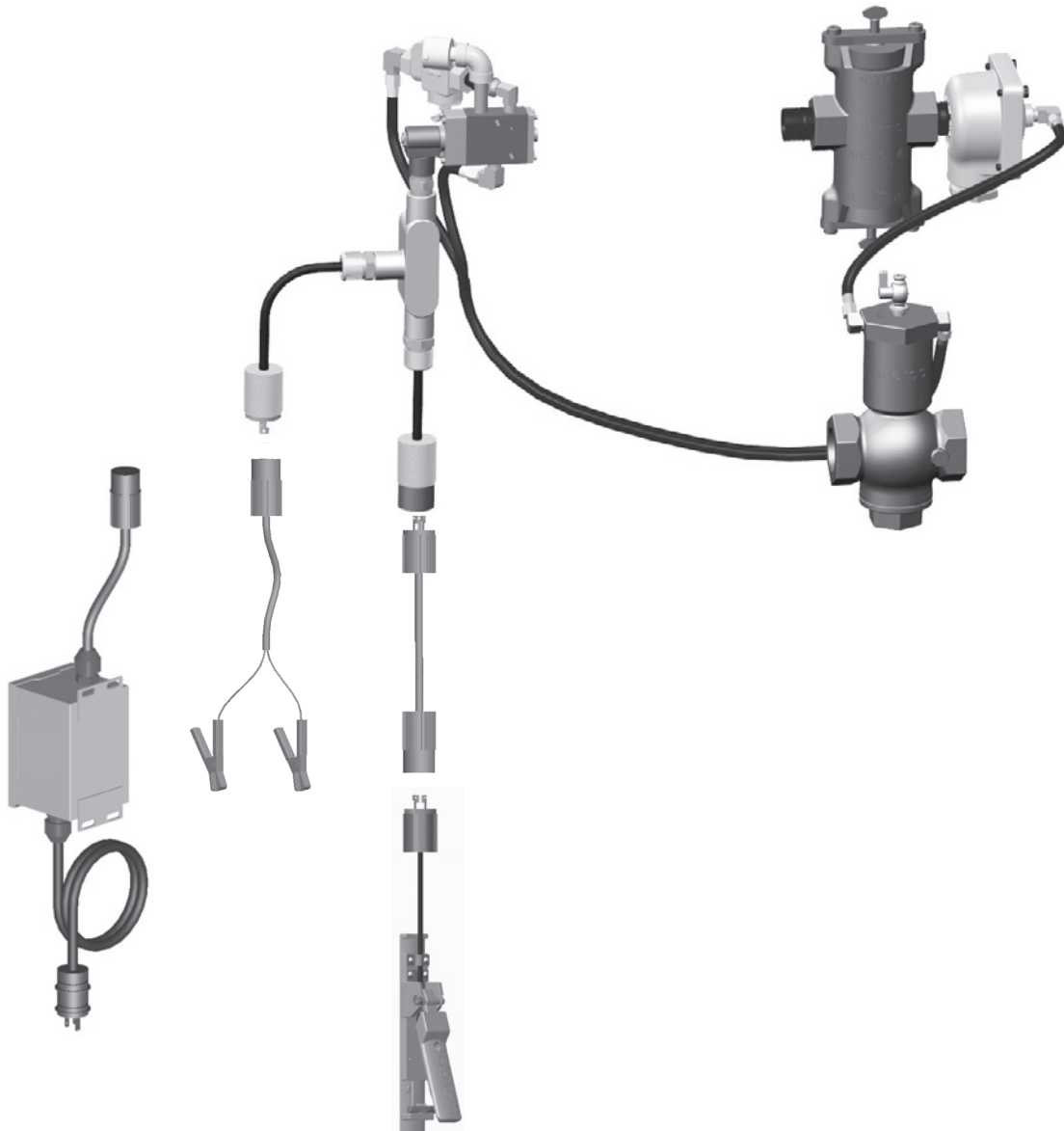


OPERATOR'S MANUAL

BLASTMASTER® 121E REMOTE CONTROL SYSTEM



**BUILT MARCO
TOUGH**
MARCO MANUFACTURED

⚠ WARNING

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

Marco®

Company Profile

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

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

The Marco Difference

- **Industry Experience** – With Marco on your team, you have access to expertise which can only come from 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 over 45 shipping locations to serve North American and International markets for all major brands of blasting and painting equipment. As the largest provider of surface preparation and protective coatings equipment in the world, our inventory levels and product availability are unmatched.
- **Logistics Services** – Marco's in-house logistics team is dedicated to moving your shipment anywhere in the world. We move over 14,000 truckloads every year, allowing you to save on freight costs by leveraging our buying power. Lower your process costs with a single invoice, which includes product and freight.
- **Technology Leadership** – Our website provides: Operator's Manuals, Part Numbers and Schematics Guides, MSDS information, and Features, Advantages, and Benefits Guides, providing access to information 24/7. Our Extranet application allows you to receive quotes and place orders online. Our Intranet maintains a complete record of your purchase history to assist with ongoing support of your existing equipment and future purchasing decisions.

Vision Statement

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

Mission Statement

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

Quality Policy

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.

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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.

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 (GFI) 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.

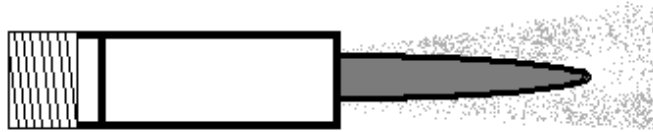
- ▶ See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- ▶ Always use abrasive that is dry and properly screened. This will reduce the 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.

AIR & ABRASIVE CONSUMPTION CHART

NOTICE

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

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



NOTICE

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

Air & Abrasive Consumption Chart*

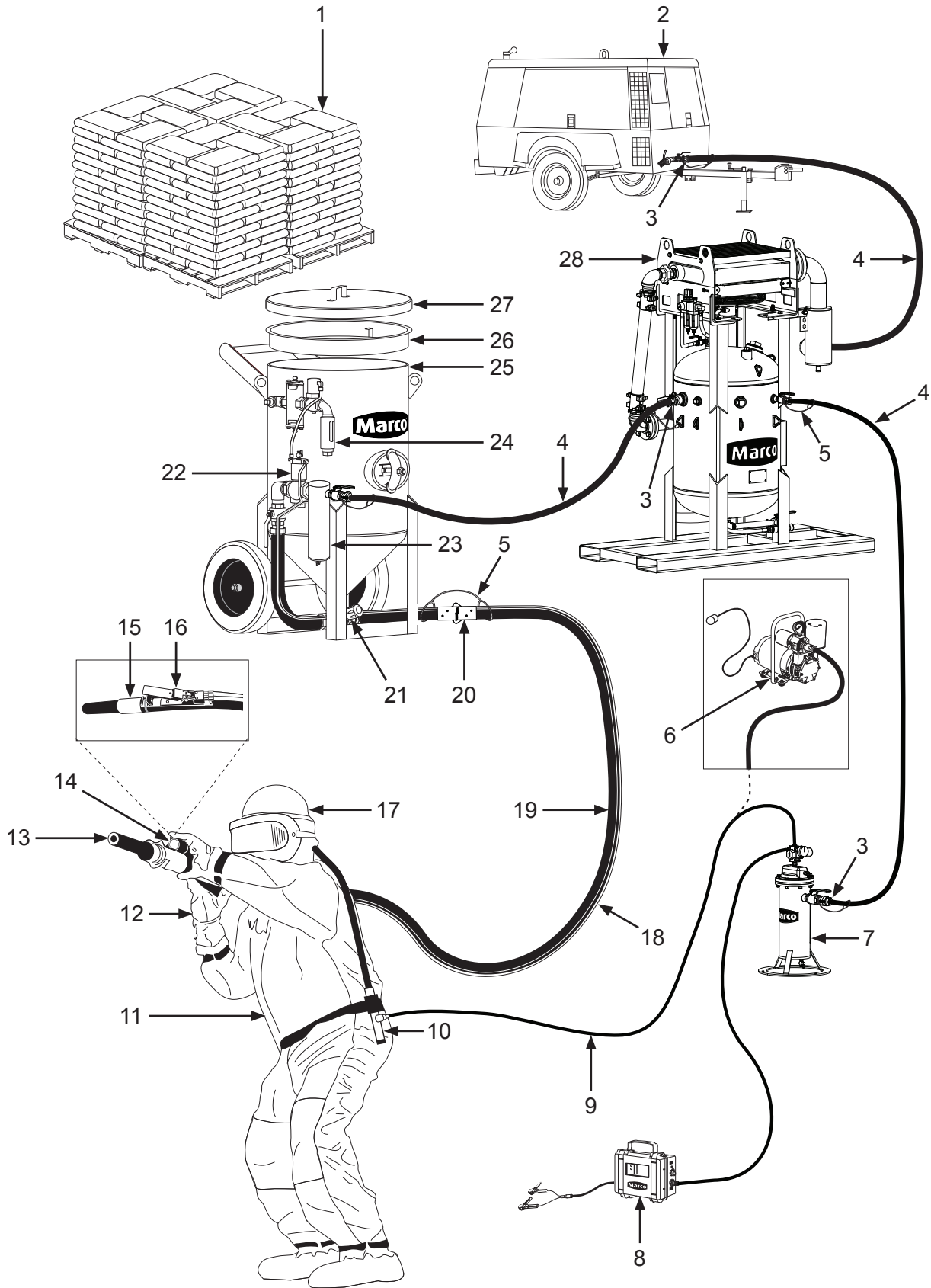
Nozzle Orifice	Pressure at the Nozzle (PSI)								Air (in cfm), Abrasive & Compressor Requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8")	11 67 2.5	13 77 3	15 88 3.5	17 101 4	18 112 4.5	20 123 5	25 152 5.5	28 170 6.2	Air (cfm) Abrasive (lbs/hr) Compressor Horsepower
No. 3 (3/16")	26 150 6	30 171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

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

NOTICE

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

“THE BIG PICTURE”



DAILY PRE-OPERATION CHECKLIST

Daily Pre-operation Checklist

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

OPERATING INSTRUCTIONS

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-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)

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.

Description

Remote control systems give an operator the ability to remotely activate and deactivate the flow of air and abrasive at the nozzle. Pressure-release remote control systems pressurize and depressurize the blast pot each time the operator activates and deactivates the remote control switch, allowing the blast pot to be filled between activation cycles. This increases productivity and eliminates the need for a pot tender. The Blastmaster® 121E Remote Control System is a pressure-release remote control system that uses an electric signal from the remote control switch to remotely activate and deactivate a blast pot. Typical applications include blast rooms, blast yards, bridges, oil refineries, pipelines, railcar shops, shipyards, and storage tanks.

