

SERVICE MANUAL

BLASTMASTER® 160 CU. FT. BLAST POTS



Highway Trailer



Yard Trailer



Offshore



Fork-Pocket Skid



Stationary

**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, Coating, Dust Collectors, Engineered Systems, Rental, Safety, Service, Repair, & Modernization, and Vacuums.

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 decades 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 more than 45 shipping locations to serve North American and International markets for all major brands of blasting and coating 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 more than 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, SDS information, and Features & Specifications 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, Coating, Dust Collectors, Engineered Systems, Rental, Safety, Service, Repair, & Modernization, and Vacuums.

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

DANGER

This is an example of danger. This indicates an imminently hazardous situation which, if not avoided, will 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.

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.

NOTICE

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

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HAZARD IDENTIFICATIONS

WARNING

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

- ▶ OSHA sets exposure limits to protect workers from exposure to respirable crystalline silica, 29 CFR 1910.1053. Airborne dust could increase the exposure levels beyond permissible limits. 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 150 psi. Exceeding maximum working pressure of 150 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 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.

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 SDS'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.
- ▶ The use of this product for any purpose other than originally intended or altered from its original design is prohibited.
- ▶ Never hang objects from the abrasive blasting pot handle. Doing so may cause the abrasive blasting pot to become unstable and tip over.

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 damaged 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.

DESCRIPTION

Description

The Blastmaster® 160 Cu. Ft. Blast Pot is a pressure vessel used as part of an abrasive blasting system to deliver a mixture of abrasive and compressed air to a work surface. Marco blast pots are proudly engineered and manufactured in the USA and built in accordance with ASME guidelines. Each Marco blast pot is designed with added features to enhance work site safety. Blastmaster® Blast Pots are manufactured using higher quality materials that resist wear, reducing costly downtime and increasing production rates. Typical applications include blast rooms, blast yards, bridges, oil refineries, shipyards and storage tanks. Common abrasives used include garnet, mineral abrasives, slags and steel grit/shot.



Highway Trailer



Yard Trailer



Offshore



Fork-Pocket Skid



Stationary

UNLOADING AND LOADING INSTRUCTIONS

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

Unloading from Transport

- 1) Attach appropriate lifting devices to Lifting Lugs (5). See Dimensions & Weight, and Center of Gravity section.
- 2) Detach Blast Pot from transport at tie-down lugs (6).
- 3) Lift Blast Pot off transport.
- 4) If applicable, install tires on Trailer Mounted Systems.
- 5) Place Blast Pot on ground.
- 6) Close Hatch (2). See Pressurize & Depressurize Blast Pot.
- 7) Install Blastmaster® Pneumatic Closure Lockout Device (3) over closed Hatch (2). See Install Blastmaster® Pneumatic Closure Lockout Device.

WARNING

W-511

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.

Loading onto Transport

- 1) Depressurize Blast Pot. See Pressurize & Depressurize Blast Pot.
- 2) Empty Blast Pot.
- 3) Disconnect all blast hoses and remote control lines from remote control system.
- 4) Disconnect Air Hose Assembly (1) from Pressure Indicating Ball Valve (4), then remove Blastmaster® Pneumatic Closure Lockout Device (3) from Hatch (2).
- 5) Open Hatch. See Pressurize & Depressurize Blast Pot.
- 6) Attach appropriate lifting devices to Lifting Lugs (5). See Dimensions & Weight, and Center of Gravity section.
- 7) Raise and position on transport. For Trailer Mounted units, removal of tires may be required. Ensure unit is sufficiently supported before removing tires.
- 8) Secure Blast Pot to transport using Tie-down Lugs (6), following local Department of Motor Vehicle guidelines.
- 9) Disconnect lifting device.

WARNING

W-520

The use of this product for any purpose other than originally intended or altered from its original design is prohibited. Failure to comply with the above warning could result in death or serious injury.

WARNING

W-503

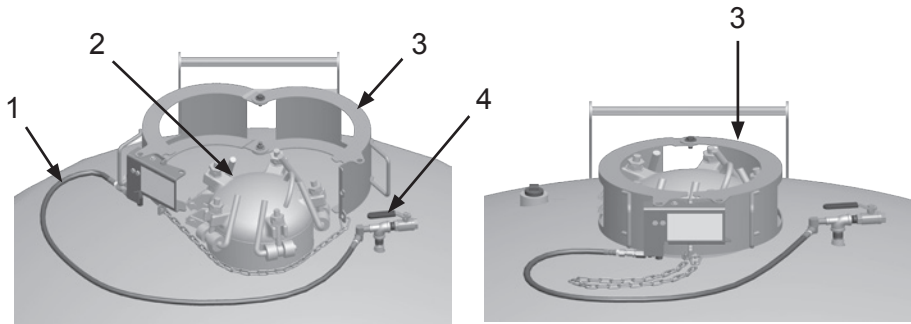
You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area. Failure to comply with the above warning could result in death or serious injury.

UNLOADING AND LOADING INSTRUCTIONS

WARNING

W-574

Transporting, lifting, or moving this device must be in accordance with applicable OSHA standards and ASME B30 standards, as well as any applicable local, state, or federal requirements. For crane lifting, attach to Tie-down/Lifting Lugs only. For transporting device with fork pockets, use fork-lift truck with sufficient lifting capacity. When transporting, use Tie-down/Lifting Lugs only to secure the device. Failure to comply with the above warning could result in death or serious injury.



WARNING

W-536

Do not use any component other than the attached ladders as climbing devices. Ensure hand and foot contact with ladder while ascending / descending the ladder. The person can slip and fall. Ensure appropriate Fall Protection is used when climbing the ladder. Failure to comply with the above warning could result in death or serious injury.



MAINTENANCE

Adjust Camlock Assemblies

Maintenance of the Blastmaster® 160 cu. ft. Blast Pot is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

⚠ DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

⚠ WARNING

W-562

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

W-563

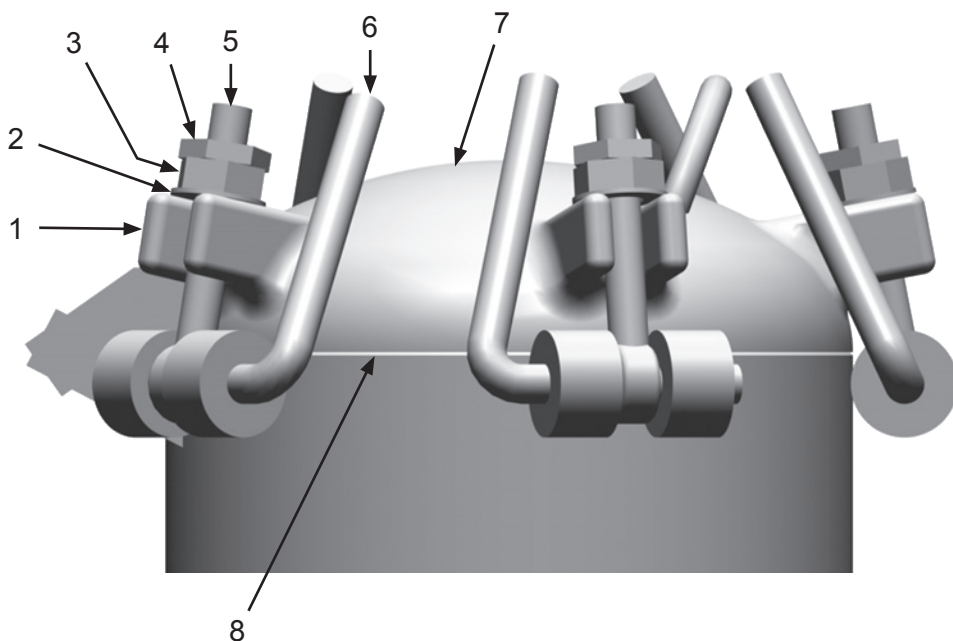
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-605

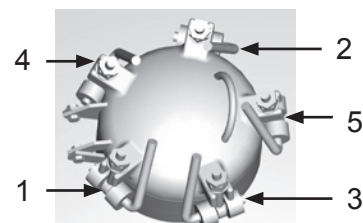
For proper operation, maintenance should be performed with the assistance of a qualified serviceman.

- 1) Depressurize blast pot. See Pressurize & Depressurize Blast Pot.
- 2) Open Hatch and inspect Hatch O-ring (8) for damage. Replace as needed.
- 3) With Camlock Assemblies (6) in the closed position, remove Locking Nut (4), Swing Bolt Nut (3) and Washer (2). Inspect items and replace if damaged.
- 4) Apply graphite powder to Cam Lobes (9).
- 5) Adjust Swing Bolt (5) position so it is fully seated in Holding Lug (1). Install Washer (2) and Swing Bolt Nut (3) on to Swing Bolt hand tight. Do not over tighten.
- 6) Working one Camlock Assembly at a time, repeat steps 2 and 3 for remaining four Camlock Assemblies.
- 7) Using a torque wrench, tighten Swing Bolt Nut (3) on Camlock Assembly #5 to a final



torque of 20 ft/lbs. Tighten remaining Swing Bolt Nuts in the sequence shown.

- 8) Install Locking Nut (3) on to Swing Bolt (5). Using a wrench to hold Swing Bolt Nut in place, tighten Locking Nut. Tighten remaining Locking Nuts in the sequence shown.
- 9) Inspect Camlock Assemblies for proper function.



Camlock Assembly Sequence

MAINTENANCE

Remove & Install Manway Assembly

⚠ WARNING

W-562

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.

⚠ CAUTION

C-507

Ensure content of abrasive blasting pot is free of hazardous material before entry. If hazardous material is detected, follow prescribed methods for handling the material. Failure to comply with the above caution may result in minor or moderate injury.

⚠ CAUTION

C-509

When entering and exiting the abrasive blasting pot via the manway, ensure the surface in the abrasive blasting pot is stable. Loose abrasive in the abrasive blasting pot may cause a slip / fall hazard. Failure to comply with the above caution may result in minor or moderate injury.

⚠ CAUTION

C-508

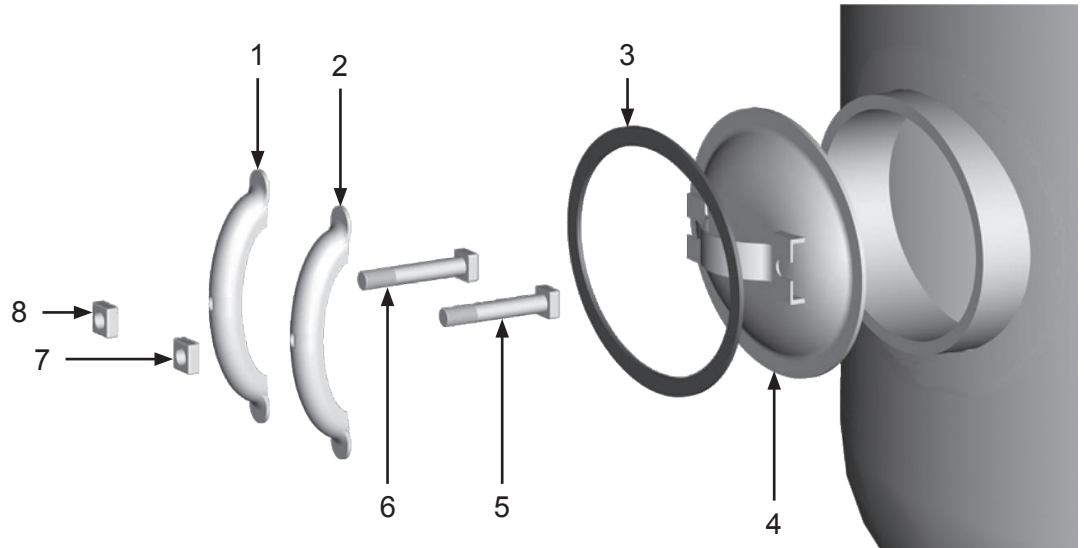
Ensure the person entering the abrasive blasting pot can pass through the 12" x 16" manway opening as they can become wedged. Failure to comply with the above caution may result in minor or moderate injury.

Maintenance of the Blastmaster® 160 cu. ft. Blast Pot is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

- 1) Depressurize blast pot. See Pressurize & Depressurize Blast Pot.
- 2) Ensure abrasive in blast pot is below the opening of the Manway Door opening. See Remove & Install Clean-Out Flange.
- 3) Loosen Nut (8) from Bolt (6). Do not remove Nut (8). Repeat step for Nut (7).
- 4) Grasp Manway Door (4). Remove loosened Nut (8) from Bolt (6). Repeat step for Nut (7).
- 5) Remove Yoke (1) from Bolt (6). Repeat step for Yoke (2).
- 6) Remove Bolts (5 and 6) from Manway Door (4). Push on Manway Door toward the interior of Blast Pot to free the Manway Door and Gasket (3).
- 7) Remove Manway Door (4) and Gasket (3) from Blast Pot interior.

Note: Alternate tightening nuts for even gasket seal

- 8) Install parts in reverse order using the following special instructions:
 - Ensuring that Yokes (1,2) is tight and an air-tight seal is produced.



MAINTENANCE

Remove & Install Wheel and Tire Assemblies

Maintenance of the Blastmaster® 160 cu. ft. Blast Pot is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

WARNING

W-511

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.

WARNING

W-541

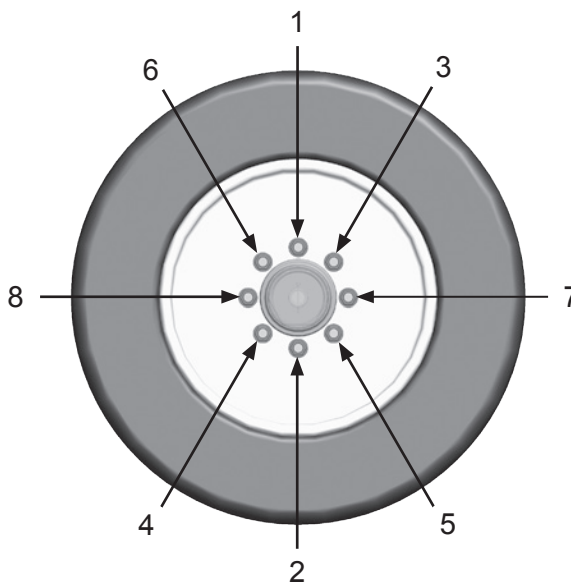
Ensure Wheel Lug Nuts are tightened to 250 ft/lbs of torque. Incorrect torque could allow for the wheel to become disengaged causing loss of control of the Trailer. For yard towable abrasive blasting pot models, tighten wheel lug nuts after each filling of abrasive. For highway towable abrasive blasting pot models, tighten wheel lug nuts after the first 50 miles of use. Check wheel lug nut torque every 90 days. Failure to comply with the above warning could cause death or serious injury.

CAUTION

C-511

Do not transport trailer mounted abrasive blasting pots on transport devices with the wheel assemblies installed. The abrasive blasting pot may become unstable causing unintended movement and disengage from the transport device. Failure to comply with the above caution may result in minor or moderate injury.

- 1) Remove lug nuts and inspect for damage. Replace as needed.
- 2) Remove tire from hub.
- 3) Install parts in reverse order using the following special instructions:
 - Ensure tire is inflated to the tire manufacturer's recommended pressure. See sidewall of tire for recommended pressure.
 - Mount Tire and Wheel Assembly on Wheel Hub of Trailer.
 - Thread Lug Nut on to Stud (1). Thread remaining Lug Nuts on to Stud in the sequence shown. Tighten to hand tight.
 - Tighten Lug Nut on Stud (1) to 250 ft/lbs of torque. Repeat for remaining Lug Nuts in the sequence shown.
 - For Yard Trailer Blast Pot models, tighten Wheel Lug Nuts weekly. For Highway Trailer Blast Pot models, tighten Wheel Lug Nuts after the first 50 miles of use. Check Wheel Lug Nut torque every 90 days.



