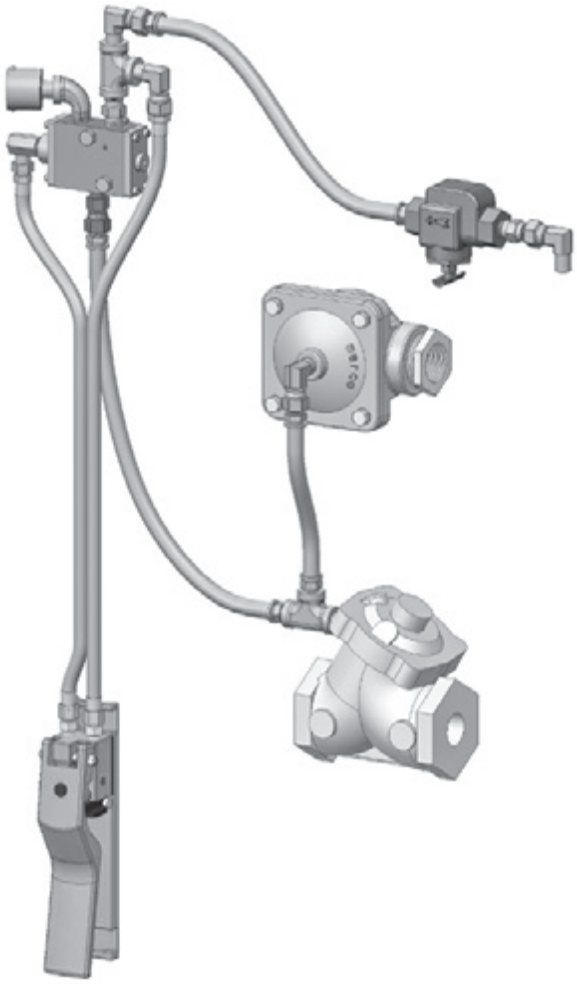
OPERATOR'S MANUAL

BLASTMASTER® 68P
REMOTE CONTROL SYSTEM



BUILT MARCO TOUGH
MARCO MANUFACTURED

⚠ WARNING Before using this equipment, read, understand and follow all instructions in the Operator's Manuals provided with this equipment. If the user and/or assistants cannot read or understand the warnings and instructions, the employer of the user and/or assistants must provide adequate and necessary training to ensure proper operation and compliance with all safety procedures pertaining to this equipment. If Operator's Manuals have been lost, please visit www.marco.us, or contact Marco at 563.324.2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

Marco

Company Profile

Since 1944, Marco has developed a strong tradition of providing innovative and reliable products and services to the surface preparation and protective coatings industries. We are the world's premier provider of Abrasives, Blasting Equipment, Coating and Painting Equipment, Engineered Systems, Rental Equipment, Safety Equipment, Service, and Repair.

Through innovative designs and a total commitment to quality, Marco manufactures products that increase production rates, create a safer workplace, and reduce maintenance costs. Marco's industry experience, manufacturing capabilities, legendary customer service, product availability, logistics services, and technology leadership is your assurance that we deliver high quality products and services, providing the best value to you, our customer.

The Marco Difference

- **Industry Experience** – With Marco on your team, you have access to expertise which can only come from over 65 years of industry leadership. We have organized our engineering department, production specialists, customer operations, and safety support into a "Center of Competence." As a Marco customer, you have access to hundreds of years of cumulative experience related to your operations.
- **Manufacturing Excellence** – Marco is a U.S. based, ISO 9001:2008 certified manufacturer of equipment for the Surface Preparation and Protective Coatings industries. Marco's engineers benchmark the industry to ensure that we design and manufacture superior products that set the "Gold Standard" for performance, safety, and quality.
- **Legendary Customer Service** – Marco's legendary customer service team is staffed by friendly, highly-trained individuals who are focused on providing the highest level of product support, order accuracy, and customer satisfaction.
- **Product Availability** – We stock over 10,000 SKU's and have over 45 shipping locations to serve North American and International markets for all major brands of blasting and painting equipment. As the largest provider of surface preparation and protective coatings equipment in the world, our inventory levels and product availability are unmatched.
- **Logistics Services** – Marco's in-house logistics team is dedicated to moving your shipment anywhere in the world. We move over 14,000 truckloads every year, allowing you to save on freight costs by leveraging our buying power. Lower your process costs with a single invoice, which includes product and freight.
- **Technology Leadership** – Our website provides: Operator's Manuals, Part Numbers and Schematics Guides, MSDS information, and Features, Advantages, and Benefits Guides, providing access to information 24/7. Our Extranet application allows you to receive quotes and place orders online. Our Intranet maintains a complete record of your purchase history to assist with ongoing support of your existing equipment and future purchasing decisions.

Vision Statement

Marco is the world's premier provider of Abrasives, Blasting Equipment, Coating and Painting Equipment, Engineered Systems, Rental Equipment, Safety Equipment, Service, and Repair.

Mission Statement

Marco provides strong leadership and innovation to the surface preparation and protective coatings industries We dedicate our efforts to the continuous improvement of our products, services, processes, people, and most importantly, the quality of our customer's experience.

Quality Statement

Marco is committed to providing superior quality in the design, manufacturing, distribution, rental, service, and repair of our products. Our ISO 9001:2008 certification extends throughout all operations in all locations. Continuous improvement of our processes and supply chain Integration comprise the core of our business strategy for delivering exceptional quality and value in all Marco products and services.

Management Philosophy

We are a company dedicated to the success of every customer and associate. We discuss, debate, challenge, measure, and test our ideas. We will be boundless and limitless in our passion to improve. Through sound leadership and dedicated associates, we will ensure a long term, profitable future for Marco, our associates, customers, and suppliers.