Operational Requirements

The following is required for proper installation of a Blastmaster® 121E Remote Control System:

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

The following may cause safety hazards or reduced performance:

- Improper installation and/or maintenance of components
- Improper air supply pressure (operating pressure: 50–150 PSI)
- Improper electric power supply

Operating Instructions

Before using:

- Ensure blast pot is depressurized. (See blast pot Operator's Manual for instructions.)
- Inspect all control lines ensuring they are free of obstructions or damage. Remove obstructions or replace control lines before use.
- Inspect components of Blastmaster® 121E Remote Control System for damage and air leaks. Repair or replace damaged components before use.
- Ensure Petcock (3) is in the OPEN position.
- Test Electric Remote Control Switch (6) for proper functioning. (See remote control switch Operator's Manual for procedure.)
- Connect Power Cord (8) to Twist-Lock Plug (9) of Electric Control Assembly (14) and Twist-Lock Plug (7) attached to Electric Remote Control Switch (6).
- Connect Twist-Lock Plug (13) of Marco 120-Volt AC to 12-Volt AC Power Converter (12) or Battery Clamp Assembly (11) to Twist-Lock Plug (10) of Electric Control Assembly (14).
- Connect air supply hose from compressor to Inlet Port (4).

During use:

- To begin abrasive blasting, activate the Electric Remote Control Switch (6). The electric signal will activate the Electric Control Assembly (14), allowing an air signal to activate the Inlet Valve (5) and Outlet Valve (2) to begin pressurizing the blast pot.
- Monitor all components of the Blastmaster® 121E Remote Control System for proper functioning.
- To cease abrasive blasting, deactivate the Electric Remote Control Switch (6). This will interrupt the electric signal, deactivating the Electric Control Assembly (14), allowing the blast pot to depressurize.

OPERATING INSTRUCTIONS

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-519

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. Failure to comply with the above warning could result in death or serious injury.

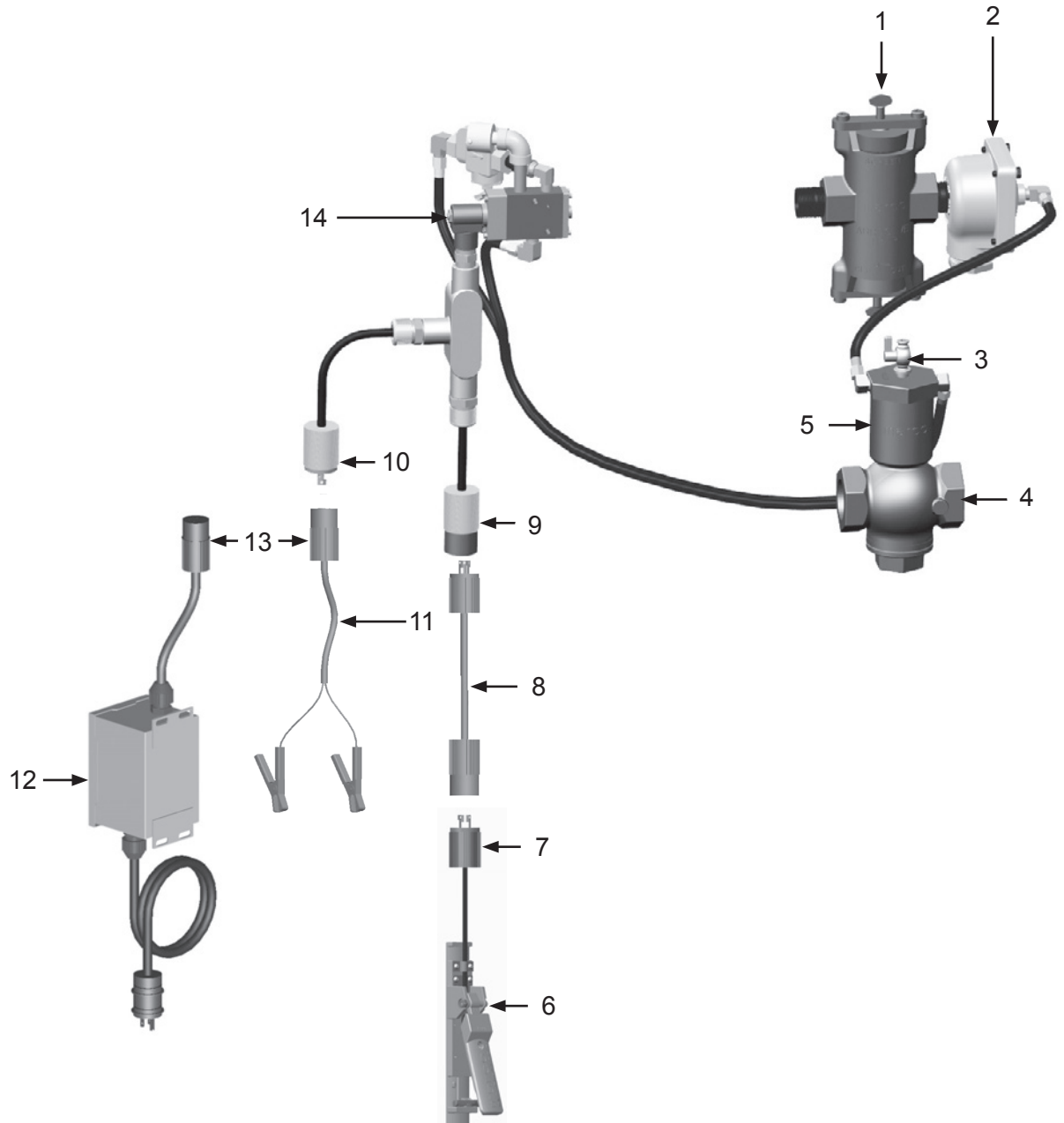
WARNING

W-567

This product is designed for use with a 12-volt DC battery or Marco 120 Volt AC-to-12 Volt AC Power Converter only. Use of any other power supply could cause electric shock and/or damage to the product. Failure to comply with the above warning could result in death or serious injury.

After use:

- Inspect Blastmaster® 121E Remote Control System components for damage. Repair or replace damaged components.



INSTALLATION

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.

NOTICE

N-516

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

NOTICE

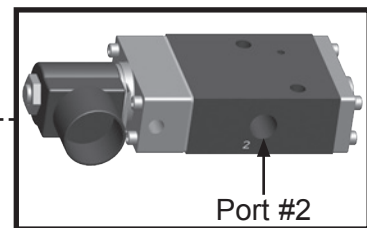
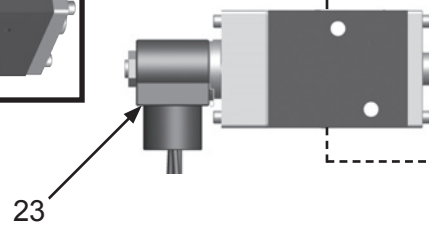
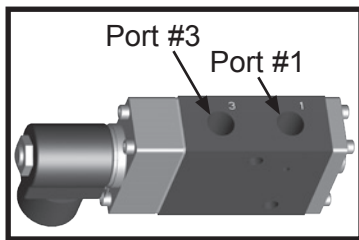
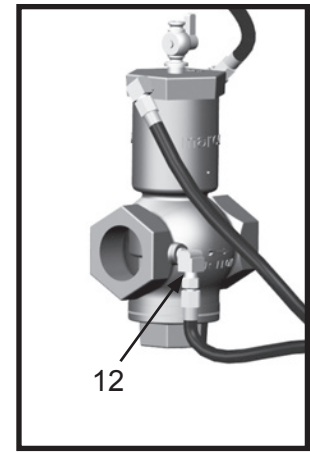
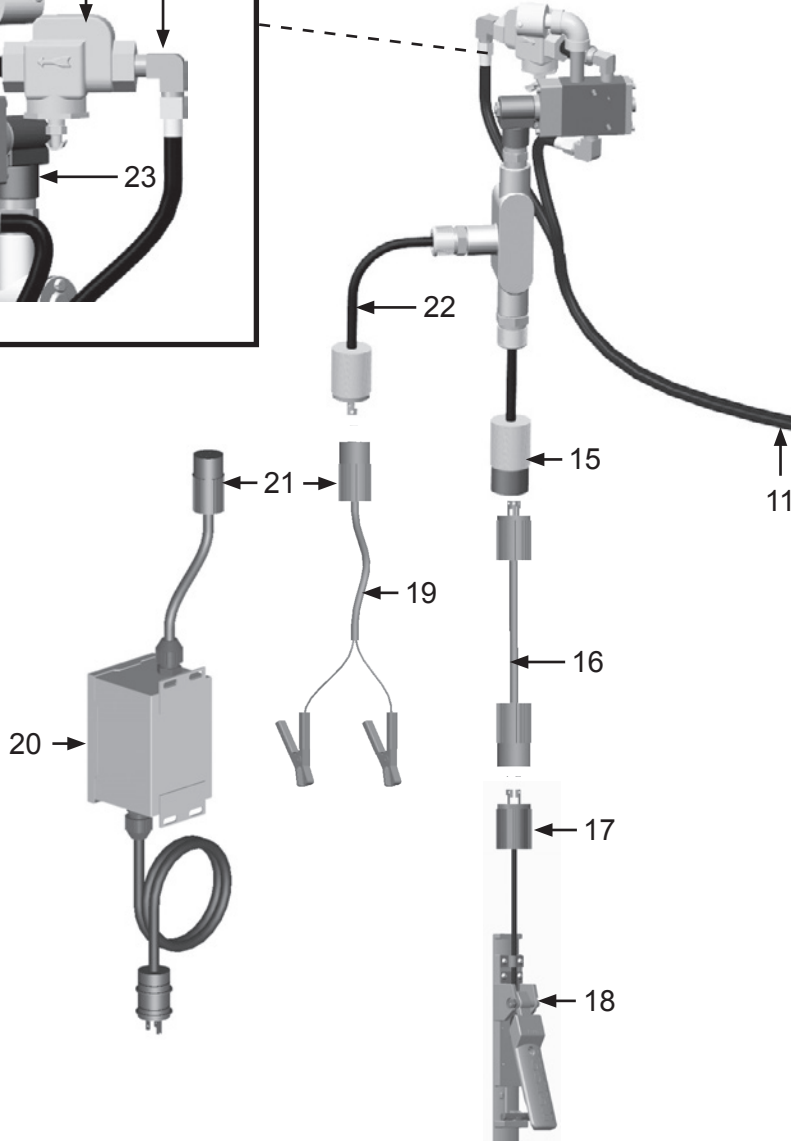
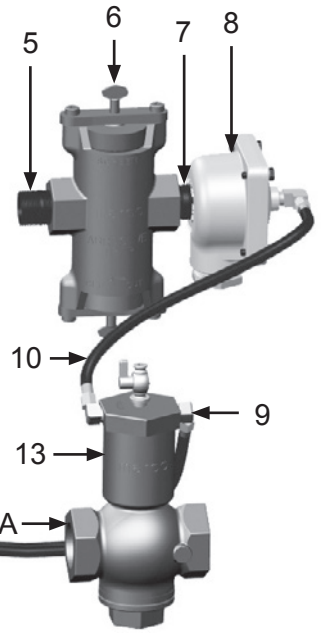
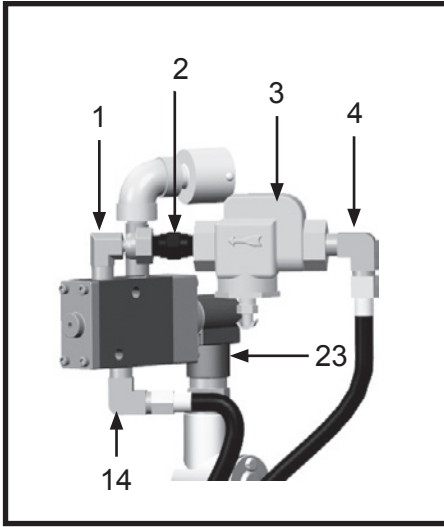
Use a 16 gauge electric cord for lengths up to 100 feet. To reduce electrical resistance, use larger gauge electrical cord for distances greater than 100 feet.