MAINTENANCE

Install Blastmaster® Pneumatic Closure Lockout Device

Maintenance of the Blastmaster® Pneumatic Closure Lockout Device is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Install:

- 1) Depressurize blast pot. See Pressurize & Depressurize Blast Pot.
- 2) Place Blastmaster® Pneumatic Closure Lockout Device (1) on camlock closure as shown.
- 3) Remove existing piping from Port (A).
- 4) Install Pipe Nipple (5) into Port (A).
- 5) Install Elbow with Side-out (4) onto Pipe Nipple (5).
- 6) Install Close Nipple (3) into Elbow with Side-out (4).
- 7) Install Pressure Indicating Ball Valve (2) onto Close Nipple (3).
- 8) Install Swivel Connector (6) into Elbow with Side-out (4).
- 9) Install Reducing Fitting (9) into 1/8" 90° Elbow (*not shown*).
- 10) Install Swivel Hose End (10) into Reducing Fitting (9)
- 11) Connect Air Hose (7) into Swivel Connector (6) and Swivel Hose End (10).
- 12) Ensure Pressure Indicating Ball Valve (2) is in the closed position, and pressurize blast pot. Verify Pneumatic Locking Piston (12) engages Latch Handle (8). Grasp Latch Handle and attempt to disengage from Blastmaster® Pneumatic Closure Lockout Device (1). The Latch Handle should not disengage.

⚠ WARNING

W-562

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

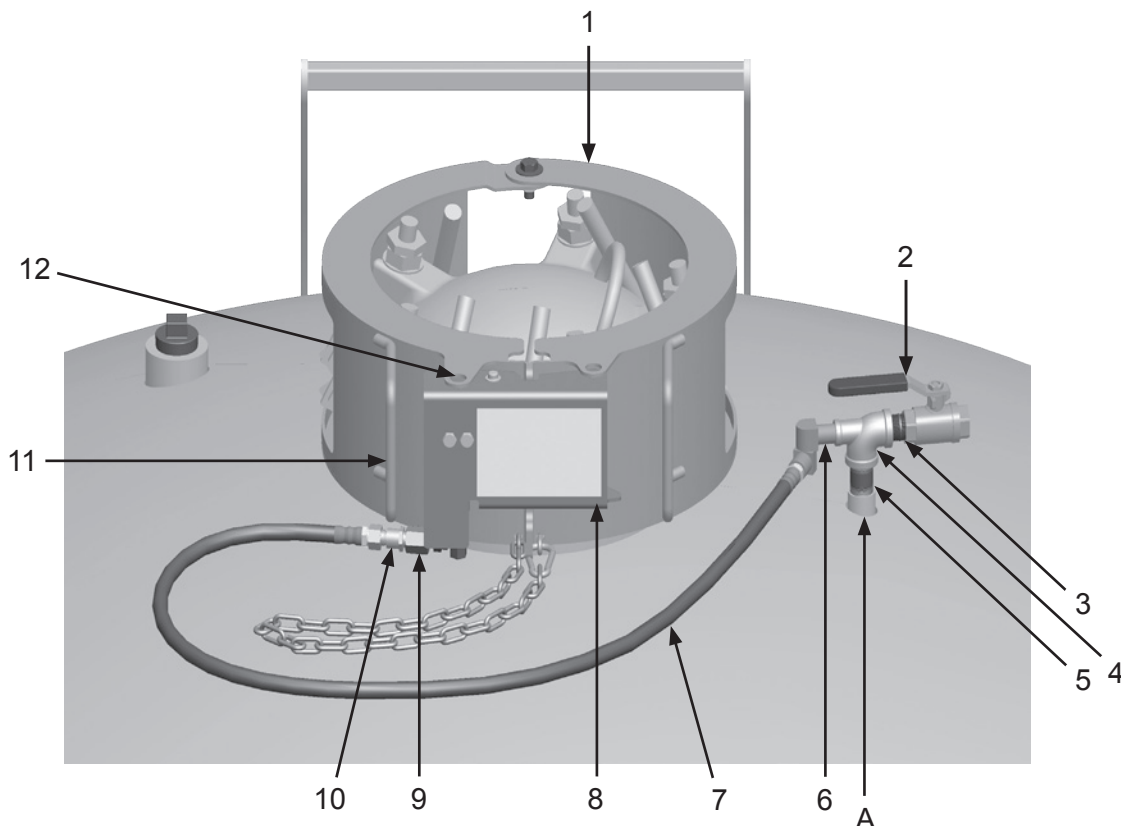
W-511

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⚠ WARNING

W-563

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.



MAINTENANCE

Remove & Install Clean-Out Flange

WARNING

W-562

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

W-548

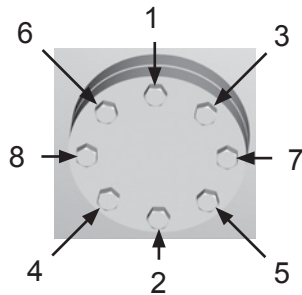
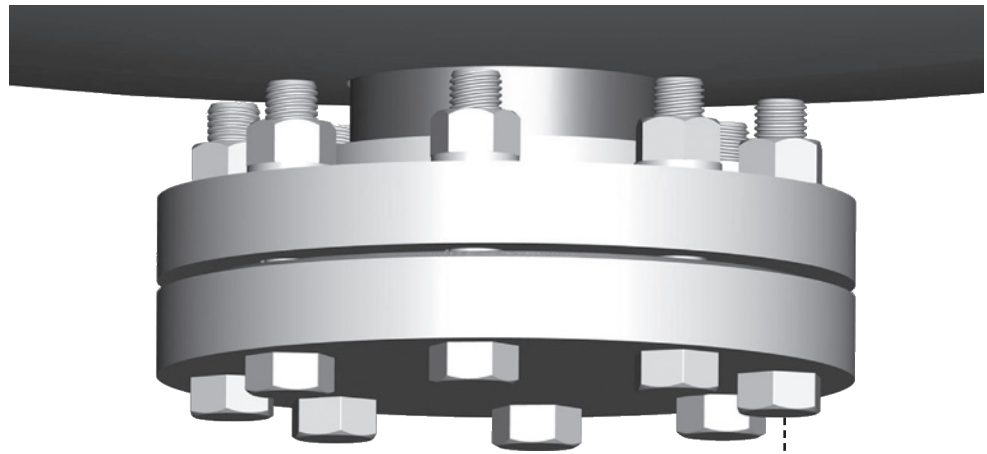
Do not remove Clean-out Flange Plate when the abrasive blasting pot is pressurized. Removal of the Clean-out Flange Plate while the abrasive blasting pot is pressurized could release high speed abrasive and compressed air. Failure to comply with the above warning could result in death or serious injury.

Maintenance of the Blastmaster® 160 cu. ft. Blast Pot is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

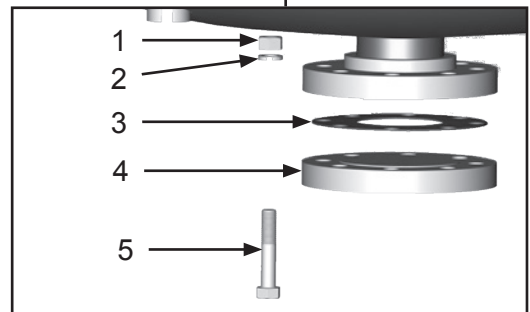
- 1) Depressurize blast pot. See Pressurize & Depressurize Blast Pot.
- 2) Loosen Nut (1) from Bolt (5). Do not remove Nut and Washer (2). Loosen remaining seven Nuts.
- 3) Remove Nut (1) and Washer (2) from Bolt (5). Repeat for remaining seven bolts.

Note: Abrasive will begin flowing from the vessel.

- 4) Remove Flange Plate (4) and Flange Gasket (3). Allow abrasive to empty from vessel.
- 5) Install parts in reverse order using the following special instructions:
 - Install Nut (1) on to Bolt and tighten to hand tight. Repeat for remaining seven bolts.
 - Tighten bolts in sequence shown.



Flange Assembly Sequence



MAINTENANCE

Remove & Install Blastmaster® Large Exhaust Muffler

Maintenance of the Blastmaster® Large Exhaust Muffler is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

WARNING

W-585

Release of high speed abrasive and moisture-laden compressed air that occurs during depressurization of an abrasive blasting pot could cause blockage of the Blastmaster® Large Exhaust Muffler. Any obstruction could cause incomplete depressurization of the abrasive blasting pot. Consult Original Equipment Manufacturer Operator's Manuals for proper use of equipment. Failure to comply with the above warning could result in death or serious injury.

WARNING

W-606

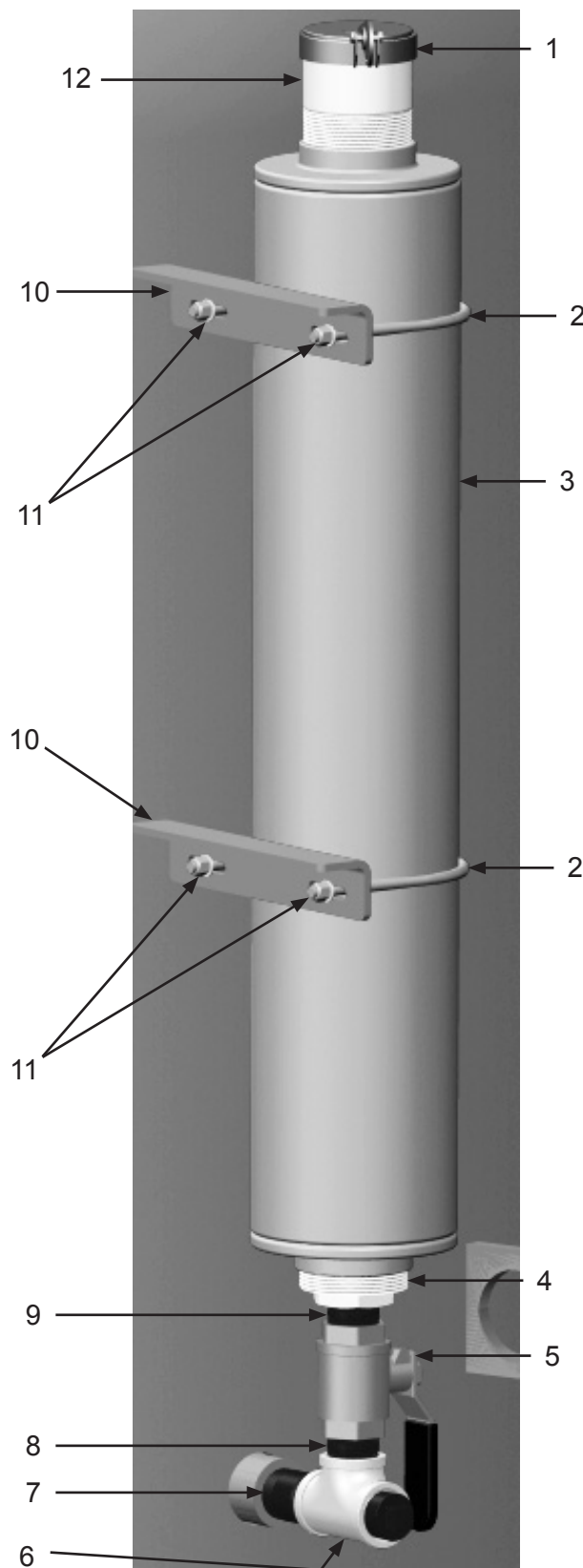
Worn exhaust ball valve, piping, and pipe fittings can fail during operation which can cause serious injury or death to operating personnel. Always replace worn or damaged components. Failure to comply with the above warning could result in death or serious injury.

CAUTION

C-501

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.

- 1) Remove Rain Cap (1) from Silencer Assembly (3).
- 2) Remove Toe Nipple (12).
- 3) Remove Nuts and Washers (11). Remove U-Bolts (2) from Mounting Brackets (10).
- 4) Remove Silencer Assembly (3) from Bushing (4).
- 5) Remove Bushing (4).
- 6) Remove Nipple (9).
- 7) Remove Ball Valve (5). Confirm that the ball valve handle turns open and closed without difficulty. Difficulty in turning the ball valve handle indicates grit contamination within the moving parts of the valve. If contamination is confirmed, replace ball valve.
- 8) Remove Nipple (8).
- 9) Remove Tee Fitting (6).
- 10) Remove Nipple (7).
- 11) Install parts in reverse order using the following special instructions:
 - Inspect the abrasive blaster pressure vessel coupling (A) for thread damage caused by wear or corrosion. If damage is found, remove the abrasive blaster from service and have it repaired by an authorized ASME Code repair shop.
 - If Ball Valve (5) is replaced, also replace Nipples (7,8) and Tee Fitting (6).



MAINTENANCE

Blastmaster® Bulk Bag Rack

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-511

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.

WARNING

W-505

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.

WARNING

W-580

Keep clear of Bulk Bag Rack Collars when lowering or raising Bulk Bag Rack into operating position. Do not attempt to guide the Bulk Bag Rack into position with the use of hands or feet. Failure to comply with the above warning could result in death or serious injury.

Before use:

- Place Lanyard Assembly (7) down into top opening of Bulk Bag Rack Collar (4). Ensure Split Ring (8) exits Hole (6) at base of Bulk Bag Rack Collar.
- Install Locking Pin (9) onto Lanyard Assembly (7) by threading Split Ring (8) through hinge on Locking Pin.

Installation:

- 1) Ensure Locking Pins (9) are not inserted in Bulk Bag Rack Collar Pin Holes (5).
- 2) Open hatch. See Pressurize & Depressurize Blast Pot.
- 3) Attach lifting device to Bulk Bag Rack Lifting Eyes (1), or use Fork Pockets, if equipped.
- 4) Raise and position Rack Legs (3) in Bulk Bag Rack Collars (4).
- 5) Insert Locking Pin (9) through Pin Holes (5) in Bulk Bag Rack Collar (4) and Rack Legs (3). Repeat on remaining three Bulk Bag Rack Collars.
- 6) Place Abrasive Bulk Bag (11) in Blastmaster® Bulk Bag Rack (10).
- 7) Secure Bulk Bag in position by placing Bulk Bag Lifting Loops (2) over Bulk Bag Rack Lifting Eyes (1).

After use:

- Remove Bulk Bag (11).
- Remove Locking Pins (9) from Bulk Bag Rack Collar Pin Holes (5).
- Attach lifting device to Bulk Bag Rack Lifting Eyes (1), or use Fork Pockets, if equipped.
- Raise Bulk Bag Rack out of Bulk Bag Rack Collars (4) and lower to the ground.
- Close hatch. See Pressurize & Depressurize Blast Pot.

