Valve® II (#10).
- (2) Defective valve plunger in Thompson Valve II (#10).
- (3) Defective sleeve in Thompson Valve II (#10).
- (4) Blocked air hose to Thompson Valve II (#10).
- (5) Defective spring in Thompson Valve II (#10) (check length of spring).
- (6) Thompson Valve 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

- (1) Defective spring in automatic air valve (#15).
- (2) Defective seat in automatic air valve (#15).
- (3) Blocked air hose to automatic air valve (#15).
- (4) Defective o-ring in automatic air valve (#15) (around shaft).

11.1.3. Both blast air and abrasive will not shut off

- (1) Control lines to deadman valve (#24) are crossed.
- (2) Non-Schmidt deadman (#24) has been installed.
- (3) Blocked control lines.
- (4) Defective deadman valve (#24). Pneumatic deadman cartridge plunger stuck in the “ON” position (down). Cartridge plunger is visible below deadman handle.

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 drawing 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.

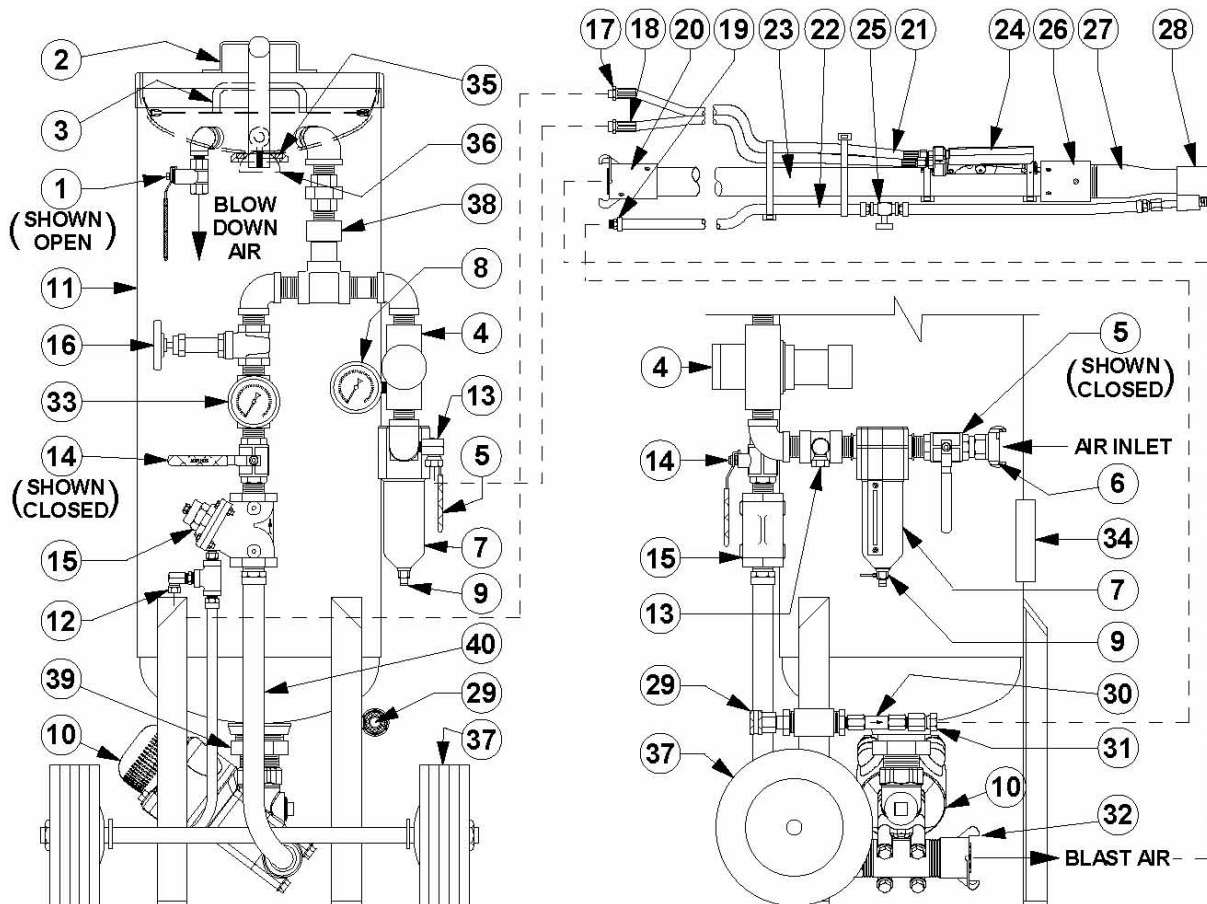


Figure 11.1 – Typical Mini Abrasive Blaster

11.2 Malfunction With Deadman Lever In The “On” Position

11.2.1. Air blasts with no abrasive

- (1) Check abrasive level in the blast vessel.
- (2) Blocked control hose to Thompson Valve® II (#10).
- (3) Thompson Valve II plunger stuck in closed position.
- (4) Trash plugging opening from tank to Thompson Valve II (#10). See Section 11.3.
- (5) Insufficient air pressure to open Thompson Valve II (fully open requires 80 psig).
- (6) Abrasive flow problems. See Section 11.3.
- (7) Defective Thompson Valve II piston seal (air will leak from breather).

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

- (1) Thompson Valve II abrasive adjustment bolt is open too far.
- (2) Control hose to automatic air valve (#15) is blocked.
- (3) Choke valve (#14) is partially closed.
- (4) Low air compressor output cfm (unit may cycle on and off). See Section 5.0.

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

- (1) Low air compressor output cfm. See Section 13.0 for air requirements.
- (2) Air hose too small.
- (3) Thompson Valve II abrasive adjustment bolt is open too far.
- (4) Check for leaks in blast vessel or control piping.
- (5) Choke valve (#14) is partially closed.
- (6) Trash may be partially plugging the nozzle orifice (#27).

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) Thompson Valve® II (#10) stuck in exhaust position.
- (3) Breather vent on Thompson Valve II blocked.
- (4) Control hoses blocked.
- (5) Cartridge in deadman valve (#24) is blocked.
- (6) Low air compressor output cfm (unit may cycle on and off). See Section 13.0.
- (7) Air leaks in control hose from the deadman valve (#24) to Automatic air valve (#15).
- (8) Trash blocking nozzle orifice.

11.3 Notes on Abrasive Flow Problems

11.3.1. Thompson Valve II operation

