OPERATOR'S MANUAL

VACMASTER® 15T TIER III DIESEL ABRASIVE VACUUMS

BUILT MARCO TOUGH
MARCO MANUFACTURED

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

Marco®

Company Profile

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

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

The Marco Difference

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

Vision Statement

Marco is the world's premier provider of Abrasives, Blasting, Coating, Dust Collectors, Engineered Systems, Rental, Safety, Service, Repair, & Modernization, and Vacuums.

Mission Statement

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

Quality Statement

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

Management Philosophy

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

DEFINITION OF TERMS

⚠ DANGER

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

⚠ 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.

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HAZARD IDENTIFICATIONS

⚠ WARNING

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

- OSHA sets exposure limits to protect workers from exposure to respirable crystalline silica, 29 CFR 1910.1053. Airborne dust could increase the exposure levels beyond permissible limits. Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust.
- Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the respirator must be at least Grade D quality as described in Compressed Gas Association Commodity Specification G-7.1 and as specified by OSHA Regulation 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- Abrasive blasting operators must receive thorough training on the use of abrasive resistant attire which includes: supplied-air respirator, abrasive blasting suit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions.
- OSHA requires abrasive blasting nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (i.e., a “deadman” control). The valve shall not be modified in any manner that would allow it to remain open without the application of continuous hand pressure by the operator. Failure to comply with the above warning could result in release of high speed abrasive and compressed air resulting in death or serious injury. OSHA 29CFR 1910.244(b)
- Point the abrasive blasting nozzle only at the surface being abrasive blasted. Never point the abrasive blasting nozzle or abrasive stream at yourself or others.
- Unless otherwise specified, maximum working pressure of abrasive blasting pots and related components must not exceed 150 psi. Exceeding maximum working pressure of 150 psi could cause the abrasive blasting pot and components to burst. Failure to comply with the above warning could result in death or serious injury.
- Never weld, grind or drill on the abrasive blasting pot (or any pressure vessel). Doing so will void ASME certification and manufacturer’s warranty. Welding, grinding or drilling on the abrasive blasting pot (or any pressure vessel) could weaken the vessel causing it to burst. Failure to comply with the above warning could result in death or serious injury. (ASME Pressure Vessel Code, Section VIII, Division 1)
- This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location could cause an explosion or electrocution.
- Never attempt to move an abrasive blasting pot containing abrasive. Never attempt to manually move abrasive blasting pots greater than 6.5 cubic foot capacity. Always use at least two capable people to manually move an abrasive blasting pot on flat, smooth surfaces. A mechanical lifting device must be used if an abrasive blasting pot is moved in any other manner.

HAZARD IDENTIFICATIONS

⚠ WARNING

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

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

HAZARD IDENTIFICATIONS

⚠ CAUTION

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

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

NOTICE

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

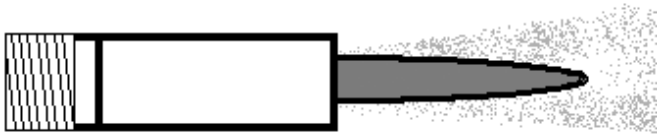
- See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- Always use abrasive that is dry and properly screened. This will reduce the potential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

AIR & ABRASIVE CONSUMPTION CHART

NOTICE

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

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



"Blue Flame"

NOTICE

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

NOTICE

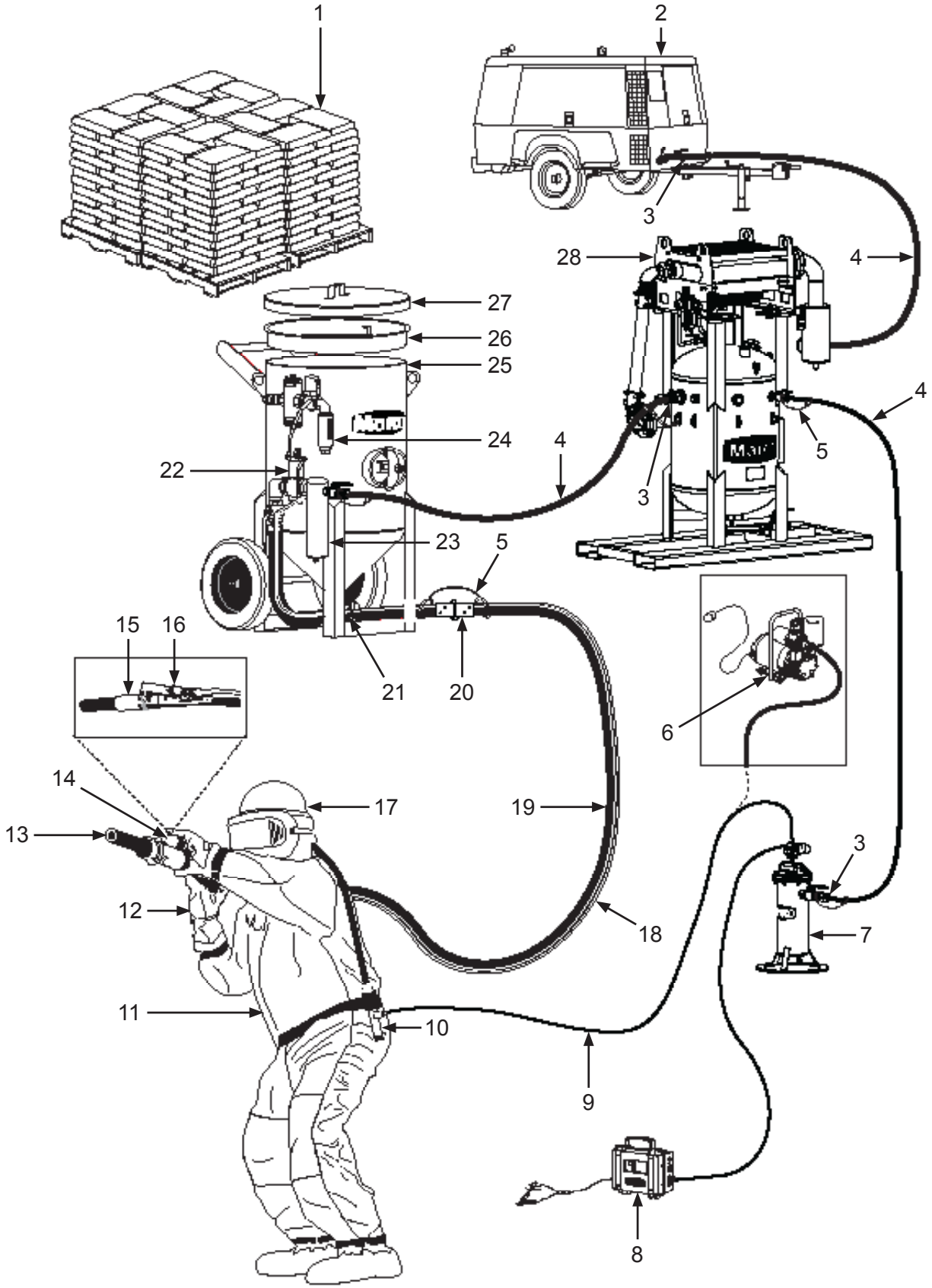
Replace abrasive blasting nozzle if liner or jacket is cracked or damaged. Replace abrasive blasting nozzle if original orifice size has worn 1/16" or more. Determine abrasive blasting nozzle wear by inserting a drill bit 1/16" larger than original size of abrasive blasting nozzle orifice. If the drill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

