Marco®

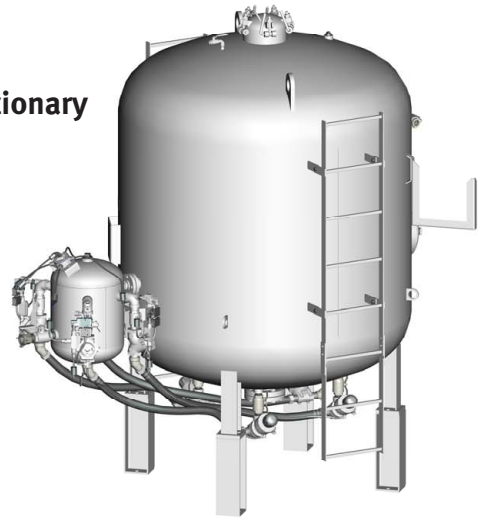
experience, trust, service

Operator's Manual
Part # 1090060
Revision: November 7, 2007

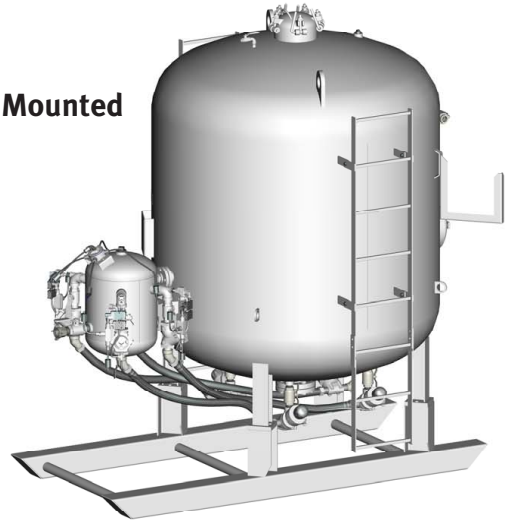
Big Red Series Blast Machine

160 CUBIC FOOT BULK BLAST MACHINE

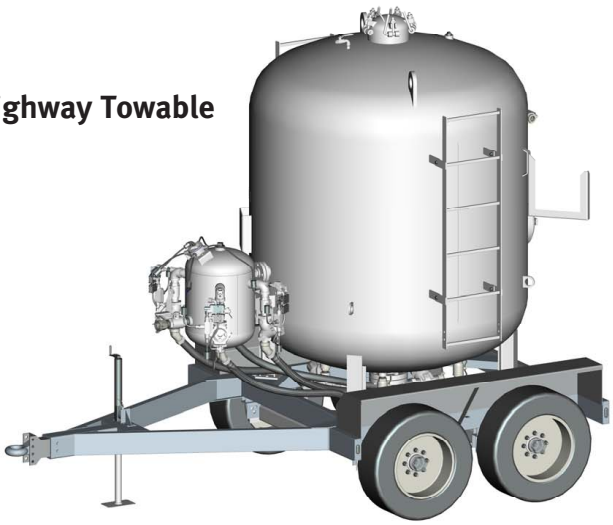
Stationary



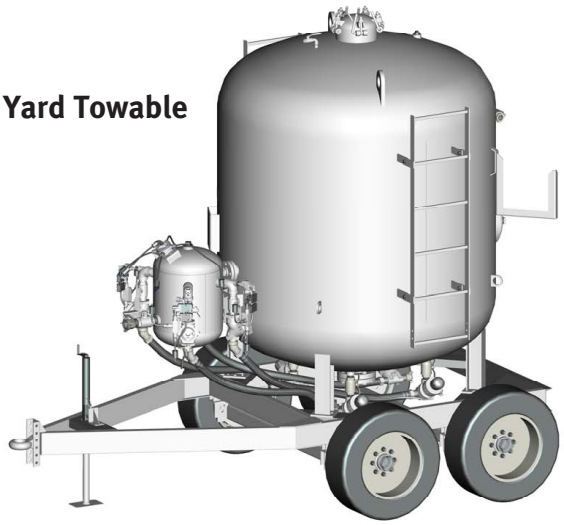
Skid Mounted



Highway Towable



Yard Towable



⚠ WARNING

Before using this equipment, read, understand and follow all instructions in the Operator's Manual. If the User or Assistants cannot read or understand the Warnings and Instructions, the Employer of the User and Assistants must provide adequate and necessary training to ensure proper Operation and Compliance with all Safety Procedures pertaining to this equipment. If Manuals have been lost, contact your Distributor or call (563) 324-2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

For more information call:

800-BLAST-IT

Phone: (800) 252-7848
Fax: (563) 324-6258
e-mail: sales@marcousa.com
www.marcousa.com

Vision Statement

To be the World's First Choice for Abrasives, Blasting, Painting, and Safety Equipment & Supplies.

Mission Statement

To provide leadership and innovation to the surface preparation industry. We will 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 and service of our products. As an ISO 9001:2000 registered company, Marco's quality systems assure our products will meet or exceed our Customer's expectations. Continuous Improvement in our processes and Supply Chain Integration comprise the core of our Business Strategy for delivering exceptional quality and value in every Marco product and service.

Management Philosophy

We are a Company dedicated to the success of every Customer and Associate. We will 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.

Table of Contents

Definition of Terms

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

⚠ WARNING

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

- Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during blasting operations, post-blast cleaning operations, and/or servicing equipment within the 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 medias or surfaces being blasted can remain suspended in the air for long periods of time after blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone blasting, handling or using the media, 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.
- Blast operators must receive thorough training on the use of media resistant attire which includes: supplied-air respirator, blastsuit, 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.
- Always depressurize the entire blasting system, disconnect all electrical 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.
- 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 media and compressed air resulting in death or serious injury. (OSHA 29 CFR 1910.244(b))
- Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or media stream at yourself or others.
- Unless otherwise specified, maximum working pressure of blast machines and related components must not exceed 125 psi. Exceeding maximum working pressure of 125 psi could cause the blast machine and components to burst.
- Never weld, grind or drill on the blast machine (or any pressure vessel). Doing so will void ASME certification and manufacturer's warranty. Welding, grinding or drilling on the blast machine (or any pressure vessel) could weaken the vessel causing it to burst. (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.
- 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 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 media 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 media and compressed air.
- Never hang objects from the blast machine handle. Doing so may cause the blast machine to become unstable and tip over.

⚠ WARNING

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

- Never attempt to move a blast machine containing media. Never attempt to manually move blast machines greater than 6.5 cubic foot capacity. Always use at least two capable people to manually move a blast machine on flat, smooth surfaces. A mechanical lifting device must be used if a blast machine is moved in any other manner.
- 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 media and compressed air. Only Marco remote control switches should be used with Marco remote control systems.
- Always be certain to have secure footing when blasting. There is a recoil hazard when blasting starts that may cause user to fall and misdirect the media stream at operator or bystander.
- Never use a blast machine or attachments as a climbing device. The person could slip and fall. The blast machine could become unstable and tip over.
- The use of this product for any purpose other than originally intended or altered from its original design is prohibited.
- 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.
- Ensure the surface is stable and is sufficient to support the weight of a Blast Machine full of media. Unstable surfaces and surfaces that cannot support the gross weight of a full blast machine could cause the blast machine to tip over.
- Do not fill the Blast Machine with more than 16,000 pounds of media. Filling the Blast machine with more than 16,000 pounds could cause damage to components.
- Blast machines are not intended for transport of personnel. Personnel should not be carried on the blast machine during transit or moving of the unit as they can fall from the unit.
- 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.
- Do not walk on, stand on or climb on the top head of blast machine. Doing so can damage the blast machine and poses a slip and fall hazard.
- Do not attach or stow any item that is not original equipment on the Blast Machine. Non-original equipment may become dislodged during transport and impact property or personnel.
- Failure to properly secure the blast machine during transport could cause the blast machine to become unstable. Use only the transport lugs affixed to the bottom of the blast machine as connection points for strapping devices adequate for the weight of the blast machine.
- Do not transport Trailer Mounted Blast Machines on transport devices with the wheel assemblies installed. The Blast Machine may become unstable causing unintended movement and disengage from the transport device.
- Ensure tongue jack of the trailer is properly engaged. Improper engagement of the tongue jack on trailer could cause the blast machine to become unstable causing the blast machine to tip.
- For Trailer Mounted Blast Machines, ensure sufficient blocking of the wheels is used reducing the possibility of movement of unit when in use or in storage. Lack of or insufficient blocking of the wheels could allow for unintended movement of the unit.
- 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 blast machine. For Yard Trailer Mounted Blast Machines, tighten wheel lug nuts weekly. For Highway Trailer Mounted Blast Machines, tighten wheel lug nuts after the first 50 miles of use. Check wheel lug nut torque every 90 days.
- Trailer Mounted Blast Machines are not designed for use on rough terrain. The Blast Machine could become unstable causing the unit to tip and disengage from the transport device.
- Do not exceed 45 miles per hour when towing a Highway Trailer Mounted Blast Machine on public roads. Do not tow Highway Trailer Mounted Blast Machine with media in the blast machine on public roads. A Highway Trailer Mounted Blast Machine can be towed with media in the blast machine at 15 miles per hour or less on non-public roads. Exceeding the speed rating could cause damage to components and the unit to become unstable causing it to tip over or cause the tow vehicle to become unstable.

⚠ WARNING

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

- Do not exceed 15 miles per hour when towing a Yard Trailer Mounted Blast Machine. Exceeding the speed rating can cause damage to components and the unit to become unstable causing it to tip over or cause the tow vehicle to become unstable.
- Before attempting to open the Hatch Assembly, ensure the blast machine is not pressurized by opening the Pressure Indicator Ball Valve located on the top of the blast machine. If air is released when the Pressure Indicator Ball Valve is opened do not attempt to open Hatch Assembly. Attempting to open the Hatch Assembly when the blast machine is pressurized could release high speed media and compressed air and allow the Hatch Assembly to be forced open. Follow proper depressurization instructions before proceeding.
- 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 blast machine could be under pressure. Ensure the Blast machine is depressurized before continuing with opening the Hatch Assembly.
- During the opening of the Hatch Assembly, any air pressure released from the area indicates the blast machine is still pressurized and the Hatch assembly can be propelled open. Stop immediately and depressurize the blast machine.
- Do not remove Clean-out Flange plate when the blast machine is pressurized. Removal of the Clean-out Flange Plate while the blast machine is pressurized will release high speed media and compressed air.
- Ensure all control lines and blast hose are installed to correct outlet of the blast machine. Multiple outlet blast machines should have designations for correct installation. Incorrect installation of blast hose and controls lines could cause inadvertent actuation of the remote control system releasing high speed media and compressed air.
- You are required to comply with local and state requirements regarding brakes, licensing and any additional equipment that may be necessary. Contact your state motor vehicle department for more information.

⚠ CAUTION

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

- Static electricity can be generated by media moving through the blast hose causing a shock hazard. Prior to use, ground the blast machine and blast nozzle to dissipate static electricity.
- High decibel noise levels are generated during the blasting process which may cause loss of hearing. Ensure appropriate Personal Protective Equipment and hearing protection is in use.
- For Trailer Mounted Blast Machines, ensure tow vehicle is disconnected from the trailer hitch during use and storage. Removing the trailer from the tow vehicle may reduce the possibility of unintended movement.
- Ensure highway trailer electric wiring harness is disconnected from a power source before maintenance is performed. Performing maintenance with the wiring harness connected to a power source can cause a shock hazard.
- Ensure content of blast machine is free of hazardous material before entry. If hazardous material is detected, follow prescribed methods for handling the material.
- Ensure the person entering the blast machine can pass through the 12” x 16” manway opening as they can become wedged.
- When entering and exiting the blast machine via the manway, ensure the surface in the blast machine is stable. Loose media in the blast machine may cause a slip / fall hazard.
- Before towing this trailer check that: Coupler Hitch and trailer ball are the same size. Coupler is latched. Safety chains are crisscrossed under tongue and attached to towing vehicle. All trailer lighting is working correctly. Load is secured to trailer front and rear. Tongue Jack (if trailer is equipped) is retracted. Tilt in is latched. Wheel lug bolts are properly tightened. Tires are inflated to pressure indicated on the tire. Trailer brakes (if trailer is equipped) are properly adjusted and break-away device is attached to towing vehicle. Load is within trailer capacity and distributed properly to maintain proper tongue weight.

NOTICE

- Always use media that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, metering valve and blast nozzle.
- Moisture build-up occurs when air is compressed. Any moisture within the blast system will cause medias to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the blast machine. 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 media intrusion in the air supply hose, depressurize the Blast Machine before shutting off air supply from compressor.
- Inspect nozzle before placing in service. Damage to nozzle liner or jacket may occur during shipping. If you receive a damaged nozzle, contact your distributor immediately for replacement. Nozzles placed in to service may not be returned. Nozzle liners are made of fragile materials and can be damaged by rough handling and striking against hard surfaces. Never use a damaged blast nozzle.
- Blasting at optimal pressure for the media used is critical to productivity. Example: For a media with an optimal blasting pressure of 100 psi at the nozzle, one pound per square inch of pressure loss will reduce blast 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 media supplier for the requirements of your media.
- Replace Blast Nozzle if liner or jacket is cracked or damaged. Replace nozzle if original orifice size has worn 1/16” or more. Determine nozzle wear by inserting a drill bit 1/16” larger than original size of nozzle orifice. If drill bit passes through nozzle, replacement is needed.
- When it comes to media & air mixtures, more is not necessarily better. Optimum blasting efficiency takes place when a lean media & air mixture is used. To correctly set the metering valve, begin with the valve fully closed and slowly increase the amount of media entering the airstream. As you increase the media flow, watch for a "blue flame" *(Figure 1)* at the exit of the nozzle. Faster cutting, reduced media consumption and lower clean up costs, are benefits of the "blue flame".
- See Media Consumption Chart for consumption rates and required air flow (cubic feet per minute). The system must meet these minimum requirements to ensure proper function and performance.

NOTICE

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

NOTICE

See Media Consumption Chart for consumption rates and required air flow (cubic feet per minute). The system must meet these minimum requirements to ensure proper function and performance.

NOTICE

Blasting at optimal pressure for the media used is critical to productivity. Example: For a media with an optimal blasting pressure of 100 psi at the nozzle, one pound per square inch of pressure loss will reduce blast 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 media supplier for the requirements of your media.

NOTICE

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

NOTICE

▶ When it comes to media & air mixtures, more is not necessarily better. Optimum blasting efficiency takes place when a lean media & air mixture is used. To correctly set the metering valve, begin with the valve fully closed and slowly increase the amount of media entering the airstream. As you increase the media flow, watch for a "blue flame" *(Figure 1)* at the exit of the nozzle. Faster cutting, reduced media consumption and lower clean up costs, are benefits of the "blue flame".

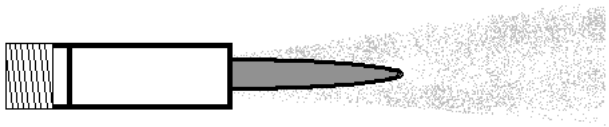


Figure 1

Media Consumption Chart*

Nozzle Orifice	Pressure at the Nozzle (psi)								Air (in cfm), Media & 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) Media (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) Media (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) Media (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) Media (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) Media (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) Media (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) Media (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) Media (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) Media (lbs/hr) Compressor Horsepower

*Media consumption is based on media with a bulk density of 100 lbs per Cu. Ft..

Big Red Series Blast Machine

Description

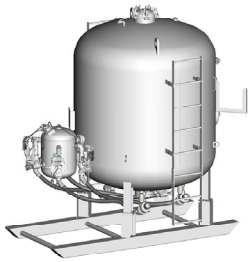
Marco's new Big Red Series Bulk Blast Machine is rugged, relentless and reliable. When you are tackling a big job, go with Big Red, Marco's 160 Cubic Foot capacity bulk blast machine. Big Red offers several unique design features which set it apart from the competition; a 4" Flanged Clean-out Port on the bottom of the vessel replacing the commonly used pipe plug for easy maintenance, Bolt-on Ladders with Square Rungs allow for easier repair, four Tie-down Lugs welded to the vessel provide strong connection points for securing Big Red during transport and two Hose Storage Brackets made of 1/4" angle iron helps reduce jobsite clutter. Marco's Big Red Series Blast Machines incorporates standard features such as a 1600 CFM Moisture Separator with enhanced moutning bracket, Union End Ball Valves between vessel and metering valve allow an operator to easily shut down an outlet to perform maintenance and it is rated for 150 psi working pressure for today's high output compressors increasing productivity through higher blasting pressure at the nozzles, all optional upgrades on other bulk units.

Choose from 2-, 3- or 4-Outlets with pneumatically or electrically controlled KwikFire 130 Remote Control Systems. The combination of the durable Gatekeeper Air Valve and precise metering capability of the Maxum Metering Valve provide absolute control throughout the blasting process. The Big Red Series Bulk Blast Machine can be mounted on one of four platforms: Stationary Legs, Skid Mounted, Yard Towable or Highway Towable. The Yard and Highway Towable trailers are custom designed using 2" x 6" Box Tubing providing a strong base with heavy-duty 16-ply tires to support the vessel filled to capacity. Both trailers utilize an adjustable pintle hitch to match the tow vehicle height and a replaceable trailer jack. Reliable, easily maintained, and operator-friendly – Marco's Big Red Series Blast Machine is the right tool for serious industrial blasting work.