DEFINITION OF TERMS

Definition of Terms

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

HAZARD IDENTIFICATIONS

⚠ WARNING

- Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust.
- Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the respirator must be at least Grade D quality as described in Compressed Gas Association Commodity Specification G-7.1 and as specified by OSHA Regulation 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- Abrasive blasting operators must receive thorough training on the use of abrasive resistant attire which includes: supplied-air respirator, abrasive blasting suit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions.
- OSHA requires abrasive blasting nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a “deadman” control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury. OSHA 29CFR 1910.244(b)
- Point the abrasive blasting nozzle only at the surface being abrasive blasted. Never point the abrasive blasting nozzle or abrasive stream at yourself or others.
- Unless otherwise specified, maximum working pressure of abrasive blasting pots and related components must not exceed 125 psi. Exceeding maximum working pressure of 125 psi could cause the abrasive blasting pot and components to burst. Failure to comply with the above warning could result in death or serious injury.
- Never weld, grind or drill on the abrasive blasting pot (or any pressure vessel). Doing so will void ASME certification and manufacturer’s warranty. Welding, grinding or drilling on the abrasive blasting pot (or any pressure vessel) could weaken the vessel causing it to burst. Failure to comply with the above warning could result in death or serious injury. (ASME Pressure Vessel Code, Section VIII, Division 1)
- This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location could cause an explosion or electrocution.
- Never hang objects from the abrasive blasting pot handle. Doing so may cause the abrasive blasting pot to become unstable and tip over.
- Never attempt to move an abrasive blasting pot containing abrasive. Never attempt to manually move abrasive blasting pots greater than 6.5 cubic foot capacity. Always use at least two capable people to manually move an abrasive blasting pot on flat, smooth surfaces. A mechanical lifting device must be used if an abrasive blasting pot is moved in any other manner.
- The use of this product for any purpose other than originally intended or altered from its original design is prohibited.

HAZARD IDENTIFICATIONS

⚠ WARNING

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

- This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFIC) for all electrical power source connections. Use of this product in wet environments could create a shock or electrocution hazard.
- Frozen moisture could cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control lines could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air. In conditions where moisture may freeze in the control lines an antifreeze injection system approved for this application can be installed.
- Do not cut, obstruct, restrict or pinch pneumatic control lines. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air.
- Use of Marco remote control switches with other manufacturer's remote control systems could cause unintended activation of remote control systems resulting in the release of high speed abrasive and compressed air. Only Marco remote control switches should be used with Marco remote control systems.
- Always be certain to have secure footing when abrasive blasting. There is a recoil hazard when abrasive blasting starts that may cause user to fall and misdirect the abrasive stream at operator or bystander.
- Never use an abrasive blasting pot or attachments as a climbing device. The person could slip and fall. The abrasive blasting pot could become unstable and tip over.
- For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment.
- Flammable fumes, such as solvent and paint fumes in the work area can present an ignition or explosion hazard if allowed to collect in adequate concentrations. To reduce conditions that could result in a fire or an explosion, provide adequate ventilation, eliminate all ignition or spark sources, keep the work area free of debris, store solvents and solvent contaminated rags in approved containers, follow proper grounding procedures, do not plug/unplug power cord or turn on/off power switches when flammable fumes are present, keep a working fire extinguisher or provide another fire suppression system in the work area. Cease all operations and correct condition if a spark or ignition source is identified during operation.
- Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.
- Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.
- Surfaces of heated supply tanks, drums and/or lines as well as the adjoining plumbing may become hot during normal use. Do not touch these heated surfaces without proper protection. Deactivate and allow sufficient time for all surfaces to cool before attempting any maintenance.
- High-pressure fluid from gun, hose leaks, or ruptured components can pierce skin and can cause a serious injury that may result in amputation. Do not point gun or spray tip at anyone or at any part of the body. Keep clear of any leaks or ruptures. Depressurize the entire system before attempting cleaning, inspecting, or servicing equipment.
- Exposure to toxic fluids or fumes may occur during the normal operation of this system. Before attempting to fill, use, or service this system, read MSDS's to know the specific hazards of the fluids you are using. Always use proper Personal Protective Equipment when attempting to fill, use, or service this system.

HAZARD IDENTIFICATIONS

⚠ CAUTION

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

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

NOTICE

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

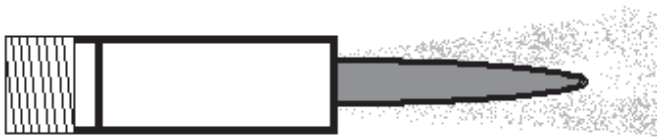
- See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- Always use abrasive that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, abrasive metering valve and abrasive blasting nozzle.
- Moisture build-up occurs when air is compressed. Any moisture within the abrasive blasting system will cause abrasive to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the abrasive blasting system. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open (at all times) petcock should be opened frequently to release water.
- To reduce abrasive intrusion in the air supply hose, depressurize the abrasive blasting pot before shutting off air supply from compressor.
- Inspect abrasive blasting nozzle before placing into service. Damage to abrasive blasting nozzle liner or jacket may occur during shipping. If you receive a damaged abrasive blasting nozzle, contact your distributor immediately for replacement. Abrasive blasting nozzles placed into service may not be returned. Abrasive blasting nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a abrasive blasting nozzle.
- Abrasive blasting at optimal pressure for the abrasive used is critical to productivity. Example: For an abrasive with an optimal abrasive blasting pressure of 100 psi at the abrasive blasting nozzle, one pound per square inch of pressure loss will reduce abrasive blasting efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your abrasive supplier for the requirements of your abrasive.
- Replace abrasive blasting nozzle if liner or jacket is cracked or damaged. Replace abrasive blasting nozzle if original orifice size has worn 1/16” or more. Determine abrasive blasting nozzle wear by inserting a drill bit 1/16” larger than original size of abrasive blasting nozzle orifice. If the drill bit passes through abrasive blasting nozzle, replacement is needed.

AIR & ABRASIVE CONSUMPTION CHART

NOTICE

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

- See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- When it comes to air & abrasive mixtures, more is not necessarily better. Optimum abrasive blasting efficiency takes place when a lean air & abrasive mixture is used. To correctly set the abrasive metering valve, begin with the valve fully closed and slowly increase the amount of abrasive entering the airstream. As you increase the abrasive flow, watch for a "blue flame" at the exit of the abrasive blasting nozzle. Faster cutting, reduced abrasive consumption and lower clean up costs, are benefits of the "blue flame".
- Abrasive blasting at optimal pressure for the abrasive used is critical to productivity. Example: For an abrasive with an optimal abrasive blasting pressure of 100 psi at the abrasive blasting nozzle, one pound per square inch of pressure loss will reduce abrasive blasting efficiency by 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of efficiency. Use a Needle Pressure Gauge to identify pressure drops in your system. Consult with your abrasive supplier for the requirements of your abrasive.