Air & Abrasive Consumption Chart*

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

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

“THE BIG PICTURE”



DAILY PRE-OPERATION CHECKLIST

Daily Pre-operation Checklist

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

OPERATING INSTRUCTIONS

⚠ DANGER

D-506

Do not move vacuum while hopper is in raised position. Failure to comply with the above danger will result in death or serious injury.

⚠ WARNING

W-575

Ensure the surface is level, stable, and is sufficient to support the weight of the Device or System. Uneven or unstable surfaces, and/ or surfaces that cannot support the gross weight of the Device or System could cause the Device or System to overturn. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-601

Ground machine to a suitable ground before operation. Static discharge could result in a fire or an explosion. Failure to comply with above warning could result in death or serious injury.

⚠ WARNING

W-503

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

Description

The Vacmaster® 15T Tier III Diesel Abrasive Vacuums are a trailer mounted vacuum designed to convey granulated materials from a work area to a container for recycling or disposal. Using a powerful 174 HP Perkins diesel engine to drive the rotary lobe blower, the Vacmaster® 15T Tier III Diesel Abrasive Vacuums easily create 27” Hg of suction to quickly move large quantities of material from inside tanks, ship hulls, and containment areas, reducing clean up time on work sites. The large hopper with automatic direct dump gate can be raised and lowered to match the height of your disposal container. The Vacmaster® 15T Tier III Diesel Abrasive Vacuums can easily clean up surface preparation work sites of spent abrasives like garnet, coal slag, cooper slag, crushed glass, steel shot, steel grit, and aluminum oxide. Typical applications include blast yards, bridges, oil refineries, pipelines, shipyards, storage tanks, and water treatment plants.

Operational Requirements

This equipment is self-contained and powered by a Diesel engine. It will provide excellent service if properly maintained. There are no unique or complicated parts that require sophisticated maintenance procedures under normal operation. The diesel engine is equipped with automatic shutdowns for low oil pressure and high temperature.

The following may cause safety hazards or reduced performance:

- Improper installation and/or maintenance of components.
- Failing to properly secure unit from movement when not in transport.
- Exceeding 55 mph speed limit when towing unit.
- Operating the Vacmaster® 15T Tier III Diesel Abrasive Vacuums under electrical wires or near power cables of any kind.
- Raising the hopper without all four jack stands lowered and pinned.
- Standing under the raised Hopper without support struts pinned in place.

Towing Safety Instructions

- Due to the height of 11’2”, extra caution is required for overhead clearance.
- Do not ship or transport via semi-truck trailer. The Vacmaster® 15T Tier III Diesel Abrasive Vacuums must be towed behind an appropriate motor vehicle.
- Be sure all lights on the trailer are functioning properly before traveling with this unit.
- Always tow the Vacmaster® 15T Tier III Diesel Abrasive Vacuums with the safety chains and the emergency brake cable attached to the towing vehicle.
- Before towing the Vacmaster® 15T Tier III Diesel Abrasive Vacuums, inspect the tires and the hitch mechanism for damage.
- Always tow the Vacmaster® 15T Tier III Diesel Abrasive Vacuums with the Hopper in the lowered and locked position.
- Always tow the Vacmaster® 15T Tier III Diesel Abrasive Vacuums with the Hopper completely empty and the discharge door secured in closed position.
- Tow vehicle must have electric brake controller.
- Do not exceed 55 mph speed limit.

Operating Instructions

Before use:

- Ensure the surface is level, stable, and is sufficient to support the weight of the unit. Block wheels to prevent unintended movement.
- Level Vacmaster® 15T Tier III Diesel Abrasive Vacuums by adjusting height using four Jack Stands (1) so that it is sitting no more than 5 degrees off level in any direction.