MAINTENANCE

⚠ WARNING

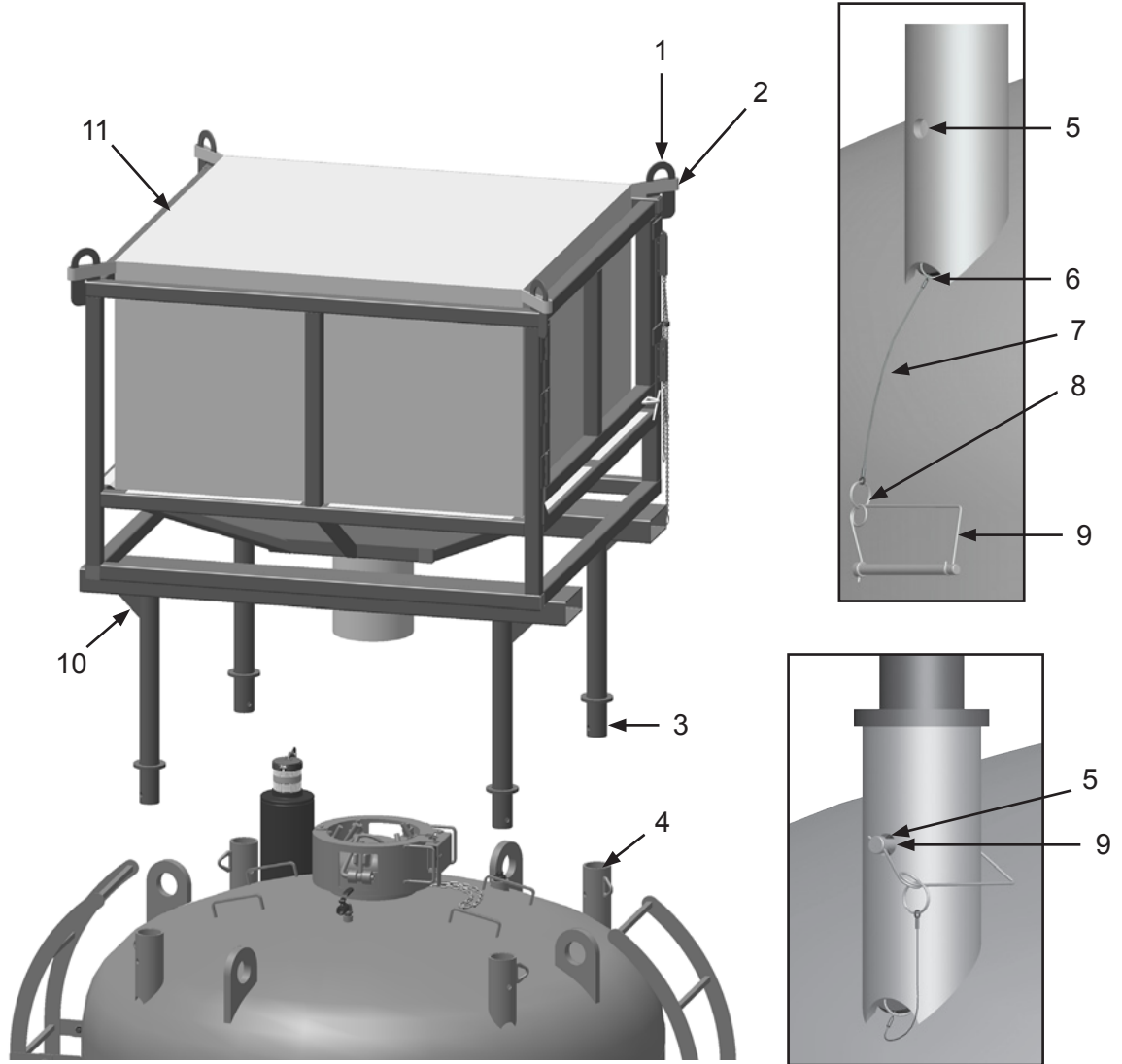
W-581

Always remove any locking device securing the bulk bag rack before attempting removal. Do not use the installed bulk bag rack as a lifting device for the blast pot. Lifting a blast pot using the bulk bag rack can cause the blast pot to become unstable and damage components. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-582

Do not transport abrasive blasting pot with bulk bag rack installed. Transporting abrasive blasting pot with bulk bag rack installed could cause the abrasive blasting pot to become unstable or allow the bulk bag rack to become disengaged from the abrasive blasting pot. Failure to comply with the above warning could result in death or serious injury.



Weight:

620 pounds

Overall Dimensions:

Length: 62"

Width: 60"

Height: 80"

MAINTENANCE

Remove & Install Moisture Separator Assembly

WARNING

W-562

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.

NOTICE

N-519

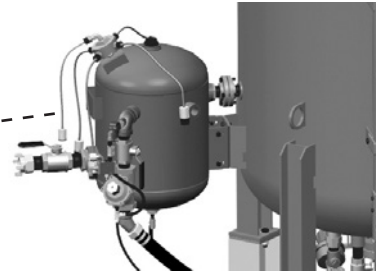
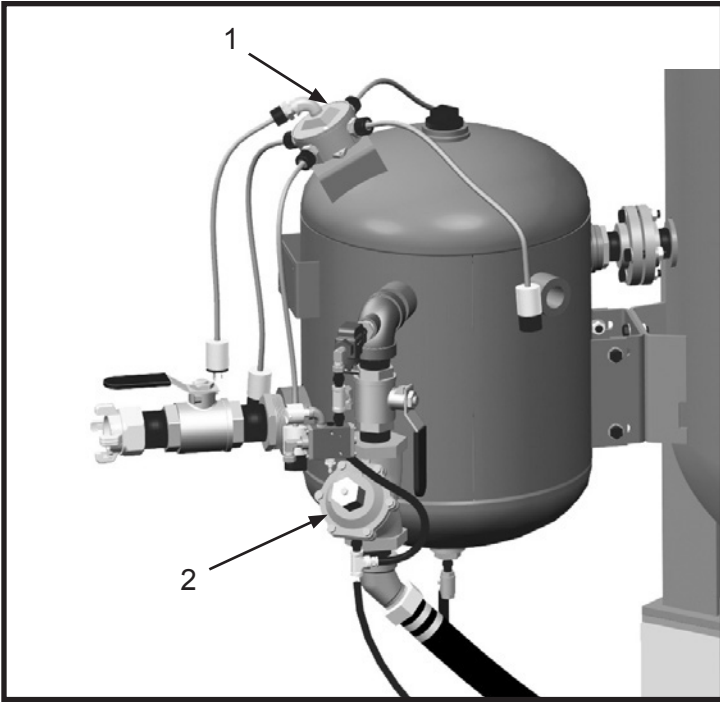
Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

- 1) Depressurize the system.
- 2) Remove Remote Control System (1) (see Remove & Install Blastmaster® 130P Remote Control System or Remove & Install Blastmaster® 130E Remote Control System).
- 3) Remove Power Distribution Unit (2).
- 4) Remove 4-Lug Air Hose Fitting (21), Nipple (20), Ball Valve (22), Nipple (19) and Bushing (18).
- 5) Remove Ball Valve (15), Nipple (16), Bushing (14) and Plug (3).
- 6) Remove Nipples (17), Ball Valves (27), Nipples (23), Elbows (24) and Nipples (25).
- 7) Remove four Bolts, Nuts, Washers and Lock Washers (7).
- 8) Remove four Bolts, Nuts, Washers and Lock Washers (13).
- 9) Remove Moisture Separator (26), Bushing (4), Nipple (5), Flange (6) and Gasket (8).
- 10) Remove Flange (11) and Nipple (9).
- 11) Remove four Bolts, Nuts, Washers and Lock Washers (10).
- 12) Remove Bracket (12).
- 13) Install parts in reverse order.

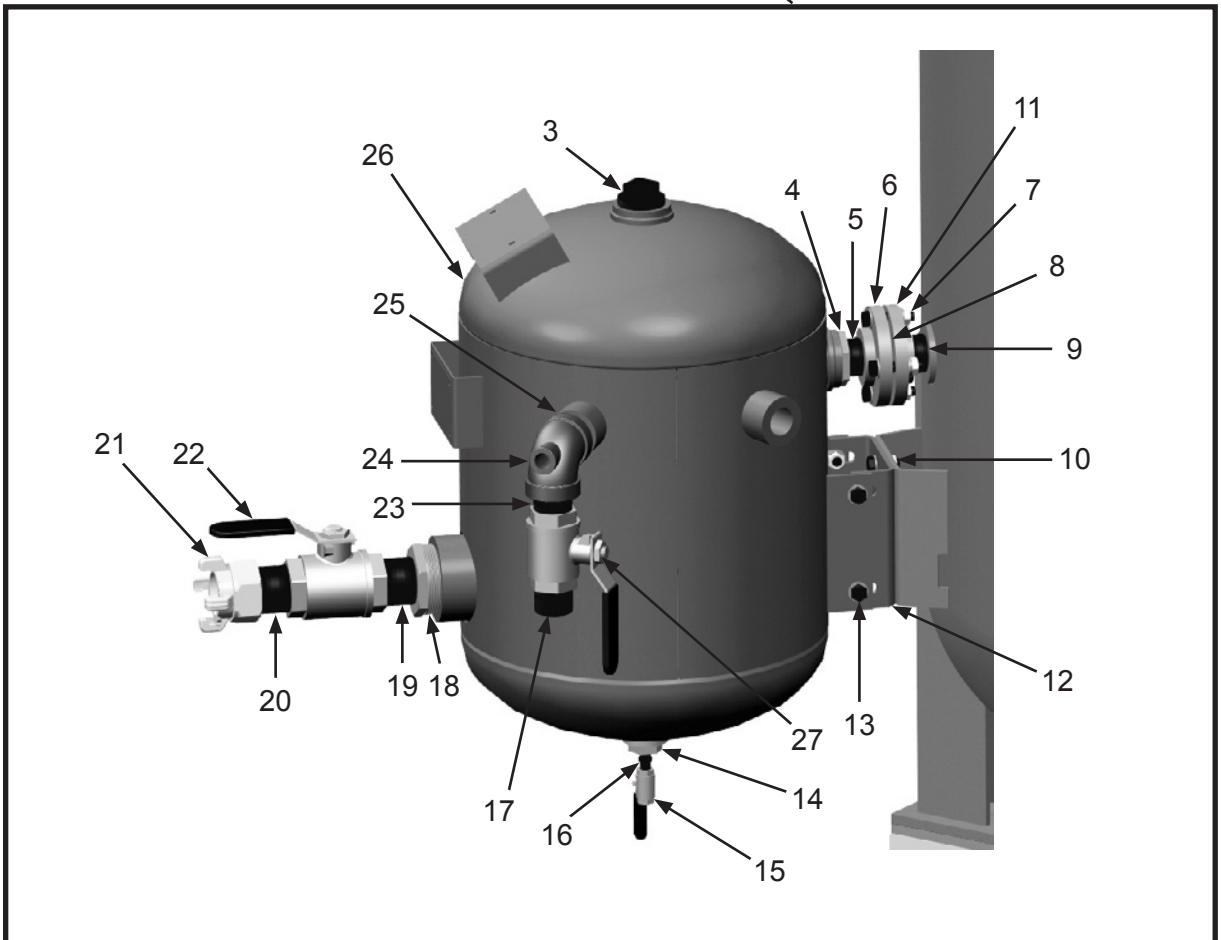
Note: Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

MAINTENANCE

Remove & Install Moisture Separator Assembly (cont.)



Pneumatic Shown



MAINTENANCE

Remove & Install GateKeeper Air Valve

WARNING

W-562

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.

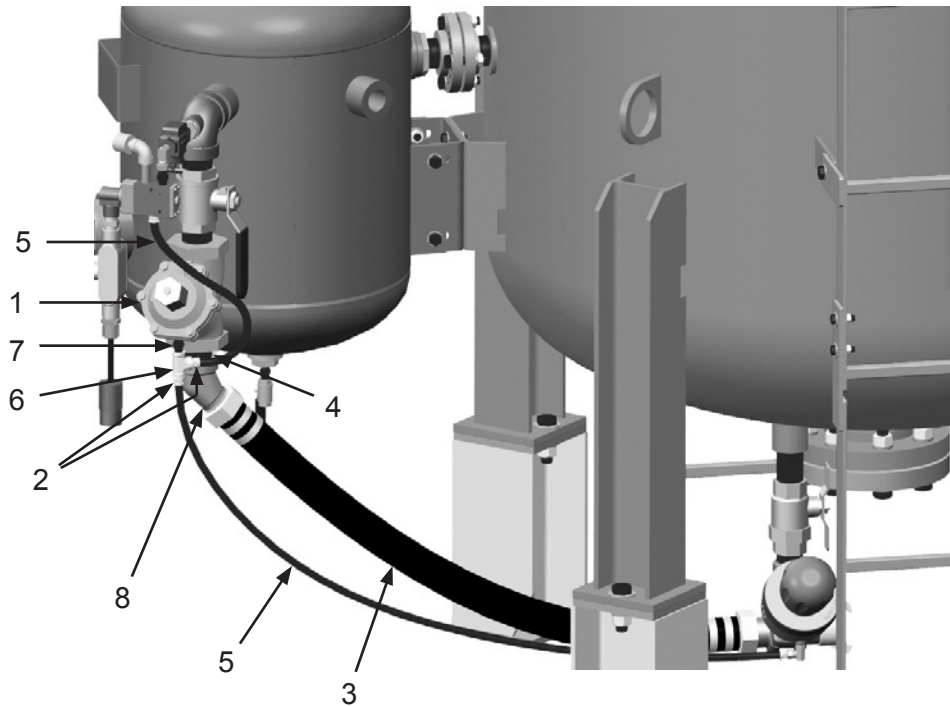
NOTICE

N-519

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

- 1) Depressurize the system.
- 2) Disconnect Pusher Assembly (3) from Elbow (8).
- 3) Remove Elbow (8) and Nipple (4).
- 4) Remove Control Lines (5), Tee (6), Nipple (7) and Fittings (2).
- 5) Remove GateKeeper Air Valve (1).
- 6) Install parts in reverse order.

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



Electric Shown

MAINTENANCE

Remove & Install Blastmaster® Maxum III Abrasive Metering Valve

WARNING

W-562

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.

NOTICE

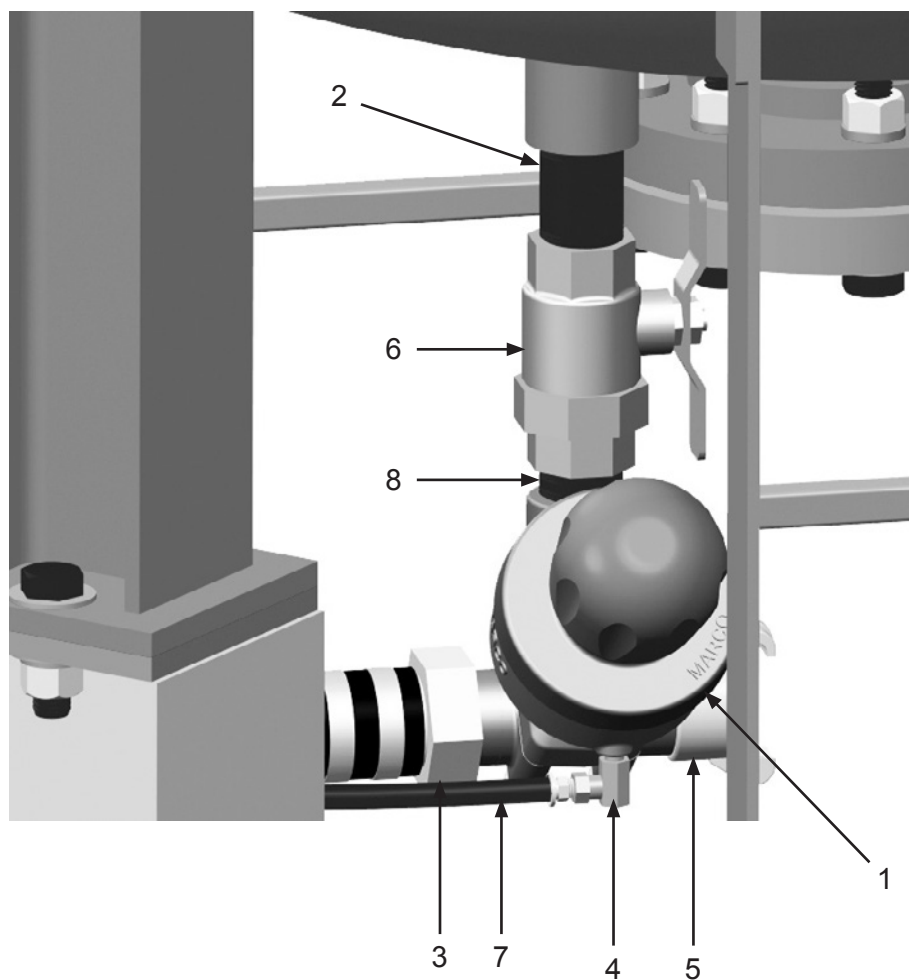
N-519

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

- 1) Depressurize the system and empty tank.
- 2) Disconnect Pusher Assembly (3) from Metering Valve (1).
- 3) Disconnect Control Line (7) and Fitting (4).
- 4) Remove Tank Coupling (5).
- 5) Remove Metering Valve (1), Nipple (8), Valve (6) and Nipple (2).
- 6) Install parts in reverse order.