Installation:

Note: Additional components may be required to install the Blastmaster® 121E Remote Control System.

- 1) Remove all existing piping from blast pot.
- 2) Install 1/4" NPT 90° Swivel Fitting (1) into Port #1 of Electric Control Assembly (23).
- 3) Install 90° Elbow (14) into Port #2 of Electric Control Assembly (23).
- 4) Locate air flow direction arrow on Watts Strainer (3) and install 1/4" NPT Hex Nipple (2) into exit port of Watts Strainer.
- 5) Install 90° Elbow (4) into inlet port of Watts Strainer (3), and install assembly into 1/4" 90° Swivel Fitting (1).
- 6) Locate the air flow direction arrow on Abrasive Trap (6) and install 1" NPT Close Nipple (5) into inlet port.
- 7) Install 1" Close Nipple (7) into exit port of Abrasive Trap (6).
- 8) Install 1" Outlet Valve (8) on 1" Close Nipple (7).
- 9) Install 1" NPT Close Nipple (5) on existing outlet piping, and install assembly on blast pot.
- 10) Locate air flow directional arrow on 1-1/2" Inlet Valve (13). Install existing inlet piping into Outlet Port (A) of Inlet Valve (13). Install assembly on blast pot.
- 11) Install remaining existing blast pot piping.
- 12) Connect 18" Single Line Hose (10) to Outlet Valve (8) and 1-1/2" Inlet Valve (13).
- 13) Connect Leg 1 of Pneumatic Control Line (11) to lower Fitting (12) of Inlet Valve (13) and 90° Elbow (14).
- 14) Connect Leg 2 of Pneumatic Control Line (11) to upper Fitting (9) of 1-1/2" Inlet Valve (13) and 90° Elbow (4).
- 15) Secure Electric Control Assembly (23) to a sturdy surface on blast pot.
- 16) Connect Electric Control Line (16) to Twist-Lock Plug (15). Secure Electric Control Line to abrasive blasting hose every 4 to 6 feet and on each side of the electric control line connections. Provide adequate slack at each connection.
- 17) Connect Twist-Lock Plug (17) attached to Electric Remote Control Switch (18) to Electric Control Line (16). Secure Electric Remote Control Switch (18) to abrasive blasting hose. (See electric remote control switch Operator's Manual.)
- 18) Connect Twist-Lock Plug (21), on Marco 120-Volt AC to 12-Volt AC Power Converter (20) or Battery Clamp Assembly (19), to Twist-Lock Plug (22) of Electric Control Assembly (23).

INSTALLATION



MAINTENANCE

Disassemble and Assemble 1-1/2" Inlet Valve

Maintenance of the 1-1/2" Inlet 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-519

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

Disassemble:

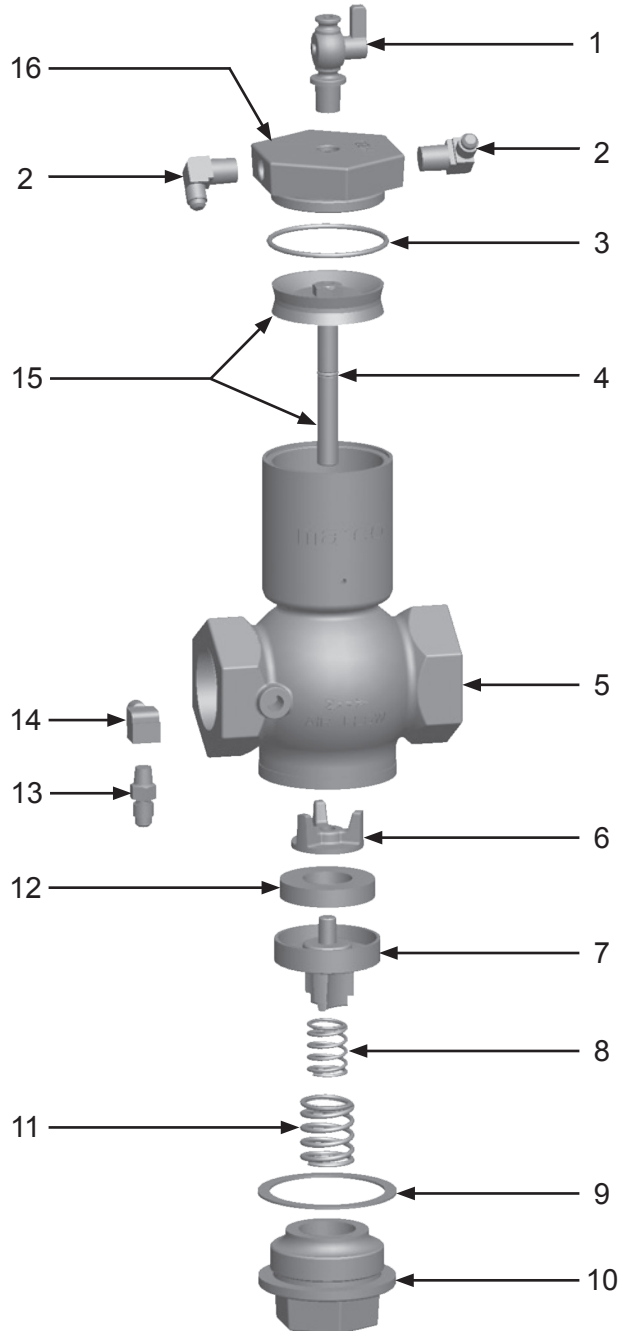
- 1) Remove Fittings (2,13,14) and Petcock (1). Clean or replace if damaged.
- 2) Remove Bottom Cap (10), Gasket (9), Spring (11), Spring (8), and Valve Plug Assembly (6, 7, and 12) from Body (5).
- 3) Disassemble Valve Plug Assembly by turning Valve Plug Washer Retainer (6) counter clockwise. Remove Valve Plug Washer (12) and inspect for damage.
- 4) Remove Cylinder Cap (16). Remove O-ring (3) and inspect for damage.
- 5) Push Piston and Rod Assembly (15) through top of Body (5). Inspect O-ring (4) for damage.

Assemble:

- 1) Install O-ring (4) on Piston and Rod Assembly (15). Apply lubricant to O-ring and Piston.
- 2) Using a smooth motion, push Piston and Rod Assembly (15) into Body (5) until the assembly is a depth of 1/2" from the top of the Body (5). Do not force the assembly as damage can occur.
- 3) Place Valve Plug Washer (12) over stud on Valve Plug (7). Install Valve Plug Washer Retainer (6) on stud of Valve Plug, turning clockwise. Do not over-tighten.
- 4) Place Body (5) upside down, install Valve Plug Assembly with Valve Plug Retainer (6) toward Body. Place Spring (11) on Valve Plug (7). Insert Spring (8) inside Spring (11).
- 5) Place Gasket (9) on Body (5). Install Bottom Cap (10) over two Springs (8,11) and thread into Body.
- 6) Lubricate O-ring (3) and place on bottom of Cylinder Cap (16). Install Cylinder Cap on Body (5).
- 7) Apply pipe sealant to pipe threads of Fittings (2,13,14) and Petcock (1). Install into appropriate ports.

MAINTENANCE

Disassemble and Assemble 1-1/2" Inlet Valve (cont)



MAINTENANCE

Disassemble and Assemble 1" Diaphragm Outlet 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.

- 1) Remove Nipple (7) from Body (6).
- 2) Remove Bushing (8) from Body (6).
- 3) Remove Elbow (1) from Body (6).
- 4) Remove Bolts (2), Lock Washers (3) and Cap (4) from Body (6).
- 5) Remove Diaphragm (5). Inspect for damage and replace as necessary.
- 6) Install parts in reverse order.

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.

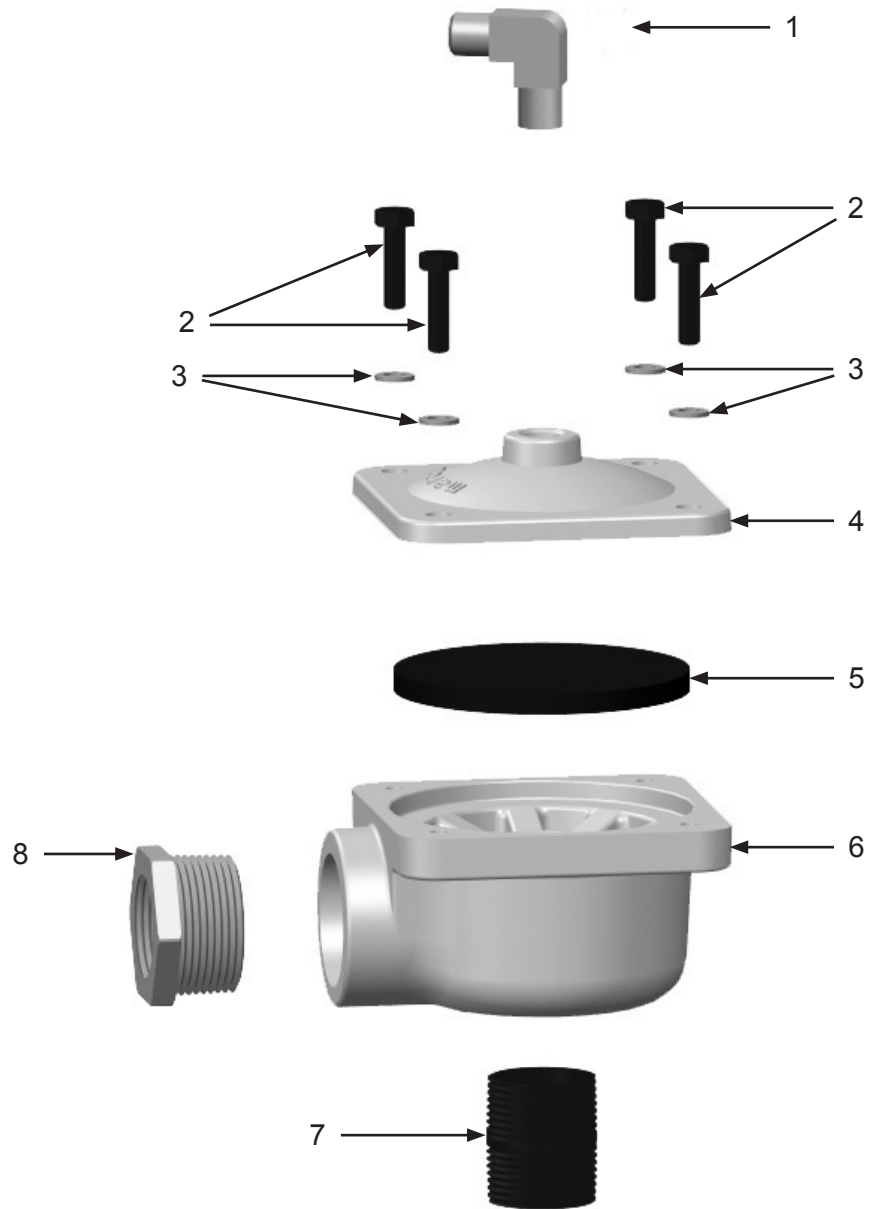
NOTICE

N-519

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

MAINTENANCE

Disassemble and Assemble Blastmaster® 1" Diaphragm Outlet Valve (cont)