Features:

- 150 PSI ASME-Code Rated Vessel – High working pressure for increased productivity
- 4" Flanged Clean-out Port for easy maintenance
- This unit can be mounted on one of four of platforms:
  - Stationary Legs: 20" high stationary legs for mounting on a permanent location
  - Skid Mounted: fabricated of 6" square tubing
  - Yard Towable: frame constructed of 2" x 6" box tubing on heavy-duty 16-ply construction tires for increased mobility on the jobsite
  - Highway Towable: includes hydraulic brakes, marker lights and fenders for use on public roads
- 1600 CFM Moisture Separator with enhanced mounting bracket assists with removing excess moisture
- 10" fill port with Camlock Closure System for quick & easy loading of abrasives
- Pressure Indicator Ball Valve near the Hatch provides a secondary checkpoint the vessel is not pressurized before opening
- Lifting Lugs are positioned for lifting by crane or fork lift
- Four Tie-down Lugs provide connection points to secure the unit during transport
- Bolt-on Ladders with Square Rungs on each side of the unit for easy maintenance access
- Hose Storage Brackets constructed of 1/4" angle iron
- KwikFire 130 Remote Control System incorporates the precise Maxum Metering Valve and durable Gatekeeper Air Valve

Big Red Series Blast Machine

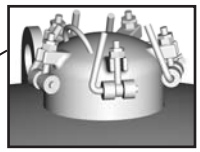


Skid Mounted Models

1600 CFM Moisture Separator with Enhanced Mounting Bracket

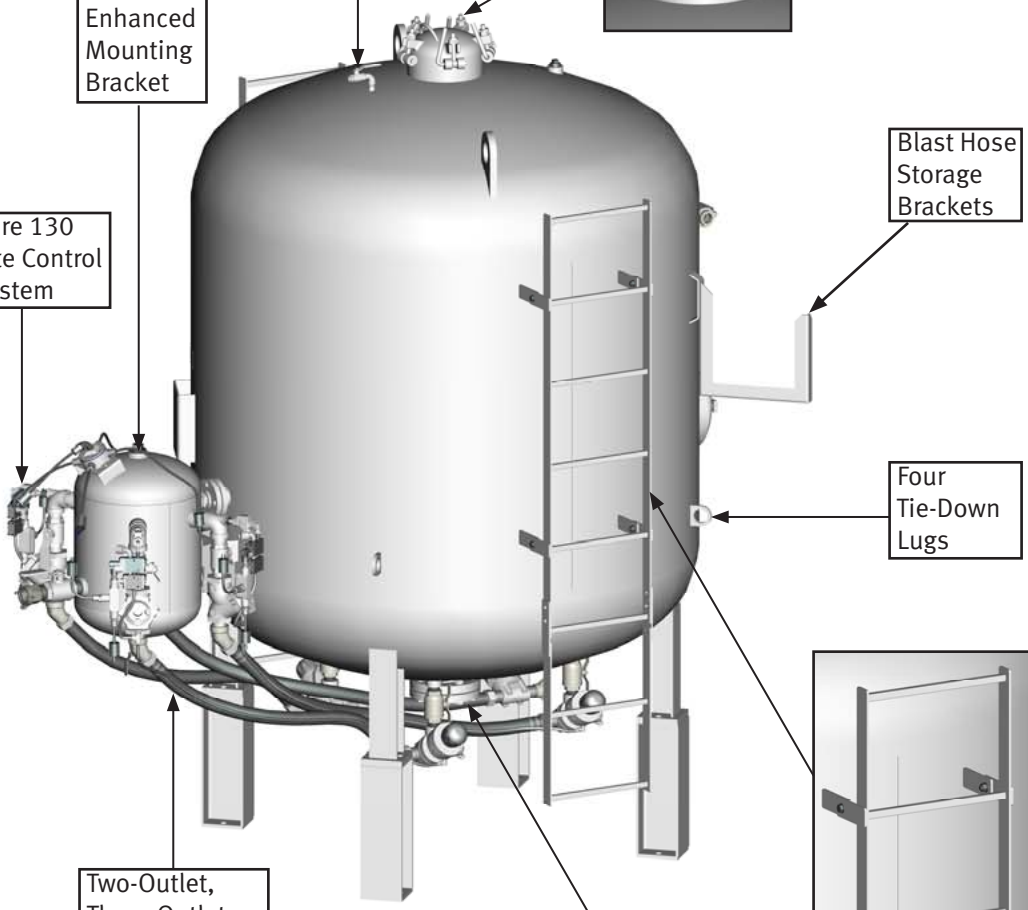
Pressure Indicator Ball Valve

5-Camlock Closure System

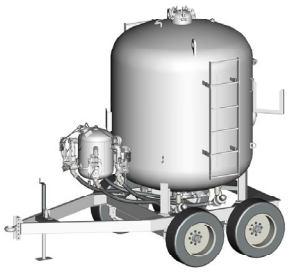


Blast Hose Storage Brackets

KwikFire 130 Remote Control System



Four Tie-Down Lugs

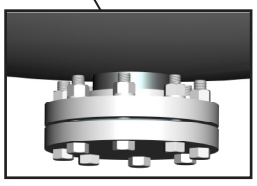


Yard Towable Models

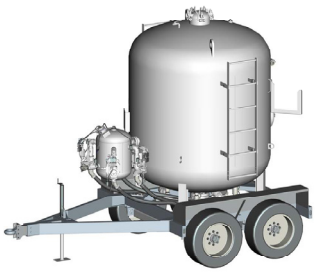
Two-Outlet, Three-Outlet and Four-Outlet Models

Stationary Models

Bolt-on Ladders with Square Rungs



4” Flanged Clean-out Port



Highway Towable Models

Stationary & Skid Mounted Models Dimensions

Figure 2

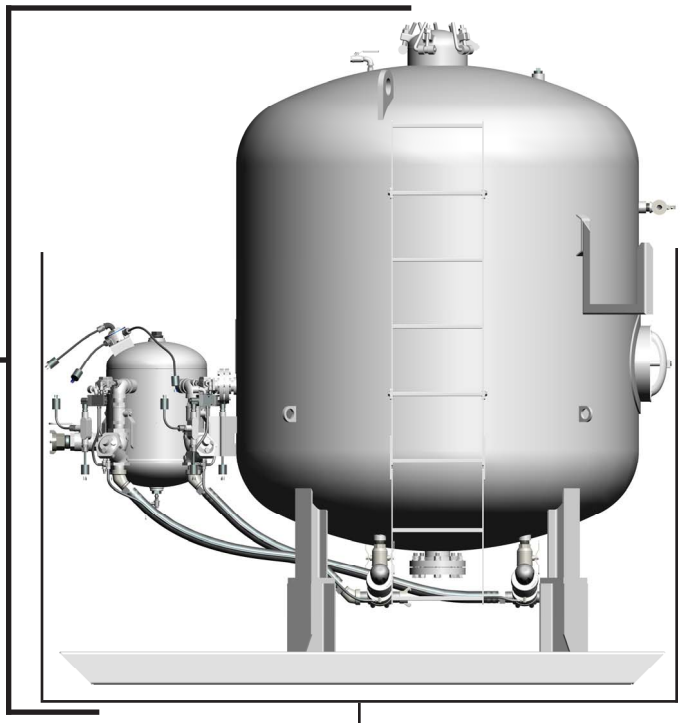
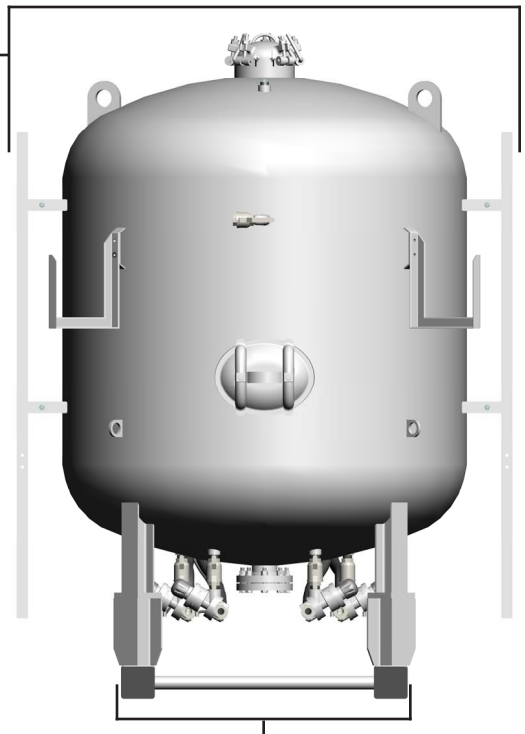


Figure 3



Weight:
Stationary Model - 3960 pounds

Skid Mounted Model - 4260 Pounds

Trailer Mounted Models Dimensions

Figure 4

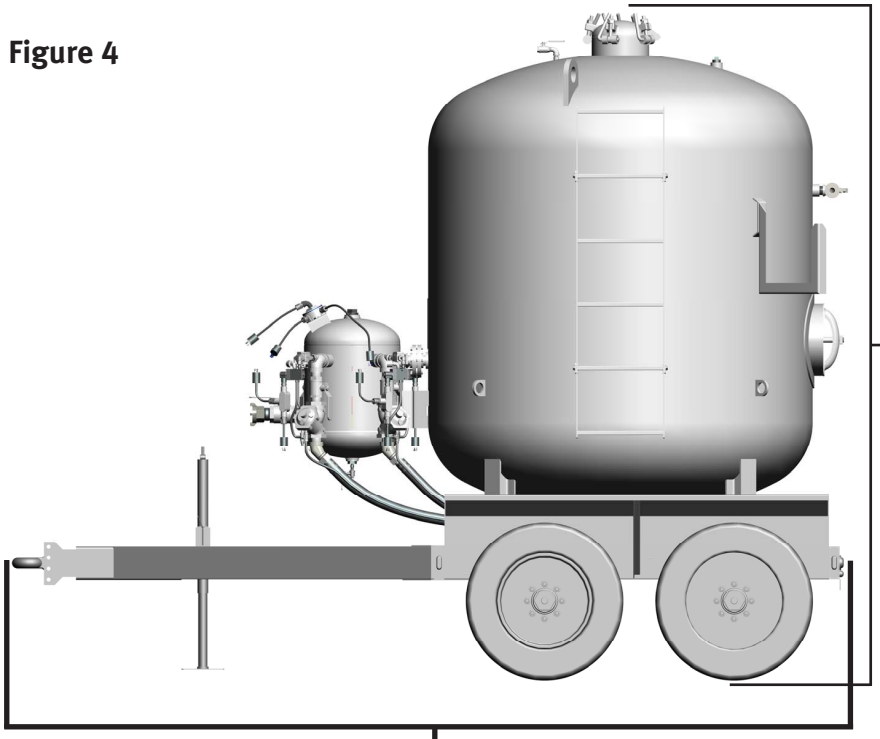


Figure 5

Weight:
Yard Towable Trailer - 4360 pounds

Highway Towable Trailer - 4560 Pounds

Big Red Series Blast Machine

160 Cubic Foot Bulk Blast Machine

⚠ WARNING

Do not fill the Blast machine with more than 16,000 pounds of media. Filling the Blast machine with more than the 16,000 pounds could cause damage to components. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Before attempting to open the Hatch Assembly, ensure the blast machine is not pressurized by opening the Pressure Indicator Ball Valve located on the top of the blast machine. If air is released when the Pressure Indicator Ball Valve is opened do not attempt to open Hatch Assembly. Attempting to open the Hatch Assembly when the blast machine is pressurized could release high speed media and compressed air and allow the Hatch Assembly to be forced open. Follow proper depressurization instructions before proceeding. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

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 blast machine could be under pressure. Ensure the Blast machine is depressurized before continuing with opening the Hatch Head. Failure to comply with the above warning could result in death or serious injury.

Operational Requirements

The following may cause safety hazards or reduced performance:

- Insufficient volume of compressed air
- Improper installation and/or maintenance of components
- Incorrect lifting/transporting of Blast Machine or incorrect or worn lifting devices
- Failure to place Blast Machine on surface capable of supporting the weight of the Blast Machine with media
- Failure to properly secure Trailer-mounted models from movement
- Exceeding recommended speed limit when towing Trailer-mounted models
- Use of media that is not properly dried and screened of debris

Operating Instructions

Before using:

Figure 6

- Ensure Bulk Blast Machine is on a stable surface. Ensure Trailer Mounted units are secured to stop unintended movement.
- Ensure Bulk Blast Machine is not pressurized. Ensure Inlet Ball Valve (8) located on the Moisture Separator is in the position.
- Ensure Exhaust Ball Valve (9) on the side of the vessel is in the open position. Ascend ladder to inspect Pressure Indicator Ball Valve (7). Open Pressure Indicator Ball Valve (7), if any air is released from the Pressure Indicator Ball Valve stop immediately. Descend the ladder and open Exhaust Ball Valve (9) to release air pressure. If no air is released from the Pressure Indicator Ball Valve continue with opening the Hatch.
- To open Hatch, move Camlock (1) to the down position by hand only. Do not use any device or tool to aid in moving the Camlock. Do not move Swing Bolt (6) at this time. Move each Camlock to the down position in sequence shown. If at any time during the moving of the Camlocks, air is released from the Hatch opening, stop immediately. Move all Camlocks to the up position and descend the ladder. Ensure Air Inlet Ball Valve (8) is in the closed position and Exhaust Ball Valve (9) is in the open position. If air is not released when the Camlocks are in the down position, continue with opening the Hatch.
- Move Swing Bolt (1) to the down position. Move each Swing Bolt to the down position in a star pattern with Swing Bolt (5) being the last one. If at any time during the moving of the Swing Bolts, air is released from the Hatch opening, stop immediately. Return all Swing Bolts to the up position and return the Camlocks to the up position and descend the ladder. Ensure Air Inlet Ball Valve (8) is in the closed position and Exhaust Ball Valve (9) is in the open position.
- Inspect Hatch O-ring for damage and proper seating in groove, replace if needed. Ensure all components are free of corrosion and damage, replace if needed. Ensure Camlocks and Swing Bolts move freely without binding, replace if needed. Visually inspect internal components and media level in vessel before filling.

Big Red Series Blast Machine

160 Cubic Foot Bulk Blast Machine

Operating Instructions:

⚠ WARNING

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.

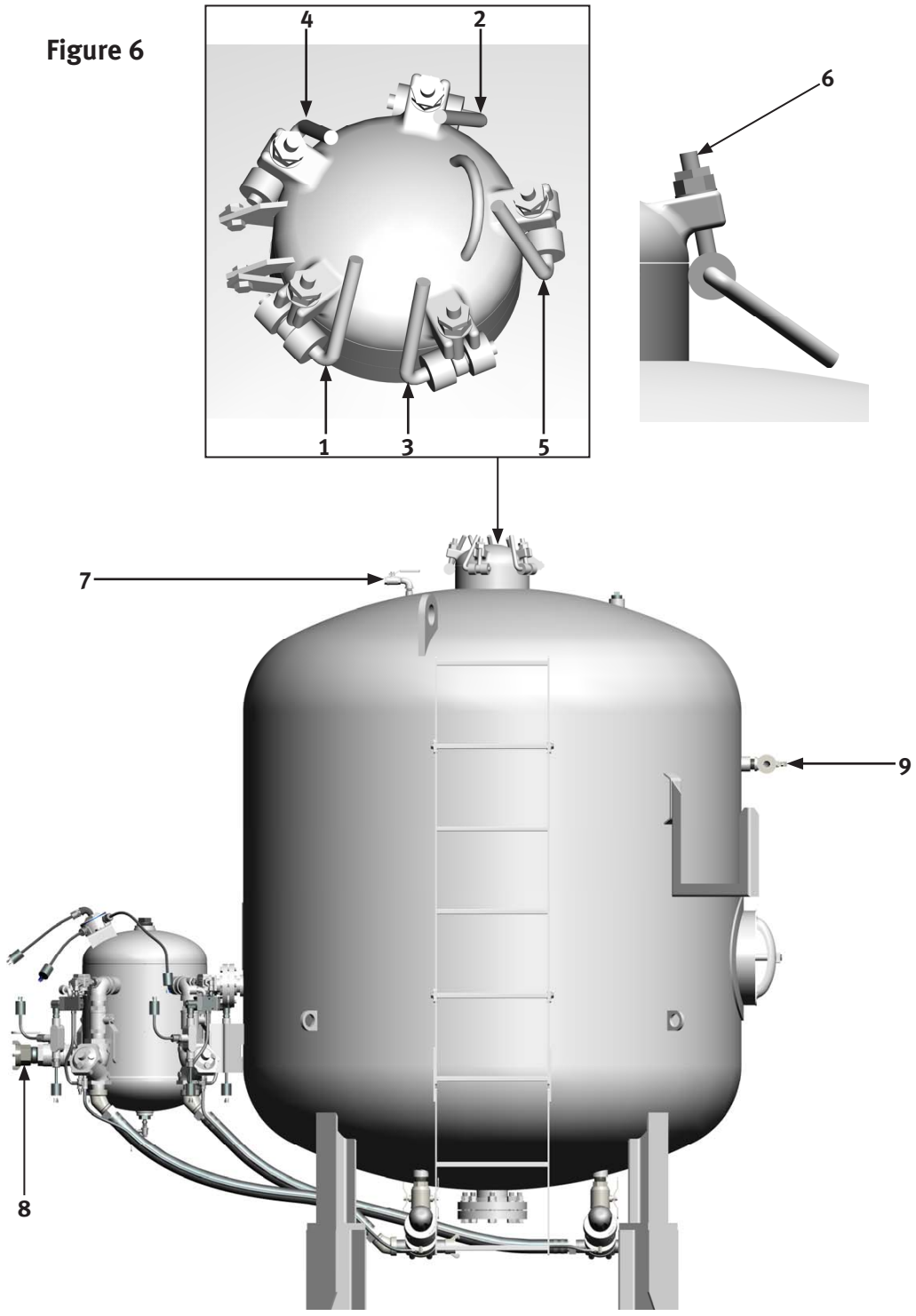
⚠ WARNING

Do not walk on, stand on or climb on the top head of blast machine. Doing so can damage the blast machine and poses a slip and fall hazard. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

Crushing and pinching are normal functions of this component. 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.

Figure 6



⚠ WARNING

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

⚠ WARNING

Ensure all remote control lines and blast hose are installed to correct outlet of the blast machine. Incorrect installation of blast hose and remote control lines could cause inadvertent actuation of the remote control system releasing high speed media and compressed air. Failure to comply with the above warning could result in death or serious injury.

⚠ CAUTION

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

⚠ WARNING

Trailer Mounted Blast Machines are not designed for use on rough terrain. The Blast Machine could become unstable causing the unit to tip and disengage from the transport device. Failure to comply with the above warning could result in death or serious injury.

Big Red Series Blast Machine

160 Cubic Foot Bulk Blast Machine

Operating Instructions

Before using:

Figure 7

- After filling with media, close Hatch. Move Swing Bolt (1) to the up position with Flat Washer (2) next to Holding Lug (3) on the Hatch. Continue moving the remaining Swing Bolts to the up position. Do not use any device other than the hand to seat the Swing Bolts.

Figure 8

- Move Camlock (1) to the up position. Continue moving the remaining Camlocks to the up position in the sequence shown. Do not use any device other than the hand to seat the Camlocks.
- Ensure Pressure Indicator Ball Valve is in the closed position. Descend the ladder.

During use:

Figure 9

- Install Blast Hose to each Metering Valve (5) that will be in use. Ensure Union End Ball Valve (6) above each metering valve that will be in use is in the open position.
- See Remote Control Operator's Manual for proper installation of control lines.
- Attach air supply hose to the Inlet Ball Valve (2).
- To pressurize the Blast Machine, close the Exhaust Ball Valve (7). Open Inlet Ball Valve (2) to allow air to enter the vessel. Open Moisture Separator Drain Ball Valve (3) slightly to allow water to constantly drain during use.
- Once the unit is pressurized blasting can begin. See the Remote Control System Operator's Manual for correct activation procedure.
- Monitor Blast Machine components during use. Cease operation and depressurize system immediately if any components become damaged.
- To depressurize the vessel, follow steps in the **Before Use** section of this operator's manual.
- To fill the Blast Machine with media, follow steps in the **Before Use** section of this Operator's Manual.

After use:

Figure 9

- Do not leave Hatch (1) open when Blast Machine is not in use to keep debris and water from entering the vessel.
- Disengage air supply hose from Inlet Ball Valve (2). Open Moisture Separator Drain Ball Valve (3) to release residual water.
- To remove media from the vessel, remove Flange Cover (4) on the bottom of vessel. See Maintenance Section of this manual for proper removal.

Figure 10

- For Trailer Mounted units, ensure wheel blocking is removed and the Tongue Jack (1) is in the up position. On Highway Towable models, connect Wiring Harness (2) to tow vehicle before moving. The maximum speed for a Yard Towable unit is 15 miles per hour. Do not exceed 15 miles per hour on non-public roads when media is present in a Highway Towable model. Do not transport a Highway Towable model on public roads with media in the vessel. For Highway Towable models, do not exceed 45 miles per hour when traveling on public roads.