OPERATING INSTRUCTIONS

⚠ WARNING

W-520

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

⚠ WARNING

W-505

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

⚠ WARNING

W-596

Do not place any part of body into or over any suction inlet of vacuum or connected hose. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-600

Do not use vacuum with hopper in raised position with winds greater than 28 MPH. Unit can tip over. Failure to comply with above warning could result in death or serious injury.

⚠ WARNING

W-599

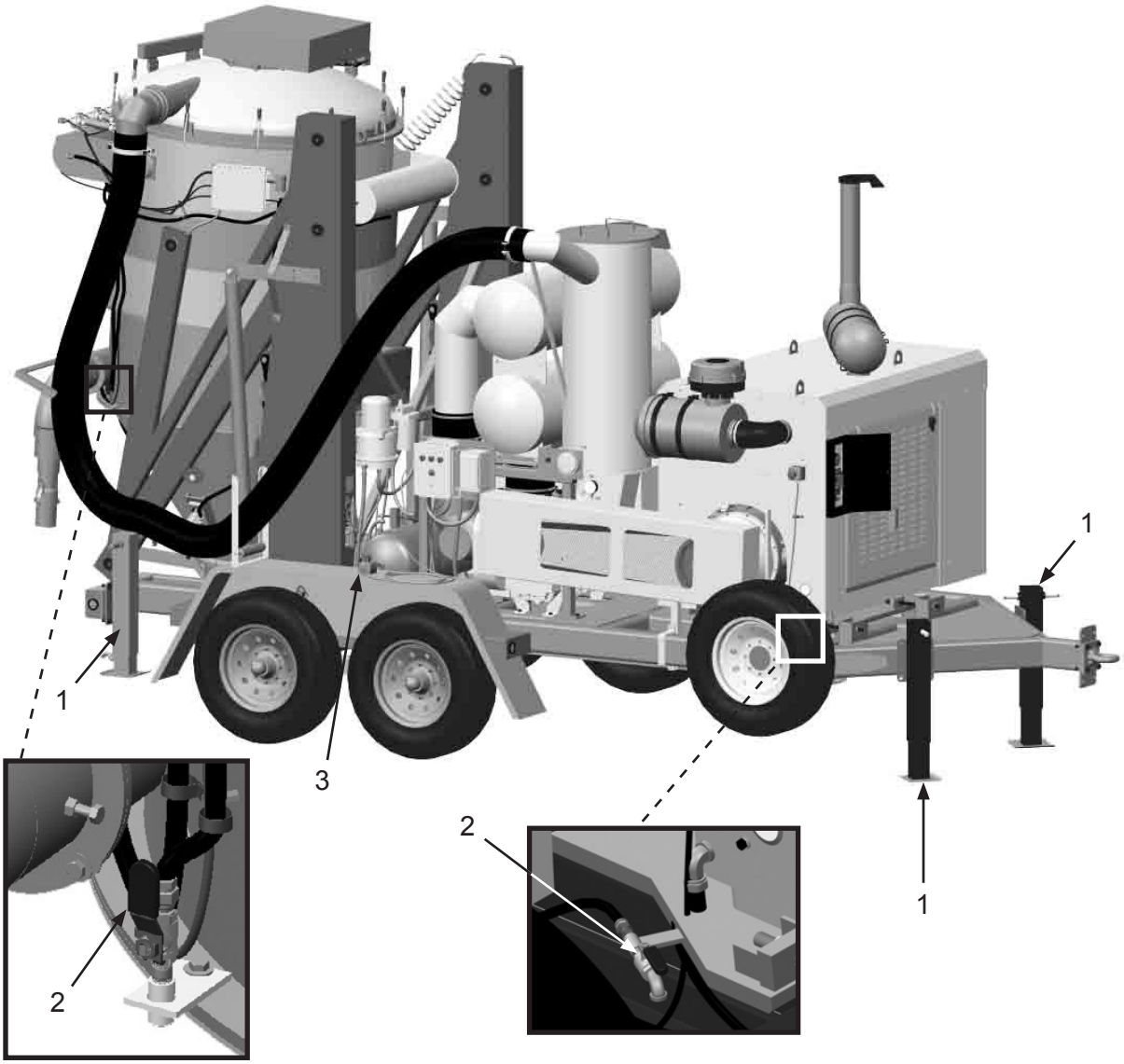
Do not raise hopper unless area around and above unit is inspected and found to be free of electrical wires or other obstructions. Failure to comply with above warning could result in death or serious injury.

Before use (Cont.):

- Ground machine to a suitable ground.
- Perform daily lubrication. See Lubricate Grease Points.
- Connect vacuum hose. See Connect Vacuum Hose.
- Run vacuum hose and E-Stop Pendant (3) to suction site.
- Close Ball Valves (2).
- Raise collection hopper to working height. See Raise and Lower Collection Hopper.

During use:

- Monitor all fluid levels.
- Monitor air pressure.
- Monitor vacuum pressure
- Monitor both Magnehelic gauges.
- Monitor amount of material collected in catch container to prevent overflowing.