MAINTENANCE

Disassemble and Assemble Abrasive Trap

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 of the Abrasive Trap is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Disassemble:

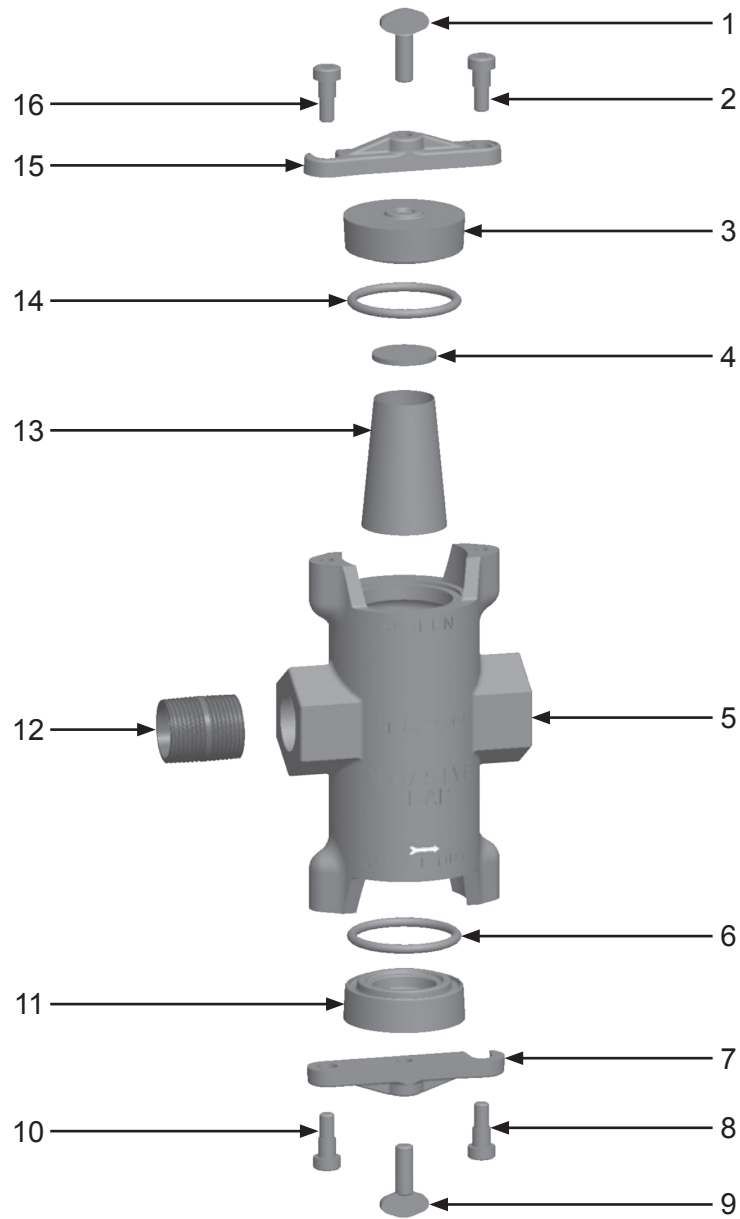
- 1) Remove Thumbscrew (1) by turning counter-clockwise.
- 2) Swing Cap Lock Bar (15) clear of Cap (3) and remove Shoulder Screws (2,16), Cap Lock Bar, and Cap.
- 3) Remove O-ring (14) from Cap (3).
- 4) Remove Screen Gasket (4) from Cap (3). Inspect parts for damage and replace as necessary.
- 5) Remove Abrasive Trap Screen (13) from upper chamber of Body (5). Clean or replace as necessary.
- 6) Remove Thumbscrew (9) by turning counter-clockwise.
- 7) Swing Cap Lock Bar (7) clear of Cap (11) and remove Shoulder Screws (8,10), Cap Lock Bar, and Cap.
- 8) Remove O-ring (6) from Cap (11).
- 9) Inspect 1" NPT Close Nipple (12). Replace as necessary.

Assemble:

- 1) Install 1" NPT Close Nipple (12) on air inlet side of Body (5).
- 2) Install Screen Gasket (4) in Cap (3). Install O-ring (14) on Cap.
- 3) Install Cap Lock Bar (15) using Shoulder Screw (2). Install Shoulder Screw (16) in opposite hole.
- 4) Place Abrasive Trap Screen (13) with large opening of screen down. Ensure it sits in recess of upper chamber of Body (5).
- 5) Install Cap (3) on Body (5), and move Cap Lock Bar (15) to rest against Shoulder Screw (16).
- 6) Install Thumbscrew (1) and tighten.
- 7) Install Cap Lock Bar (7) using Shoulder Screw (10). Install Shoulder Screw (8) in opposite hole.
- 8) Install O-ring (6) on Cap (11), and install Cap (11) on Body (5).
- 9) Move Cap Lock Bar (7) to rest against Shoulder Screw (8) and install Thumbscrew (9) and tighten.

MAINTENANCE

Disassemble and Assemble Abrasive Trap (cont)



MAINTENANCE

Disassemble and Assemble Electric 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.

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.

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

Disassemble:

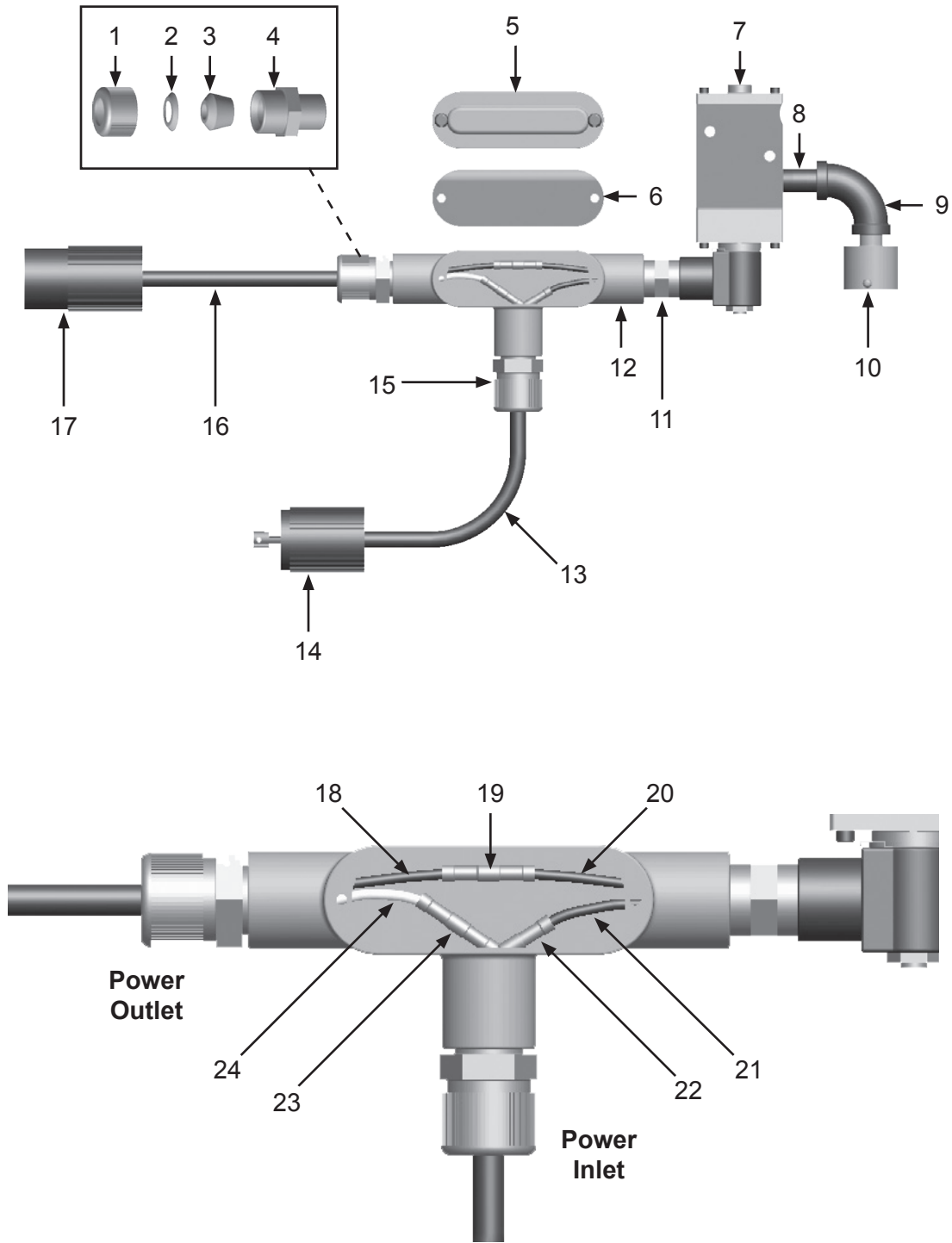
- 1) Remove Female Twist-Lock Plug (17), and Male Twist-Lock Plug (14).
- 2) Remove Dust Eliminator (10), Pipe Elbow (9), and Pipe Nipple (8) from Electric Solenoid (7).
- 3) Remove Cover (5) and Gasket (6).
- 4) Cut Black Wire (18) and Wire (20) and remove Butt Splicer (19).
- 5) Cut White Wire (24), 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 Solenoid 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 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 Solenoid 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 Electric Control Assembly



MAINTENANCE

Disassemble and Assemble Electric Solenoid

WARNING

W-562

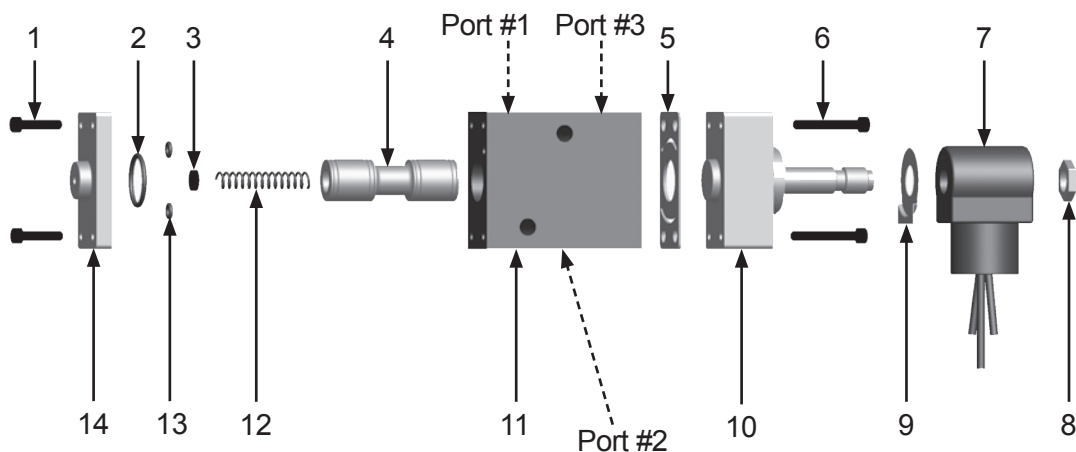
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

W-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.