NOTICE

Inspect abrasive blasting nozzle before placing into service. Damage to abrasive blasting nozzle liner or jacket may occur during shipping. If you receive a damaged abrasive blasting nozzle, contact your distributor immediately for replacement. Abrasive blasting nozzles placed into service may not be returned. Abrasive blasting nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a abrasive blasting nozzle.

NOTICE

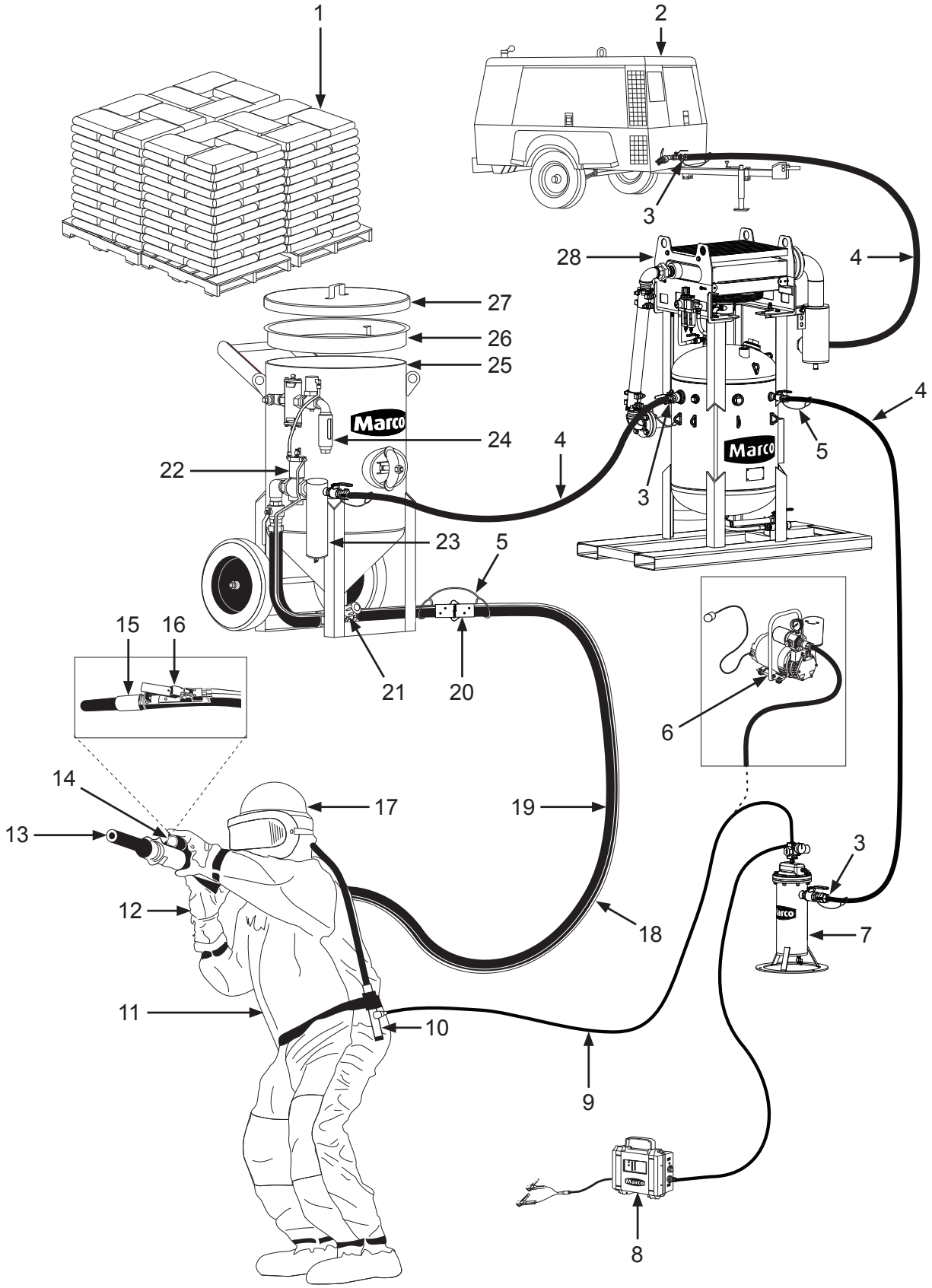
Replace abrasive blasting nozzle if liner or jacket is cracked or damaged. Replace abrasive blasting nozzle if original orifice size has worn 1/16" or more. Determine abrasive blasting nozzle wear by inserting a drill bit 1/16" larger than original size of abrasive blasting nozzle orifice. If the drill bit passes through abrasive blasting nozzle, replacement is needed.

Air & Abrasive Consumption Chart*

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

*Abrasive consumption is based on abrasive with a bulk density of 100 lbs per Cubic Foot

“THE BIG PICTURE”



DAILY PRE-OPERATION CHECKLIST

Daily Pre-operation Checklist

- ☐ 1. Abrasive
- ☐ 2. Air Compressor
- ☐ 3. Air Hose Couplings & Gaskets
- ☐ 4. Air Hose
- ☐ 5. Safety Cable
- ☐ 6. Ambient Air Pump*
- ☐ 7. Breathing Air Filter
- ☐ 8. CO Monitor
- ☐ 9. Breathing Line
- ☐ 10. Climate Control Device
- ☐ 11. Abrasive Blasting Suit
- ☐ 12. Gloves
- ☐ 13. Abrasive Blasting Nozzle
- ☐ 14. Lighting System*
- ☐ 15. Abrasive Blasting Nozzle Holder
- ☐ 16. Remote Control Switch
- ☐ 17. Supplied-Air Respirator
- ☐ 18. Control Line
- ☐ 19. Abrasive Blasting Hose
- ☐ 20. Abrasive Blasting Hose Couplings & Gaskets
- ☐ 21. Abrasive Metering Valve
- ☐ 22. Remote Control System
- ☐ 23. Moisture Separator
- ☐ 24. Abrasive Blasting Pot Exhaust Muffler
- ☐ 25. Abrasive Blasting Pot
- ☐ 26. Abrasive Blasting Pot Screen
- ☐ 27. Abrasive Blasting Pot Lid
- ☐ 28. Aftercooler*

** Optional or alternative device. Ask your Marco Representative for more details.*

Abrasive – Select the correct Abrasive (1) for the application. Review the MSDS *(Material Safety Data Sheet)* to ensure the correct PPE *(Personal Protective Equipment)* and Environmental Controls have been selected and are in place.