Big Red Series Blast Machine

160 Cubic Foot Bulk Blast Machine

Operating Instructions

Figure 7

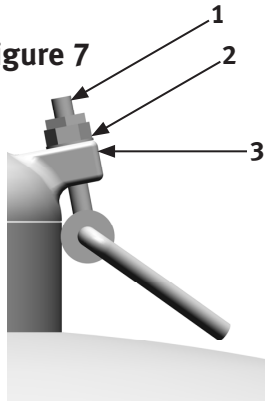


Figure 8

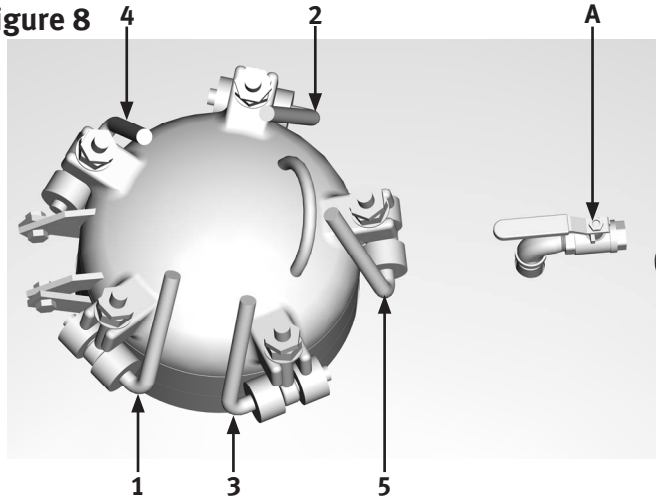


Figure 9

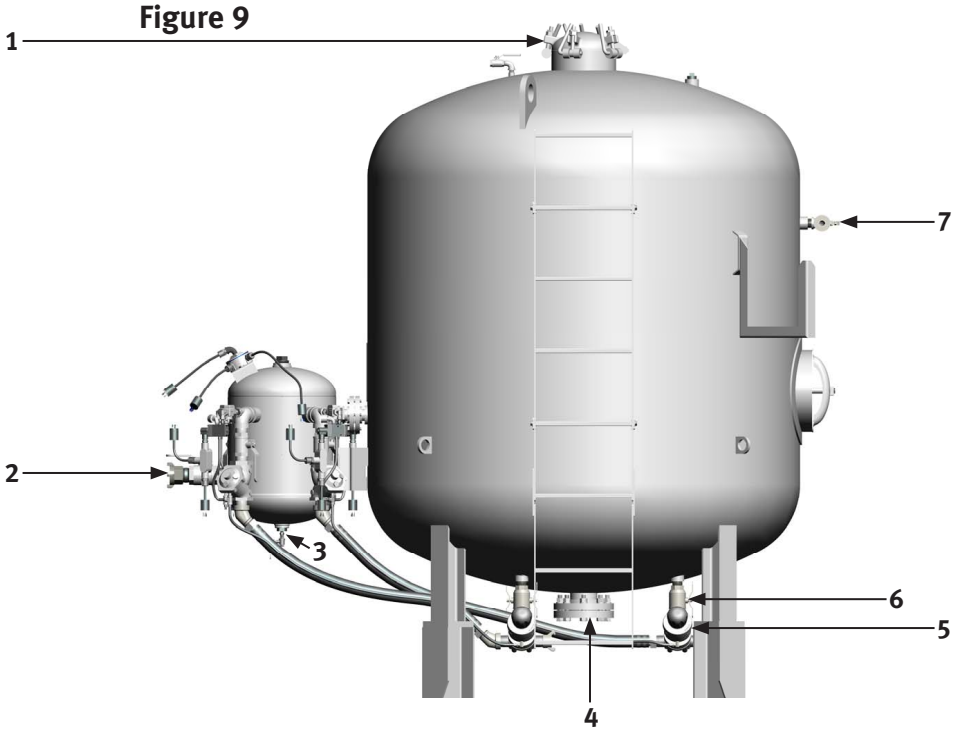
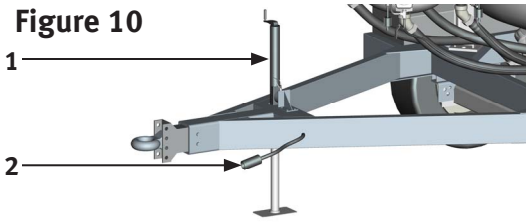


Figure 10



Big Red Series Blast Machine

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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 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 Blast Machine could be under pressure. Ensure the Blast Machine is depressurized before continuing with opening the Hatch Assembly. 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 blast machine is still pressurized and the Hatch Assembly can be propelled open. Stop immediately and depressurize the Blast Machine. Failure to comply with the above warning could result in death or serious injury.

Troubleshooting

If the Big Red Blast Machine does not function properly, check the following:

SYMPTOM (Cause)	**ACTION**
Blast Machine will not pressurize or pressurizes slowly (Damaged components, Insufficient air compressor output capacity)	Ensure Inlet Ball Valve is in the open position. Inspect for damage. Replace damaged components. Ensure Hatch Assembly 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.
Blast machine will not depressurize (Damaged components)	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 Machine, close Inlet Ball Valve. Terminate air supply from compressor. 3) Turn 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 Machine 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 opening the Hatch Assembly. Inspect internal piping of the Blast Machine 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 Closure Head. Inspect internal piping of the Blast Machine for damage. Replace damaged Exhaust Ball Valve and piping immediately.

Big Red Series Blast Machine

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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.

Troubleshooting

If the Big Red Blast Machine does not function properly, check the following:

SYMPTOM (Cause)	**ACTION**
Air and media do not exit blast nozzle (Blast Machine is not pressurized, Malfunctioning Remote Control System)	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 nozzle for blockage. Repair or replace immediately.
Only air exits blast nozzle (Blast Machine does not have media in it, Malfunctioning Remote Control System)	Follow instructions in the Before Use section of this manual. Fill Blast Machine with media. Ensure Union End Ball Valve between Blast Machine and Metering Valve is in the open position. Ensure media is dry and free of debris. If media is wet, empty media from Blast Machine and replace with dry media. Consult Remote Control System and Remote Control Handle Operator's Manual.
Only media exits blast nozzle (Closed or damaged Choke Valve, Malfunctioning Remote Control System or Remote Control Handle)	Ensure Choke Valve located on Pusher Line is in the open position. Replace Choke Valve if damaged. Consult Remote Control System and Remote Control Handle Operator's Manual.
Air and / or media exits blast nozzle after blasting is stopped (Malfunctioning Remote Control System or Remote Control Handle)	Consult Remote Control System and Remote Control Handle Operator's Manual.

Big Red Series Blast Machine

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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 remove Clean-out Flange Plate when the Blast Machine is pressurized. Removal of the Clean-out Flange Plate while the Blast Machine is pressurized could release high speed media and compressed air. Failure to comply with the above warning could result in death or serious injury.

Maintenance

Maintenance of the Big Red Series Blast Machine is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Big Red Series Blast Machine 4" Clean-out Flange

Disassembly / Assembly:

Figure 11

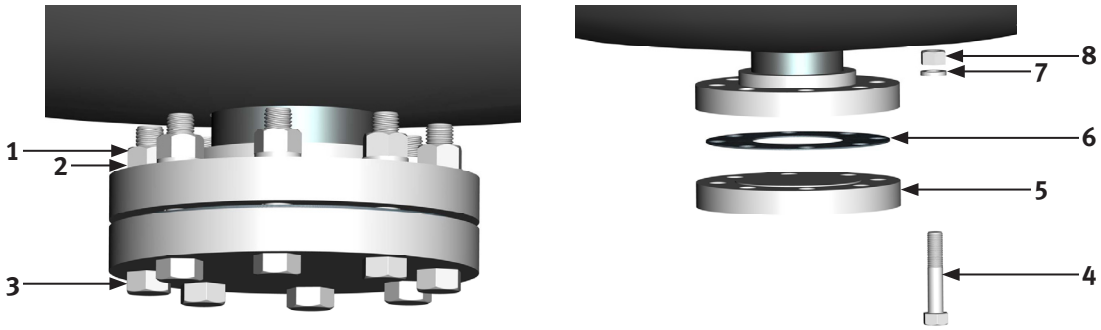
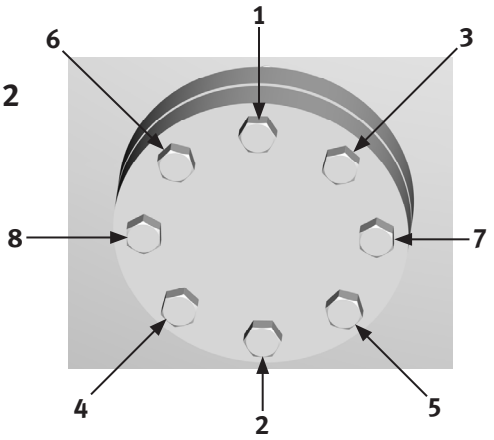


Figure 12



Disassembly:

Fig. 11

1) Loosen Nut (1) from Bolt (3). Do not remove Nut (1) and Washer (2). Loosen remaining seven Nuts.
2) Remove Nut (8) and Washer (7) from Bolt (4). Repeat for remaining seven bolts. Media will begin flowing from the vessel.
3) Remove Flange Plate (5) and Flange Gasket (6). Allow media to empty from vessel.

Assembly:

1) Place Flange Gasket (6) on Flange Plate (5).
2) Align Flange Plate (5) and Flange Gasket (6) with holes in flange on bottom of vessel.
3) Slide Bolt (4) in one hole of Flange Plate. Place Washer (7) on Bolt (4). Thread Nut (8) on to Bolt (4) and tighten to hand tight. Repeat for remaining seven bolts.
4) Tighten bolts in sequence shown in Figure 12.

Big Red Series Blast Machine

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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

Maintenance of the Big Red Series Blast Machine is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Big Red Series Blast Machine Camlock Assembly

Camlock Assembly Adjustment:

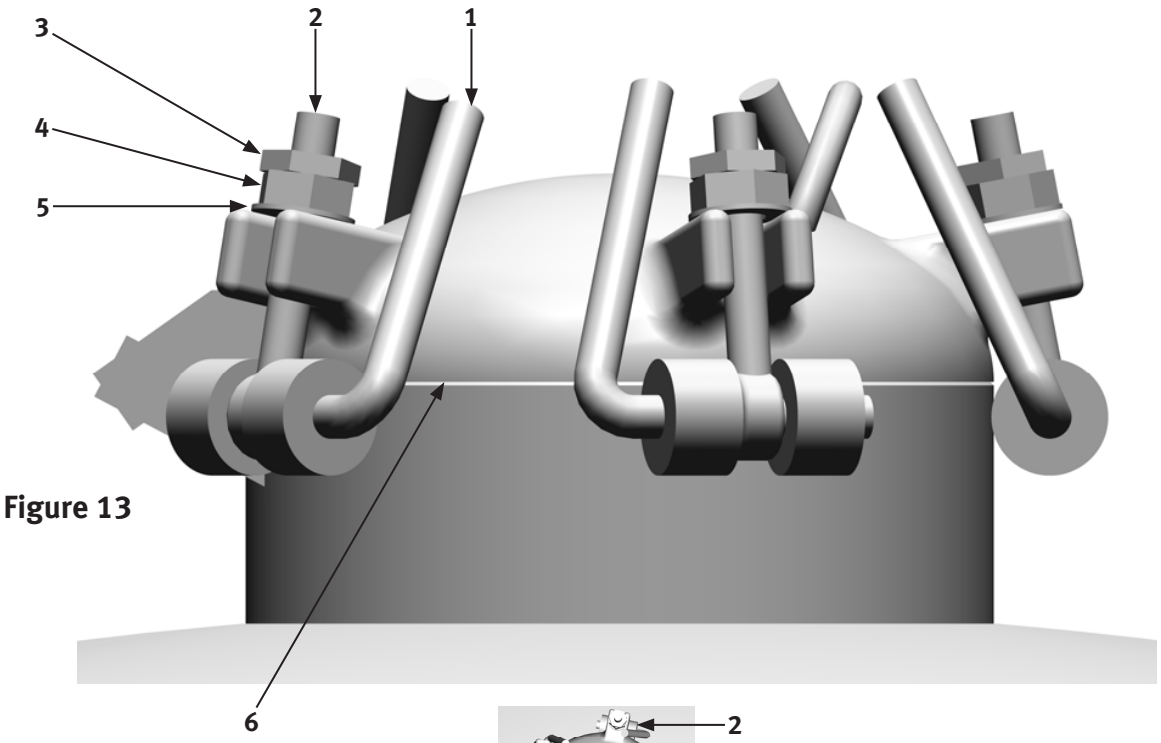


Figure 13

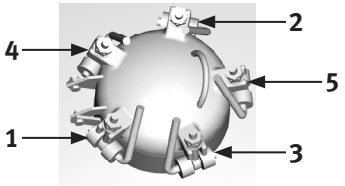


Figure 14

Fig. 13

1) Inspect 10” Hatch O-ring (6) and replace if damaged.
2) With Camlock Assemblies (1) in the closed position, move Locking Nut (3), Swing Bolt Nut (4) and Washer (5). Inspect items and replace if damaged.
3) Place Washer (5) on Swing Bolt (2). Thread Swing Bolt Nut (4) on to Swing Bolt (2) to hand tight. Do not fully tighten.
4) Working one Camlock Assembly at a time, repeat steps 2 and 3 for remaining four Camlock Assemblies.
5) Using a torque wrench, tighten Swing Bolt Nut (4) to a final torque of 20 ft/lbs. Tighten remaining Swing Bolt Nuts in the sequence in Figure 14.
6) Thread Locking Nut (3) on to Swing Bolt (2). Using a wrench to hold Swing Bolt Nut (4) in place, tighten Holding Nut (3). Tighten remaining Locking Nuts in the sequence in Figure 14.
7) Inspect Camlock Assemblies for proper functioning.

Big Red Series Blast Machine

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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

Ensure content of Blast Machine 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

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

⚠ CAUTION

Ensure the person entering the Blast Machine 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.

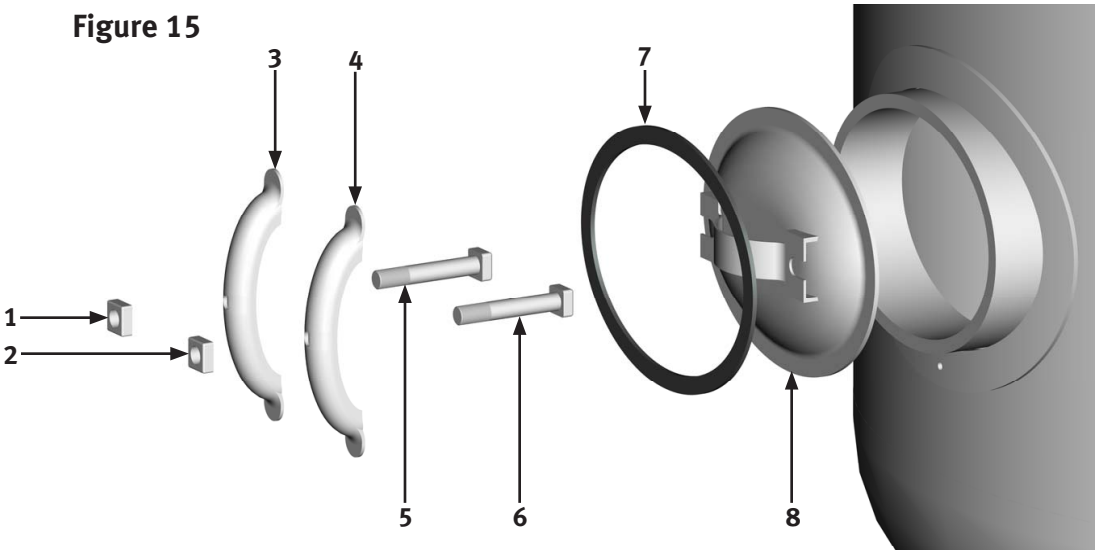
Maintenance

Maintenance of the Big Red Series Blast Machine is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Big Red Series Blast Machine 12" x 16" Manway Assembly

Disassembly / Assembly:

Figure 15



Disassembly:

Fig. 15

1) Ensure media in Blast Machine is below the opening of the Manway Door opening.
2) Unthread Nut (1) from Bolt (5). Do not remove Nut (1). Repeat step for Nut (2).
3) Grasp Manway Door (8). Remove loosened Nut (1) from Bolt (5). Repeat step for Nut (2).
4) Remove Yoke (3) from Bolt (5). Repeat step for Yoke (4).
5) Remove Move Bolt (3 and 4) from Manway Door (8). Push on Manway Door (5) towards the interior of Blast Machine to free the Manway Door (8) and Gasket (7).
6) Remove Manway Door (8) and Gasket (7) from Blast Machine interior.

Assembly:

1) Ensure Manway Door (8) is free of debris. Place Gasket (7) on Manway Door (8) and insert through opening in side of Blast Machine.
2) Grasp Manway Door (8) and seat Door (8) and Gasket (7) on interior ring of opening. Ensure Gasket (7) creates a positive seal.
3) Place head of Bolt (5) in slot on Manway Door (8). Place Yoke (3) on Bolt (5) and thread Nut (1) on to Bolt (5). Do not tighten Nut (1). Repeat for opposite side.
4) Secure Manway Door (8) by tightening Nuts (1 and 2), alternate tightening nuts for even gasket seal.

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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.

Big Red Series Blast Machine

Maintenance

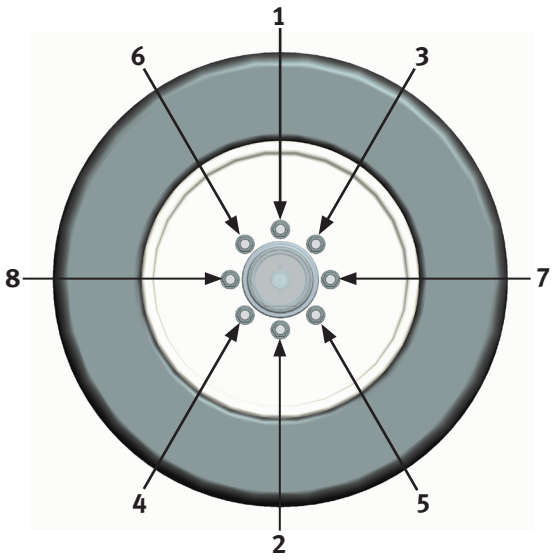
Maintenance of the Big Red Series Blast Machine is limited to the daily cleaning, immediate replacement of damaged or worn parts and regular re-torqueing of the wheel lug nuts.

Wheel and Tire Assemblies

⚠ WARNING

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 Blast Machine models, tighten Wheel Lug Nuts weekly. For Highway Towable Blast Machine 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.

Figure 16



⚠ CAUTION

Do not transport Trailer Mounted Blast Machines on transport devices with the Wheel Assemblies installed. The Blast Machine 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.