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.

WARNING

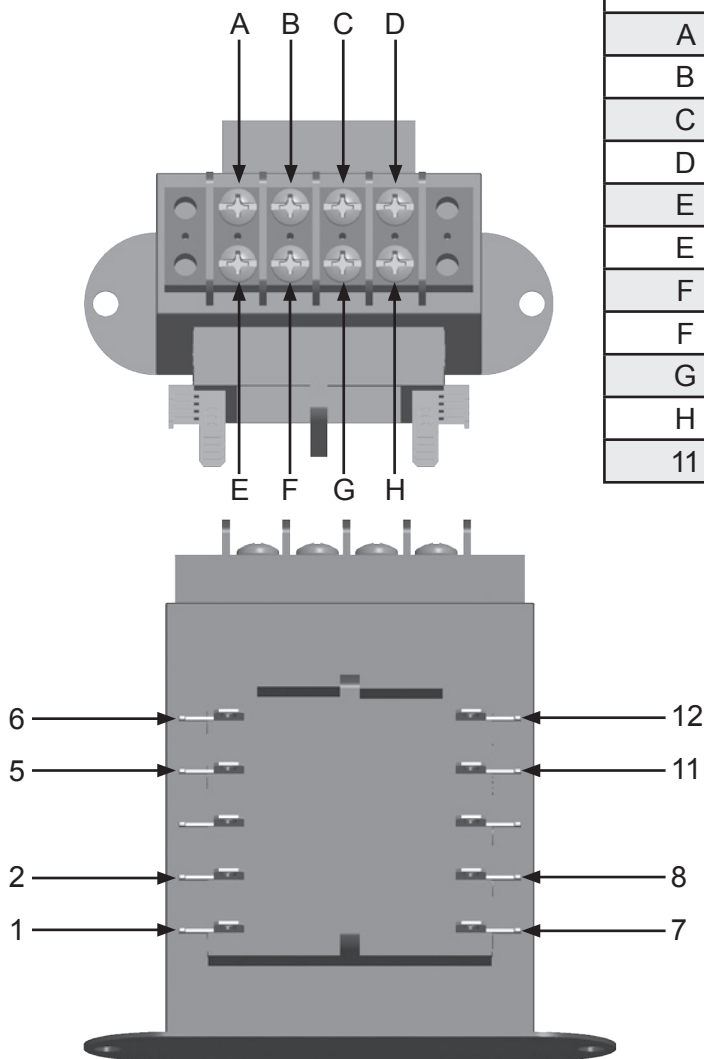
W-562

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-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.



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

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.

TROUBLESHOOTING

If the Blastmaster® 121E Remote Control System does not function properly, check the following:

WARNING

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

WARNING

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

WARNING

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

SYMPTOM (Cause)

Blast pot will not pressurize

(Damaged components, Pneumatic control line, Electric control line, Improper air supply)

ACTION

Inspect pneumatic control lines for correct routing, air leaks, blockage or pinch points. Tighten control line fittings if leaks are present. Replace damaged pneumatic control lines.

Ensure petcock located on Inlet Valve is in the closed position.

Insufficient air supply returning to Inlet Valve from electric control assembly. Open petcock on Inlet Valve. Activate remote control switch, air should exit petcock. If air does not exit petcock, inspect pneumatic control lines for leaks or blockage. Refer to remote control switch Operator's Manual.

Ensure vent port on upper cylinder of Inlet Valve is clear of obstruction. Clean vent port if obstructed.

Insufficient air supply. Ensure minimum of 50 PSI is supplied to the valves.

Inspect Inlet Valve and Outlet Valve for damage. Immediately replace damaged components.

Electric Controls:

Ensure adequate power supply is connected to electric inlet of electric control pilot valve assembly. Ensure electric control line to remote control switch is connected to electric outlet of electric control assembly.

Test electric connections for circuit continuity. Repair immediately. Inspect electric control assembly components for damage. Replace immediately if damaged.

Inspect electric control pilot valve for damage. Repair or replace as necessary.

Refer to Operator's Manual for the remote control switch and blast pot.

TROUBLESHOOTING

⚠ WARNING

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

⚠ WARNING

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

SYMPTOM (Cause)

ACTION

Inconsistent activation/deactivation

(Damaged components, Improper electrical connections)

Lubricate the Inlet Valve and Outlet Valve by introducing lightweight oil through the petcock on the Inlet Valve. This should be performed weekly.

Inspect Inlet Valve, Outlet Valve, and electric control assembly, and all pneumatic control lines, and electric control lines for damage. Replace damaged components immediately.

Ensure control air fitting on lower portion of Inlet Valve is not full port. Replace immediately with 1/16" orifice restrictor fitting.

Electric Controls:

Inspect Dust Eliminator for damage or blockage. Replace immediately if damaged.

Test electric connections for circuit continuity. Repair connections immediately.

Blast pot will not depressurize or depressurizes slowly

(Damaged components, Pneumatic control lines, Electric control lines, Obstruction in system exhaust)

Inspect pneumatic control lines for correct routing, air leaks, blockage or pinch points. Tighten control line fittings if leaks are present. Replace damaged pneumatic twinline or single line hoses.

Ensure control air fitting on lower portion of Inlet Valve is not full port. Replace immediately with 1/16" orifice restrictor fitting.

Ensure connections on pneumatic control line from Inlet Valve to Outlet Valve are secure and do not leak. Replace immediately if damaged.

Inspect Inlet Valve and Outlet Valve. Replace damaged components immediately.

Electric Controls:

Inspect electric control assembly for damage or blockage. Replace immediately if damaged.

Refer to Operator's Manual for the abrasive blasting remote control switch and blast pot.