⚠ WARNING

W-505

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

⚠ WARNING

W-596

Do not place any part of body into or over any suction inlet of vacuum or connected hose. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-511

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

NOTICE

N-536

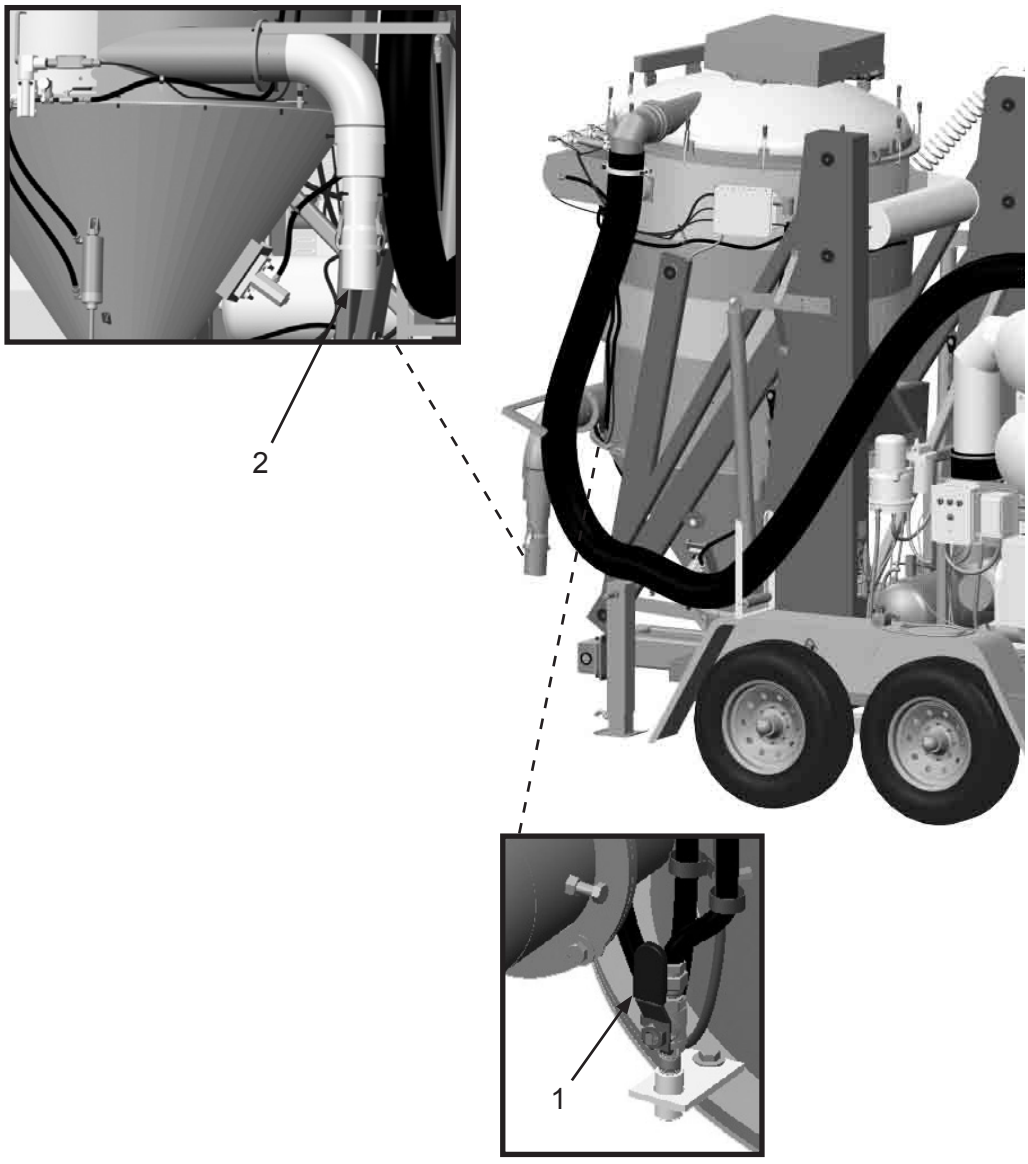
When a dust collector is used to service a storage tank, ensure there is adequate ventilation to prevent tank collapse due to pressure imbalance between external and internal tank surfaces. Failure to properly ventilate storage tank may result in damage to property. If proper ventilation is in question, consult with tank manufacturer or engineer.

After use:

- See Unit Shutdown Instructions.
- Lower collection hopper. See Raise and Lower Collection Hopper.

Note: Allow diesel engine to idle for at least 5 minutes after it has been under load before shutting off.

- Shut unit down.
- Open Pulser System Ball Valve (1).
- Disconnect vacuum hose *(not shown)* from Inlet Port (2).