Air Compressor – Select an Air Compressor (2) of adequate size to support all equipment requirements. Refer to “Air & Abrasive Consumption Chart” for Abrasive Blasting Nozzle (13) air consumption requirements. Before connecting Air Hose (4), sample the air being produced by the air compressor (2) to ensure it is free of petroleum contaminants.

Air Hose, and Air Hose Couplings & Gaskets – Select Air Hoses (4) of sufficient size to support all subsequent volumetric requirements and with a sufficient PSI *(pound per square inch)* rating. Inspect all Air Hoses (4), and Air Hose Couplings & Gaskets (3) for damage or wear. Repair or replace damaged or worn components.

Abrasive Blasting Hose, Abrasive Blasting Hose Couplings & Gaskets, and Abrasive Blasting Nozzle Holder – Select an Abrasive Blasting Hose (19) that has an inner diameter 3 to 4 times larger than your Abrasive Blasting Nozzle (13). Inspect Abrasive Blasting Hose (19), Abrasive Blasting Hose Couplings & Gaskets (20), and Abrasive Blasting Nozzle Holder (15) for damage or wear. Repair or replace damaged or worn components.

Safety Cables – Install a Safety Cable (5) at each Abrasive Blasting Hose (19), and Air Hose (4) connection points.

Aftercooler and Moisture Separator – Ensure Aftercooler (28) is positioned on stable ground. Keep petcock drain of Moisture Separator (23) slightly open during use. Drain both devices after each use.

Supplied-Air Respirator, Breathing Line, Breathing Air Filter, Climate Control Device, CO Monitor, Ambient Air Pump – You MUST consult the Operator’s Manual supplied with your Respiratory Equipment (6, 7, 8, 9, 10, 17) for ALL applicable instructions and warnings. Inspect all Respiratory Equipment components for damage or wear. Repair or replace damaged or worn components.

Abrasive Blasting Suit and Gloves – Select an abrasive-resistant Abrasive Blasting Suit (11) that is slightly oversized to allow ease of movement and allows air to flow around your body. Select abrasive-resistant Gloves (12) with a tight fit and a long cuff that overlaps the sleeve of the Abrasive Blasting Suit (11).

Abrasive Metering Valve and Abrasive Blasting Pot – Confirm Abrasive Blasting Pot (25) is positioned on stable ground. Inspect Abrasive Blasting Pot (25) and Abrasive Metering Valve (21) for damage or wear. Repair or replace damaged or worn components.

Abrasive Blasting Pot Screen and Abrasive Blasting Pot Lid – Always use an Abrasive Blasting Pot Screen (26) when filling Abrasive Blasting Pot (25) with Abrasive (1) to prevent debris from entering the Abrasive Blasting Pot (25). Remove Abrasive Blasting Pot Lid (27) before operating the Abrasive Blasting Pot (25). Install Abrasive Blasting Pot Lid (27) after use to protect the Abrasive Blasting Pot’s (25) interior.

Remote Control System, Remote Control Switch, Control Line, – Inspect Remote Control System (22) and Control Line (18) for damage or wear. Repair or replace damaged or worn components. Ensure Control Line (18) fittings connected to the Remote Control System (22) are tight and free of leaks. Ensure Remote Control Switch (16) is functioning properly. Consult Remote Control Switch Operator's Manual for applicable instructions.

Abrasive Blasting Pot Exhaust Muffler – Inspect Abrasive Blasting Pot Exhaust Muffler (24) at start and end of daily use. Replace element of Abrasive Blasting Pot Exhaust Muffler (24) per Operator's Manual instructions.

Lighting System – Ensure the Lighting System (14) is connected to a proper power supply before use.

⚠ WARNING

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

⚠ WARNING

OSHA requires blast cleaning nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a "deadman" control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury. OSHA 29CFR 1910.244(b)

⚠ WARNING

For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment. Failure to comply with the above warning could result in death or serious injury.

Description

Remote control systems give an operator the ability to remotely activate and deactivate the flow of air and abrasive at the nozzle. Pressure-release remote control systems pressurize and depressurize the blast pot each time the operator activates and deactivates the remote control switch, allowing for the blast pot to be filled between activation cycles. This increases productivity and eliminates the need for a pot tender. The Blastmaster® 68P Remote Control System is a pressure-release remote control system that uses a pneumatic signal from the remote control switch to remotely activate and deactivate a blast pot. Typical applications include concrete preparation, construction equipment maintenance, farm implements, light touch-up work, and swimming pool refurbishing.

Operational Requirements

The following is required for proper installation of a Blastmaster® 68P Remote Control System:

- A blast pot with an air inlet and air exhaust outlet of 1" I.D.

The following may cause safety hazards or reduced performance:

- Improper installation and/or maintenance of components
- Improper air supply pressure (operating pressure: 50–150 PSI)
- Use of pneumatic control line greater than 100 feet in length
- Use of a "bleeder-style" pneumatic control switch

Operating Instructions

Fig. 1

Before using:

- Ensure blast pot is depressurized. (See blast pot Operator's Manual for instructions.)
- Inspect all control lines ensuring they are free of obstructions or damage. Remove obstructions or replace control lines before use.
- Inspect components of Blastmaster® 68P Remote Control System for damage and air leaks. Repair or replace any damaged components before use.
- Connect Pneumatic Control Line (2) to Pneumatic Solenoid (1) and Pneumatic Remote Control Switch (3).
- Connect air supply from air compressor to Inlet of blast Pot.

During use:

- To begin abrasive blasting, activate Remote Control Switch (3). This will complete the air circuit to the GateKeeper Valve (4) and Outlet Valve (5) to pressurize the blast pot.
- Monitor all control lines to ensure airflow is not disrupted.
- To cease abrasive blasting, deactivate the Remote Control Switch (3). This will interrupt the air circuit, allowing the blast pot to depressurize.

After use:

- Inspect Blastmaster® 68P Remote Control System components for damage. Repair or replace damaged components.