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

Note: A Minimum Distance of 14" from exit port of blast pot to the ground is required for proper installation of the Blastmaster® Maxum III Abrasive Metering Valve.



MAINTENANCE

Remove & Install Blastmaster® 130P Remote Control System

WARNING

W-562

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

W-572

The Blastmaster® 130 Remote Control System is to be used in conjunction with a normally-closed, air-actuated abrasive metering valve. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury.

WARNING

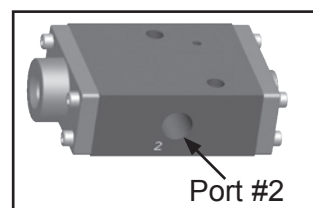
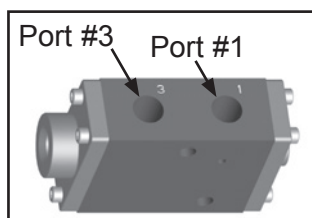
W-506

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)

- 1) Depressurize the system.
- 2) Remove GateKeeper Air Valve (1) (see Remove and Install GateKeeper Air Valve).
- 3) Remove Bushing (2), Nipple (3), Watts Strainer (4) and Fittings (8).
- 4) Remove Nipples (10), Tee (9), Solenoid (7), Dust Eliminator (5) and Elbow (6).
- 5) Install parts in reverse order.

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

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



MAINTENANCE

Remove & Install Blastmaster® 130P Remote Control System (cont.)

⚠ WARNING

W-562

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

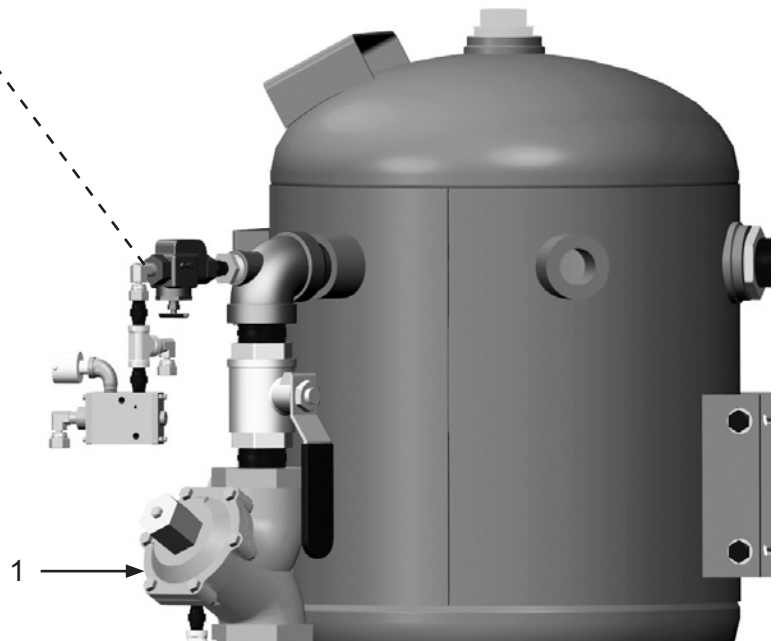
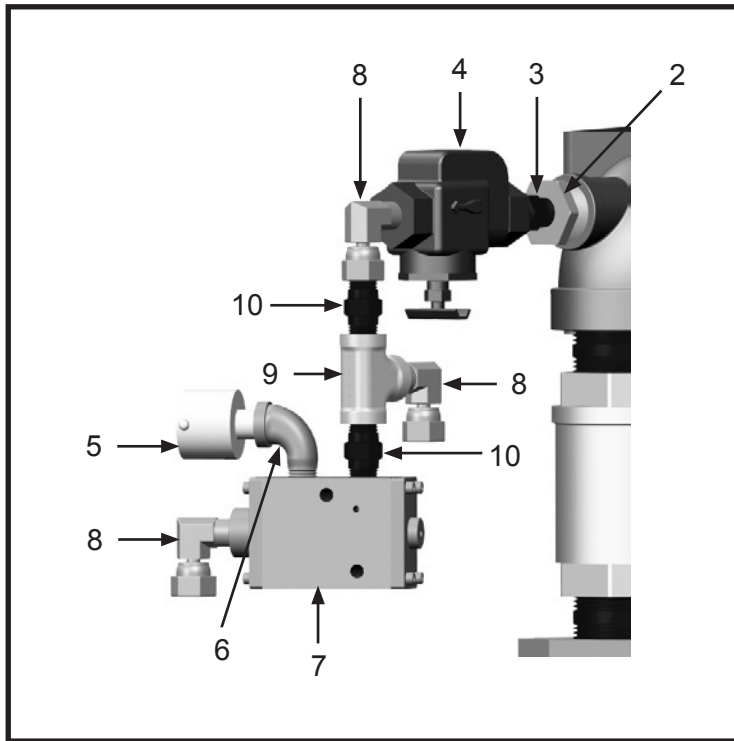
W-572

The Blastmaster® 130 Remote Control System is to be used in conjunction with a normally-closed, air-actuated abrasive metering valve. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury.

⚠ WARNING

W-506

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)



MAINTENANCE

Remove & Install Blastmaster® 130E Remote Control System

WARNING

W-562

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

W-572

The Blastmaster® 130 Remote Control System is to be used in conjunction with a normally-closed, air-actuated abrasive metering valve. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury.

WARNING

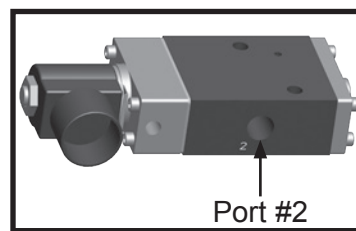
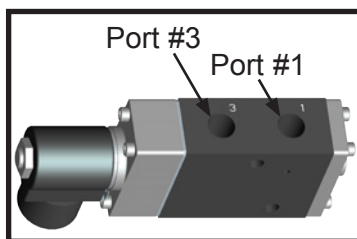
W-506

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)

- 1) Depressurize the system.
- 2) Remove GateKeeper Air Valve (1) (see Remove and Install GateKeeper Air Valve).
- 3) Remove Bushing (2), Nipple (3), Watts Strainer (4) and Fitting (6).
- 4) Remove Nipples (5,9), Dust Eliminator (10), Elbow (8) and Solenoid (7).
- 5) Install parts in reverse order.

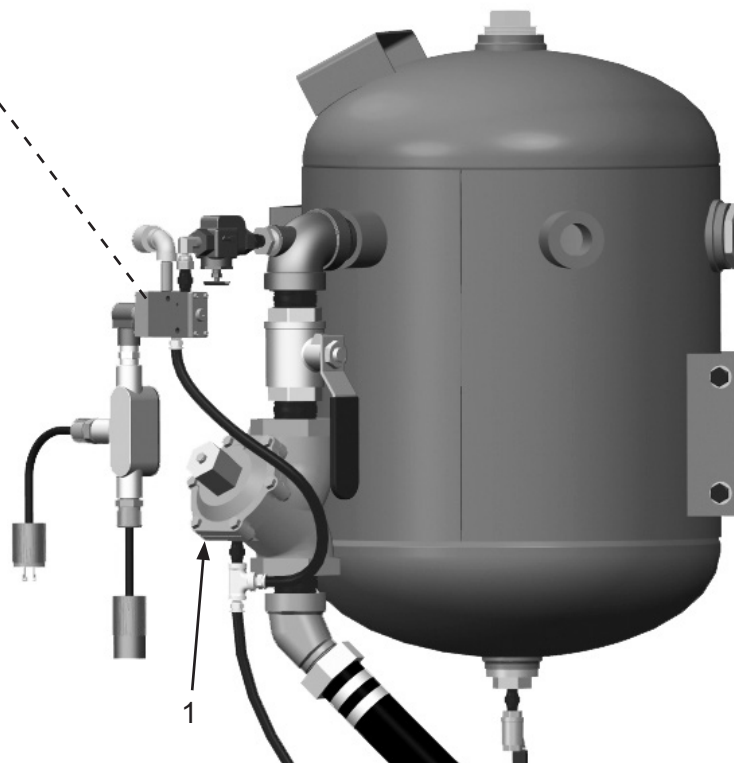
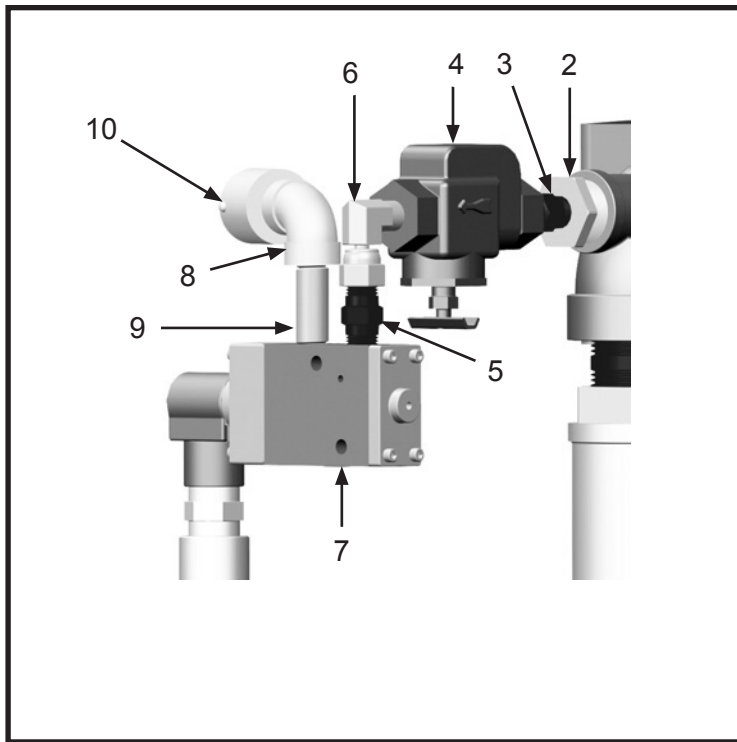
Note: Apply pipe thread sealant to all pipe threads to ensure an airtight seal.

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



MAINTENANCE

Remove & Install Blastmaster® 130E Remote Control System (cont.)



MAINTENANCE

Disassemble and Assemble Blastmaster® Camlock Closure Lockout Device

WARNING

W-562

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

W-563

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

W-564

Read, understand, and follow 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.

Maintenance of the Blastmaster® Camlock Closure Lockout Device is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Disassembly:

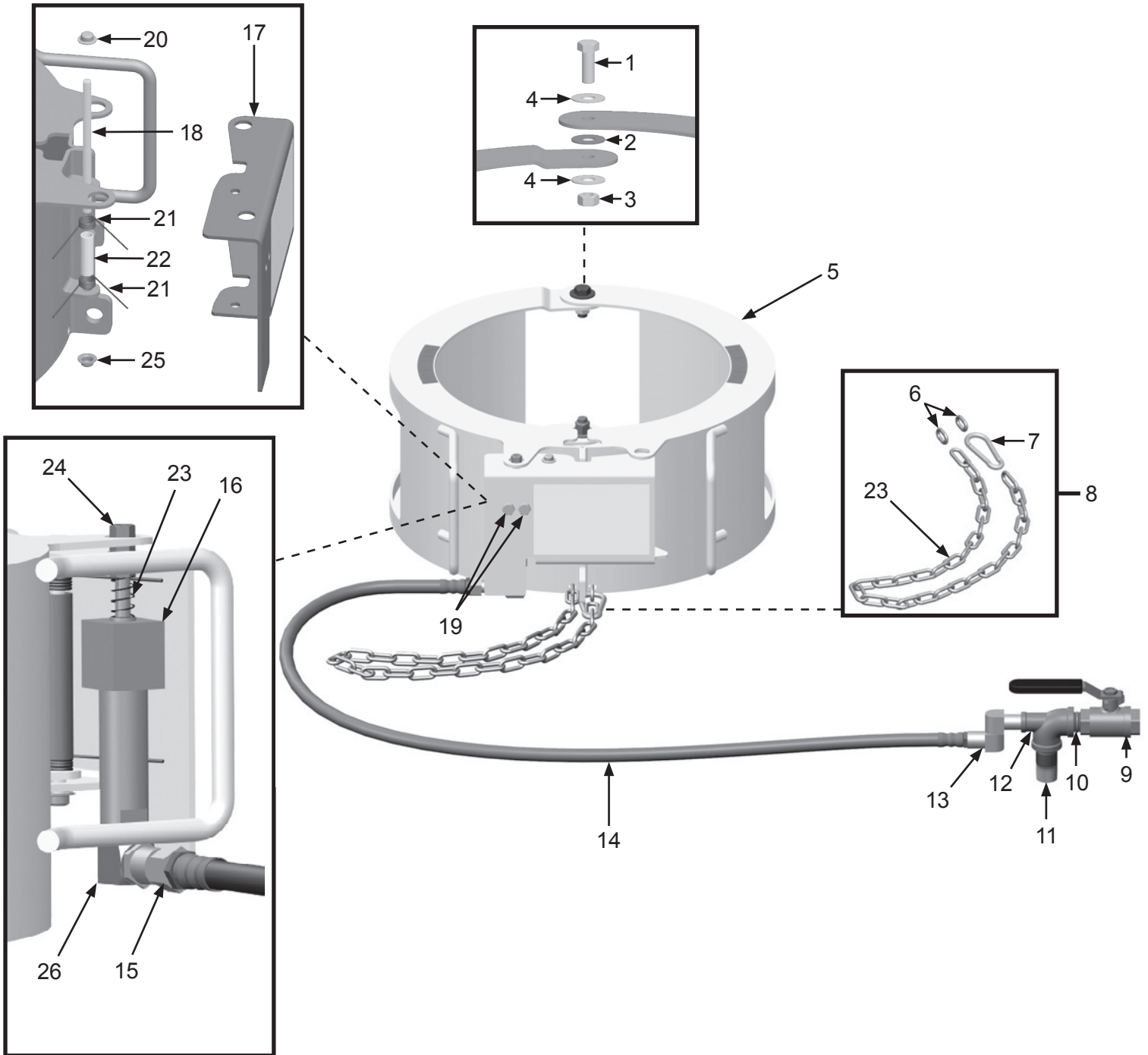
- 1) Disconnect Air Hose (14) from Swivel Hose End (15).
- 2) Disconnect Air Hose (14) from Swivel Connector (13).
- 3) Remove Camlock Closure Lockout Device from blast pot.
- 4) Disconnect Carabiner (7) from Split Link (6), and remove from Chain (23).
- 5) Pry Split Links (6) apart, and remove split links and Chain (23).
- 6) Remove two Bolts (19), Coupling Nut (24), Spring (23), Street Elbow (26) and Bimba Cylinder (16).
- 7) Disengage Latch Handle (17).
- 8) Remove Cap Nut (20), Latch Pin (18), Torsion Springs (21), Spacer (22), and Latch Handle (17).
- 9) Remove Cap Nut (25) from Latch Pin (18).
- 10) Remove Nut (3), two Washers (4), Nylon Washer (2), and Bolt (1) from upper pivot point. Repeat for lower pivot point.
- 11) Remove Pressure Indicating Ball Valve (9), Close Nipple (10), and Swivel Connector (13) from Elbow with Side-out (12).
- 12) Remove Elbow with Side-out (12) and Pipe Nipple (11) from blast pot.