Connect Vacuum Hose

⚠ WARNING
W-562

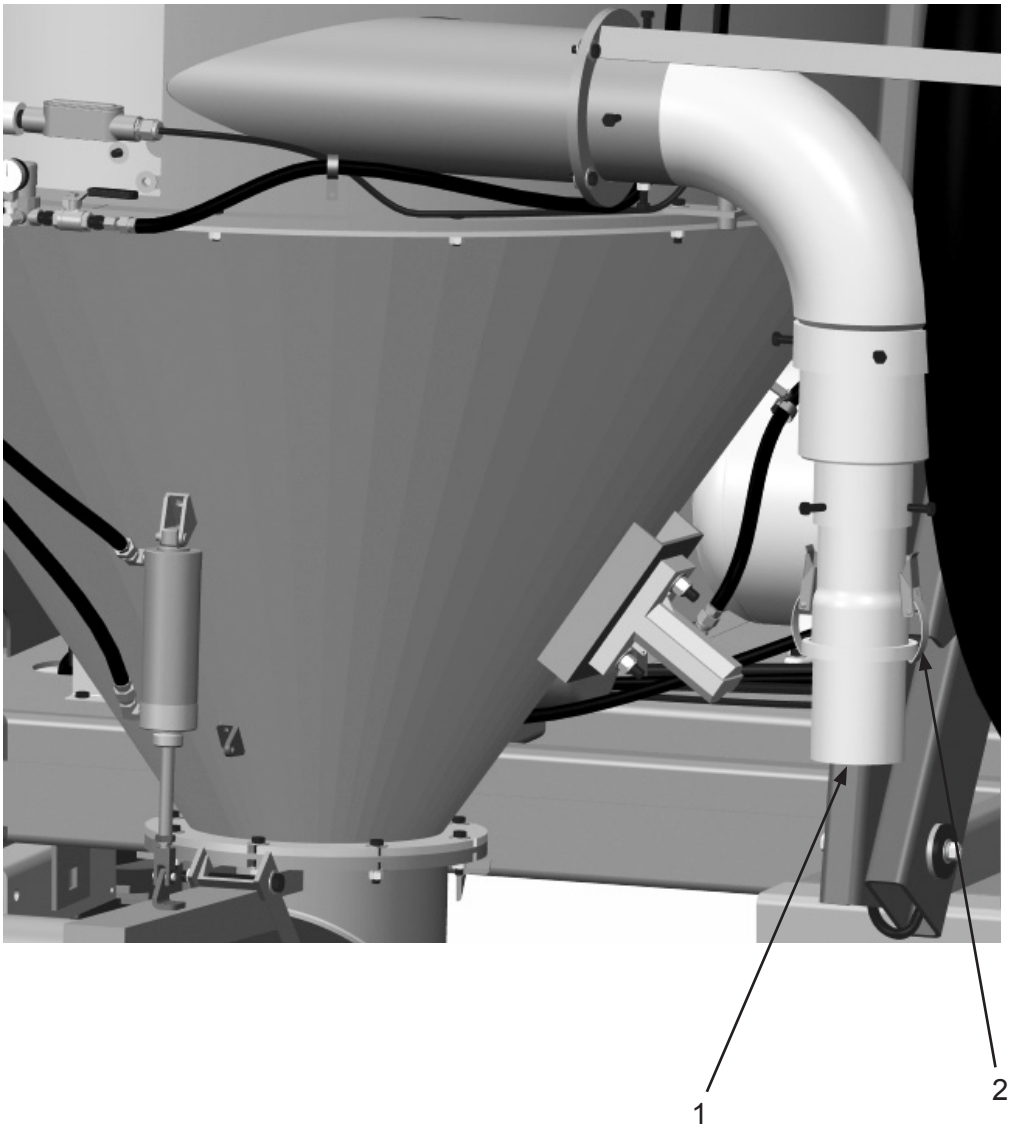
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING
W-596

Do not place any part of body into or over any suction inlet of vacuum or connected hose. Failure to comply with the above warning could result in death or serious injury.

Note: Do not attach hose to vacuum inlet port while machine is running.

1) Ensure unit is off.
2) Attach Vacuum Hose *(not shown)* to Inlet Port (1).
3) Secure with Quick Disconnect Coupling (2).



OPERATING INSTRUCTIONS

Raise and Lower Collection Hopper

⚠ DANGER
D-504

Do not raise hopper unless vacuum is on a level surface and jack stands are down and secured using a proper device. Failure to comply with the above danger will result in death or serious injury.

⚠ DANGER
D-505

Do not leave hopper in raised position without support strut in place and secured using a proper device. Failure to comply with the above danger will result in death or serious injury.

⚠ WARNING
W-599

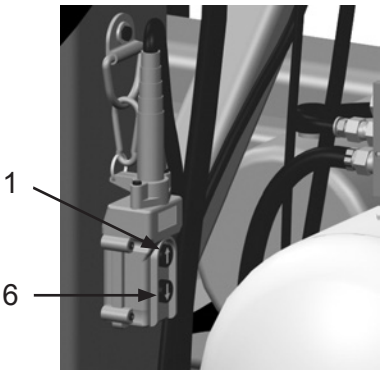
Do not raise hopper unless area around and above unit is inspected and found to be free of electrical wires or other obstructions. Failure to comply with above warning could result in death or serious injury.

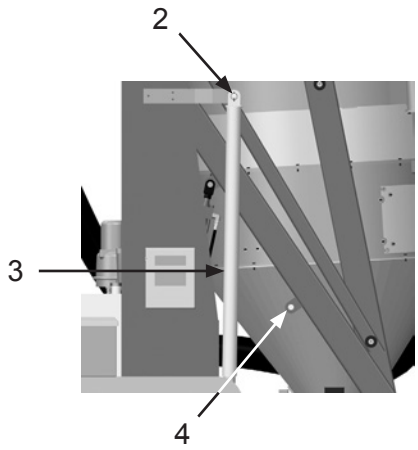
⚠ WARNING
W-597

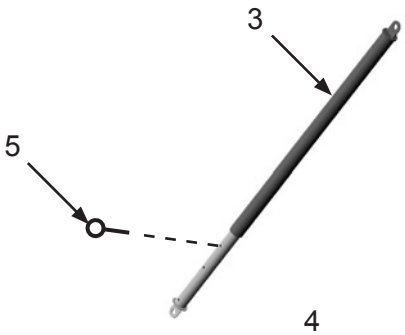
Always install safety struts when collection hopper is in raised position. Do not stand under collection hopper or between collection hopper and trailer when hydraulic cylinders are in raised position without support struts secured in place. Failure to comply with the above warning could result in death or serious injury.