⚠ WARNING

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

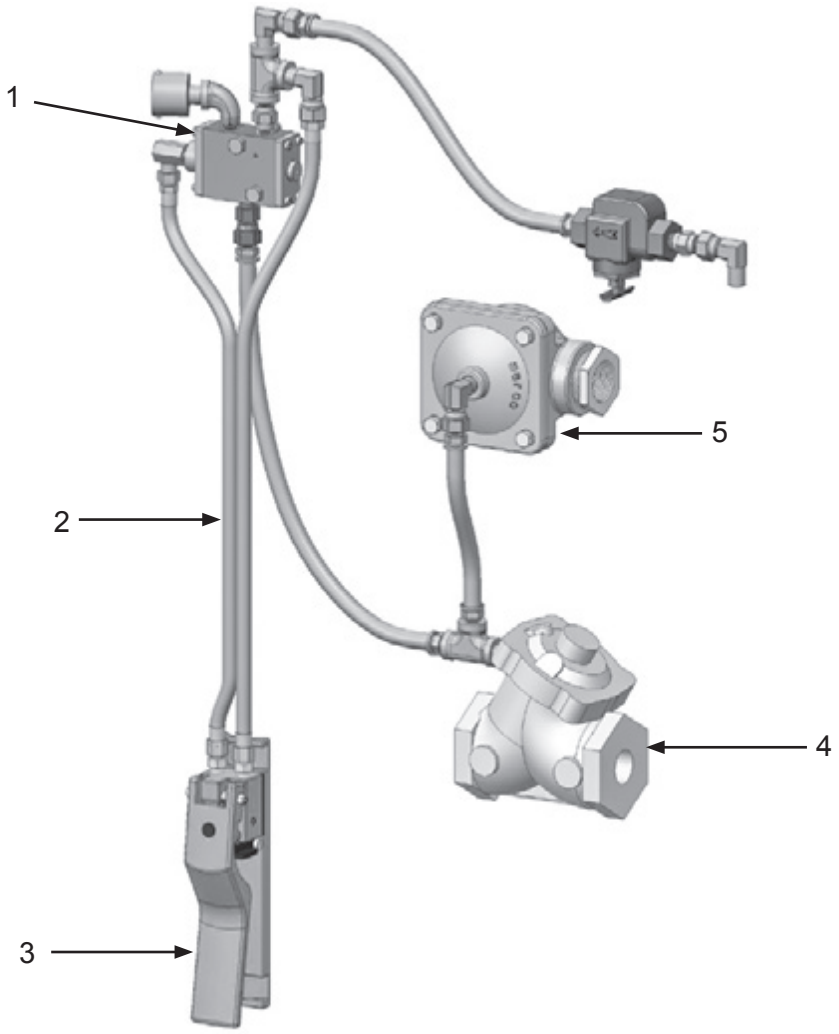
⚠ CAUTION

High decibel noise levels are generated during the abrasive blasting process which may cause loss of hearing. Ensure appropriate Personal Protective Equipment and hearing protection is in use. Failure to comply with the above caution may result in minor or moderate injury.

⚠ CAUTION

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

Figure 1



⚠ WARNING

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

⚠ WARNING

For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment. Failure to comply with the above warning could result in death or serious injury.

NOTICE

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

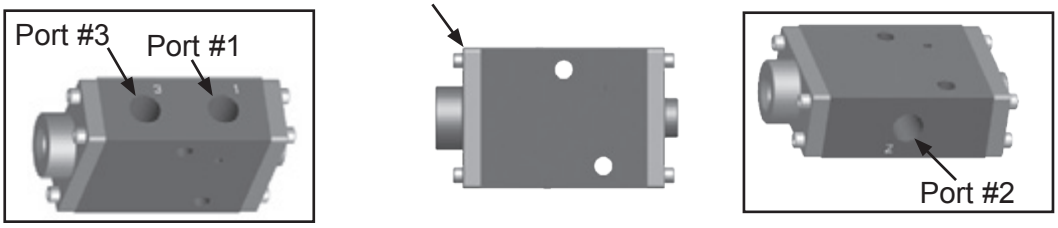
NOTICE

Pulling and dragging abrasive blasting hose may cause contol line connections to separate. Connect the control line to the abrasive blasting hose every 4 to 6 feet and on each side of the control line connections. Provide adequate slack at each connection.

Installation:

To install the Blastmaster® 68P Remote Control System, see Assembly Part Numbers and Schematics section as a guide. Additional plumbing components may be required to install the Blastmaster® 68P Remote Control System on an blast pot. Ensure that abrasive metering valve functions as normally-closed. See abrasive metering valve Operator's Manual for proper installation.

NOTE: When installing the Pneumatic Solenoid (1), ensure the control line from the air source is connected in Port #1 of the Pneumatic Solenoid (1), and the actuating control line is connected in Port #2 of the Pneumatic Solenoid (1) and the Port #3 of the Pneumatic Solenoid (1) is used as an exhaust to release air pressure from the.



MAINTENANCE

Disassemble and Assemble Pneumatic Solenoid

⚠ WARNING

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

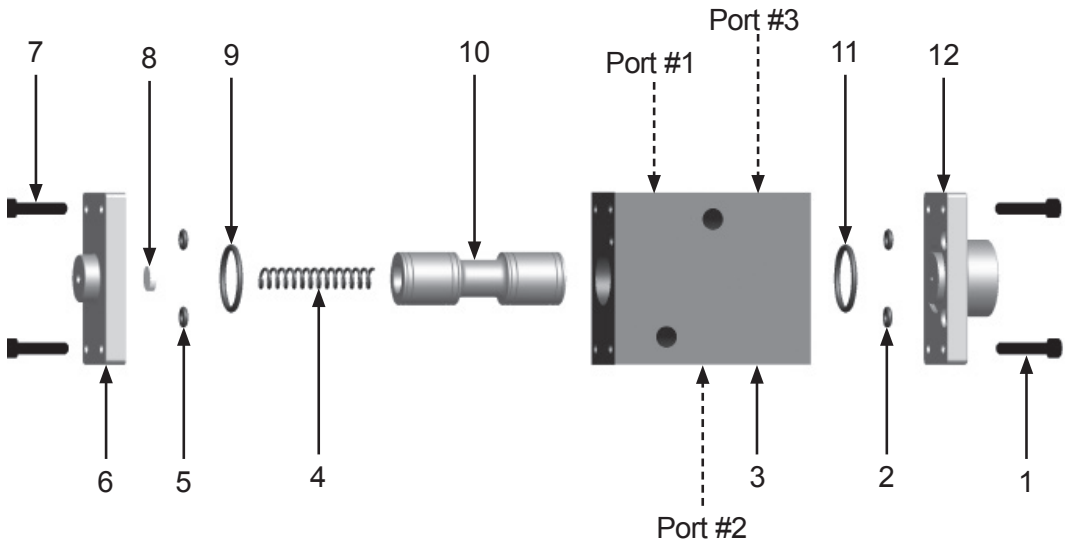
⚠ WARNING

For equipment manufactured by entities other than Marco, you must consult the Original Equipment Manufacturer operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment. Failure to comply with the above warning could result in death or serious injury.