Assembly:

- 1) Install Elbow with Side-out (12) and Pipe Nipple (11) to blast pot.
- 2) Install Pressure Indicating Ball Valve (9), Close Nipple (10), and Swivel Connector (13) to Elbow with Side-out (12).
- 3) Install Nylon Washer (2), Bolt (1), two Washers (4), and Nut (3) in upper pivot point. Do not tighten. Repeat for lower pivot point, and tighten Nuts (3).
- 4) Install Cap Nut (25) on Latch Pin (18).
- 5) Align Latch Handle (17) with brackets and insert Latch Pin (18) through Latch Handle (17) and lower bracket. Install two Torsion Springs (21) and Spacer (22) on Latch Pin (18) and insert Latch Pin through upper bracket.
- 6) Install Cap Nut (20) on Latch Pin (18).
- 7) Install Coupling Nut (24), Spring (23), Street Elbow (26) and Bimba Cylinder (16) using two Bolts (19).
- 8) Install Chain (23) on Split Link (6).
- 9) Install Split Links (6) onto bracket. Close Split Links (6).
- 10) Install Carabiner (7) on Chain (23).
- 11) Engage Latch Handle (17). Ensure latch handle moves freely, and seats properly.
- 12) Install Camlock Closure Lockout Device onto blast pot. See Install Blastmaster® Camlock Closure Lockout Device.
- 13) Connect Air Hose (14) to Swivel Hose End (15).
- 14) Connect Air Hose (14) to Swivel Connector (13).

MAINTENANCE

Disassemble and Assemble Blastmaster® Camlock Closure Lockout Device (Cont.)



MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve

Maintenance of the Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve is limited to daily cleaning and immediate replacement of damaged or worn parts.

WARNING

W-562

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

W-563

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

W-529

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.

Disassemble:

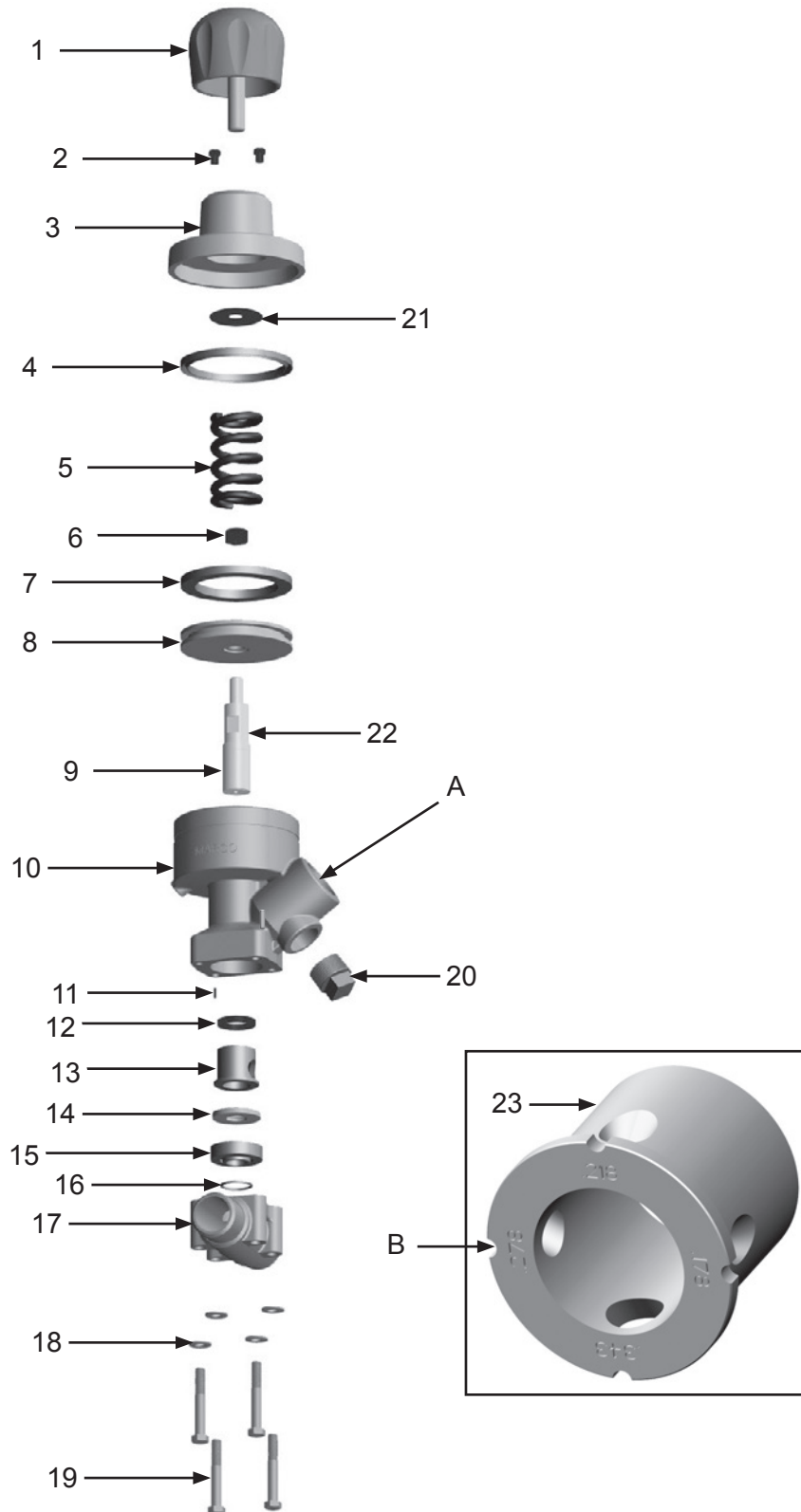
- 1) Remove Knob (1) from Cap (3) by turning counter-clockwise.
- 2) Remove two 1/8" Breather Mufflers (2) from Cap (3)
- 3) Remove Bolts (19), Washers (18) and Base (17) from Body (10).
- 4) Remove O-ring (16), Seat (15), Insert (14), and Metering Sleeve (13) from Body (10). If using Multi-port Sleeve, record the size of orifice positioned toward opening A to aid in assembly.
- 5) Using a strap wrench, remove Cap (3) by turning counter-clockwise. There will be tension on the Cap from Spring (5).
- 6) Remove Spring (5), Bump Ring (4) and Vibration Disc (21) from Body (10).
- 7) To remove Piston (8), push Plunger (9) through Body (10).
- 8) Remove Pipe Plug (20) from Body (10).
- 9) Remove Plunger Seal (12).
- 10) Remove Groove Pin (11) from Body (10).
- 11) Remove Piston (8) from Plunger (9) by placing wrench on rectangular Grooves (22) on Plunger and remove Nut (6).
- 12) Remove Piston Seal (7) from Piston (8).

Assemble:

- 1) Install Piston Seal (7) in groove in Piston (8). Ensure open side of Piston Seal is facing flat side of Piston.
- 2) Place threaded end of Plunger (9) in center hole through bottom of Piston (8). Thread Nut (6) on Plunger. Place a wrench on rectangular Grooves (22) on Plunger and tighten Nut to 70 foot/pounds.
- 3) Lightly lubricate Piston Seal (7) and Body (10) walls with white lithium grease. With Nut (6) facing up, place Piston Assembly in Body.
- 4) Install Groove Pin (11) in recess. With inner O-ring of Plunger Seal (12) facing up, slide Plunger Seal over Plunger and seat in recess of Body (10).
- 5) Align notch in Tungsten Carbide Sleeve (13) with Groove Pin (11). Place Tungsten Carbide Sleeve on Plunger (9). If Multi-port Sleeve (23) is used, align selected orifice with opening (A). Groove (B) opposite of selected orifice will seat on Groove Pin (11).
- 6) Place Seat (14) in top of Insert (15) with beveled side up. Place O-ring (16) in recess on the bottom of Insert. Place assembly on Body (10), aligning with Tungsten Carbide Sleeve (13).
- 7) Install Base (17) on Body (10) using Washer (18) and Bolt (19). Tighten to hand tight. Repeat for each bolt.
- 8) Install Vibration Disc (21) into Cap (3).
- 9) Apply light film of white lithium grease on all sides of Bump Ring (4) and place on Piston (8).
- 10) Place Spring (5) in Cap (3) and thread onto Body (10). Using a strap wrench, install Cap onto Body, there will be tension from Spring.
- 11) Tighten Bolts (19) to 30 foot/pounds.
- 12) Install two 1/8" Breather Mufflers (2) into Cap (3).
- 13) Install Pipe Plug (20).
- 14) Thread Knob (1) into Cap (3).

MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve (cont.)



MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Urethane Sleeve

Maintenance of the Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve is limited to daily cleaning and immediate replacement of damaged or worn parts.

WARNING

W-562

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

W-563

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

W-529

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.

Disassemble:

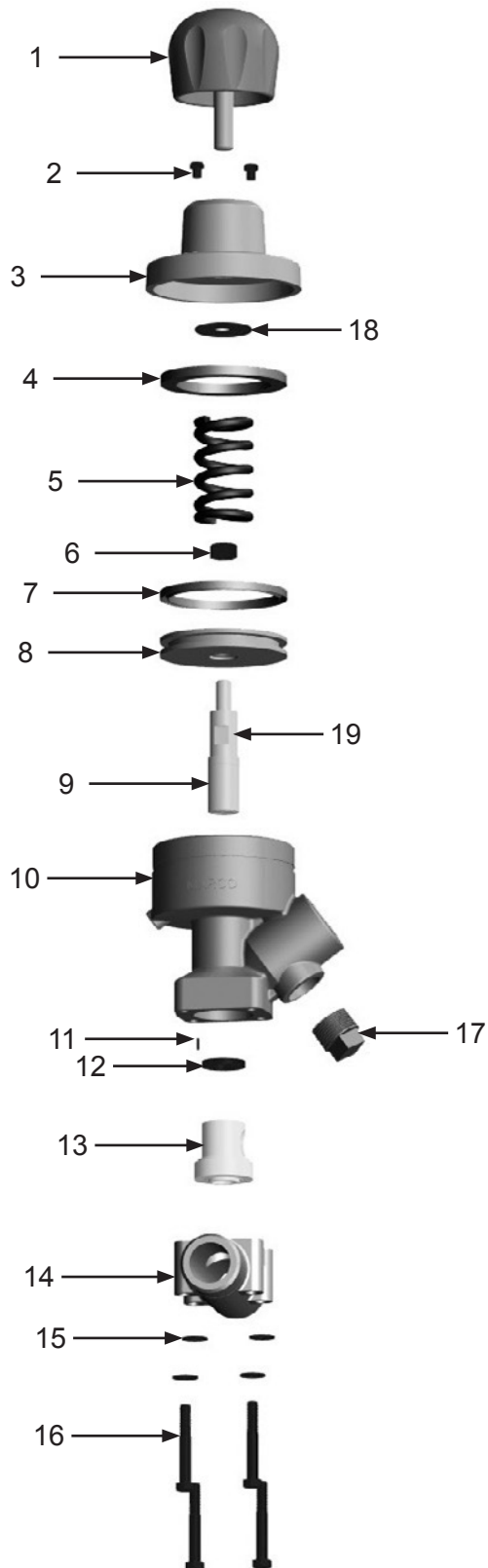
- 1) Remove Knob (1) from Cap (3) by turning counter-clockwise.
- 2) Remove two 1/8" Breather Mufflers (2) from Cap (3).
- 3) Remove Bolts (16), Washers (15) and Base (14) from Body (10).
- 4) Remove Urethane Sleeve (13) from Body (10).
- 5) Using a strap wrench, remove Cap (3) by turning counter-clockwise. There will be tension on the Cap from Spring (5).
- 6) Remove Spring (5), Bump Ring (4) and Vibration Disc (18) from Body (10).
- 7) To remove Piston (8), push Plunger (9) through Body (10).
- 8) Remove Plunger Seal (12).
- 9) If damaged, remove Groove Pin (11) from Body (10).
- 10) Remove Pipe Plug (17) from Body (10).
- 11) Remove Piston (8) from Plunger (9) by placing a wrench on the rectangular grooves on Plunger and remove Nut (6).
- 12) Remove Piston Seal (7) from Piston (8).

Assemble:

- 1) Install Piston Seal (7) in groove in Piston (8). Ensure open side of Piston Seal is facing flat side of Piston.
- 2) Place threaded end of Plunger (9) in center hole through bottom of Piston (8). Thread Nut (6) on Plunger. Place a wrench on rectangular grooves on Plunger and tighten Nut to 70 foot/pounds.
- 3) Lightly lubricate Piston Seal (7) and Body (10) walls with white lithium grease. With Nut (6) facing up, place Piston (8) and Plunger (9) Assembly in Body.
- 4) Install Groove Pin (11) in recess. With inner O-ring of Plunger Seal (12) facing up, slide Plunger Seal over Plunger and seat in recess of Body (10).
- 5) Align notch in Urethane Sleeve (13) with Groove Pin (11). Place Urethane Sleeve on Plunger (9).
- 6) Install Base (14) on Body (10) using Washer (15) and Bolt (16). Tighten to hand tight. Repeat for each bolt.
- 7) Install Vibration Disc (18) into Cap (3).
- 8) Apply light film of white lithium grease on all sides of Bump Ring (4) and place on Piston (8).
- 9) Place Spring (5) in Cap (3) and thread Cap onto Body (10). Using a strap wrench, tighten Cap onto Body, there will be tension from Spring.
- 10) Tighten Bolts (16) to 30 foot/pounds.
- 11) Install two 1/8" Breather Mufflers (2) into Cap (3).
- 12) Install Pipe Plug (17).
- 13) Thread Knob (1) into Cap (3).

MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Urethane Sleeve (cont.)



MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve — 2”

Maintenance of the Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve is limited to daily cleaning and immediate replacement of damaged or worn parts.

WARNING

W-562

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

W-563

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

W-529

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.