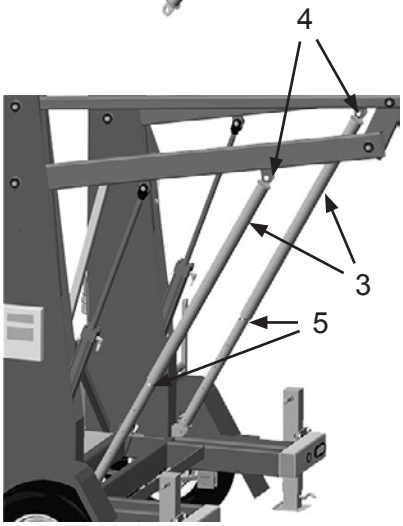
Note: Do not leave the collection cylinder in the raised position without the support struts pinned in place.

1) Power up the unit. See Unit Startup and Shutdown.
2) Push "RAISE" Button (1), to raise collection hopper to about five feet above base.
3) Remove Pin (2) and pivot Support Strut (3) to Pin Hole (4) and insert pin. Repeat for opposite side.
4) Continue raising hopper to sufficient height to clear the collection device. When the proper height is reached, place Support Strut Pin (5) in the closest hole on the Support Struts (3). Repeat for opposite side.
5) Push "LOWER" Button (6), to gradually lower the hopper until it is resting on Support Strut Pins (5).
6) Reverse procedure to lower collection hopper.









OPERATING INSTRUCTIONS

Pre-Startup

⚠ WARNING

W-587

Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.

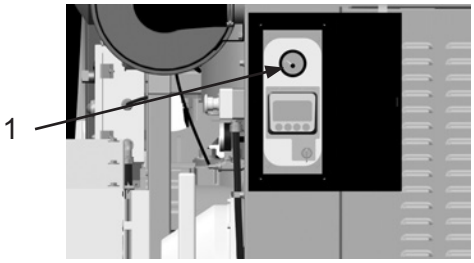
⚠ WARNING

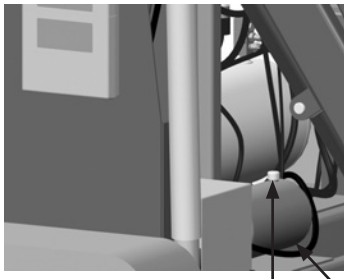
W-566

Exposure to toxic fluids or fumes may occur during the normal operation of this system. Before attempting to fill, use, or service this system, read SDS's to know the specific hazards of the fluids you are using. Always use proper Personal Protective Equipment when attempting to fill, use, or service this system. Failure to comply with the above warning could result in death or serious injury.

Pre-Startup Instructions:

1) Check engine oil and coolant levels. See Engine Operator's Manual for instructions.
2) Check diesel fuel level using Fuel Gauge (1). Add diesel fuel, as needed.
3) Check hydraulic oil level using Dip Stick (2) on Hydraulic Oil Tank (3). Add hydraulic oil, as needed.





OPERATING INSTRUCTIONS

Unit Startup & Shutdown

⚠ DANGER

D-503

Do not vacuum flammable or combustible material. An explosion is possible. Failure to comply with the above warning will result in death or serious injury.

⚠ WARNING

W-596

Do not place any part of body into or over any suction inlet of vacuum or connected hose. Failure to comply with the above warning could result in death or serious injury.

⚠ CAUTION

C-514

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

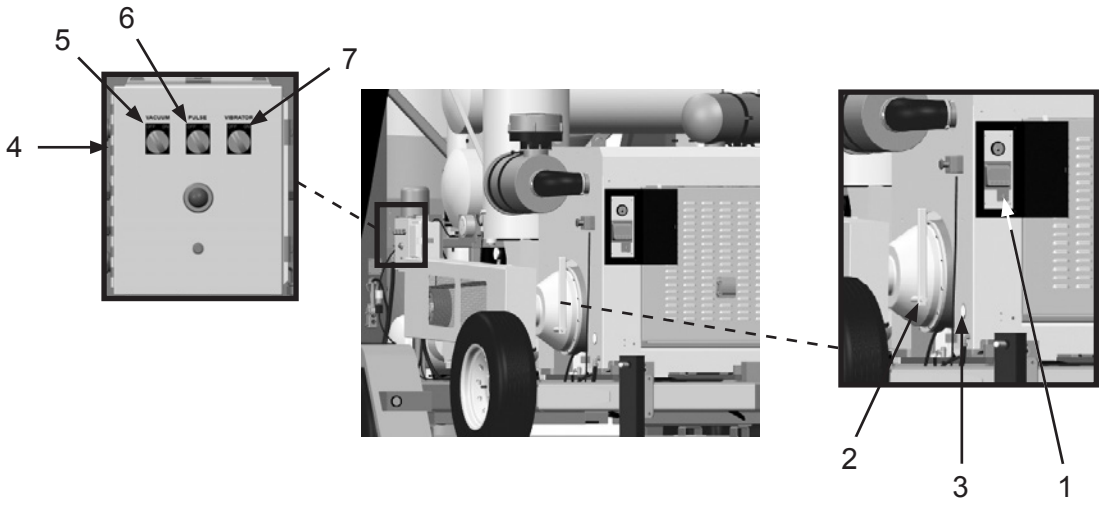
Unit Startup Instructions:

1) Ensure Clutch Handle (2) is disengaged.
2) Turn Key (1) to “R” until Murphy PowerView fully comes online.
3) Turn key until engine starts, 30 seconds maximum. Release key when engine starts.
4) Run engine for approximately 5 minutes.

Note: Ensure that personnel are away from inlet duct opening.