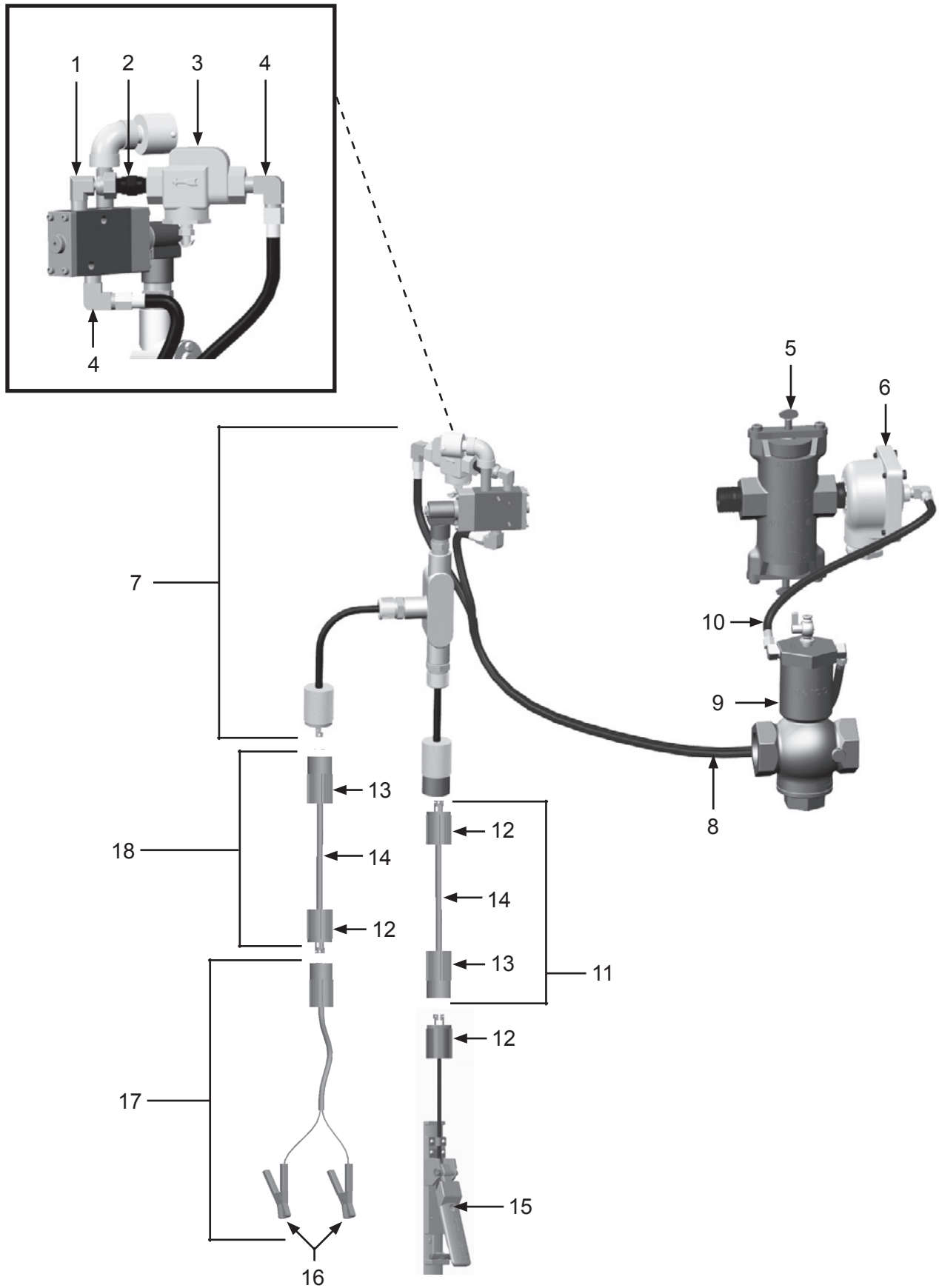
ASSEMBLY PART NUMBERS & SCHEMATICS

12-Volt DC Blastmaster® 121E Remote Control System

Item #	Part #	Description
Fig. 1		
—	10106737	12-Volt DC Blastmaster® 121E Remote Control System – Complete
1	1012326	1/4" NPT 90° Swivel Fitting
2	1017019	1/4" X 1/4" Hex Nipple
3	10WS	Watts Strainer
4	1012051	1/4" NPT Brass Elbow <i>(Two Required)</i>
5	1012000	Abrasive Trap
6	1012150	1" Diaphragm Outlet Valve
7	1019001	12-Volt DC 190 Electric Control Assembly
8	10TL5	Coupled Pneumatic Twinline Hose – 5 Feet
9	1012200	1-1/2" Inlet Valve – Complete
10	10CL18	Coupled Pneumatic Control Line – 18 inches
11	1015542	50 Feet of Electric Control Line with Male and Female Twist-Lock Plugs <i>(Includes Item #'s: 12, 13, and 14 (Quantity of 50 Feet))</i>
12	1015551	2-prong Twist-Lock Plug – Male
13	1015552	2-prong Twist-Lock Plug – Female
14	1015540	16/2 SJ Power Cord – per foot
15	1015100	Blastmaster® 151E Remote Control Switch – Complete
16	1030718	Battery Clamps (pair)
17	1015541	Battery Clamp Kit <i>(Includes Item #'s: 13, 14 (Quantity of Two Feet), and 16)</i>
18	1015543	25 Feet of Electric Control Line with Male and Female Twist-Lock Plugs <i>(Includes Item #'s: 12, 13, and 14 (Quantity of 25 Feet))</i>
—	105M141	Features and Specifications Guide – Blastmaster® 121E Remote Control System
—	105M063	Features and Specifications Guide – Blastmaster® 151E Remote Control Switch
—	106M141	Part Numbers & Schematics Guide – Blastmaster® 121E Remote Control System
—	106M063	Part Numbers & Schematics Guide – Blastmaster® 151E Remote Control Switches
—	1090063	Operator's Manual – Blastmaster® 151E Remote Control Switches
—	1090141	Operator's Manual – Blastmaster® 121E Remote Control System

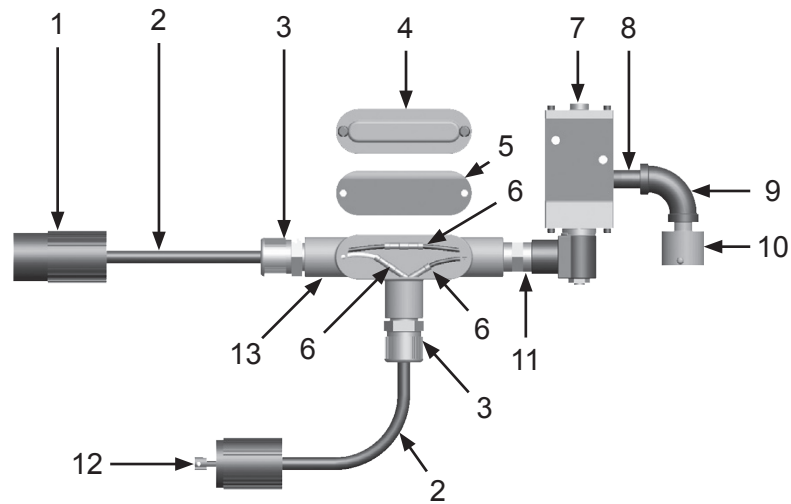
SCHEMATIC

Figure 1: 12-Volt DC Blastmaster® 121E Remote Control System



ASSEMBLY PART NUMBERS & SCHEMATIC

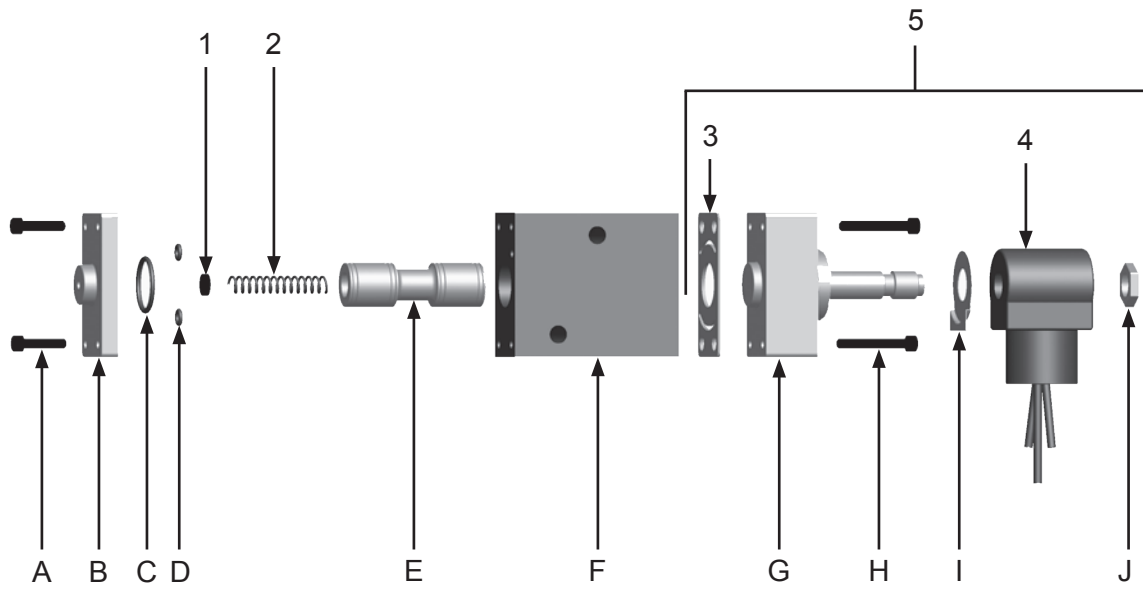
Figure 2: 12-Volt DC 190 Electric Control Assembly



Item #	Part #	Description
Fig. 2		
—	1019001	12-Volt DC 190 Electric Control Assembly – Complete
1	1015552	2-prong Twist-Lock Plug – Female
2	1015540	16/2 SJ Electric Cord – per foot
3	1019021	Cord Grip (<i>Two Required</i>)
4	1019022	Conduit Box Cover
5	1019023	Conduit Box Cover Gasket
6	1030028	Butt Splicer
7	1019010	12-Volt DC Electric Solenoid – Complete
8	1011217	1/4" x 2" Pipe Nipple
9	1011832	1/4" NPT 90° Pipe Nipple
10	10DE025	Dust Eliminator
11	20100677	1/2" x 1/2" NPT Hex Nipple
12	1015551	2-prong Twist-Lock Plug – Male
13	1090020	1/2" Tee Conduit Box
—	1091045	Hazard Identification Tag

ASSEMBLY PART NUMBERS & SCHEMATIC

Figure 3: 12-Volt DC 190 Electric Solenoid



Item #	Part #	Description
—	1019010	12-Volt DC 190 Electric Solenoid – Complete
1	1019029	Felt Filter
2	1019032	Spring
3	1019033	Gasket
4	1019039	12-Volt DC Coil
5	1019034	12-Volt DC Operator Assembly <i>(Includes Items: #3, #4, G, H, I, and J)</i>
—	1019030	Electric Solenoid Repair Kit <i>(Includes Items: #1, #2, #3, C, D, and E)</i>