Assembly:

Fig. 16

1) Ensure tire is inflated to the tire manufacturer's recommended pressure. See sidewall of tire for recommended pressure.
2) Mount Tire and Wheel Assembly on Wheel Hub of Trailer.
3) Thread Lug Nut on to Stud (1). Thread remaining Lug Nuts on to Stud in the sequence shown in Figure 16.
4) Tighten Lug Nuts to 250 ft/lbs or torque. Repeat for remaining Lug Nuts in the sequence shown in Figure 16.
5) For Yard Towable Blast Machine models, tighten Wheel Lug Nuts weekly. For Highway Towable Blast Machine models, tighten Wheel Lug Nuts after the first 50 miles of use. Check Wheel Lug Nut torque every 90 days.

⚠ WARNING

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

Multiple Outlet Electric Control Boxes

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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

Maintenance of the Multiple Outlet Electric Remote Control Box is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Multiple Outlet Electric Remote Control Box

Assembly:

Figure 17

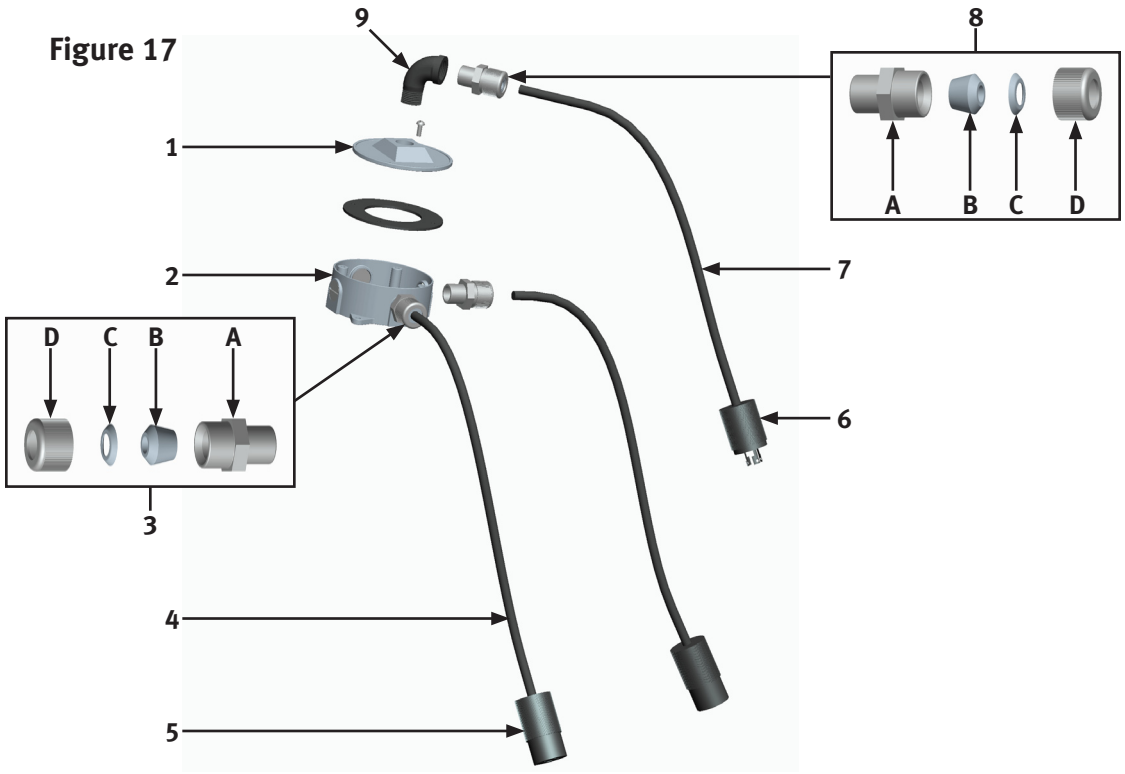


Fig. 17

1) Thread Cord Grip Hex Nipple (8A) in to 1/2" NPT Street Elbow (9).
2) Thread 1/2" NPT Street Elbow (9) in to Conduit Box Cover (1).
2) Install Male Twist-Lock Plug (6) on to 24 inches of Electric Cord (7).
3) Slide Cord Grip Threaded Cap (8D), Cord Grip Washer (8C) and Cord Grip Grommet (8B) on to Electric Cord (7).
4) Slide Electric Cord (7) in to Cord Grip Hex Nipple (8A). Leave 6 inches of Electric Cord exposed from bottom of Conduit Box Cover (1). Strip 3 inches of insulation from Electric Cord.
5) Thread Cord Grip Hex Nipple (3A) in opening in side of Conduit Box (2).
6) Install Female Twist-Lock Plug (5) on to 24 inches of Electric Cord (4).
7) Slide Cord Grip Threaded Cap (3D), Cord Grip Washer (3C) and Cord Grip Grommet (3B) on to Electric Cord (4).
8) Slide Electric Cord (4) in to Cord Grip Hex Nipple (3A). Leave 6 inches of Electric Cord exposed inside of Conduit Box (2). Strip 3 inches of insulation form Electric Cord.
9) Repeat for steps 5 through 8 for second outlet. If assembling 3- and 4-Outlet models, repeat steps 5 through 8 for each additional outlet.

Multiple Outlet Electric Control Boxes

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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

Maintenance of the Multiple Outlet Electric Remote Control Box is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Multiple Outlet Electric Remote Control Box

Assembly:

Figure 18

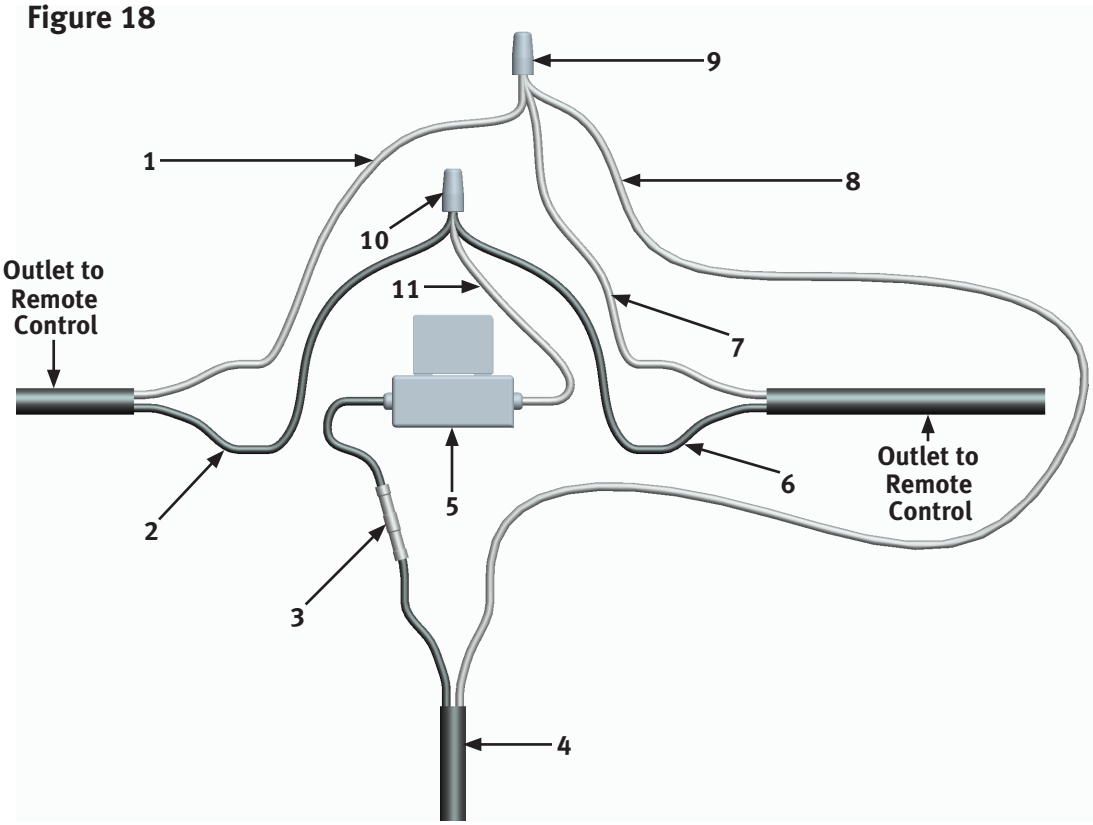


Fig. 18

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

Multiple Outlet Electric Control Boxes

⚠ WARNING

Always depressurize the entire blasting system, disconnect all electrical 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

Maintenance of the Multiple Outlet Electric Remote Control Box is limited to the daily cleaning and the immediate replacement of damaged or worn parts.

Multiple Outlet Electric Remote Control Box

Assembly:

Figure 19

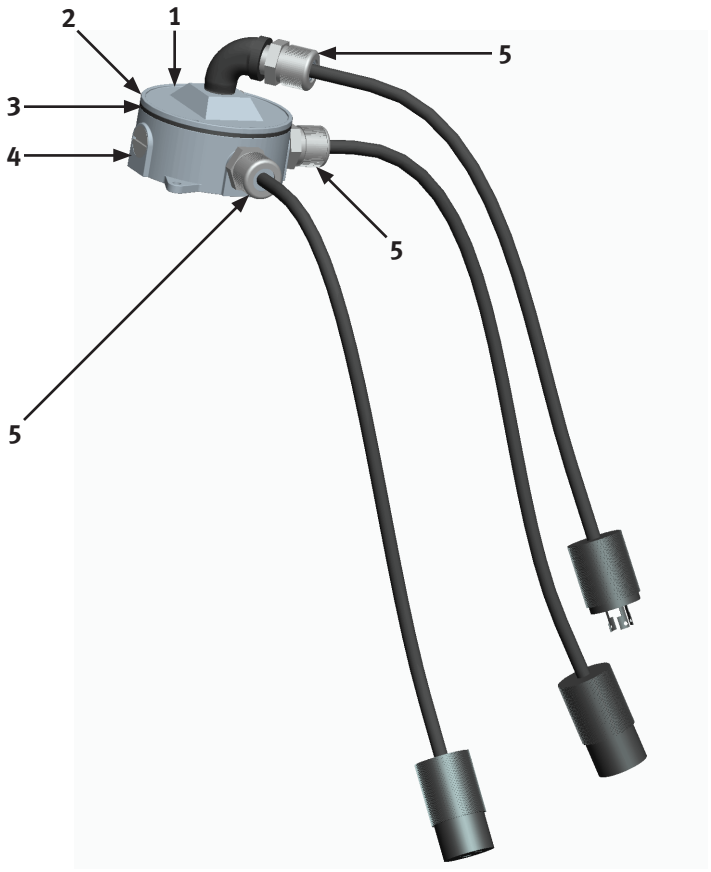
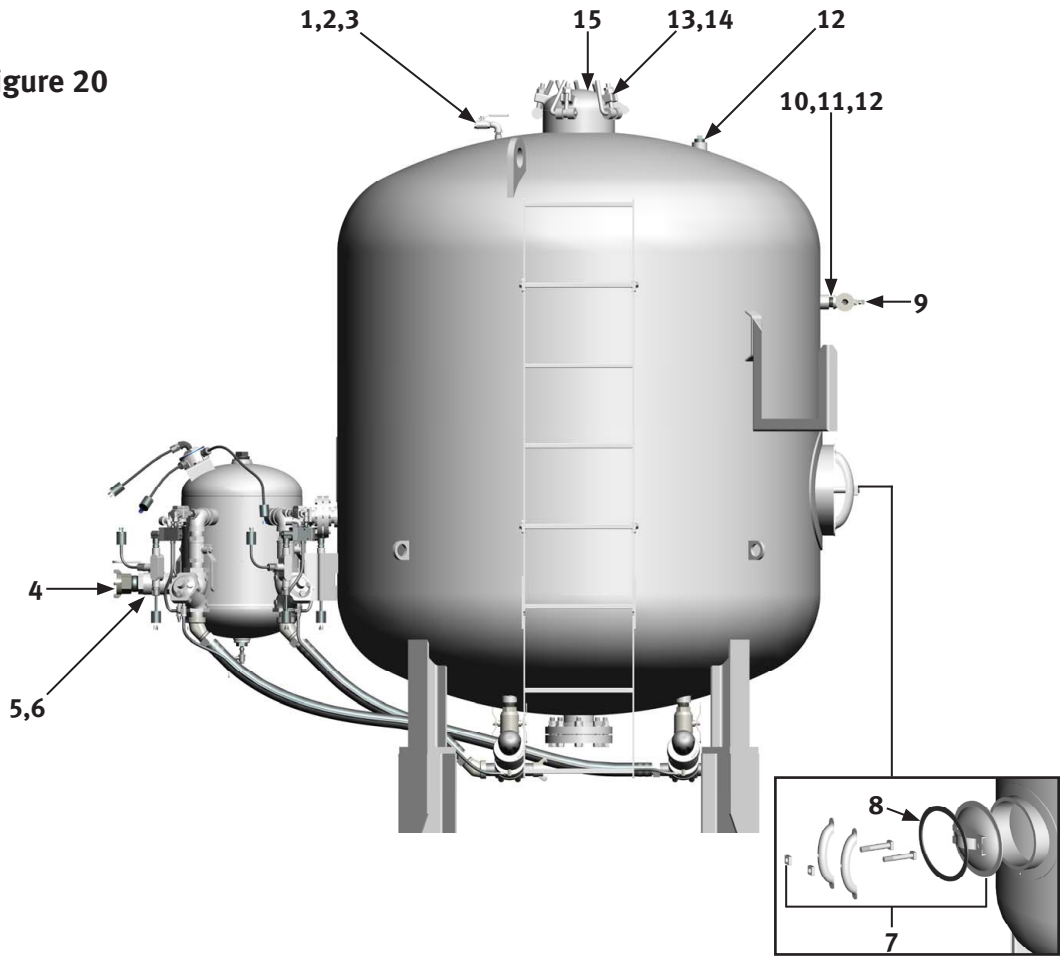


Fig. 19

1) Place assembled wires in Conduit Box (4).
2) Place Conduit Box Cover (2) and Cover Gasket (3) on Conduit Box (4).
3) Thread two Cover Screws (1) through Conduit Box Cover (2) and in to Conduit Box (4) and tighten.
4) Tighten Cord Grip Threaded Cap (5).
5) Install assembly on mounting bracket located on the Moisture Separator.

Big Red Series Blast Machine Schematic

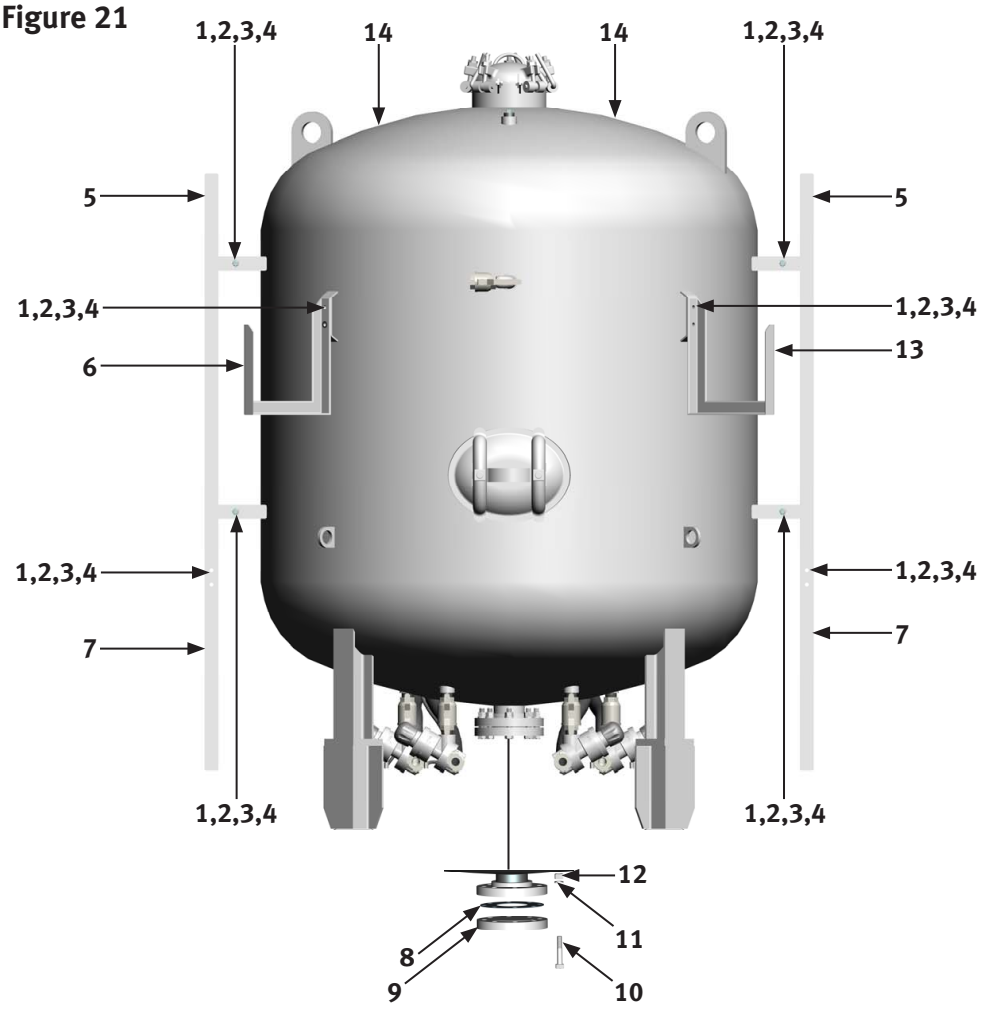
Figure 20



Item #	Part #	Description
Fig. 20		
1	10L363	1/2” NPT Full Port Brass Ball Valve
2	1011819	1/2” NPT Street Elbow
3	10L803035	1/2” NPT Close Nipple
4	10ME5	2” NPT (F) 4-Lug Air Hose Fitting
5	1011604	2” NPT Full Port Brass Ball Valve
6	1001806	2” NPT Close Nipple
7	10100702	12” X 16” Manway Assembly
8	10100703	12” x 16” Manway Assembly Gasket
9	1011602	1-1/4” NPT Full Port Brass Ball Valve
10	1011201	1-1/4” NPT Close Nipple
11	1011803	1-1/4” NPT Pipe Tee
12	1011902	1-1/4” NPT Pipe Plug
13	10100698	Camlock Assembly
14	10100699	Camlock Nut and Washer Kit *(includes two Hex Nuts and one Washer)*
15	10100697	10” Hatch O-ring