NOTICE

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

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



Disassemble:

1) Remove four Screws (7) from End Cap (6). Remove Spring (4) from Valve Body (3).
2) Remove large O-ring (9) and two small O-rings (5) from End Cap (6).
3) Remove Felt (8) from End Cap (6).
4) Remove four Screws (1) from Air Pilot (12).
5) Remove large O-ring (11) and two small O-rings (2) from Air Pilot (12).
6) Ease Plunger (10) from Valve Body (3) by pushing Plunger (10) from Air Pilot (12) end.

Assemble:

1) Orient the Valve Body (3) so Port #1 and Port #3 are facing to the left. Insert Plunger (10) in Valve Body (3) from the left.
2) Place large O-ring (11) and two small O-rings (2) in Air Pilot (12).
3) Install four Screws (1) to secure Air Pilot (12) to Valve Body (3). Do not over-tighten.
4) Place two small O-rings (5) and large O-ring (9) in End Cap (6).
5) Insert Felt (3) in center recess of End Cap (6).
6) Insert Spring (4) in Valve Body (3). Place End Cap (6) on Spring (4) and compress spring until End Cap (6) meets Valve Body (3).
7) Install four Screws (7) in End Cap (6) and tighten. Do not over-tighten.

MAINTENANCE

Disassemble and Assemble GateKeeper Air Valve

⚠ WARNING

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

⚠ WARNING

Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Never use compressed air to separate or remove internal components during maintenance. Components could be ejected at high speeds. Failure to comply with the above warning could result in death or serious injury.

NOTICE

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

Maintenance of the GateKeeper Air Valve is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

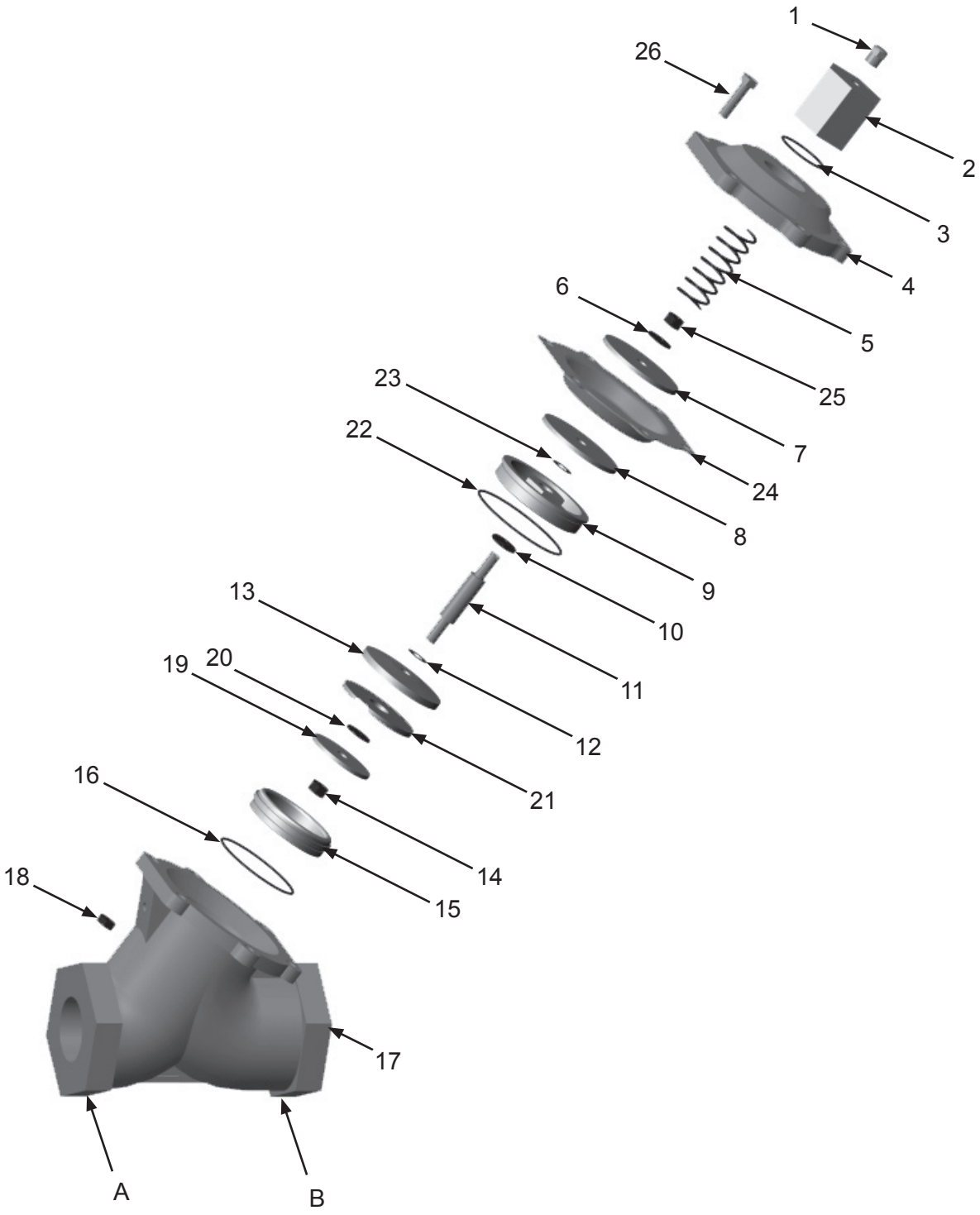
Disassemble:

1) Remove 1/8" Breather Muffler (1) from Spring Retainer (2).
2) Remove Spring Retainer (2) by turning counter-clockwise. There will be tension on the Spring Retainer from Spring (5) as it is removed. Remove Spring Retainer O-ring (3) and Spring.
3) Remove four Bolts (26) and Nuts (18).
4) Remove Cap (4) from Body (17).
5) Grasp Nut (5) and pull up to expose Lock Nut (14) in the inlet chamber of the Body (17). Hold Lock Nut (14) and loosen Nut (5).
6) Remove upper Diaphragm Plate (7), Washer (6), Diaphragm (24) lower Diaphragm Plate (8) and Washer (220 from Shaft (11).
7) Remove Retainer Bushing (9) using retainer bushing tool (purchased separately). Remove Shaft (11) and Bushing Retainer from Body (17). Remove Shaft from Bushing Retainer (9).
8) Remove O-ring (22) from Body (17). Remove Retainer Bushing O-ring (10) from Retainer Bushing (9).
9) Remove Lock Nut (14) from Shaft (11). Slide Disc Plate (19) from Shaft. Remove Disc (21), Disc Retainer (13), and Washer (12) from Shaft.
10) Using seat tool (purchased separately), remove Seat (15) from Body (17).
11) Remove Seat O-ring (16) from Seat (15).

Assemble:

1) Place Seat O-ring (16) in Body (17). Install Seat (15) into Body and tighten using seat tool (purchased separately).
2) Place Washer (12), upper Disc Retainer (13), Disc (21), and lower Disc Retainer (19) on Shaft (11). Install Lock Nut (14) on Shaft and tighten.
3) Insert Retainer Bushing O-ring (10) in Retainer Bushing (9).
4) Lubricate Shaft (11) with white lithium grease. Slide Shaft into Retainer Bushing (9).
5) Insert O-ring (22) into Body (17).
6) Insert assembled Shaft (11) and Retainer Bushing (9) into Body (17). Using retainer bushing tool (purchased separately), tighten Retainer Bushing.
7) Install Washer (23) on Shaft (11), place lower Diaphragm Plate (8) on Shaft. Place Diaphragm (24) on Shaft.
8) Place upper Diaphragm Plate (7) on Shaft (11). Install Nut (25) on Shaft and tighten.
9) Align holes at corners of Diaphragm (24) with holes in Body (17).
10) Place Cap (4) on Body (17). Insert Bolts (26) in corner holes of Cap. Install Nut (16) on Bolt. Tighten Nuts in a star pattern.
11) Place Spring (5) into hole in Cap (4).
12) Place Spring Retainer O-ring (3) over threads of Spring Retainer (2). Install Spring Retainer (2) into Cap (4) and tighten.
13) Install 1/8” Breather Muffler (1) into of Spring Retainer (2).
14) Place the assembled valve with the arrow located on the body facing to the right. Adhere Air Outlet Sticker on Valve Body (17) at location (A).
15) Place the assembled valve with the arrow located on the body facing to the right. Adhere Air Inlet Sticker on Valve Body (17) at location (B).

Disassemble and Assemble GateKeeper Air Valve



MAINTENANCE

Disassemble and Assemble 1" Diaphragm Outlet Valve

⚠ WARNING

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

⚠ WARNING

Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Never use compressed air to separate or remove internal components during maintenance. Components could be ejected at high speeds. Failure to comply with the above warning could result in death or serious injury.

NOTICE

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

Maintenance of the 1" Diaphragm Outlet Valve is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Disassemble:

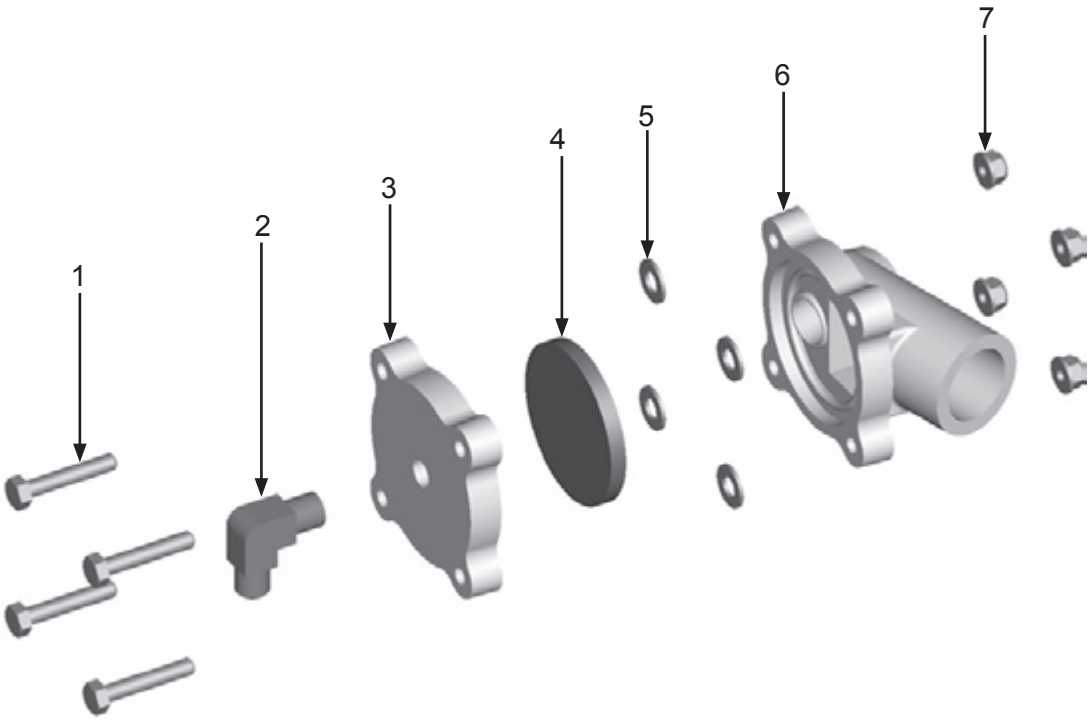
Fig. 4

1) Remove Nylon Lock Nuts (7) from Bolts (1). Remove Bolts (1) from assembly.
2) Remove Outlet Valve Cover (3) from Outlet Valve Body (6).
3) Remove Flat Washers (5).
4) Remove Diaphragm (4) from Outlet Valve Body (6).
5) Remove Elbow (2) from Outlet Valve Cover (3).