Note: Rapid engagement of clutch may cause damage to clutch and belts to slip from pulleys.

5) Slowly engage clutch until fully engaged and handle is in its locked position.
6) On Vacuum Control Box (4), turn Vacuum Selector Switch (5) "ON".
7) Check Air Pressure Gauge (3) for 90-95 psi of air.
8) Start pulser system. See Pulser System Startup.
9) Adjust vacuum timer. See Adjust Vacuum Timer.
10) Turn Vibrator Selector Switch (7) "ON".
11) Ensure Pulse Selector Switch (6) is "ON".



OPERATING INSTRUCTIONS

Unit Startup & Shutdown Cont.

⚠ WARNING

W-503

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

⚠ WARNING

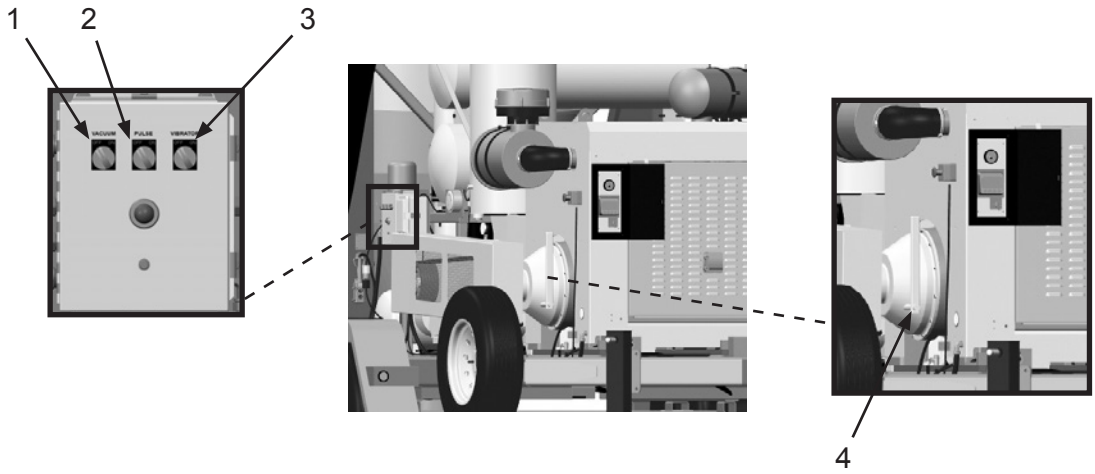
W-501

Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust. Failure to comply with the above warning could result in death or serious injury.

Unit Shutdown Instructions:

Note: In the event of an emergency, press one of the Emergency-Stop Stations to cease operation of the system.

1) Allow all material to clear suction hose.
2) Decrease engine speed to Idle by turning Vacuum Selector Switch (1) "OFF".
3) Disengage Clutch Handle (4).
4) Turn Vibrator Selector Switch (3) "OFF".
5) Turn Pulse Selector Switch (2) "OFF".
6) Follow After Use instructions.



Adjust Vacuum Timer

⚠ WARNING

W-562

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

⚠ WARNING

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

⚠ WARNING

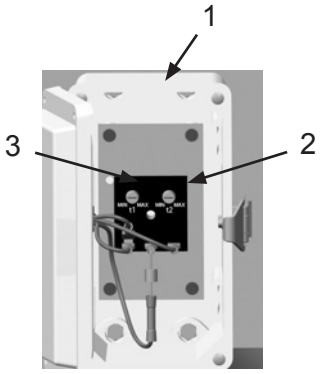
W-602

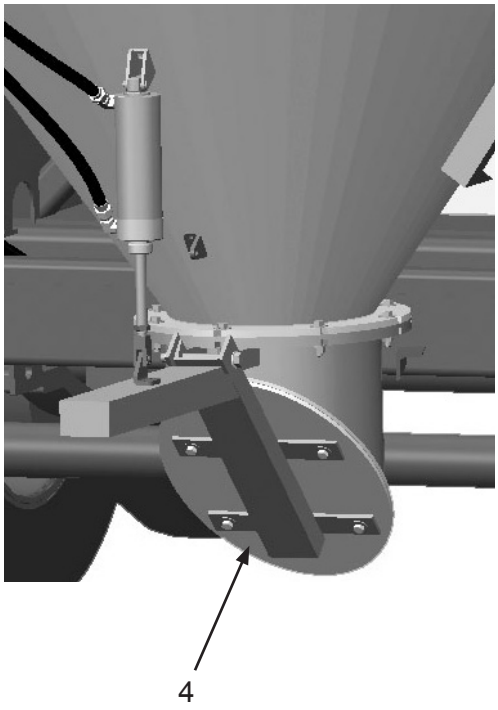
Stay clear of dump door while machine is in operation. Dump door activates automatically. Failure to comply with above warning could result in death or serious injury.

Note: Run times will need to be adjusted according to the bulk density of material being collected and length of hose.

Note: Dump Door (4) opens and closes automatically with timer control settings.

1) Inside Vacuum Timer Control Box (1), the "T2" Knob (3) controls the time that vacuum runs and the "T1" Knob (2) controls the time that vacuum is off (dump time).
2) Turn knobs clockwise to increase time and counterclockwise to reduce time.





OPERATING INSTRUCTIONS

Pulser System Startup

⚠ WARNING

W-562

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

Pulser System Startup Instructions:

The Pulser System is a cleaning system for the filter bags. This system blows a burst of air into a set of filters to dislodge dust from the filters into the hopper. To change time duration of pulse, see Adjust Pulse Separation.