Big Red Series Blast Machine Schematic

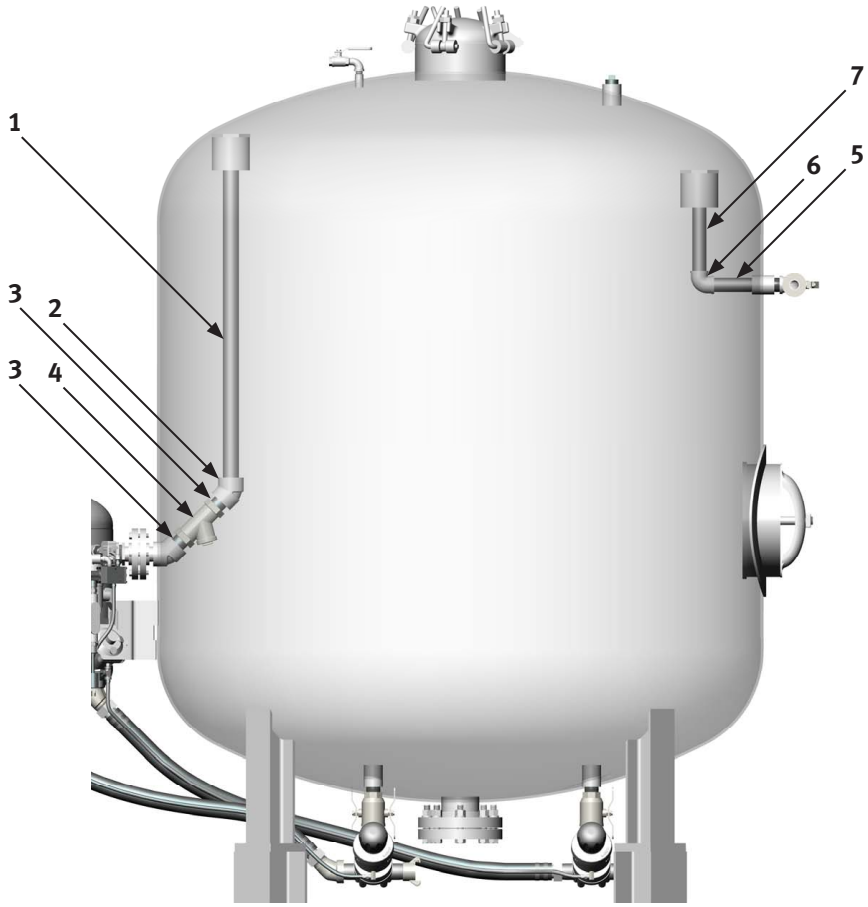
Figure 21



Item #	Part #	Description
Fig. 21		
1	10100597	1/2”-13 X 1-1/4” UNC Hex Bolt
2	1014022	1/2”-13 Hex Nut
3	10100674	1/2” Washer
4	10PSV18	1/2” Lock Washer
5	10100343	Ladder Kit *(includes: four each of items 1, 2, 3 and 4)*
6	10100556	Left Hose Hanger *(includes: two each of items 1, 2, 3 and 4)*
7	10100512	Ladder Extension for Stationary and Skid Mounted Models *(includes: four each of items 1, 2, 3 and 4)*
8	10100501	4” Flange Gasket
9	10100498	4” Blind Flange
10	10100594	3/4”-10 X 4” Hex Bolt *(eight required)*
11	10100596	3/4” Lock Washer *(eight required)*
12	10100595	3/4”-10 Hex Nut *(eight required)*
13	10100555	Right Hose Hanger *(includes: two each of items 1, 2, 3 and 4)*
14	1091052	Hazard Identification Sticker

Big Red Series Blast Machine Schematic

Figure 22



Item #	Part #	Description
Fig. 22		
1	10100682	1-1/2” NPT x 39” Internal Air Inlet Pipe with Deflector
2	10000328	1 1/2” NPT 45 Degree Coupling ASME
3	1014015	1-1/2” NPT Close Nipple
4	1011841	1-1/2” Y-Strainer
5	1006208	1-1/4” NPT x 5-1/2” Nipple
6	1006204	1-1/4” NPT 90 Degree Elbow
7	10100683	1-1/4” NPT x 10” Pipe Nipple with Deflector

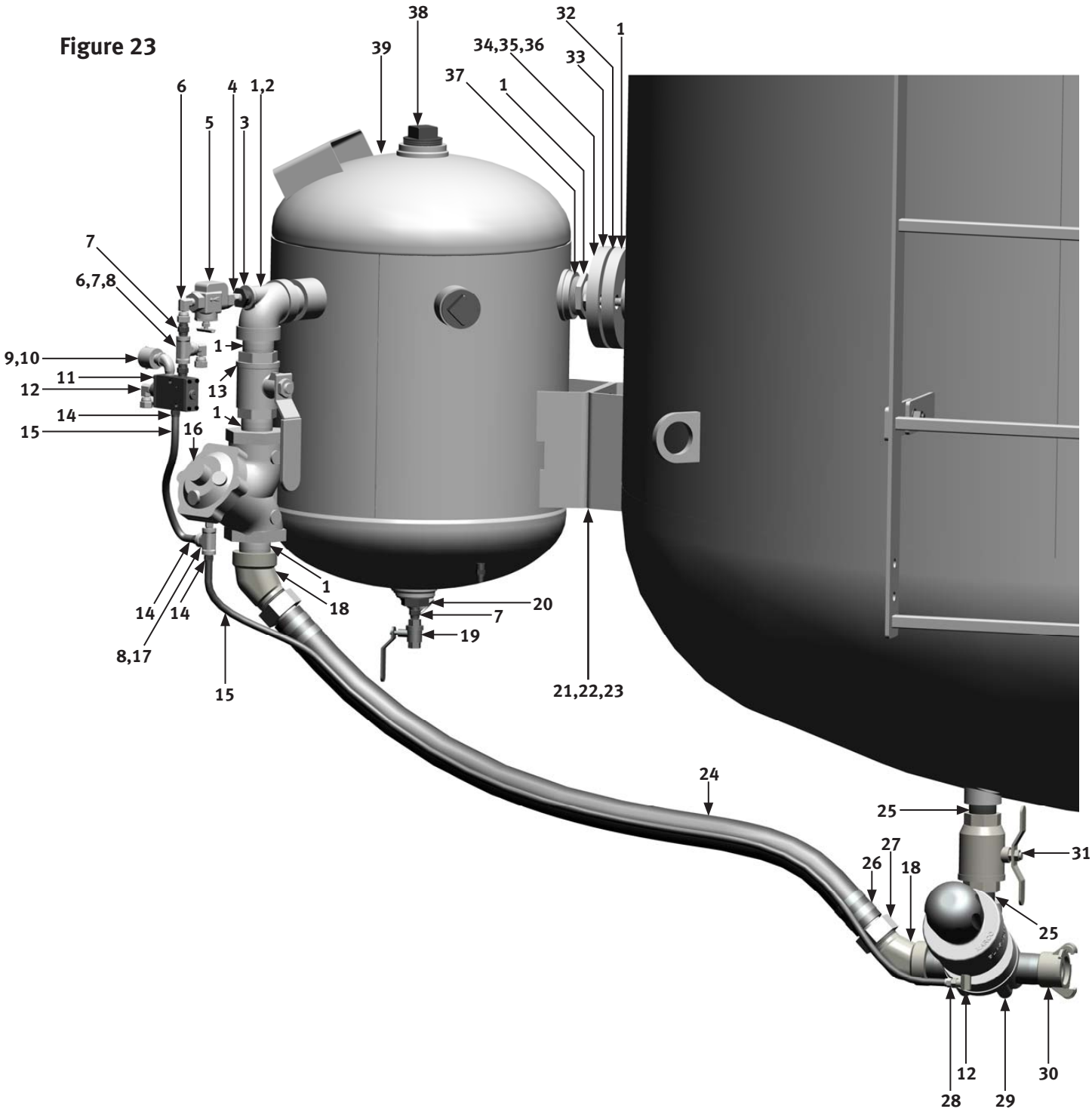
Big Red Series Blast Machine Pneumatic Remote Controls Schematic

Item #	Part #	Description
Fig. 23		
1	1014015	1-1/2” Close Nipple
2	1011829	1-1/2” Elbow with 3/4” Side-out
3	10100524	Bushing, 3/4” x 1/4”
4	10100523	1/4” x 1/4” NPT Stainless Steel Hex Nipple
5	10WS	Watts Strainer
6	1012326	1/4” x 1/4” 90 Degree Swivel Fitting
7	1017019	1/4” x 1/4” NPT Hex Nipple
8	1011844	1/4” NPT Pipe Tee
9	10DE25	Dust Eliminator
10	1011824	1/4” NPT Street Elbow
11	1019000	Pneumatic Solenoid
22	1014239	1/8” x 1/8” 90 Degree Swivel Fitting
13	1011603	1-1/2” NPT Full Port Brass Ball Valve
14	10PAF025	1/4” NPT x 1/4” Barb Push-on Fitting
15	10AH025	1/4” i.d. Push- On Hose - sold per foot
16	1013200	1-1/2” Gatekeeper Air Valve
17	10PVFIT1	1/4” X 1/8” NPT Hex Nipple
18	1011805	1-1/2” NPT 45 Degree Street Elbow
19	1080050	1/4” NPT Full Port Brass Ball Valve
20	1011822	1-1/2” (M) NPT X 1/4” (F) NPT Bushing
21	10100597	1/2”-13 X 1-1/4” UNC Hex Bolt
22	1014022	1/2”-13 Hex Nut
23	10100674	1/2” Washer
24	10AH112B	1-1/2” i.d. Black Air Hose - sold per foot
25	1011201	1-1/4” NPT Close Nipple
26	10AHCL1	Air Hose Clamp
27	10SFE4	1-1/2” NPT Swivel Female Air Hose Fitting
28	10PAF0125	1/8” NPT x 1/4” Barb Push-on Fitting

Item #	Part #	Description
29a	1014204	1-1/2” Maxum Metering Valve with Tungsten Carbide Sleeve
29b	1014205	1-1/2” Maxum Metering Valve with Urethane Sleeve
30	10SB2	Brass Tank Coupling
31	1011606A	1-1/4” Union End Brass Ball Valve
32	1011785	1-1/2” Flange Gasket
33	1011784	1-1/2” Flange *(two required)*
34	1011786	9/16” UNC X 2-1/2” Hex Bolt *(four required)*
35	1011788	9/16” Lock Washer *(four required)*
36	1011789	9/16” UNC Hex Nut *(four required)*
37	1001868	2” (M) x 1-1/2” (F) NPT Bushing
38	1011823	2” Pipe Plug
39	10100428	1600 CFM Moisture Separator for Big Red Series Bulk Blast Machines
–	1016002	10 feet of Twinline with 1/8” and 1/4” Male and Female Fittings
–	1016001	110 feet of Twinline with 1/8” and 1/4” Male and Female Fittings
–	1015802	KwikFire 158 Pneumatic Remote Control Handle
–	10100700	Single Outlet Pneumatic Remote Control Kit with Maxum Metering Valve - Tungsten Carbide
–	10100710	Single Outlet Pneumatic Remote Control Kit with Maxum Metering Valve - Urethane
–	1090003	KwikFire 158 Pneumatic Remote Control Handle Operator’s Manual
–	1090011	KwikFire 130 Remote Control System Operator’s Manual
–	1090060	Big Red Series Bulk Blast Machine Operator’s Manual

Big Red Series Blast Machine Pneumatic Remote Controls Schematic

Figure 23

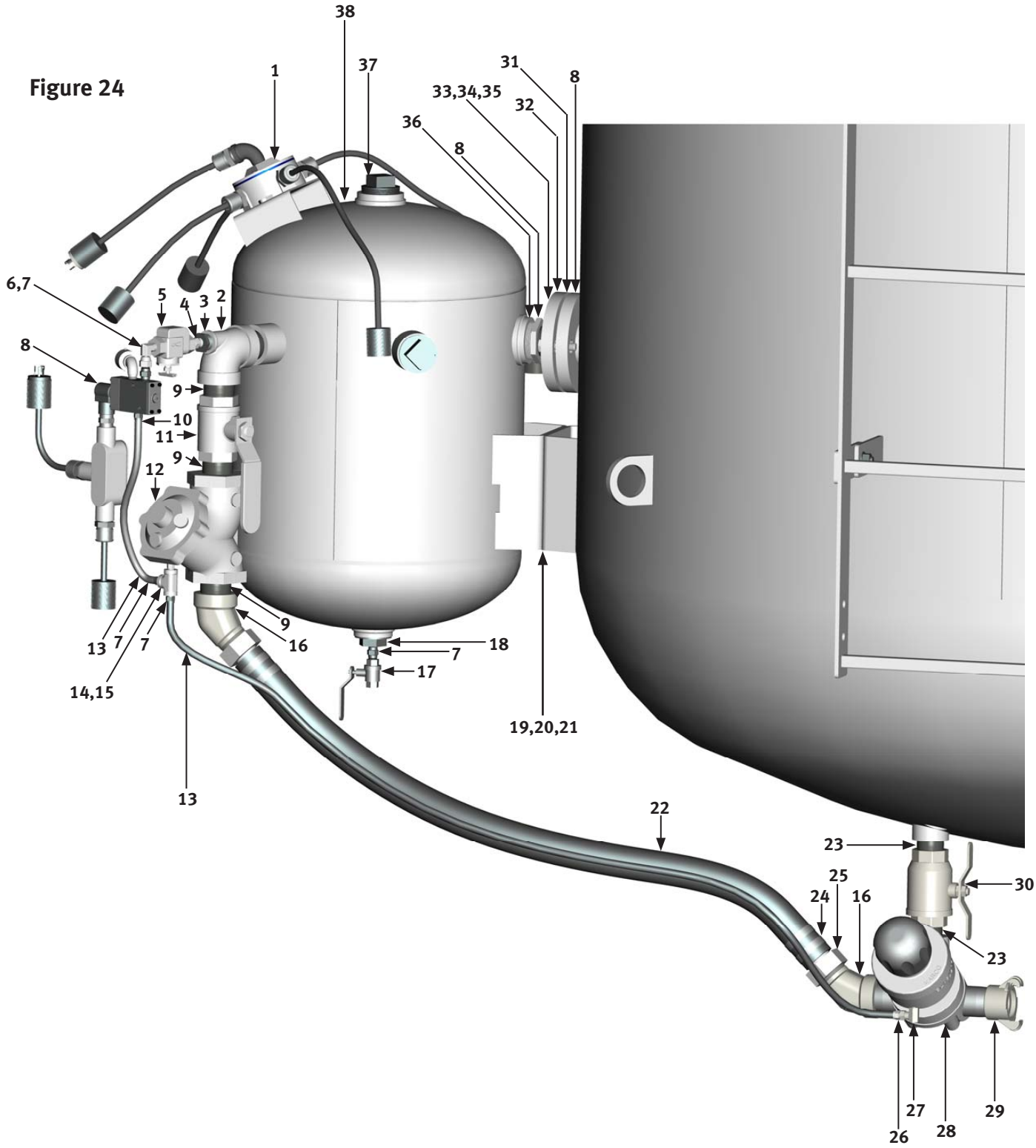


Big Red Series Blast Machine 12 Volt DC Remote Controls Schematic

Item #	Part #	Description
Fig. 24		
1	10100559	2-Outlet Electric Control Box
	10100560	3-Outlet Electric Control Box
	10100561	4-Outlet Electric Control Box
2	10100523	1/4” x 1/4” NPT Stainless Steel Hex Nipple
3	1011829	1-1/2” Elbow with 3/4” Side-out
4	10100524	Bushing, 3/4” x 1/4”
5	1017019	1/4” x 1/4” NPT Hex Nipple
6	10WS	Watts Strainer
7	1012326	1/4” x 1/4” 90 Degree Swivel Fitting
8	1019051	KwikFire 190 12 Volt DC Electric Remote Control with 3-prong Twist-Lock Plugs
9	1014015	1-1/2” Close Nipple
10	10PAF025	1/4” NPT x 1/4” Barb Push-on Fitting
11	1011603	1-1/2” NPT Full Port Brass Ball Valve
12	1013200	1-1/2” Gatekeeper Air Valve
13	10AH025	1/4” i.d. Push- On Hose - sold per foot
14	10PVFIT1	1/4” X 1/8” NPT Hex Nipple
15	1011844	1/4” NPT Pipe Tee
16	1011805	1-1/2” NPT 45 Degree Street Elbow
17	1080050	1/4” NPT Full Port Brass Ball Valve
18	1011822	1-1/2” (M) NPT X 1/4” (F) NPT Bushing
19	10100597	1/2”-13 X 1-1/4” UNC Hex Bolt
20	1014022	1/2”-13 Hex Nut
21	10100674	1/2” Washer
22	10AH112B	1-1/2” i.d. Black Air Hose - sold per foot
23	1011201	1-1/4” NPT Close Nipple
24	10AHCL1	Air Hose Clamp
25	10SFE4	1-1/2” NPT Swivel Female Air Hose Fitting
26	10PAF0125	1/8” NPT x 1/4” Barb Push-on Fitting
27	1014239	1/8” x 1/8” 90 Degree Swivel Fitting
28a	1014204	1-1/2” Maxum Metering Valve with Tungsten Carbide Sleeve
28b	1014205	1-1/2” Maxum Metering Valve with Urethane Sleeve
29	10SB2	Brass Tank Coupling
30	1011606A	1-1/4” Union End Brass Ball Valve
31	1011785	1-1/2” Flange Gasket
32	1011784	1-1/2” Flange *(two required)*
33	1011786	9/16” UNC X 2-1/2” Hex Bolt *(four required)*
34	1011788	9/16” Lock Washer *(four required)*
35	1011789	9/16” UNC Hex Nut *(four required)*
36	1001868	2” (M) x 1-1/2” (F) NPT Bushing
37	1011823	2” Pipe Plug
38	10100428	1600 CFM Moisture Separator for Big Red Series Bulk Blast Machines
–	1015547	100 feet of 16/2 SO Power Cord with Male and Female 3-prong Twist-Lock Plug
–	1015600	KwikFire 156 Electric Remote Control Handle
–	1015544	Battery Clamp Kit with 3-prong Twist-Lock Plug
–	1015546	25 feet of 16/2 Power Cord with Male and Female 3-prong Twist-Lock Plugs
–	10100705	Single Outlet 12 Volt DC Remote Control Kit with Maxum Metering Valve - Tungsten Carbide
–	10100711	Single Outlet 12 Volt DC Remote Control Kit with Maxum Metering Valve - Urethane
–	1090001	KwikFire 155 / 156 Electric Remote Control Handle Operator’s Manual
–	1090011	KwikFire 130 Remote Control System Operator’s Manual
–	1090051	KwikFire 190 Series Electric Control System Operator’s Manual
–	1090060	Big Red Series Bulk Blast Machine Operator’s Manual