* Items A–J are not available individually

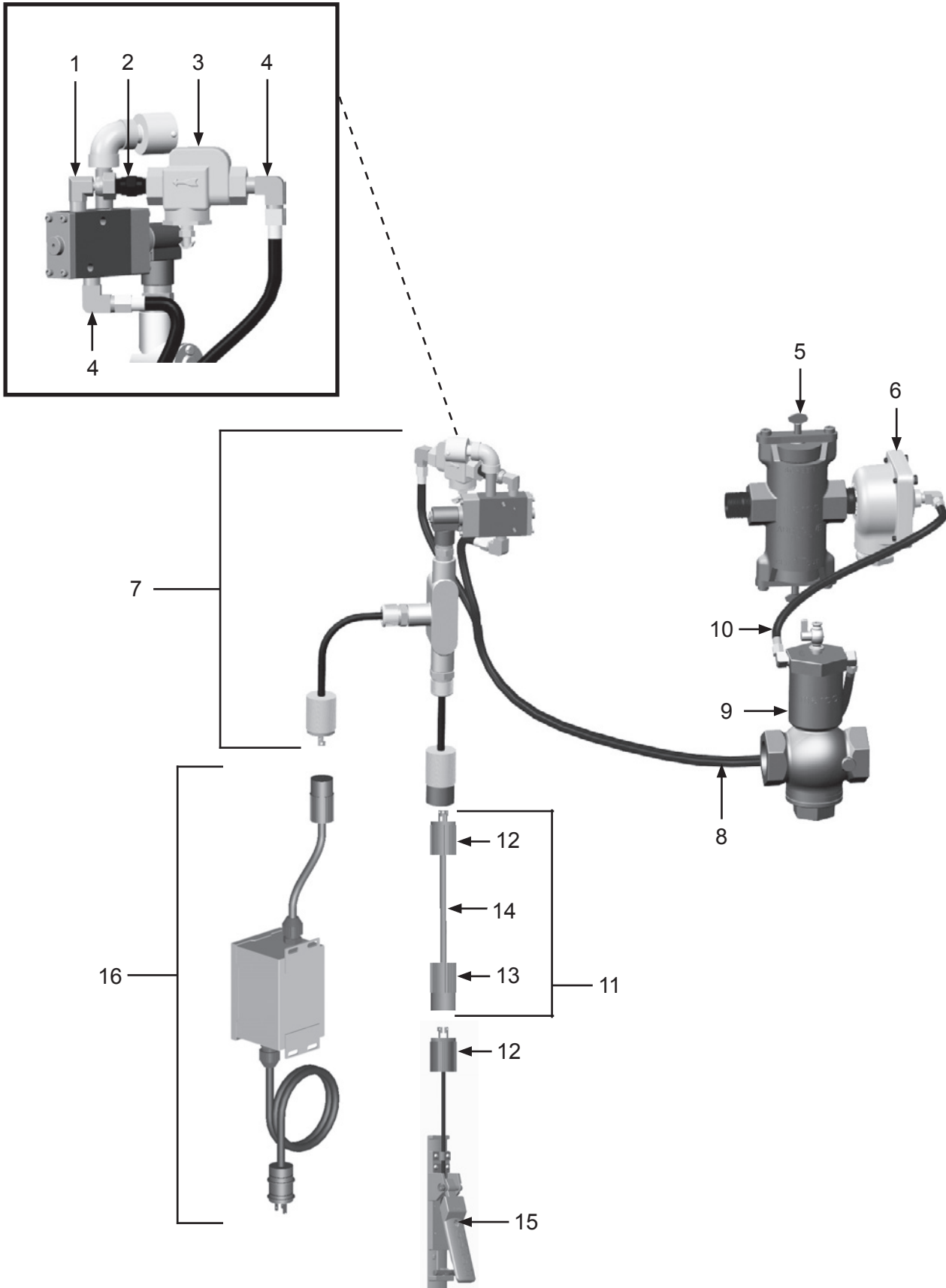
ASSEMBLY PART NUMBERS

120-Volt AC Blastmaster® 121E Remote Control System

Item #	Part #	Description
Fig. 4		
—	10106738	120-Volt AC Blastmaster® 121E Remote Control System – Complete
1	1012326	1/4" NPT 90° Swivel Fitting
2	1017019	1/4" X 1/4" Hex Nipple
3	10WS	Watts Strainer
4	1012051	1/4" NPT Brass Elbow <i>(Two Required)</i>
5	1012000	Abrasive Trap
6	1012150	1" Diaphragm Outlet Valve
7	1019001	12-Volt DC 190 Electric Control Assembly
8	10TL5	Coupled Pneumatic Twinline Hose – 5 Feet
9	1012200	1-1/2" Inlet Valve – Complete
10	10CL18	Coupled Pneumatic Control Line – 18 inches
11	1015542	50 Feet of Electric Control Line with Male and Female Twist-Lock Plugs <i>(Includes Item #'s: 12, 13, and 14 (Quantity of 50 Feet))</i>
12	1015551	2-prong Twist-Lock Plug – Male
13	1015552	2-prong Twist-Lock Plug – Female
14	1015540	16/2 SJ Power Cord – per foot
15	1015100	Blastmaster® 151E Remote Control Switch – Complete
16	1030020	Marco 120-Volt AC to 12-Volt AC Power Converter
—	105M141	Features and Specifications Guide – Blastmaster® 121E Remote Control System
—	105M063	Features and Specifications Guide – Blastmaster® 151E Remote Control Switch
—	106M141	Part Numbers & Schematics Guide – Blastmaster® 121E Remote Control System
—	106M063	Part Numbers & Schematics Guide – Blastmaster® 151E Remote Control Switches
—	1090063	Operator's Manual – Blastmaster® 151E Remote Control Switches
—	1090141	Operator's Manual – Blastmaster® 121E Remote Control System

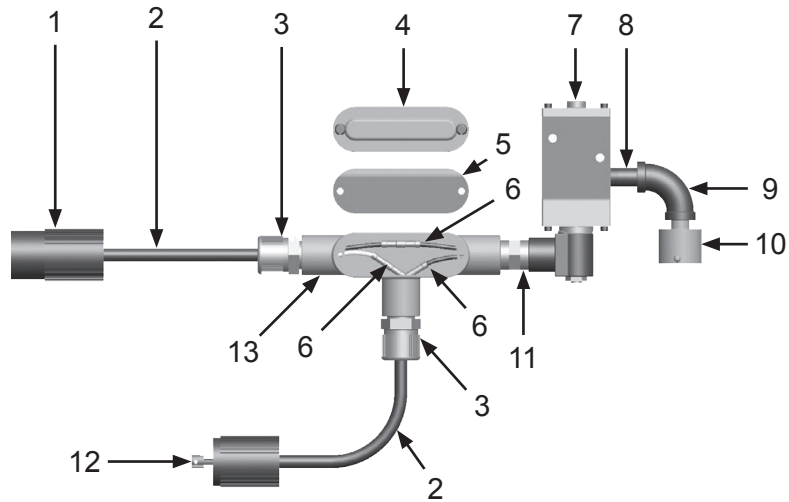
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Figure 4: 120-Volt AC Blastmaster® 121E Remote Control System



ASSEMBLY PART NUMBERS & SCHEMATIC

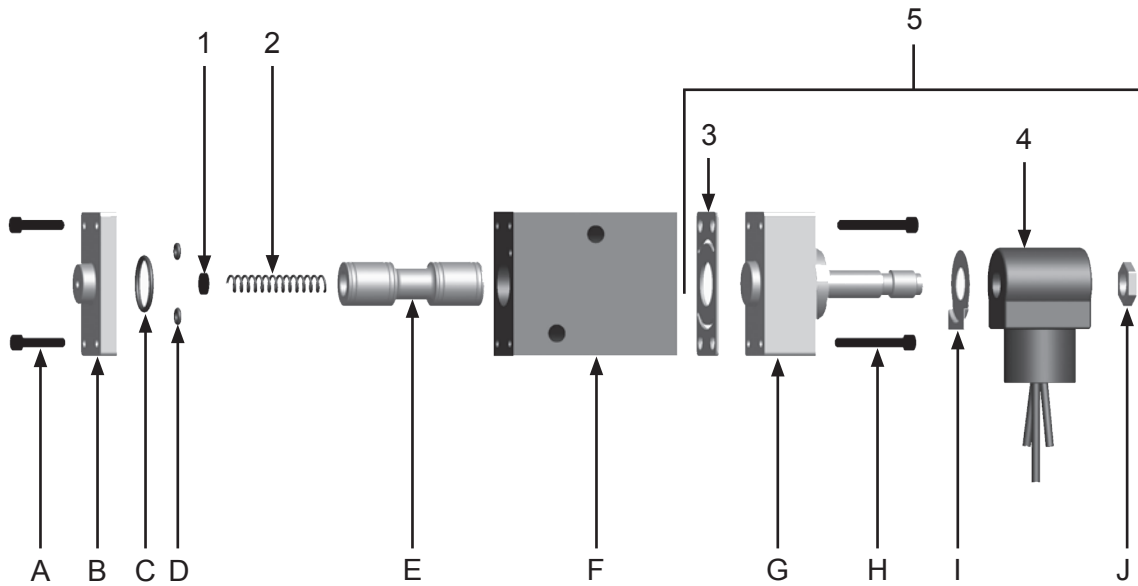
Figure 5: 12-Volt AC 190 Electric Control Assembly



Item #	Part #	Description
—	1019002	12-Volt AC 190 Electric Control Assembly – Complete
1	1015552	2-prong Twist-Lock Plug – Female
2	1015540	16/2 SJ Power Cord – per foot
3	1019021	Cord Grip (<i>Two Required</i>)
4	1019022	Conduit Box Cover
5	1019023	Conduit Box Cover Gasket
6	1030028	Butt Splicer
7	1019011	12-Volt AC Electric Solenoid – Complete
8	1011217	1/4" x 2" Pipe Nipple
9	1011832	1/4" NPT 90° Pipe Nipple
10	10DE025	Dust Eliminator
11	20100677	1/2" x 1/2" NPT Hex Nipple
12	1015551	2-prong Twist-Lock Plug – Male
13	1090020	1/2" Tee Conduit Box
—	1091045	Hazard Identification Tag

ASSEMBLY PART NUMBERS & SCHEMATIC

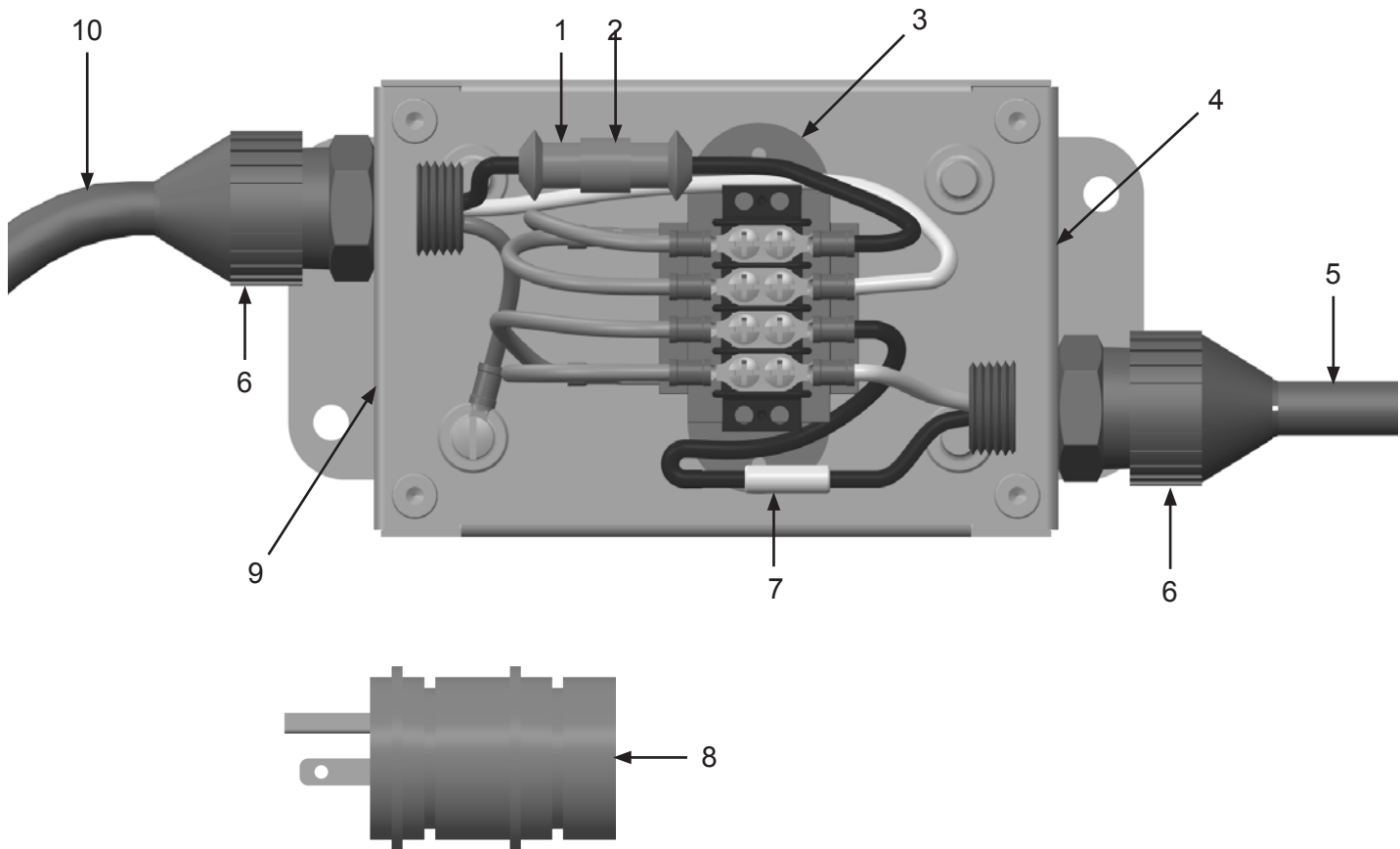
Figure 6: 12-Volt AC 190 Electric Solenoid