Assemble:

1) Insert Diaphragm (4) into Outlet Valve Body (6).
2) Install Elbow (2) into Outlet Valve Cover (3).
3) Insert Bolts (1) through holes in Outlet Valve Cover(3).
4) Install Flat Washers (5) in place over the exposed shaft of Bolts (1).
5) Install Outlet Valve Cover assembly using Nylon Lock Nuts (7).

Figure 4: 1" Diaphragm Outlet Valve



TROUBLESHOOTING

If the Blastmaster® 68P Remote Control System does not function properly, check the following:

⚠ WARNING

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

⚠ WARNING

Do not cut, obstruct, restrict or pinch pneumatic control line. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Frozen moisture could cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control line could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air. In conditions where moisture may freeze in the pneumatic control line an antifreeze injection system approved for this application can be installed. Failure to comply with the above warning could result in death or serious injury.

SYMPTOM (Cause)	ACTION
Air and abrasive does not exit the Abrasive Blasting Nozzle *(Abrasive Blasting Pot, Blockages, Pneumatic Control Lines, Pilot Valve, Remote Control Switch)*	See blast pot Operator's Manual. Insufficient air supply. Ensure minimum of 50 PSI is supplied to abrasive blasting pot and sufficient air volume to support abrasive blasting nozzle. Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components. Inspect pilot valve for damage. Repair or replace as necessary. See blast pot Operator's Manual. See remote control switch Operator's Manual.
Only air exits Abrasive Blasting Nozzle *(Abrasive Metering Valve, Pneumatic Control Lines)*	Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components. See abrasive metering valve Operator's Manual.
Only abrasive exits Abrasive Blasting Nozzle *(Damaged , Pneumatic Control Lines)*	Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components. Inspect GateKeeper Air Valve for damage. Replace damaged components.

⚠ WARNING

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

⚠ WARNING

Do not cut, obstruct, restrict or pinch pneumatic control line. Doing so could prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed abrasive and compressed air. Failure to comply with the above warning could result in death or serious injury.

NOTICE

Air flow through theGate Keeper Air Valve is opposite of the directional arrow located on the GateKeeper Body. Ensure theGate Keeper Air Valve is installed with the port labeled AIR INLET closest to the air source.

SYMPTOM (Cause)	ACTION
Air and abrasive exit Abrasive Blasting Nozzle when Remote Control Switch is in OFF position *(Remote Control Switch, Pneumatic Control Lines, Pilot Valve)*	Ensure a "non-bleeder" style pneumatic remote control switch is installed. Install a "non-bleeder" style pneumatic remote control switch. Inspect pneumatic pilot valve for damage. Repair or replace pneumatic pilot valve. See remote control switch Operator's Manual.
Air exits Abrasive Blasting Nozzle when Remote Control Switch is in OFF position *(Pneumatic Control Lines, DamagedGate Keeper Air Valve components)*	Inspect control lines for restrictions, leaks and correct routing. Repair or replace damaged components. Ensure the GateKeeper Air Valve is installed with the port labeled AIR INLET closest to the air source. Inspect GateKeeper Air Valve for damaged components. Repair or replace damaged components. See remote control switch Operator's Manual.
Abrasive exits Abrasive Blasting Nozzle when Remote Control Switch is in the OFF position *(Pneumatic Control Lines, Damaged Abrasive Metering Valve components)*	Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components. Inspect abrasive metering valve for damage. See abrasive metering valve Operator's Manual. See remote control switch Operator's Manual.

MAINTENANCE NOTES

DATE	TYPE OF SERVICE	PART NUMBER

MAINTENANCE NOTES

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ADDITIONAL TECHNICAL DATA

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

- **American Society for Testing and Materials (ASTM)**
  100 Barr Harbor Drive
  West Conshohocken, PA 19428-2959
  Phone: (610) 832-9585
  FAX: (610) 832-9555
  www.astm.org
- **Occupational Safety & Health Administration (OSHA)**
  United States Department of Labor
  200 Constitution Avenue
  Washington, DC 20210
  Phone: (800) 321-OSHA
  (800) 321-6742
  www.osha.gov
- **The National Board of Boiler & Pressure Vessel Inspectors**
  1055 Crupper Avenue
  Columbus, Ohio 4322
  Phone: (614) 888-8320
  FAX: (614) 888-0750
  www.nationalboard.org
- **National Association of Corrosion Engineers (NACE)**
  1440 South Creek Drive
  Houston, TX 77084-4906
  Phone: (281) 228-6200
  FAX: (281) 228-6300
  www.nace.org
- **The Society for Protective Coatings (SSPC)**
  40-24th Street, 6th Floor
  Pittsburgh, PA 15222-4656
  Phone: (412) 281-2331
  FAX: (412) 281-9992
  www.sspc.org
- **American National Standards Institute (ANSI)**
  1899 L Street, NW, 11th Floor
  Washington, DC 20036
  Phone: (202) 293-8020
  FAX: (202) 293-9287
  www.ansi.org

LIMITED WARRANTY

Seller warrants to the original purchaser that the Product covered by this Limited Warranty will remain free from defects in workmanship or material under normal commercial use and service for a period of one year from the date of shipment to the original Purchaser. This Warranty shall not apply to defects arising, in whole or in part, from any accident, negligence, alteration, misuse or abuse of the Product, operation of the Product which is not in accordance with applicable instructions or manuals or under conditions more severe than, or otherwise exceeding, those set forth in the written specifications for the Product, nor shall this Warranty extend to repairs or alterations of the Product and/or any maintenance part by persons other than Seller or Seller's authorized representatives. This warranty does not apply to accessory items. Further, this Warranty does not apply to damage or wear to the surface finish or appearance of the Product or normal wear and tear to the Product. This Warranty is limited to a purchaser who purchases the Product either directly from the Seller or from one of Seller's "Authorized Distributors". An Authorized Distributor is a Seller approved distributor that purchases the Product directly from the Seller for the sole purpose of re-selling the Product at retail, without any use or modifications whatsoever, to an end-purchaser.This warranty is specifically non-assignable and non-transferable.

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

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

GLOBAL HEADQUARTERS

- 3425 East Locust Street
  Davenport, IA 52803

  ph: 800.BLAST.IT (800.252.7848)
  ph: 563.324.2519
  fax: 563.324.6258

REGIONAL BRANCH OFFICES

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