Big Red Series Blast Machine 12 Volt DC Remote Controls Schematic

Figure 24

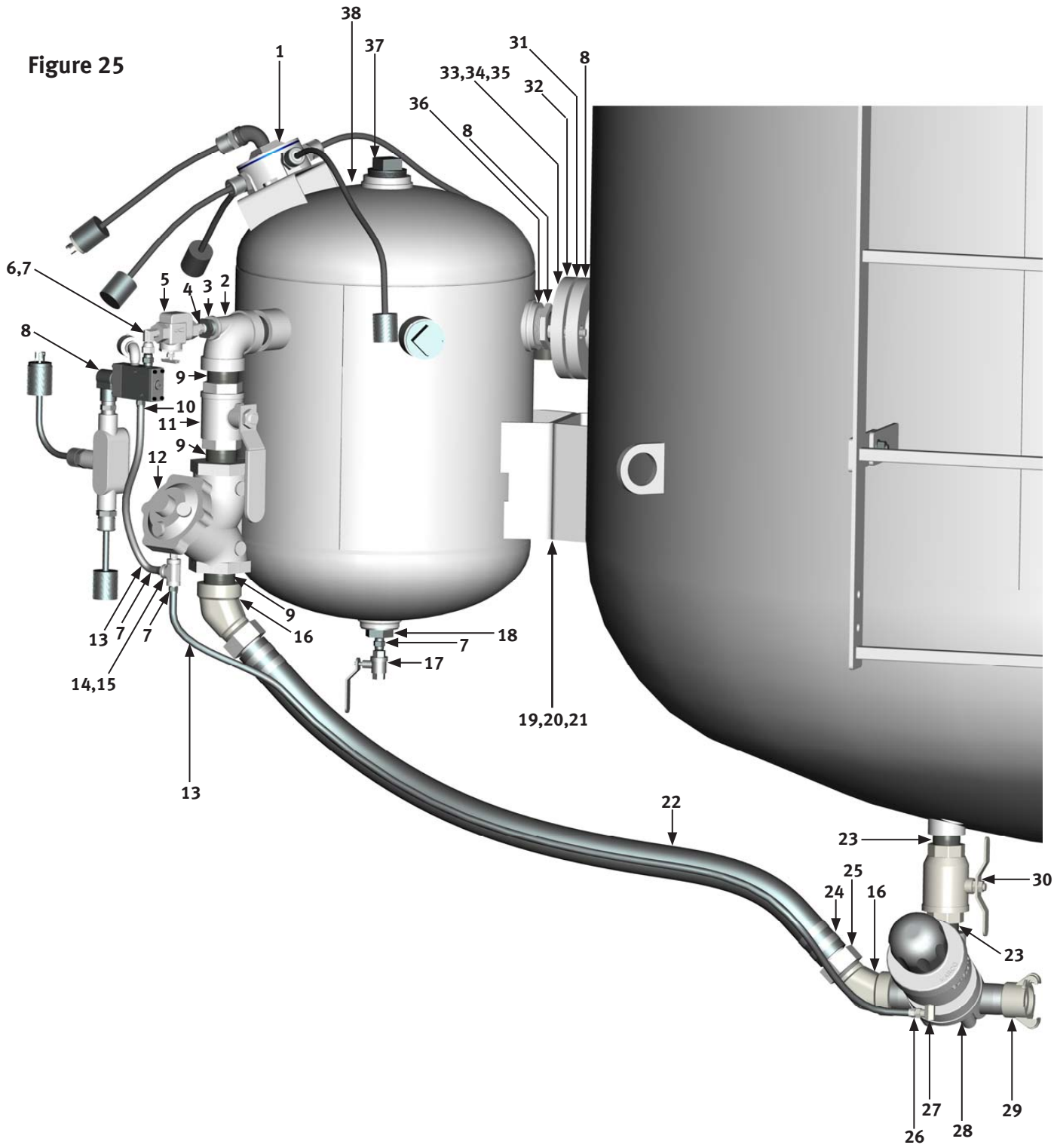


Big Red Series Blast Machine 120 Volt AC Remote Controls Schematic

Item #	Part #	Description
Fig. 25		
1	10100559	2-Outlet Electric Control Box
	10100560	3-Outlet Electric Control Box
	10100561	4-Outlet Electric Control Box
2	10100523	1/4” x 1/4” NPT Stainless Steel Hex Nipple
3	1011829	1-1/2” Elbow with 3/4” Side-out
4	10100524	Bushing, 3/4” x 1/4”
5	1017019	1/4” x 1/4” NPT Hex Nipple
6	10WS	Watts Strainer
7	1012326	1/4” x 1/4” 90 Degree Swivel Fitting
8	1019052	KwikFire 190 12 Volt AC Electric Remote Control with 3-prong Twist-Lock Plugs
9	1014015	1-1/2” Close Nipple
10	10PAF025	1/4” NPT x 1/4” Barb Push-on Fitting
11	1011603	1-1/2” NPT Full Port Brass Ball Valve
12	1013200	1-1/2” Gatekeeper Air Valve
13	10AH025	1/4” i.d. Push- On Hose - sold per foot
14	10PVFIT1	1/4” X 1/8” NPT Hex Nipple
15	1011844	1/4” NPT Pipe Tee
16	1011805	1-1/2” NPT 45 Degree Street Elbow
17	1080050	1/4” NPT Full Port Brass Ball Valve
18	1011822	1-1/2” (M) NPT X 1/4” (F) NPT Bushing
19	10100597	1/2”-13 X 1-1/4” UNC Hex Bolt
20	1014022	1/2”-13 Hex Nut
21	10100674	1/2” Washer
22	10AH112B	1-1/2” i.d. Black Air Hose - sold per foot
23	1011201	1-1/4” NPT Close Nipple
24	10AHCL1	Air Hose Clamp
25	10SFE4	1-1/2” NPT Swivel Female Air Hose Fitting
26	10PAF0125	1/8” NPT x 1/4” Barb Push-on Fitting
27	1014239	1/8” x 1/8” 90 Degree Swivel Fitting
28a	1014204	1-1/2” Maxum Metering Valve with Tungsten Carbide Sleeve
28b	1014205	1-1/2” Maxum Metering Valve with Urethane Sleeve
29	10SB2	Brass Tank Coupling
30	1011606A	1-1/4” Union End Brass Ball Valve
31	1011785	1-1/2” Flange Gasket
32	1011784	1-1/2” Flange *(two required)*
33	1011786	9/16” UNC X 2-1/2” Hex Bolt *(four required)*
34	1011788	9/16” Lock Washer *(four required)*
35	1011789	9/16” UNC Hex Nut *(four required)*
36	1001868	2” (M) x 1-1/2” (F) NPT Bushing
37	1011823	2” Pipe Plug
38	10100428	1600 CFM Moisture Separator for Big Red Series Bulk Blast Machines
–	1015547	100 feet of 16/2 SO Power Cord with Male and Female 3-prong Twist-Lock Plug
–	1015600	KwikFire 156 Electric Remote Control Handle
–	10100706	Single Outlet 120 Volt AC Remote Control Kit with Maxum Metering Valve - Tungsten Carbide
–	10100712	Single Outlet 120 Volt AC Remote Control Kit with Maxum Metering Valve - Urethane
–	10100713	Multiple Outlet Electric Remote Control Power Converter
–	1090001	KwikFire 155 / 156 Electric Remote Control Handle Operator’s Manual
–	1090011	KwikFire 130 Remote Control System Operator’s Manual
–	1090051	KwikFire 190 Series Electric Control System Operator’s Manual
–	1090060	Big Red Series Bulk Blast Machine Operator’s Manual

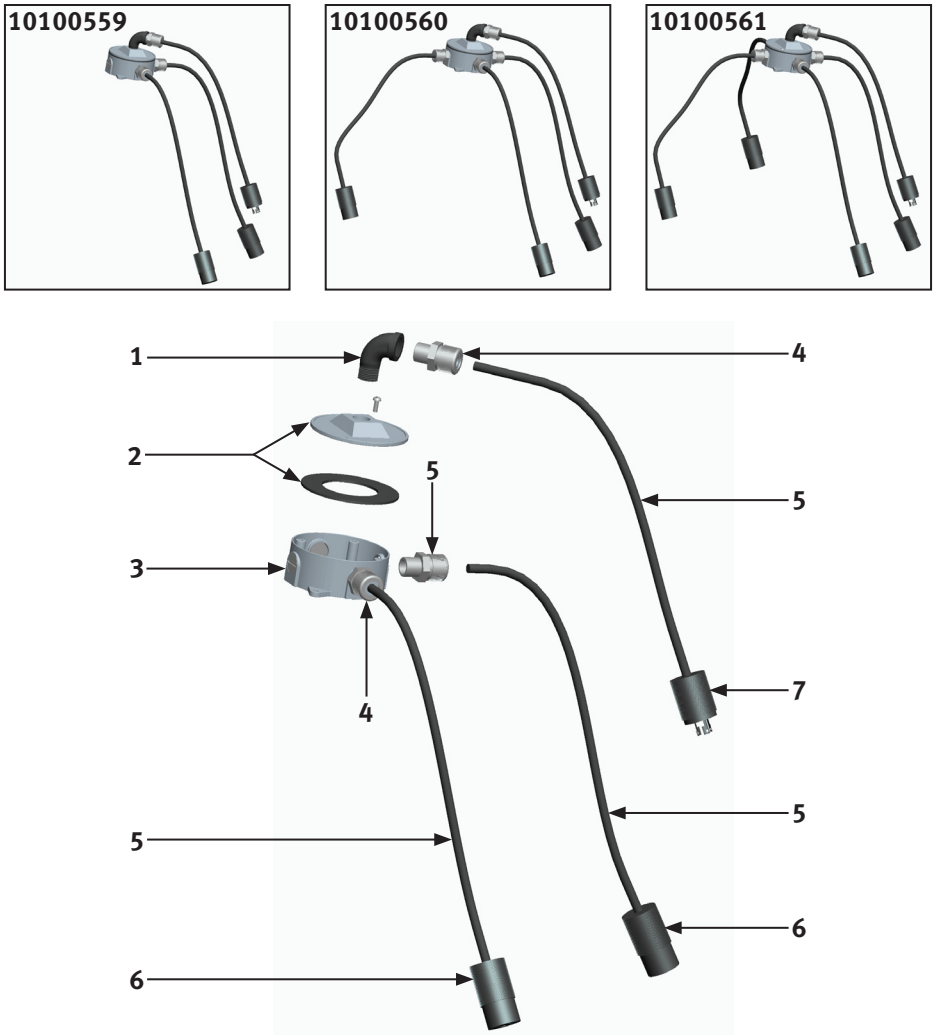
Big Red Series Blast Machine 120 Volt AC Remote Controls Schematic

Figure 25



Multiple Outlet Electric Remote Control Boxes Schematic

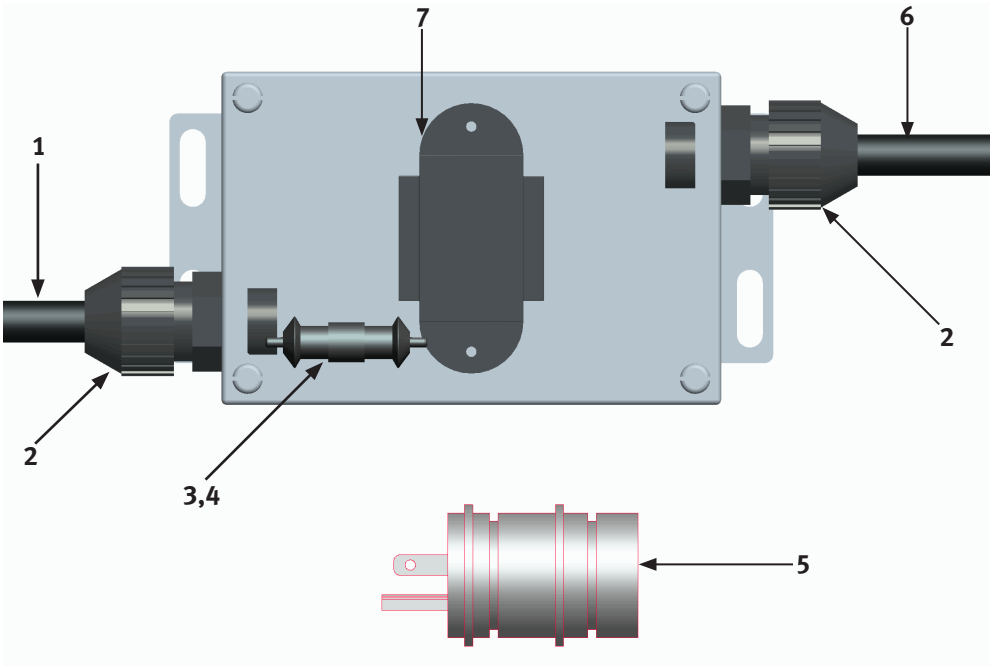
Figure 26



Item #	Part #	Description
Fig. 26	10100559	Two-Outlet Electric Remote Control Box
	10100560	Three-Outlet Electric Remote Control Box
	10100561	Four-Outlet Electric Remote Control Box
1	1011819	1/2” Street Elbow
2	10100496	Conduit Box Cover, Gasket and Screw Assembly
3	10100495	5 Outlet Conduit Box
4	1019021	Kwikfire 190 Cord Grip
5	1015540	16/2 SO Electric Cord - sold per foot
6	1015556	3-prong Female Twist-Lock Plug
7	1015555	3-prong Male Twist-Lock Plug
–	1030028	Butt Splicer
–	10100562	Inline Fuse Block
–	10100563	5 Amp Inline Fuse

Power Converter for Multiple Outlet Control Boxes

Figure 27



Item #	Part #	Description
Fig. 27	10100713	120 Volt AC to 12 Volt AC Power Converter with 3 Amp Fuse
1	1015550	14/3 SO Power Cord - per foot
2	1030025	Strain Relief *(2 required)*
3	1030123	3 Amp Fuse
4	1030023	Inline Fuse Holder
5	1030026	Wall Plug - 3-prong Male- 120 Volt
6	1030013	14/2 SO Power Cord - per foot
7	1030022	Galaxy 300 & 307 Series Transformer
–	1091047	Galaxy Light Converter Hazard Identification Label
–	1092014	Galaxy 300 Converter Label - Power In
–	1092015	Galaxy 300 Converter Label - Power Out

Big Red Series Blast Machine - Stationary

Description

Big Red Series Bulk Blast Machines - Stationary with Pneumatic Remote Controls
(*Includes: 160 cubic foot capacity vessel, 20" Long Legs, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, 110 feet of pneumatic twinline and KwikFire 158 Pneumatic Remote Control Handle)*

Part #	Description
10100602	Stationary - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100606	Stationary - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100610	Stationary - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100614	Stationary - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100618	Stationary - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100622	Stationary - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic

Description

Big Red Series Bulk Blast Machines - Stationary with 12 Volt DC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, 20" Long Legs, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 2 Volt DC Electric Remote Controls, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, 25 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, Battery Clamp Kit and KwikFire 156 Electric Remote Control Handles)*

Part #	Description
10100626	Stationary - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100630	Stationary - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100642	Stationary - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100646	Stationary - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100658	Stationary - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100662	Stationary - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC

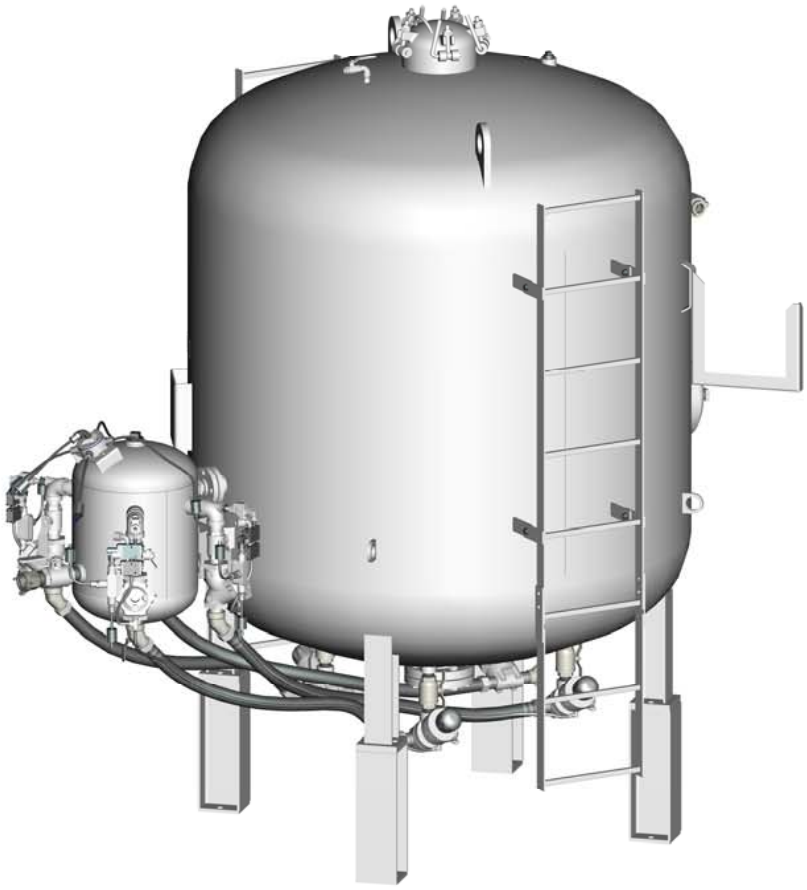
Description

Big Red Series Bulk Blast Machines - Stationary with 120 Volt AC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, 20" Long Legs, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 12 Volt AC Electric Remote Controls, 120 Volt-to-12 Volt AC Power Converter, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed and KwikFire 156 Electric Remote Control Handles)*

Part#	Description
10100634	Stationary - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100638	Stationary - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100650	Stationary - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100654	Stationary - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100665	Stationary - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100670	Stationary - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC

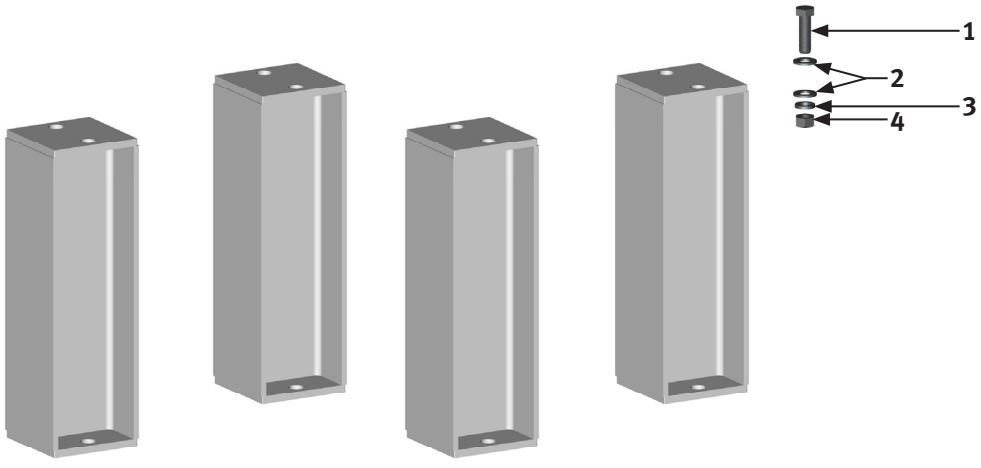
Item #	Part #	Description
Fig. 28	1081660	Stationary Leg Mounting Kit *(includes four 20" long legs and items 1, 2, 3 and 4)*
1	10100701	3/4-10 x 2-1/2" Bolt *(8 required)*
2	10100704	3/4 Flat Washer *(16 required)*
3	10100596	3/4 Lock Washer *(8 required)*
4	10100595	3/4 Nut *(8 required)*