If abrasive flow is a problem, remember the Thompson Valve II only opens and closes. The total travel to full open is approximately 3/8 of an inch. This can be quickly checked with the adjustment bolt on the abrasive valve.

For this procedure manually close the choke valve (#14) to prevent blasting. This test is to verify that the Thompson Valve II is opening.

With the deadman off, screw the Thompson Valve II adjustment bolt down until it stops. Notice that the bolt turns easily when the deadman is off. Next, back the bolt out 3/4 of an inch or slightly less. Then press the deadman lever down to open the Thompson Valve II. The bolt 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 Thompson Valve II. 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 Thompson Valve II piston seal.



Do Not hammer on any part of the pressure vessel to improve abrasive flow. This will 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 Thompson Valve II orifice. Whenever trash (paint chip, cigarette butt, etc.) blocks the Thompson Valve II orifice, the procedure is to fully open the Thompson Valve II 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 Thompson Valve II (high pressure above; low pressure below). The higher pressure from the blast vessel should be enough to loosen the trash blocking the Thompson Valve II orifice and blast it through the blast nozzle (#27). To prevent excess wear of the Thompson Valve II keep the choke valve fully open during normal blasting.

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.

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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The text, diagrams, and drawings contained in this manual are proprietary information intended solely for instruction in the operation of the specified equipment. Use of any text, diagrams, or drawings contained in this manual for any reason other than its intended purpose without the written consent of Axxiom Manufacturing, Inc. is strictly prohibited.

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
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: 1-800-356-4674

Website: www.cdc.gov/niosh

National Institute of Occupational Safety and Health
Hubert H. Humphrey Bldg.
200 Independence Avenue, SW
Room 715H
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
1819 L Street, NW
6th 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: 1-412-281-2331

Website: www.sspc.org

The Society for Protective Coatings

40 24th Street

Pittsburg, PA 15222-4643

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

Phone: 1-281-228-6200

Website: www.nace.org

National Association of Corrosion Engineers

1440 South Creek Drive

Houston, TX 77084

12.6 Table of Blast Abrasive Characteristics

Abrasive Type	Hardness (Mohs)	Grain Shape	Density Lbs/ft ³	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	100	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 125 psi although high pressure units rated for 150 psi are available on request.