Disassemble:

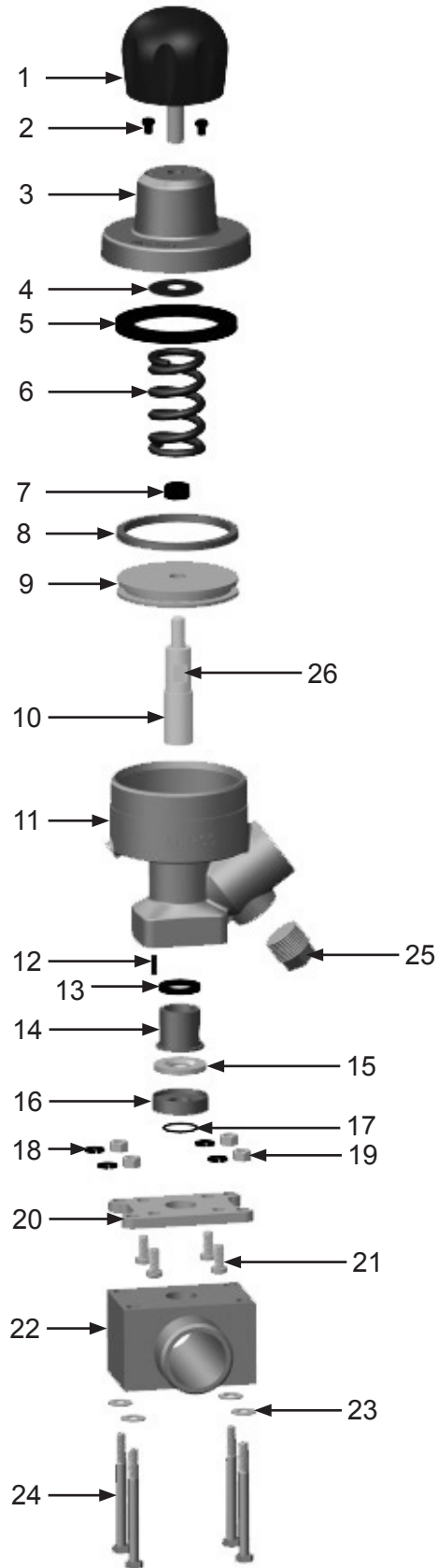
- 1) Remove Knob (1) from Cap (3) by turning counter-clockwise.
- 2) Remove two 1/8" Breather Mufflers (2) from Cap (3)
- 3) Remove Bolts (24), Washers (23), Lock Washers (18), Nuts (19) and Base (22).
- 4) Remove Cap Screws (21) and Adapter Plate (20).
- 5) Remove O-ring (17), Seat (16), Insert (15), and Tungsten Carbide Sleeve (14) from Body (11).
- 6) Using a strap wrench, remove Cap (3) by turning counter-clockwise. There will be tension on the Cap from Spring (6).
- 7) Remove Spring (6), Bump Ring (5) and Vibration Disc (4) from Body (11).
- 8) To remove Piston (9), push Plunger (10) through Body (11).
- 9) Remove Pipe Plug (25) from Body (11).
- 10) Remove Plunger Seal (13).
- 11) Remove Groove Pin (12) from Body (11).
- 12) Remove Piston (9) from Plunger (10) by placing wrench on rectangular Grooves (26) on Plunger and remove Nut (7).
- 13) Remove Piston Seal (8) from Piston (9).

Assemble:

- 1) Install Piston Seal (8) in groove in Piston (9). Ensure open side of Piston Seal is facing flat side of Piston.
- 2) Place threaded end of Plunger (10) in center hole through bottom of Piston (9). Thread Nut (7) on Plunger. Place a wrench on rectangular Grooves (26) on Plunger and tighten Nut to 70 foot/pounds.
- 3) Lightly lubricate Piston Seal (8) and Body (11) walls with white lithium grease. With Nut (7) facing up, place Piston (9) and Plunger (10) in Body.
- 4) Install Groove Pin (12) in recess. With inner O-ring of Plunger Seal (13) facing up, slide Plunger Seal over Plunger and seat in recess of Body (11).
- 5) Align notch in Tungsten Carbide Sleeve (14) with Groove Pin (12). Place Tungsten Carbide Sleeve on Plunger (10).
- 6) Place Seat (15) in top of Insert (16) with beveled side up. Place O-ring (17) in recess on bottom of Insert. Place assembly on Body (11), aligning with Tungsten Carbide Sleeve (14).
- 7) Install Cap Screws (21) and Adapter Plate (20) to Body (11).
- 8) Install Base (22) on Adapter Plate (20) using Bolts (24), Lock Washers (18), Washers (23), and Nuts (19).
- 9) Install Vibration Disc (4) into Cap (3).
- 10) Apply light film of white lithium grease on all sides of Bump Ring (5) and place on Piston (9).
- 11) Place Spring (6) in Cap (3) and thread onto Body (11). Using a strap wrench, install Cap onto Body, there will be tension from Spring.
- 12) Tighten Bolts (24) to 30 foot/pounds.
- 13) Install two 1/8" Breather Mufflers (2) into Cap (3).
- 14) Install Pipe Plug (25).
- 15) Thread Knob (1) into Cap (3).

MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve — 2" (cont.)



MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Urethane Sleeve — 2”

Maintenance of the Blastmaster® Maxum III Abrasive Metering Valve – Tungsten Carbide Sleeve is limited to daily cleaning and immediate replacement of damaged or worn parts.

Disassemble:

- 1) Remove Knob (1) from Cap (3) by turning counter-clockwise.
- 2) Remove two 1/8" Breather Mufflers (2) from Cap (3)
- 3) Remove Bolts (20), Washers (19), Lock Washers (15), Nuts (14) and Base (18).
- 4) Remove Cap Screws (17) and Adapter Plate (16).
- 5) Remove Urethane Sleeve (13) from Body (10).
- 6) Using a strap wrench, remove Cap (3) by turning counter-clockwise. There will be tension on the Cap from Spring (6).
- 7) Remove Spring (6), Bump Ring (5) and Vibration Disc (4) from Body (11).
- 8) To remove Piston (9), push Plunger (10) through Body (11).
- 9) Remove Pipe Plug (21) from Body (11).
- 10) Remove Plunger Seal (12).
- 11) Remove Groove Pin (22) from Body (11).
- 12) Remove Piston (9) from Plunger (10) by placing wrench on rectangular Grooves (23) on Plunger and remove Nut (7).
- 13) Remove Piston Seal (8) from Piston (9).

Assemble:

- 1) Install Piston Seal (8) in groove in Piston (9). Ensure open side of Piston Seal is facing flat side of Piston.
- 2) Place threaded end of Plunger (10) in center hole through bottom of Piston (9). Thread Nut (7) on Plunger. Place a wrench on rectangular grooves on Plunger and tighten Nut to 70 foot/pounds.
- 3) Lightly lubricate Piston Seal (8) and Body (11) walls with white lithium grease. With Nut (7) facing up, place Piston (9) and Plunger (10) in Body.
- 4) Install Groove Pin (22) in recess. With inner O-ring of Plunger Seal (13) facing up, slide Plunger Seal over Plunger and seat in recess of Body (11).
- 5) Align notch in Urethane Sleeve (13) with Groove Pin (22). Place Urethane Sleeve on Plunger (10).
- 6) Install Cap Screws (17) and Adapter Plate (16) to Body (11).
- 7) Install Bolts (20), Washers (19), Lock Washers (15), Nuts (14) and Base (18) to Adapter Plate (16).
- 8) Apply light film of white lithium grease on all sides of Bump Ring (5) and place on Piston (9).
- 9) Place Spring (6) in Cap (3) and thread onto Body (11). Using a strap wrench, install Cap onto Body, there will be tension from Spring.
- 10) Tighten Bolts (20) to 30 foot/pounds.
- 11) Install two 1/8" Breather Mufflers (2) into Cap (3).
- 12) Install Pipe Plug (21).
- 13) Thread Knob (1) into Cap (3).

WARNING

W-562

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

W-563

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.

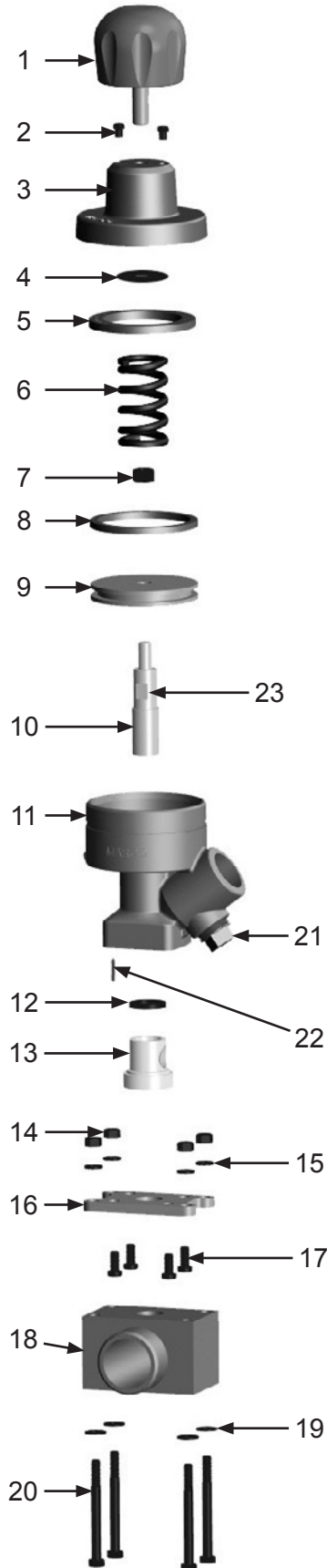
WARNING

W-529

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.

MAINTENANCE

Disassemble and Assemble Blastmaster® Maxum III Abrasive Metering Valve – Urethane Sleeve — 2” (cont.)



MAINTENANCE

Disassemble and Assemble GateKeeper Air Valve

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

WARNING

W-562

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

W-563

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

W-529

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

N-522

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

Disassemble:

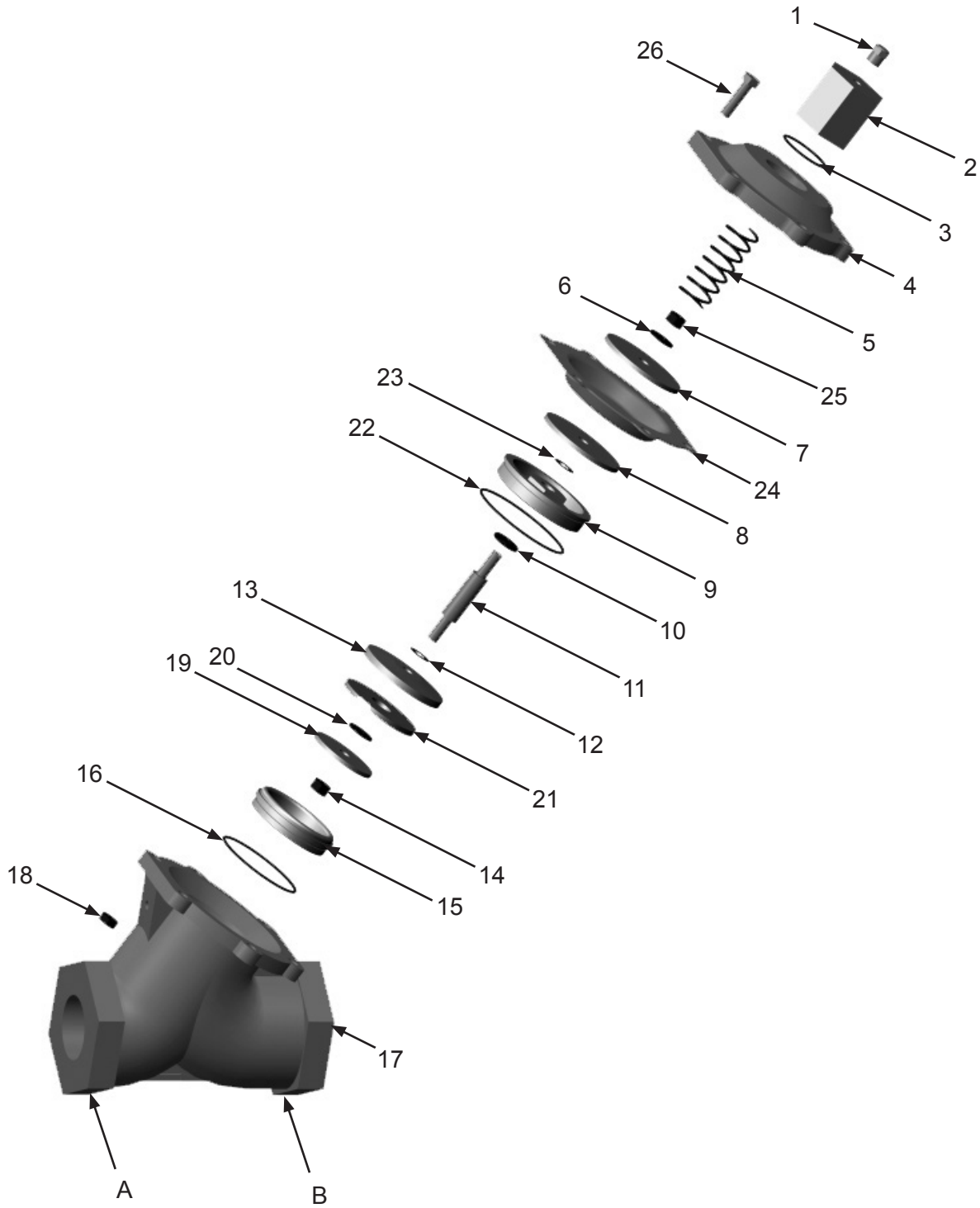
- 1) Remove 1/8" Breather Muffler (1) from Spring Retainer (2).
- 2) Remove Spring Retainer (2) by turning counter-clockwise. There will be tension on the Spring Retainer from Spring (5) as it is removed. Remove Spring Retainer O-ring (3) and Spring.
- 3) Remove four Bolts (26) and Nuts (18).
- 4) Remove 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).

MAINTENANCE

Disassemble and Assemble GateKeeper Air Valve (cont.)



MAINTENANCE

Disassemble and Assemble Pneumatic Solenoid

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

WARNING

W-562

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

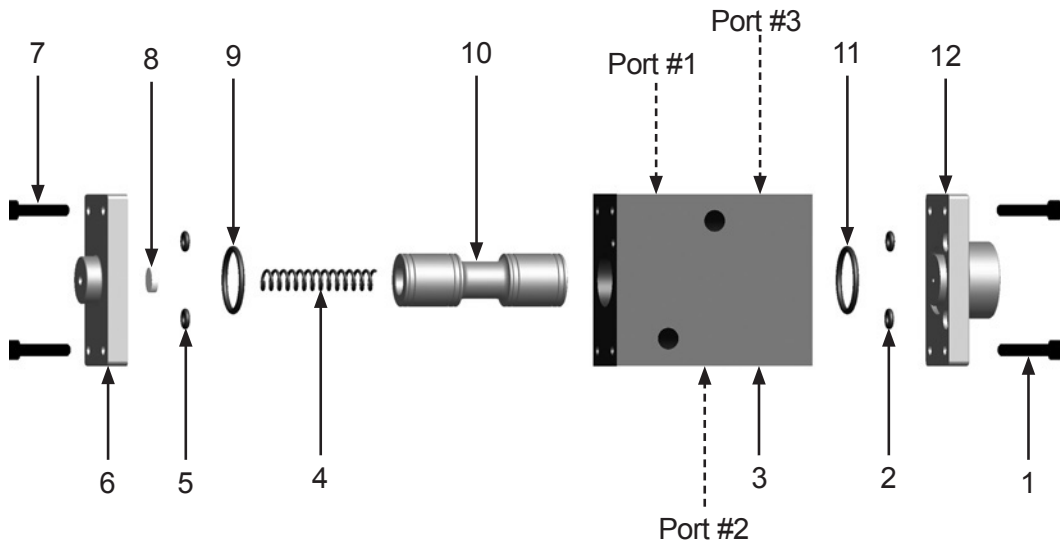
W-522

Verify your remote control system is designed to function as normally-closed. Use of this assembly with a normally-open remote control system could cause unintended activation 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

W-505

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.