Item #	Part #	Description
Fig. 6		
—	1019011	12-Volt AC 190 Electric Solenoid – Complete
1	1019029	Felt Filter
2	1019032	Spring
3	1019033	Gasket
4	1019040	12-Volt AC Coil
5	1019035	12-Volt AC Electric Operator Assembly <i>(Includes Items: #3, #4, G, H, I, and J)</i>
—	1019030	12-Volt AC Electric Solenoid Repair Kit <i>(Includes Items: #1, #2, #3, C, D, and E)</i>
* Items A–J are not available individually		

ASSEMBLY PART NUMBERS & SCHEMATIC

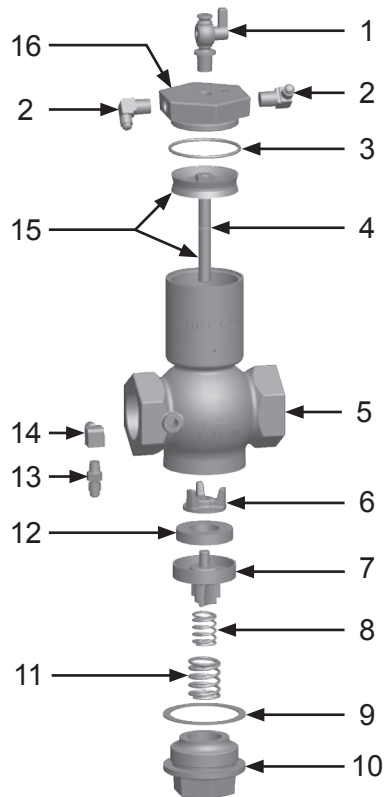
Figure 7: 120-Volt AC to 12-Volt AC Power Converter



Item #	Part #	Description
Fig. 7		
—	1030020	Blastmaster® 120-Volt AC to 12-Volt AC Power Converter with 3 feet of 14/2 Electric Cord and Plug – Complete
1	1030123	3 Amp Fuse
2	1030023	In-Line Fuse Holder
3	1030022	Transformer – Blastmaster 120-Volt AC to 12-Volt AC Power Converter
4	1091067	Power-Out Decal (<i>Not Shown</i>)
5	1030013	14/2 SEOW Electric Cord (<i>Per Foot</i>)
6	1030025	Strain Relief (<i>Two Required</i>)
7	1030021	Resistor
8	1030026	3-prong, 120-Volt AC Plug – Male
9	1092014	Power-In Decal (<i>Not Shown</i>)
10	1015550	14/3 SEOW Electric Cord (<i>Per Foot</i>)
—	1091063	Hazard Identification Decal

ASSEMBLY PART NUMBERS & SCHEMATIC

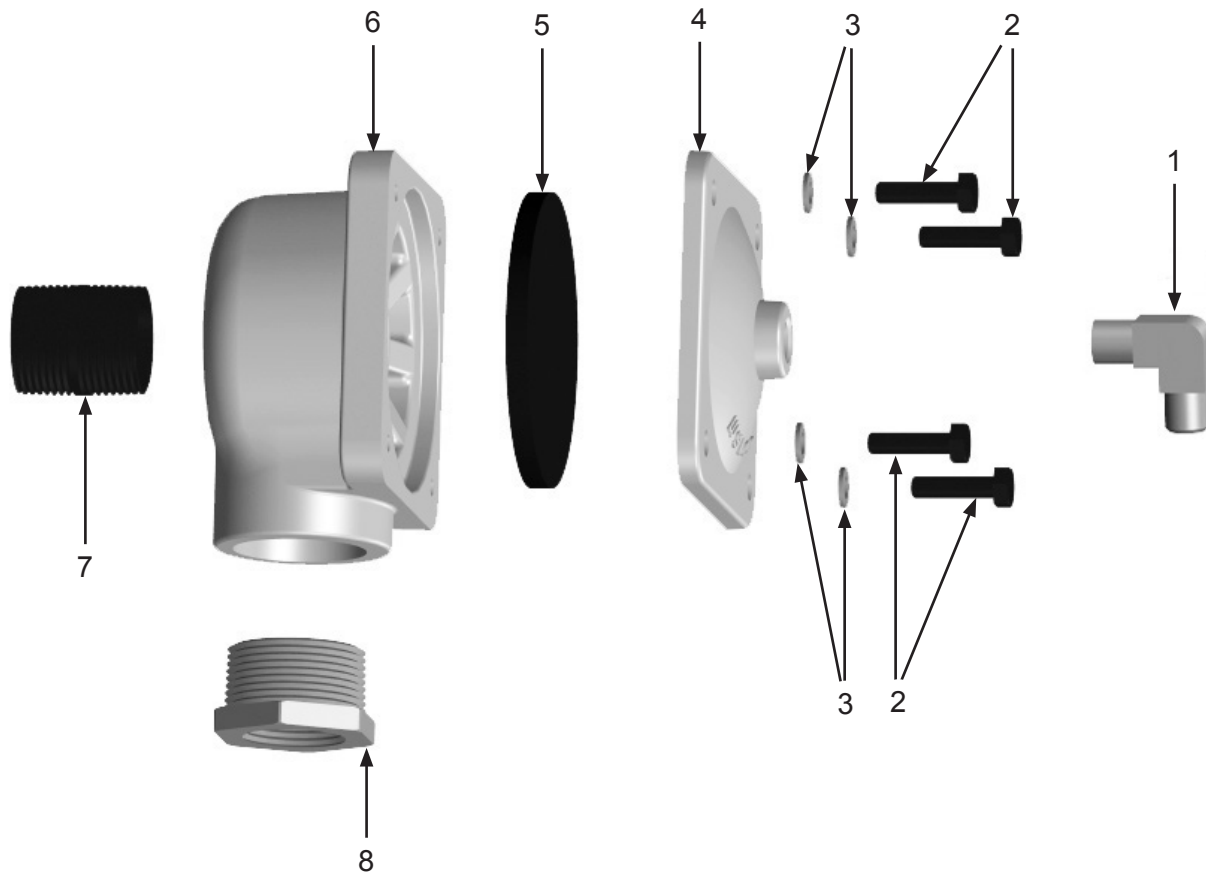
Figure 8: 1-1/2" Inlet Valve



Item #	Part #	Description
Fig. 8		
—	1012200	1-1/2" Inlet Valve – Complete
1	1012101	1/4" NPT Petcock
2	1012051	1/4" NPT Brass Elbow <i>(Two Required)</i>
3	1012213	1/8" x 2-1/2" O-ring
4	1012208	1/16" x 7/16" O-ring
5	1012204	1-1/2" Body
6	1012207	1-1/2" Plug Washer Retainer
7	1012205	1-1/2" Plug
8	1012105	5/8" x 1-11/16" Inner Spring
9	1012202	1-1/2" Bottom Cap Gasket
10	1012201	1-1/2" Bottom Cap
11	1012203	7/8" x 2-1/16" Outer Spring
12	1012206	1-1/2" Plug Washer
13	1012103	1/8" Adapter with 1/16" Restrictor Port
14	1012113	1/8" Street Elbow
15	1012209	Piston and Rod Assembly
16	1012214	1-1/2" Cylinder Cap
—	1012215	1-1/2" Inlet Valve Repair Kit <i>(Includes Item #'s: 3,4,8,9,11, and 12 (Quantity of Two))</i>

ASSEMBLY PART NUMBERS & SCHEMATIC

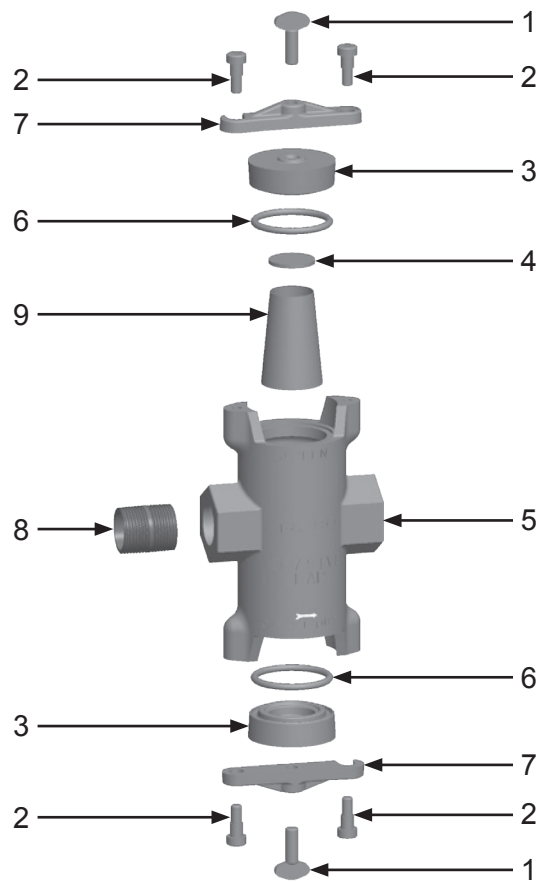
Figure 9: 1" Diaphragm Outlet Valve



Item #	Part #	Description
Fig. 9		
—	1012150	1" Diaphragm Outlet Valve Complete
1	1012051	Elbow 1/4" NPT x 7/16-20 Tap
2	1012154	1/4-20 x 1 Hex Bolt (Four Required)
3	1012153	1/4" Lock Washer (Four Required)
4	1012155	Cap Diaphragm Outlet Valve
5	1012152	Diaphragm Only
6	1012156	Body Diaphragm Outlet Valve
7	1012151	1" Galvanized Close Nipple
8	1012157	1-1/4" x 1" Bushing
—	1091045	Hazard Identification Tag
—	105M136	Features & Specifications Guide - Blastmaster® 1" Diaphragm Outlet Valve
—	106M136	Part Numbers & Schematics Guide – Blastmaster® 1" Diaphragm Outlet Valve
—	1090136	Operator's Manual – Blastmaster® 1" Diaphragm Outlet Valve

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Figure 10 : Abrasive Trap



Item #	Part #	Description
Fig. 10		
—	1012000	Abrasive Trap – Complete
1	1012006	Thumb Screw <i>(Two Required)</i>
2	1012007	3/8" x 3/8" Shoulder Bolt <i>(Four Required)</i>
3	1012003	Abrasive Trap Cap <i>(Two Required)</i>
4	1012008	Abrasive Trap Screen Gasket
5	1012004	Abrasive Trap Body
6	1012002	Abrasive Trap O-ring <i>(Two Required)</i>
7	1012005	Cap Lock Bar <i>(Two Required)</i>
8	1012151	1" NPT Close Nipple
9	1012001	Abrasive Trap Screen
—	1012009	Abrasive Trap Repair Kit <i>(Includes Item #'s: 4,6 (Quantity of Two), and 9 (Quantity of Three))</i>

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

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Davenport, IA 52803

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ph: 563.324.2519

fax: 563.324.6258

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- 701 East Boulevard
Deer Park, TX 77536

ph: 800.BLAST.IT (800.252.7848)

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