Big Red Series Blast Machine - Stationary



*10100662 shown

Figure 28



Big Red Series Blast Machine - Skid Mounted

Description

Big Red Series Bulk Blast Machines - Skid Mounted with Pneumatic Remote Controls
(*Includes: 160 cubic foot capacity vessel, Skid Platform, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, 110 feet of pneumatic twinline and KwikFire 158 Pneumatic Remote Control Handle)*

Part #	Description
10100603	Skid Mounted - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100607	Skid Mounted - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100611	Skid Mounted - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100615	Skid Mounted - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100619	Skid Mounted - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100623	Skid Mounted - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic

Description

Big Red Series Bulk Blast Machines - Skid Mounted with 12 Volt DC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Skid Platform, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 2 Volt DC Electric Remote Controls, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, 25 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, Battery Clamp Kit and KwikFire 156 Electric Remote Control Handles)*

Part #	Description
10100627	Skid Mounted - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100631	Skid Mounted - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100643	Skid Mounted - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100647	Skid Mounted - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100659	Skid Mounted - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100663	Skid Mounted - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC

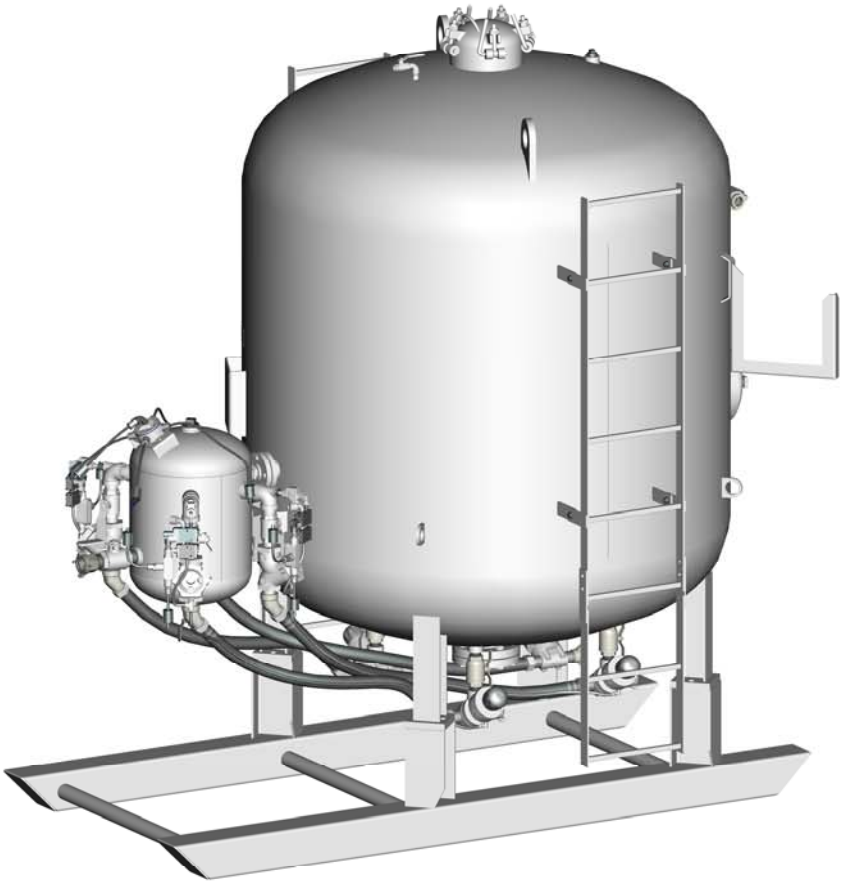
Description

Big Red Series Bulk Blast Machines - Skid Mounted with 120 Volt AC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Skid Platform, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 12 Volt AC Electric Remote Controls, 120 Volt-to-12 Volt AC Power Converter, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed and KwikFire 156 Electric Remote Control Handles)*

Part#	Description
10100635	Skid Mounted - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100639	Skid Mounted - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100651	Skid Mounted - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100655	Skid Mounted - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100667	Skid Mounted - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100671	Skid Mounted - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC

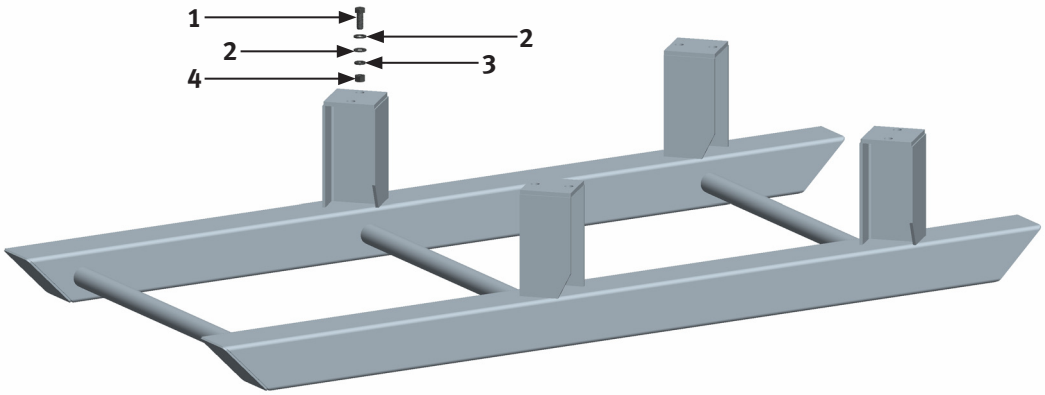
Item #	Part #	Description
Fig. 29	1081661	Skid Mount for 160 Foot Cubic Foot Bulk Blast Machine *(includes Skid and items 1, 2, 3 and 4)*
1	10100701	3/4-10 x 2-1/2" Bolt *(8 required)*
2	10100704	3/4 Flat Washer *(16 required)*
3	10100596	3/4 Lock Washer *(8 required)*
4	10100595	3/4 Nut *(8 required)*

Big Red Series Blast Machine - Skid Mounted



*10100663 shown

Figure 29



Big Red Series Blast Machine - Yard Towable

Description

Big Red Series Bulk Blast Machines - Yard Towable with Pneumatic Remote Controls
(*Includes: 160 cubic foot capacity vessel, Yard Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, 110 feet of pneumatic twinline and KwikFire 158 Pneumatic Remote Control Handle)*

Part #	Description
10100604	Yard Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100607	Yard Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100612	Yard Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100616	Yard Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100621	Yard Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100625	Yard Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic

Description

Big Red Series Bulk Blast Machines - Yard Trailer with 12 Volt DC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Yard Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 2 Volt DC Electric Remote Controls, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, 25 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, Battery Clamp Kit and KwikFire 156 Electric Remote Control Handles)*

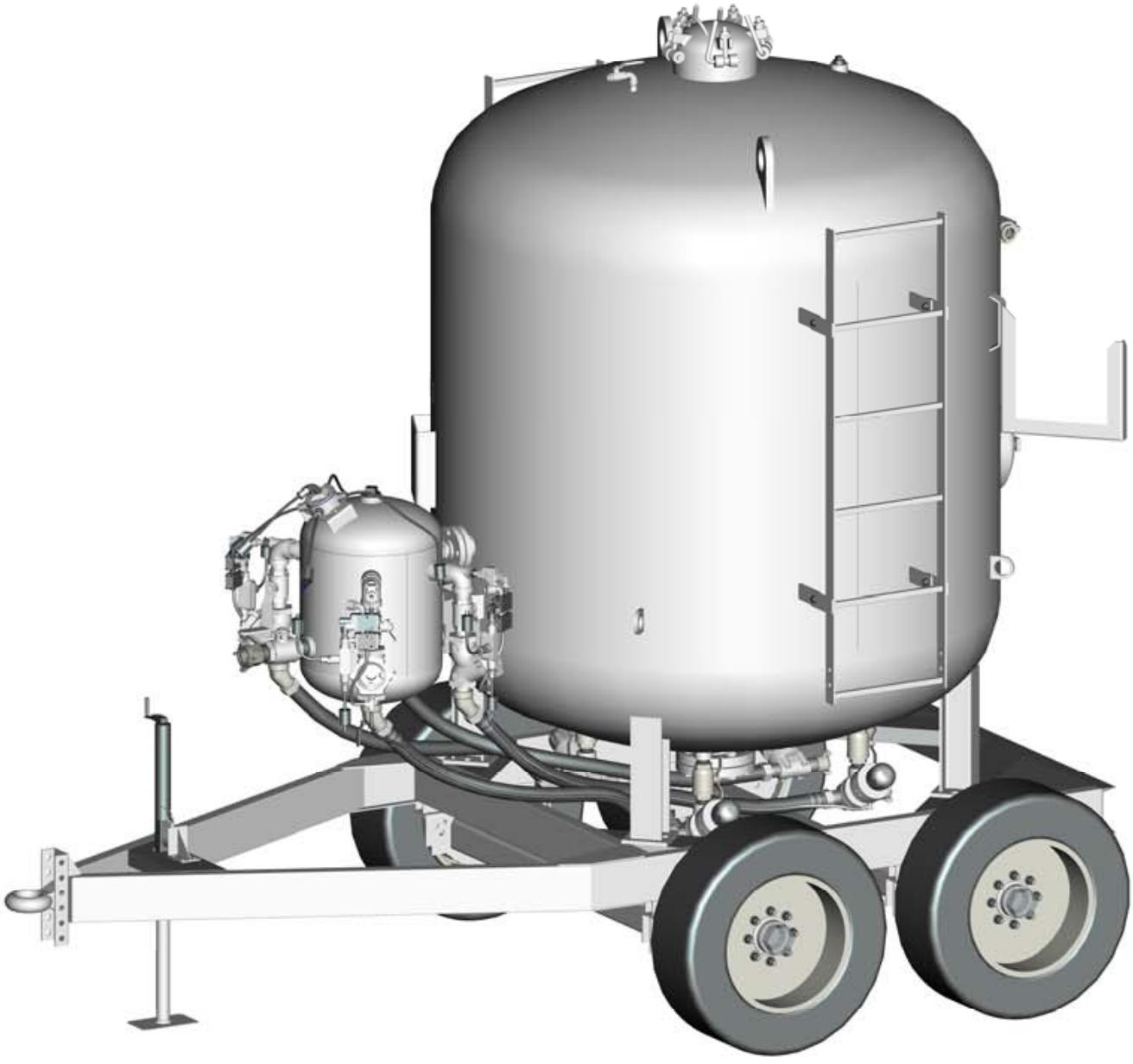
Part #	Description
10100628	Yard Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100632	Yard Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100644	Yard Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100648	Yard Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100660	Yard Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100570	Yard Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC

Description

Big Red Series Bulk Blast Machines - Yard Towable with 120 Volt AC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Yard Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 12 Volt AC Electric Remote Controls, 120 Volt-to-12 Volt AC Power Converter, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed and KwikFire 156 Electric Remote Control Handles)*

Part#	Description
10100636	Yard Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100640	Yard Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100652	Yard Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100656	Yard Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100668	Yard Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100672	Yard Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC

Big Red Series Blast Machine - Yard Towable



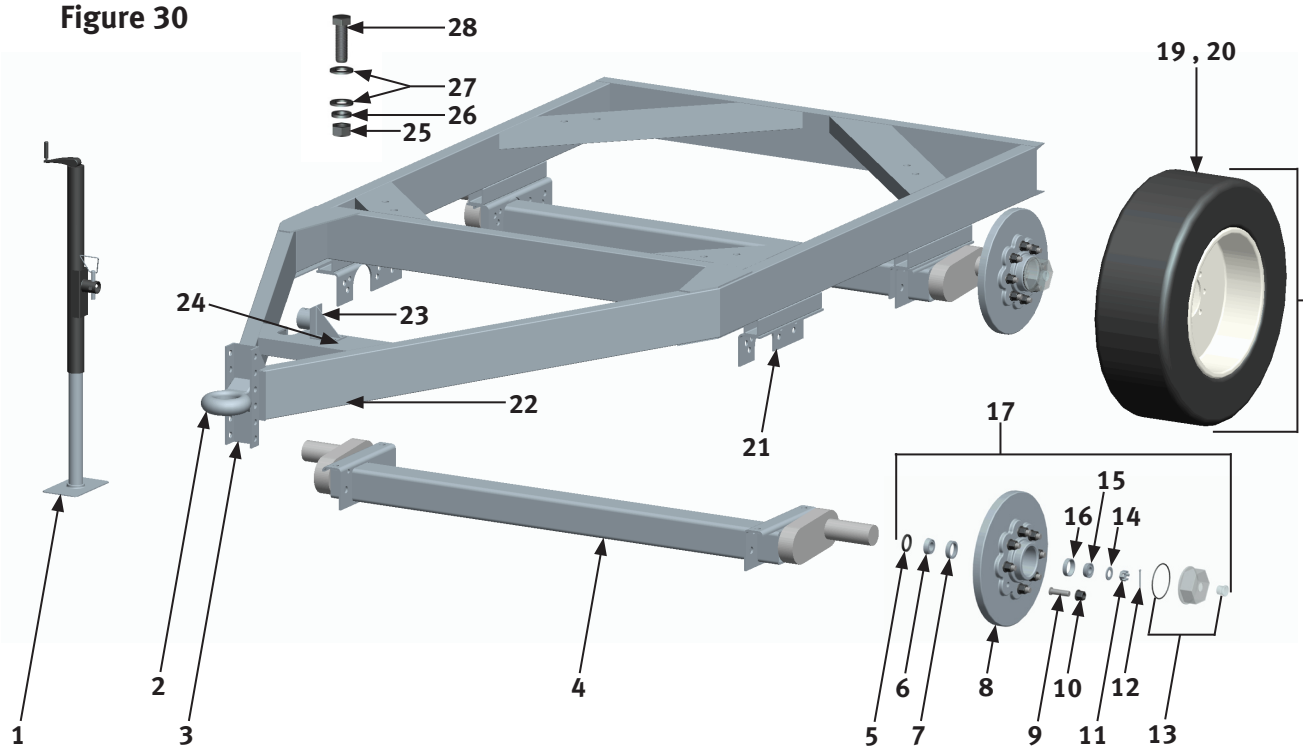
***10100570 shown**

Yard Towable Trailer Schematic

Item #	Part #	Description
Fig. 30	1081663	Yard Towable Trailer for 160 Cubic Foot Bulk Blast Machine - Complete *(includes Yard Trailer and items 25, 26, 27 and 28)*
1	10100482	Tongue Jack
2	10100481	Pintle Eye Coupler
3	10100471	Adjustable Hitch Mount
4	10100564	Torsion Axle - Yard Trailer
5	10100571	Oil Seal
6	10100578	Inner Bearing
7	10100580	Inner Bearing Cup
8	10100566	Idler Hub for Yard Trailer
9	10100568	5/8-18 UNF Lug Stud
10	10100569	5/8-18 Lug Nut
11	10100591	Spindle Nut
12	10100477	Cotter Pin for Spindle Nut
13	10100592	Oil Cap with Plug, O-Ring
14	10100590	Spindle Washer
15	10100579	Outer Bearing
16	10100581	Outer Bearing Cup
17	10100566	Idler Hub Assembly for Yard Trailer
18	10100478	Wheel and Tire Assembly
19	10100479	Wheel (8 Lug)
20	10100480	215 - 17.5” 16 Ply Tire
21	10100476	#13 Axle Mount Bracket
22	10100585	Safety Label
23	10100483	Jack Mount Assembly
24	1091053	Hazard Identification Sticker - Tire Installation
25	10100701	3/4-10 x 2-1/2” Bolt *(8 required)*
26	10100704	3/4 Flat Washer *(16 required)*
27	10100596	3/4 Lock Washer *(8 required)*
28	10100595	3/4 Nut *(8 required)*

Yard Towable Trailer Schematic

Figure 30



Big Red Series Blast Machine - Highway Towable

Description

Big Red Series Bulk Blast Machines - Highway Towable with Pneumatic Remote Controls
(*Includes: 160 cubic foot capacity vessel, Highway Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, 110 feet of pneumatic twinline and KwikFire 158 Pneumatic Remote Control Handle)*

Part #	Description
10100605	Highway Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100609	Highway Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100613	Highway Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100617	Highway Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic
10100621	Highway Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - Pneumatic
10100625	Highway Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - Pneumatic

Description

Big Red Series Bulk Blast Machines - Highway Towable with 12 Volt DC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Highway Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 2 Volt DC Electric Remote Controls, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, 25 feet of Electric Cord with 3-prong Twist-Lock Plugs installed, Battery Clamp Kit and KwikFire 156 Electric Remote Control Handles)*

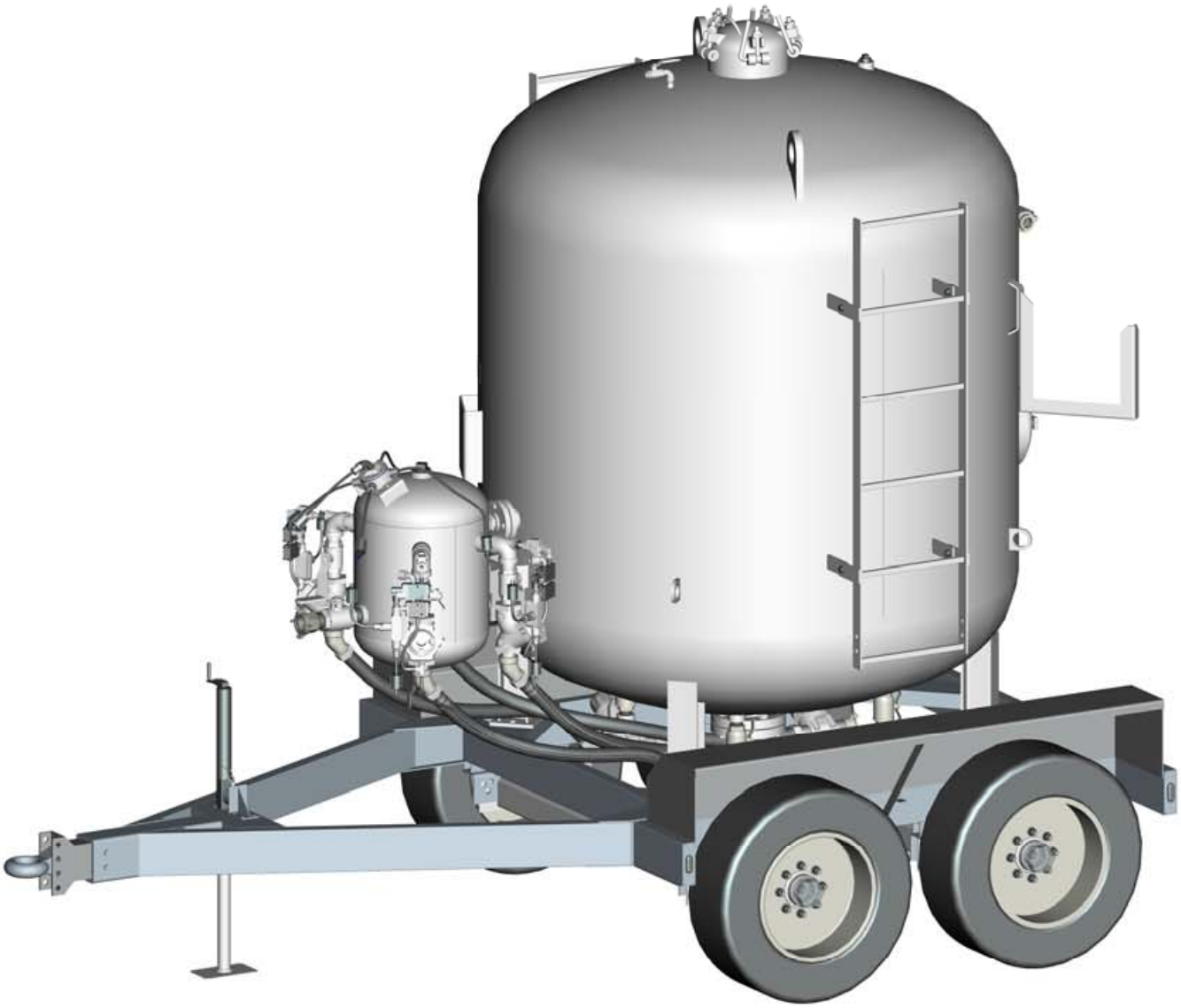
Part #	Description
10100629	Highway Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100633	Highway Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100645	Highway Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100649	Highway Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC
10100661	Highway Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 12 Volt DC
10100664	Highway Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 12 Volt DC