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 (8) 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 Electric Solenoid

WARNING

W-562

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

W-522

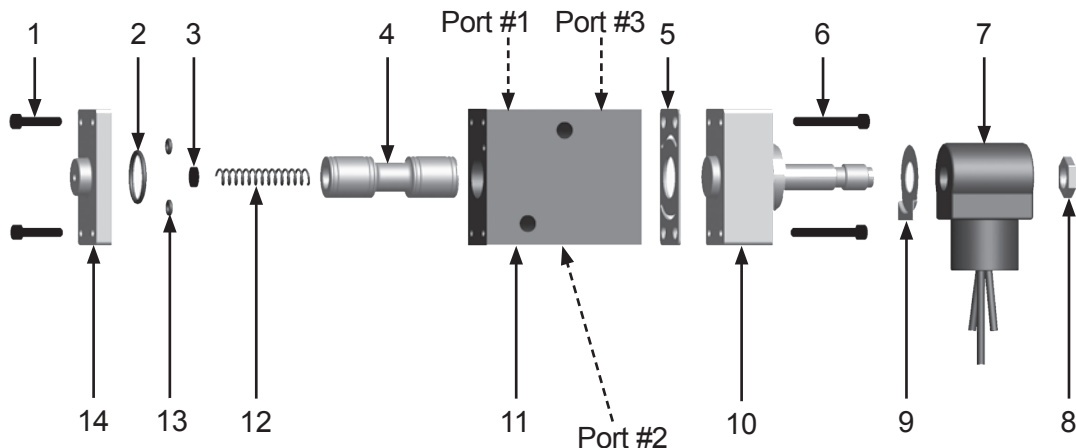
Verify your remote control system is designed to function as normally-closed. Use of this assembly with a normally-open remote control system could cause unintended activation of the remote control system resulting in the release of high speed abrasive and compressed air. Failure to comply with the above warning could result in death or serious injury.

WARNING

W-505

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.

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



Disassemble:

- 1) Remove four Screws (1) from End Cap (14). Remove Spring (12) from Valve Body (11).
- 2) Remove large O-ring (2) and two small O-rings (13) from End Cap (14).
- 3) Remove Felt (3) from End Cap (14).
- 4) Remove Nut (8) Slide Coil and Coil Housing (7) from Pilot (10). Remove Coil Washer (9).
- 5) Remove four Screws (6) from Pilot (10). Remove Gasket (5).
- 6) Ease Plunger (4) from Valve Body (11) by pushing Plunger (12) from Pilot (10) end.

Assemble:

- 1) Orient the Valve Body (11) so Port #1 and Port #3 are facing away. Insert Plunger (4) in Valve Body (11) from the left.
- 2) Place Gasket (5) on Valve Body (11) on the right. Place Pilot (10) on Gasket (5).
- 3) Ensure port in side of Pilot (10) is on the same side as Port #2 of Valve Body (11).
- 4) Install four Screws (6) to secure Pilot (10) to Valve Body (11). Do not overtighten.
- 5) Place Coil Washer (9) over stem of Pilot (10). Slide Coil and Coil Housing (7) onto stem of Pilot (10). Install Nut (8) on stem of Pilot (10). Do not overtighten.
- 6) Place two small O-rings (13), large O-ring (2), and Felt (3) in End Cap (14).
- 7) Insert Spring (12) in Valve Body (11). Place End Cap (14) on Spring (12) and compress Spring (12) until End Cap (14) meets Valve Body (11).
- 8) Install four Screws (1) in End Cap (14). Do not overtighten.

MAINTENANCE

Disassemble and Assemble 120-Volt AC to 12-Volt AC Power Converter

Maintenance of the Marco 120-Volt AC to 12-Volt AC Power Converter is limited to the daily cleaning and the immediate replacement of damaged or worn parts.



W-562

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.

Disassemble:

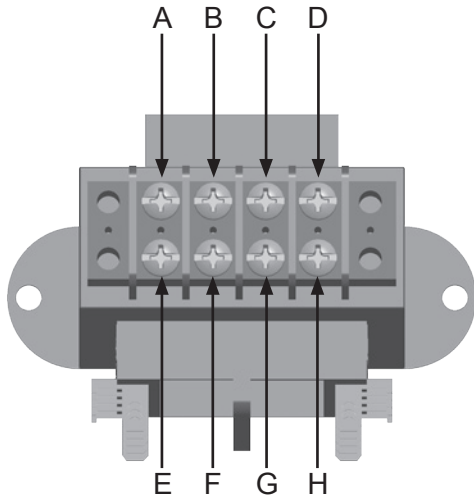
- 1) Disconnect power source from power converter.
- 2) Loosen four screws on cover of power converter enclosure and remove cover.
- 3) Remove two nuts securing transformer to enclosure, and remove transformer.
- 4) Disconnect and retain wires from transformer.

Assemble:

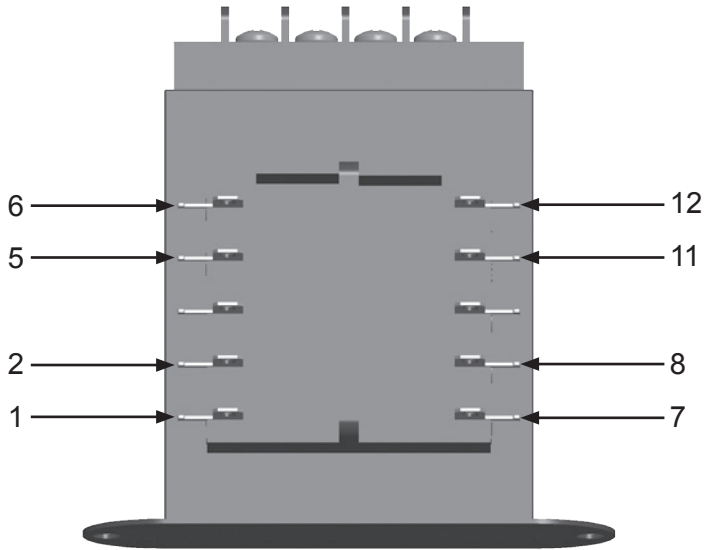
- 1) Connect retained wires to transformer using the Wiring Connection Guide.
- 2) Install transformer in enclosure, and secure it using two nuts.
- 3) Install cover on power converter enclosure and tighten four screws.

MAINTENANCE

Disassemble and Assemble 120-Volt AC to 12-Volt AC Power Converter (cont.)



Wiring Connection Guide		
A	connects to	Black Wire In
B	connects to	White Wire In
C	connects to	Black Wire Out
D	connects to	White Wire Out
E	connects to	5
E	connects to	1
F	connects to	6
F	connects to	2
G	connects to	7
H	connects to	12
11	connects to	8



MAINTENANCE

Disassemble and Assemble Blastmaster® 190 Electric Remote Control Assembly

WARNING

W-562

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.

Maintenance of the Blastmaster® 190 Electric Remote Control Assembly is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Disassemble:

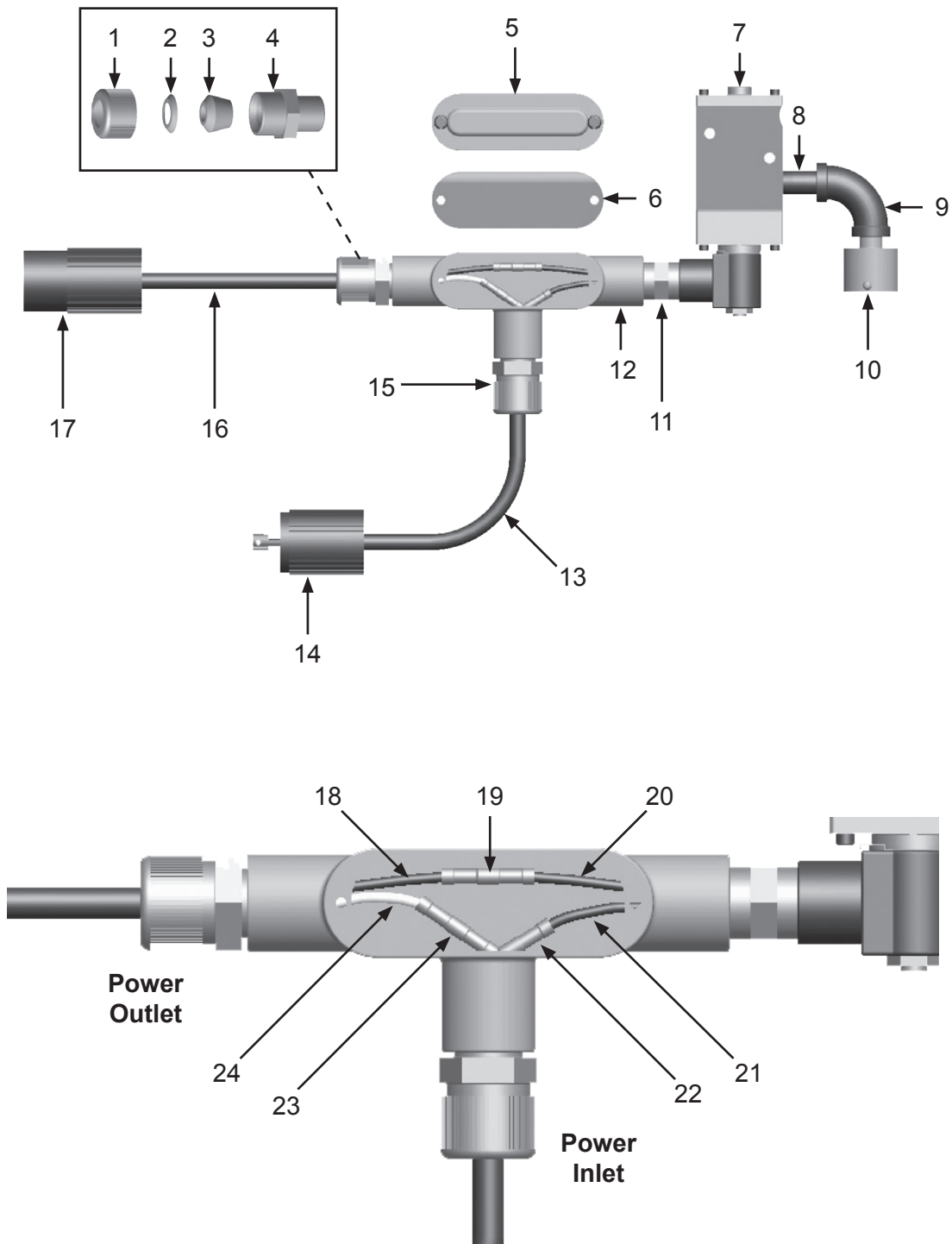
- 1) Remove Female Twist-Lock Plug (17), and Male Twist-Lock Plug (14).
- 2) Remove Dust Eliminator (10), Pipe Elbow (9), and Pipe Nipple (8) from Electric Solenoid (7).
- 3) Remove Cover (5) and Gasket (6).
- 4) Cut Black Wire (18) and Wire (20) and remove Butt Splicer (19).
- 5) Cut White Wire (24), Wire (21), and remove two Butt Splicers (22, 23) from Power Inlet Power Cord (13).
- 6) Remove Threaded Cap (1), Washer (2), Grommet (3), and 1/2" Hex Nipple (4), then remove Power Cord (16) from Conduit Box (12). Repeat for Cord Grip (15) and Power Cord (13).
- 7) Remove Electric Solenoid (7) from 1/2" Hex Nipple (11).
- 8) Remove 1/2" Hex Nipple (11) from Conduit Box (12).

Assemble:

- 1) Cut the green ground wire, of the Electric Solenoid (7), at the base of the Coil Housing and install a Butt Splicer on the wire.
- 2) Insert wires of Pilot Valve Assembly (7), into 1/2" Hex Nipple (11), and tighten Electric Solenoid (7) onto 1/2" Hex Nipple (12).
- 3) Insert two wires through end of Conduit Box (12). Install Conduit Box (12) on 1/2" Hex Nipple (11) and tighten.
- 4) Install Cord Grip Hex Nipple (4) in Conduit Box (12) opposite Electric Solenoid (7).
- 5) Install Grommet (3), Washer (2), and Threaded Cap (1) on Power Cord (16).
- 6) Remove three inches of cover from Power Cord (16) to expose wires. Insert exposed wires through Cord Grip Hex Nipple (4). Repeat for Cord Grip (15) and Power Cord (13).
- 7) Install Butt Splicer (19) on Black Power Outlet Wire (18). Install Pilot Valve Wire (20) in Butt Splicer (19), and crimp wires in place.
- 8) Install Butt Splicer (23) on White Power Outlet Wire (24). Install White Power Inlet Wire in Butt Splicer (23) and crimp wires in place.
- 9) Install Butt Splicer (22) on Pilot Valve Wire (21). Install Black Power Inlet Wire in Butt Splicer (22), and crimp wires in place.
- 10) Install Male Twist-Lock Plug (14) on Power Cord (13).
- 11) Install Female Twist-Lock Plug (17) on Power Cord (16).
- 12) Install Gasket (6), and Cover (5) on Conduit Box (12). Do not overtighten screws.
- 13) Install Pipe Nipple (8), Pipe Elbow (9), and Dust Eliminator (10) on Electric Solenoid (7). Do not overtighten.

MAINTENANCE

Disassemble and Assemble Blastmaster® 190 Electric Remote Control Assembly (cont.)



MAINTENANCE

Assemble Power Distribution Box

WARNING

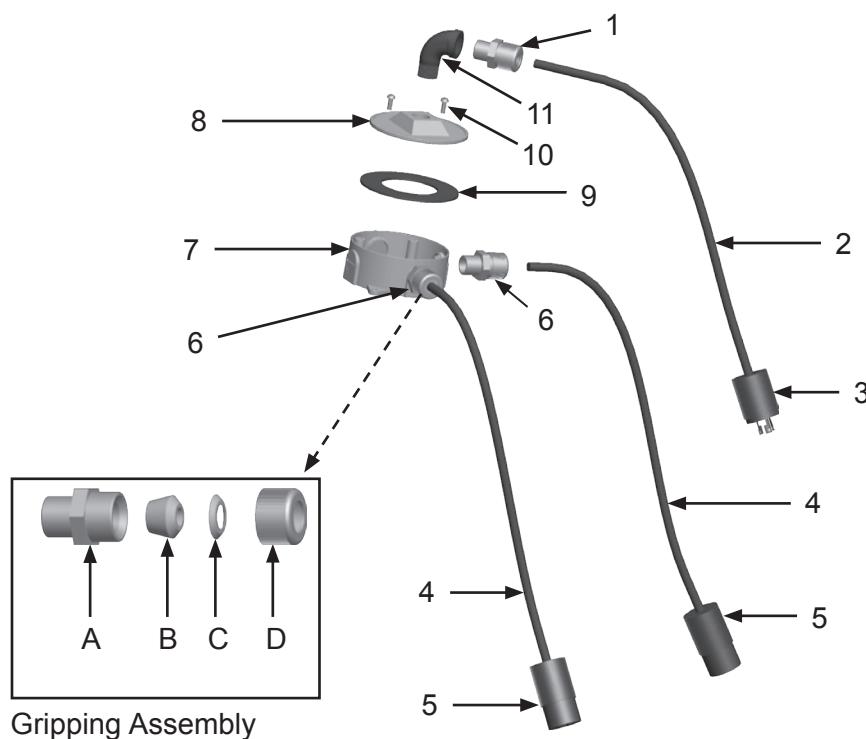
W-562

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.

Maintenance of the Power Distribution Box is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Assemble:

- 1) Install 1/2" NPT Street Elbow (11) into Conduit Box Cover (8).
- 2) Install Cord Grip (1) into 1/2" NPT Street Elbow (11).
- 3) Install Cord Grip (6) into Conduit box (7). Repeat as required, one per Pot outlet.
- 4) Install Female Twist-Lock Plug (5) onto a 24" piece of 16/2 Power Cord (4), ensuring white lead is installed into the silver toned contact and the black lead into the gold toned contact. Repeat as required, one per outlet.
- 5) Disassemble Gripping Assembly from Cord Grip (6), thread Control Power Cord Assembly (4 and 5) through Cord Grip (6) into Conduit Box (7), leaving 6" of Power Cord (4) exposed inside of Conduit Box. Assemble Gripping Assembly and hand tighten. Repeat as required, one per outlet.
- 6) Install Male Twist-Lock Plug (3) onto a 24" piece of 16/2 Power Cord (2), ensuring white lead is installed into the silver toned contact and the black lead into the gold toned contact.
- 7) Disassemble Gripping Assembly from Cord Grip (1), thread Power Supply Cord Assembly (2 and 3) through Cord Grip, 1/2" NPT Street Elbow (11), and Conduit Box Cover (8), leaving 6" of Power Cord (2) exposed through Conduit Box Cover. Reassemble Gripping Assembly and hand tighten.
- 8) Strip 3" of outer insulation from all exposed ends of Power Cords (4 and 2).
- 9) Connect wires. See Electrical Assembly.
- 10) Place Conduit Box Cover (8) and Cover Gasket (9) on Conduit Box (7) using two Cover Screws (10).
- 11) Install assembly on mounting bracket located on Moisture Separator.



MAINTENANCE

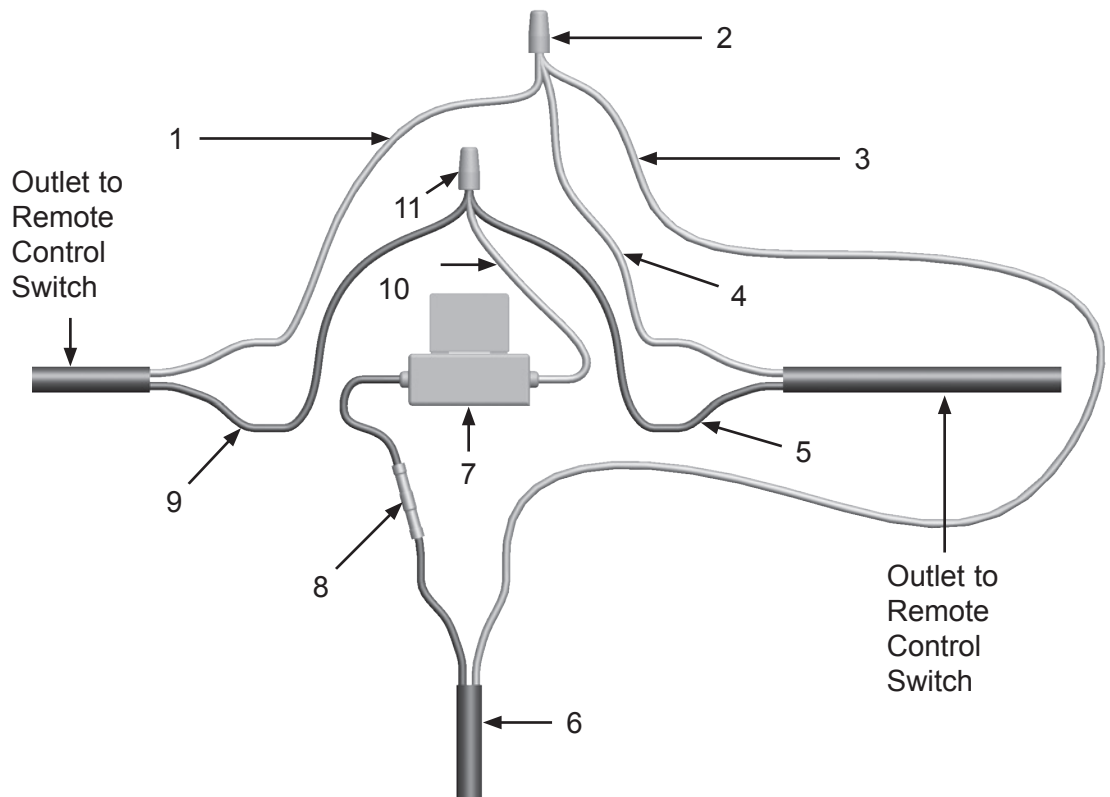
Assemble Power Distribution Box (continued)

WARNING

W-552
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.

Electrical Assembly:

- 1) Strip 1/2" of insulation from all leads.
- 2) Insert black wire from Supply Power Cord (6) exposed from bottom of Conduit Box Cover in to Butt Splicer (8) and crimp.
- 3) Insert black wire from 5 Amp Fuse (7) in to Butt Splicer (8) and crimp.
- 4) Group white wires (1, 3 and 4) together. Install Wire Nut (2) on grouped wires.
- 5) Group wires (5, 9 and 10) together. Install Wire Nut (11) on grouped wires. For 3- and 4-Outlet models, group white wires from each outlet with Wire (3).



MAINTENANCE

Maintenance Schedules Quick Reference Charts

BULK BLAST POT MAINTENANCE SCHEDULE				
Perform inspections at the intervals specified. Repair or replace damaged parts as needed.				
Item	Maintenance Required	Daily	Weekly	Monthly
Bulk Blast Pot Exterior	Visually inspect exterior of Bulk Blast Pot for any damage (corrosion, dents, bulges, cracks etc.). Remove from service and contact Marco.	X		
Bulk Blast Pot Piping & Pipe Fittings	Visually inspect external pipe & pipe fittings for damage (wear, cracks, air leaks etc.). Replace as needed.	X		
Closure	Check camlock nut torque		X	
Closure	Check component operation and condition.	Before every use		
Vessel Manway	Visually inspect condition of gasket and sealing surfaces. Ensure all components are tight. Replace as needed.		X	
Identification Tags and Decals	Visually inspect for presence and condition of all identification tags and decals. Replace as needed.		X	
Bulk Blast Pot Interior	Visually inspect interior surfaces of the Bulk Blast Pot for wear, corrosion, pitting, cracks, or other damage. Remove from service and contact Marco. Check internal piping for wear or damage. Replace as needed. Check Y- strainer or GSV, & piping.			X
Blowdown Ball Valve	Check for proper opening and closing. Check for wear, damage, or air leaks.	Before every use		
Moisture Separator	Degrease internal demister element.			X
Vessel Mount Bolts	Tighten to specified torque.			X
Bulk Blast Pot	Hydrostatic Test	Every 5 years unless otherwise directed by local, state, or jurisdictional requirements.		

TROUBLESHOOTING

If the Blastmaster® 160 cu. ft. Blast Pot does not function properly, check the following:

DANGER

D-562

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-562

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

W-546

Do not use any tools or devices to aid in moving a Camlock Handle or Swing Bolt during opening of the Hatch Assembly. If a Camlock Handle and Swing Bolt do not move freely during the opening of the Hatch Assembly stop immediately as the abrasive blasting pot could be under pressure. Ensure the abrasive blasting pot is depressurized before continuing with opening the Hatch Head. Failure to comply with the above warning could result in death or serious injury.

WARNING

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above warning could result in death or serious injury.

SYMPTOM (Cause)

Blast Pot will not pressurize or pressurizes slowly

(Damaged components, Insufficient air compressor output capacity, Clogged exhaust muffler)

ACTION

Ensure Inlet Ball Valve is in the open position. Inspect for damage. Replace damaged components.

Ensure Hatch is closed and properly secured. Inspect Camlocks and Swing Bolts for correct installation. See proper torque specifications of Swing Bolt nuts.

Ensure Exhaust Ball Valve is in the closed position. Inspect for damage. Replace damaged components.

Inspect 'Y'-Strainer on the internal pipe string for blockage or damage. Clean out blockage. Replace damaged components.

Insufficient air volume from compressor. Ensure air compressor output capacity will support the blast nozzles being used.

Inspect for air leaks. Tighten fittings if leaks are present.

Inspect Tee Pipe Assembly on Blastmaster® Large Exhaust Muffler for obstruction. Remove obstructions.

Air and abrasive do not exit Blast nozzle

(Blast Pot is not pressurized, Malfunctioning Remote Control System)

Insufficient air supply. Ensure minimum of 50 PSI is supplied to blast pot and sufficient air volume to support blast nozzle.

Open Pressure Indicator Ball Valve. If air does not exit Pressure Indicator Ball Valve, ensure Inlet Ball Valve is in the open position. If air does exit the Pressure Indicator Ball Valve, consult Remote Control System and Remote Control Handle Operator's Manual.

Inspect Blast hose and Blast nozzle for blockage. Repair or replace immediately.

Inspect solenoid for damage. Repair or replace as necessary.

See remote control switch Operator's Manual.

TROUBLESHOOTING

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-562

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

W-546

Do not use any tools or devices to aid in moving a Camlock Handle or Swing Bolt during opening of the Hatch Assembly. If a Camlock Handle and Swing Bolt do not move freely during the opening of the Hatch Assembly stop immediately as the abrasive blasting pot could be under pressure. Ensure the abrasive blasting pot is depressurized before continuing with opening the Hatch Head. Failure to comply with the above warning could result in death or serious injury.

WARNING

W-563

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.

SYMPTOM (Cause)

Blast Pot will not depressurize
(*Damaged components*)

ACTION

Follow the sequence below:

- 1) Ensure Exhaust Ball Valve is in the open position.
- 2) If Exhaust Ball Valve is in the open position and not exhausting air from the blast pot, close the inlet ball valve. Terminate air supply from compressor.
- 3) Turn Abrasive Metering Valve flow setting to the closed position. While maintaining control of Blast hose, brace for recoil and activate remote control system. Air from the blast pot should exhaust through the Blast hose.
- 4) After air stops exiting the Blast hose, open the Pressure Indicator Ball Valve located on the top of the vessel. If air does not exit the Pressure Indicator Ball Valve, follow instructions for removing the Pneumatic Closure Lockout Device and opening the hatch assembly. Inspect internal piping of the blast pot for damage. Replace damaged Exhaust Ball Valve and piping immediately.
- 5) If air exits the Pressure Indicator Ball Valve, the vessel is still pressurized. Open Moisture Separator Drain Ball Valve to full open, allow air to exhaust from the Moisture Separator. If air stops exiting the Moisture Separator within five minutes, open the Pressure Indicator Ball Valve. If air does not exit the Pressure Indicator Ball Valve, follow instructions for opening the hatch. Inspect internal piping of the air-blast pot for damage. Replace damaged Exhaust Ball Valve and piping immediately.

Air and abrasive exit Blast 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.

Inspect electric solenoid for damage. Repair or replace electric solenoid.

See remote control switch Operator's Manual.

TROUBLESHOOTING

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-562

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

W-511

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.

WARNING

W-563

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.

SYMPTOM (Cause)

ACTION

Latch Handle does not properly engage

(Improper alignment, Obstruction of Latch Handle or Pneumatic Closure Lockout Device, Damaged components)

Inspect components for damage. Repair or replace components as necessary.

Inspect components for proper alignment. Repair or replace components as necessary.

Ensure blast pot camlocks are in the fully closed position.

Latch Handle will not disengage

(Blast pot is pressurized, Improper alignment, Obstruction of Latch Handle or Pneumatic Closure Lockout Device, Damaged components)

Ensure blast pot is depressurized.

Ensure Pneumatic Locking Piston is disengaged from Latch Handle. Open Pressure Indicating Ball Valve to release air pressure from Pneumatic Locking Piston. If blast pot is not depressurized, depressurize blast pot. see Pressurize & Depressurize Blast Pot.

Inspect components for damage. Repair or replace components as necessary.

Verify blast pot camlocks are in the fully closed position. Depressurize Blast Pot. See Pressurize & Depressurize Blast Pot.

Only abrasive exits Blast nozzle

(Closed or damaged Choke Valve, Malfunctioning Remote Control System or Remote Control Switch)

Ensure Choke Valve located on pusher line is in the open position. Replace Choke Valve if damaged.

See remote control switch Operator's Manual.

Air exits Blast Nozzle when Remote Control Switch is in OFF position

(Pneumatic Control Lines, Damaged GateKeeper 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.

TROUBLESHOOTING

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-562

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

W-546

Do not use any tools or devices to aid in moving a Camlock Handle or Swing Bolt during opening of the Hatch Assembly. If a Camlock Handle and Swing Bolt do not move freely during the opening of the Hatch Assembly stop immediately as the abrasive blasting pot could be under pressure. Ensure the abrasive blasting pot is depressurized before continuing with opening the Hatch Head. Failure to comply with the above warning could result in death or serious injury.

WARNING

W-563

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.

SYMPTOM (Cause)

Only air exits Blast nozzle

(Blast Pot does not have abrasive in it, Malfunctioning Remote Control System)

ACTION

Follow instructions in the Before Use section of this Operator's Manual. Fill Blast Pot with abrasive.

Ensure Union End Ball Valve between blast pot and abrasive metering valve is in the open position.

Ensure Abrasive is dry and free of debris. If Abrasive is wet, empty Abrasive from blast pot and replace with dry Abrasive.

Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components.

Insufficient air supply. Ensure minimum of 50 psi is supplied to Blastmaster® Maxum III Abrasive Metering Valve.

Ensure Blastmaster® Maxum III Abrasive Metering Valve abrasive inlet port is clear of obstructions. Clean area and ensure abrasive is free of debris, properly screened and free of moisture.

Set metering knob.

Ensure air is not escaping from Breather Mufflers in Blastmaster® Maxum III Abrasive Metering Valve. Inspect Blastmaster® Maxum III Abrasive Metering Valve for damaged components and ensure nut securing piston to plunger is tightened to 70 foot/pounds.

Inspect Abrasive Metering Valve for damage. Replace damaged components. See remote control switch Operator's Manual.

TROUBLESHOOTING

DANGER

D-502

During the opening of the Hatch Assembly, any air pressure released from the area indicates the abrasive blasting pot is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the abrasive blasting pot. Failure to comply with the above danger will result in death or serious injury

WARNING

W-562

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

W-511

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.

WARNING

W-563

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.

SYMPTOM (Cause)

Abrasive exits Abrasive Blasting Nozzle when Remote Control Switch is in the OFF position

(Pneumatic Control Lines, Damaged Abrasive Metering Valve components)

ACTION

Inspect control lines for restrictions, leaks, and correct routing. Repair or replace damaged components.

Inspect abrasive metering valve for damage.

Ensure an air-actuated abrasive metering valve is installed. Install an air-actuated abrasive metering valve.

Ensure Breather Mufflers in cap of Blastmaster® Maxum III Abrasive Metering Valve are not blocked. Replace Breather Mufflers if blocked.

Inspect Blastmaster® Maxum III Abrasive Metering Valve for damaged components. Repair or replace Blastmaster® Maxum III Abrasive Metering Valve.

See remote control switch Operator's Manual.

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 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

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fax: 563.324.6258

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- **Louisiana**
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