Description

Big Red Series Bulk Blast Machines - Highway Towable with 120 Volt AC Electric Remote Controls
(*Includes: 160 cubic foot capacity vessel, Highway Trailer, Ladder Extension Assemblies, 1600 CFM Moisture Separator, 1-1/2" KwikFire 130 Remote Control System, KwikFire 190 12 Volt AC Electric Remote Controls, 120 Volt-to-12 Volt AC Power Converter, 100 feet of Electric Cord with 3-prong Twist-Lock Plugs installed and KwikFire 156 Electric Remote Control Handles)*

Part#	Description
10100637	Highway Towable - 2-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100641	Highway Towable - 2-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100653	Highway Towable - 3-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100657	Highway Towable - 3-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC
10100669	Highway Towable - 4-Outlet with Maxum Metering Valve with Urethane Sleeve - 120 Volt AC
10100673	Highway Towable - 4-Outlet with Maxum Metering Valve with Tungsten Carbide Sleeve - 120 Volt AC

Big Red Series Blast Machine - Highway Towable



***10100664 Shown**

Highway Trailer Schematic

Item #	Part #	Description
Fig. 31	1081664	Highway Trailer - Complete
1	10000399	Fender Assembly
2	10100482	Tongue Jack
3	10100481	Pintle Eye Coupler
4	10100472	Hydraulic Hitch Assembly
5	10100493	Chain
6	10100565	Torsion Axle - Highway Trailer
7	10100571	Oil Seal
8	10100578	Inner Bearing
9	10100580	Inner Bearing Cup
10	10100576	Left Hand Brake Shoe
11	10100577	Right Hand Brake Shoe
12	10100566	Idler Hub for Highway Towable Trailer
13	10100568	5/8-18 UNF Lug Stud
14	10100569	5/8-18 Lug Nut
15	10100591	Spindle Nut
16	10100477	Cotter Pin for Spindle Nut
17	10100592	Oil Cap with Plug, O-Ring
18	10100590	Spindle Washer
19	10100579	Outer Bearing
20	10100581	Outer Bearing Cup
21	10100567	Hub and Drum for Highway Trailer
22	10100478	Wheel and Tire Assembly
23	10100479	Wheel (8 Lug)
24	10100480	215 - 17.5” 16 Ply Tire
25	10000418	Fender Brace
26	10100476	#13 Axle Mount Bracket
27	10100585	Hazard Identification Sticker - Trailer Towing
28	10100586	Wiring Sticker
29	10100572	Trailer Connector - Female
30	10100573	Trailer Connector - Male
31	10100483	Jack Mount Assembly
32	1091053	Hazard Identification Sticker - Tire Installation
33	10100588	Brake Sticker

Item #	Part #	Description
Fig. 32		
1	10100490	Clearance Light - Amber *(2 required)*
2	10100489	Clearance Light - Red *(2 required)*
3	10100486	Tail Light - Oval *(3 required)*
4	10000420	License Plate Bracket
5	10100487	License Plate Light
6	10100488	Rear Light - Round
7	10100701	3/4-10 x 2-1/2” Bolt *(8 required)*
8	10100704	3/4 Flat Washer *(16 required)*
9	10100596	3/4 Lock Washer *(8 required)*
10	10100595	3/4 Nut *(8 required)*

Highway Trailer Schematic

Figure 31

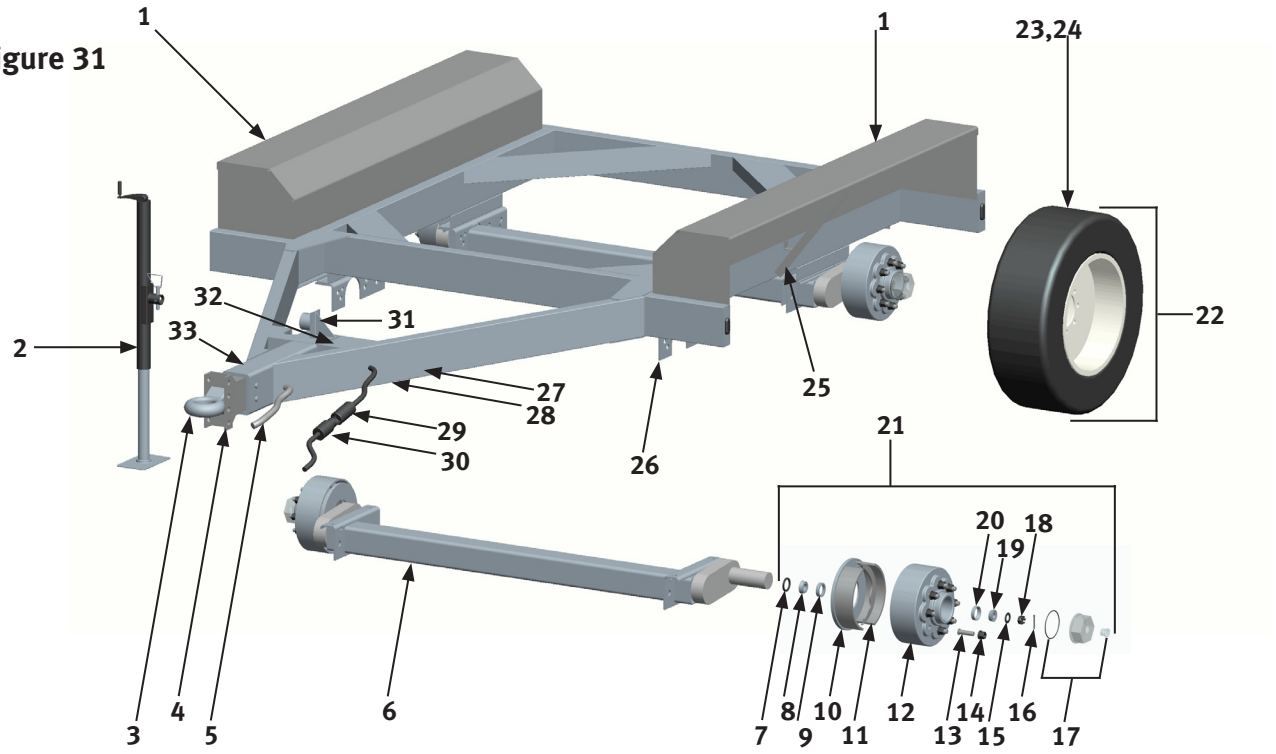
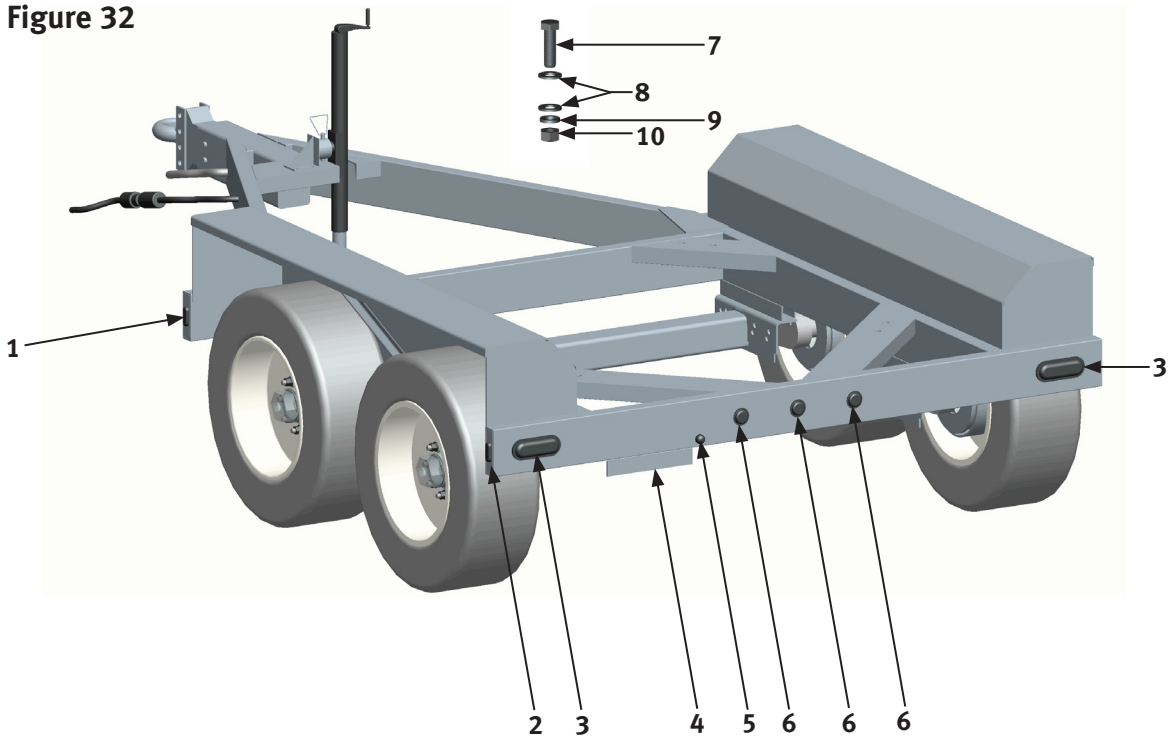


Figure 32



Big Red Series Blast Machine

Maintenance Notes

DATE	TYPE OF SERVICE	PART NUMBER

Big Red Series Blast Machine

Maintenance Notes

DATE	TYPE OF SERVICE	PART NUMBER

Big Red Series Blast Machine

Maintenance Notes

DATE	TYPE OF SERVICE	PART NUMBER

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 43229
  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

WARRANTY

Seller warrants to the original purchaser that the Product covered by this 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 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 by persons other than Seller or Seller's authorized representatives, or to maintenance parts.

DISCLAIMER OF WARRANTY

The foregoing Warranty is exclusive and is in lieu of all other warranties of quality, whether oral or written and whether express or implied. All warranties of merchantability or fitness for a particular purpose are hereby excluded and are inapplicable to the Product. Seller makes no warranties or representations concerning respirators, or equipment made by other manufacturers.

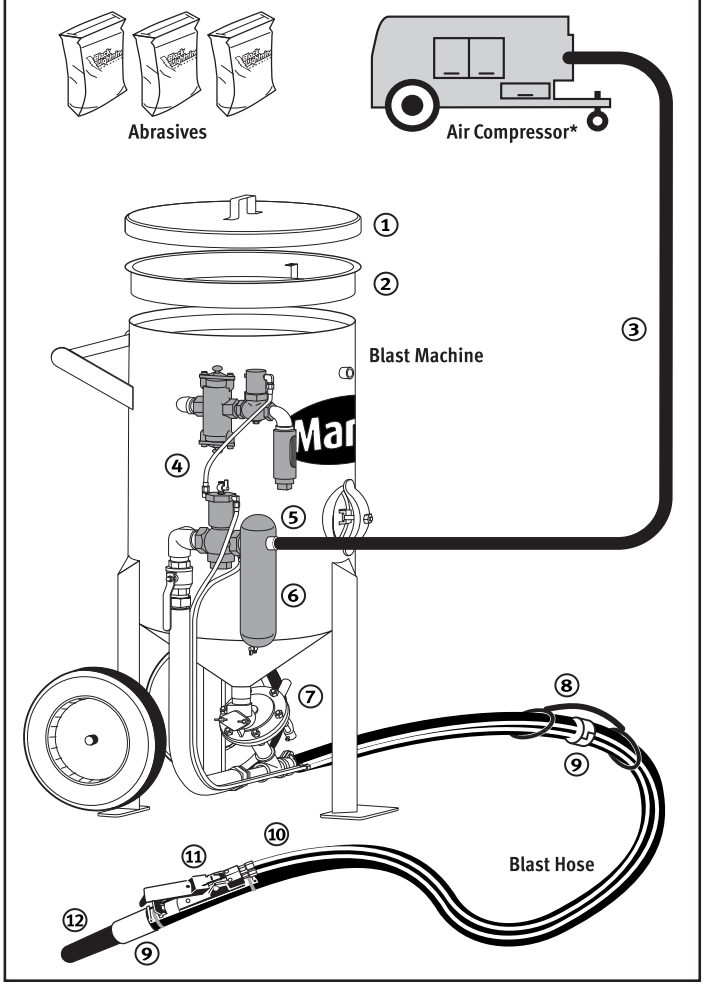
EXCLUSIVE REMEDIES FOR WARRANTY CLAIMS

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

LIMITATION OF REMEDIES

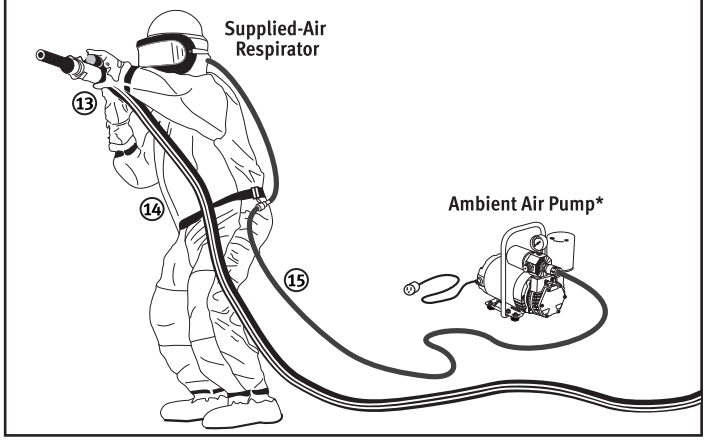
The foregoing stipulated exclusive remedies is in lieu of all other remedies for breach of contract, warranty and/or tort. Seller shall not be liable for the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons and/or entities, damages 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.

Marco Blast Machine – Hose Configuration



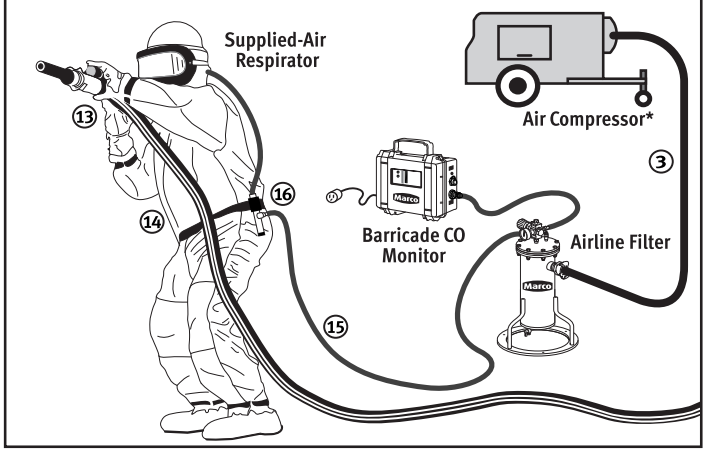
* Grade D quality air in an atmosphere free of contaminants

Ambient Air Pump Configuration



* Grade D quality air in an atmosphere free of contaminants

Air Compressor Breathing Air Configuration



* Grade D quality air in an atmosphere free of contaminants

DAILY PRE-OPERATION CHECKLIST

Additional Components

① blast machine lid
② blast machine screen
③ air hose
④ remote control system
⑤ air hose couplings & gaskets
⑥ moisture separator
⑦ metering valve
⑧ safety cable
⑨ blast hose couplings & gaskets
⑩ remote control line
⑪ remote control handle
⑫ blasting nozzle
⑬ blasting gloves
⑭ abrasive resistant blastsuit
⑮ breathing line
⑯ climate control device

☐ ABRASIVES:

- Review the Abrasive MSDS *(Material Safety Data Sheet)* to ensure the material is free of toxic or harmful substances such as lead, silica, cyanide or arsenic. Use properly sized abrasive to ensure required surface finish.

☐ BLAST MACHINE:

- Inspect the Blast Machine for internal and external wear, abrasions and leaks.
- Ground the Blast Machine to dissipate static electricity created by the Abrasive moving through the Blast Hose.
- Install a Moisture Separator at the Inlet Port of the Blast Machine. Removing moisture from the Air Supply will allow Abrasive to flow smoothly from the Blast Machine to the work surface.

☐ AIR SUPPLY: Blast Machine

- Use an Air Compressor that will provide sufficient CFM *(Cubic Feet Per Minute)* volume of air to the Blast Nozzle and all other pneumatic tools, with an additional 50% to allow for Blast Nozzle wear.

☐ AIR SUPPLY: Respirator

- Inspect Respirator Assemblies for worn components and replace as needed.
- You MUST consult the Operator's Manual supplied with your Respirator for ALL applicable Warnings and Hazards.

☐ BLAST NOZZLES:

- Replace Blast Nozzles if liner or jacket is cracked, damaged or an orifice size 1/16" larger than the original size.
  – Determine Nozzle wear by inserting a drill bit 1/16" larger than original size of the Nozzle orifice. If the drill bit passes, replacement is needed.
- Blast Nozzles with ½" I.D. or 1" I.D. Entry require use of a Nozzle Washer. Wide Entry (1-1/4" I.D.) Blast nozzles do not require a Nozzle Washer. Inspect and replace damaged Nozzle Holder or Nozzle Washer before use.
- Long Venturi Nozzles are most effective when the distance from Blast Nozzle exit to work surface is 24-36".

☐ AIR & BLAST HOSE

- Inspect all Hoses for internal and external wear, abrasions and leaks.
- Lay out Air Hose and Blast Hose as straight as possible to remove restrictions which cause reduced performance and premature wear.
- Blast Hose I.D. should be 3-4 times the size of Nozzle orifice.
- Blast Hose and Air Hose Couplings are to mate securely using Gaskets to provide a positive seal without leaks. Inspect and replace any worn or damaged component before use.
- Install Safety Clips and Safety Cables at each connection.

☐ PROTECTIVE CLOTHING:

- Wear appropriate Protective Clothing and Equipment *(supplied-air respirator, blastsuit, safety shoes, leather gloves, ear protection and eye protection)* appropriate for the work environment.

Marco®

Phone: (800) 252-7848
Fax: (563) 324-6258
e-mail: sales@marcousa.com
www.marcousa.com