1) Ensure Ball Valves (2) are closed.
2) To Pulse, turn "PULSE" Switch (1) on control box to “On”.
3) While powered, the pulser system should be easily heard. The timer controller will be factory set.
4) Material will fall from the filters to the bottom of the hopper to dump during the dump cycle.

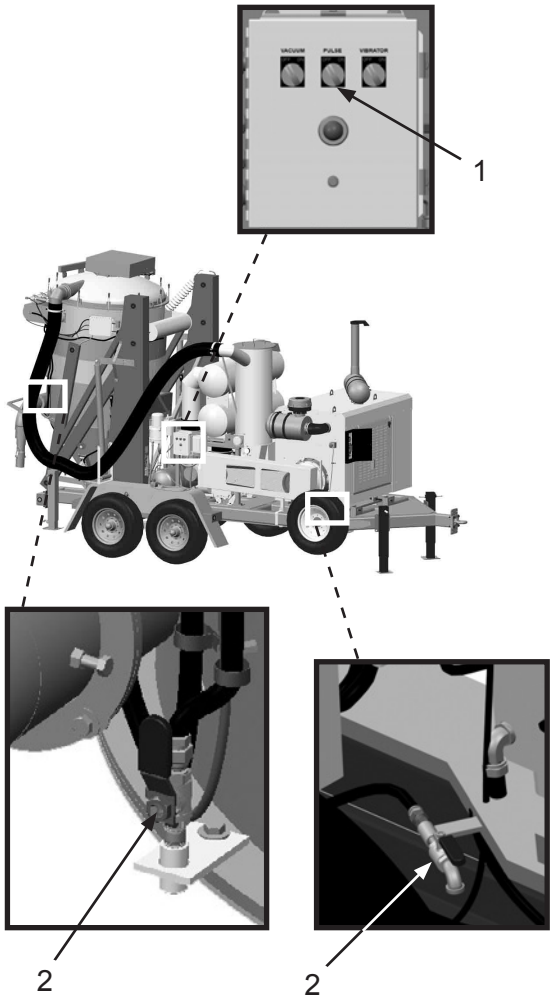
⚠ WARNING

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

⚠ WARNING

W-590

When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.



OPERATING INSTRUCTIONS

Reading Magnehelic Gauge

⚠ WARNING

W-577

Before using this equipment, read, understand and follow all instructions in the Operator's Manuals with this equipment. If the user and/or assistants cannot read or understand the warnings and instructions, the employer of the user and/or assistants must provide adequate and necessary training to ensure proper operation and compliance with all safety procedures pertaining to this equipment. If Operator's Manuals have been lost, visit www.marco.us or call (563) 324-2519 for replacements. Failure to comply with the above warning could result in death or serious injury.

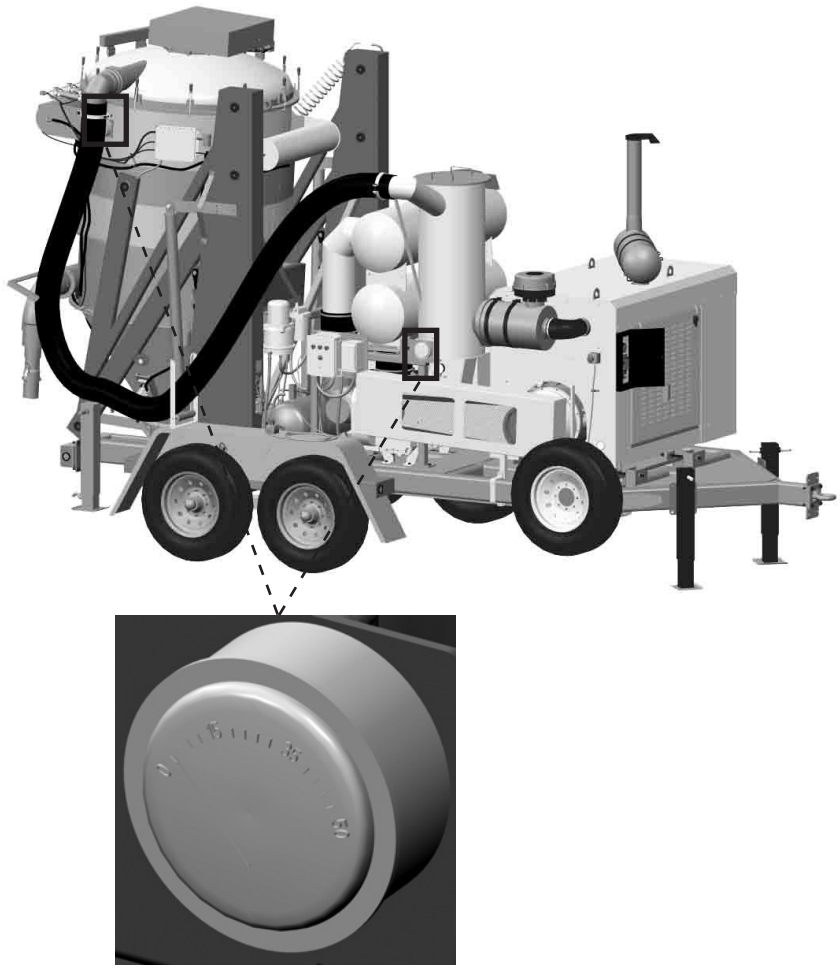
The Magnehelic Gauge provides a means to tell how clean the filter cartridges/bags are. It measures the static pressure and the resistance of air flow across the filters.

Magnehelic Gauge located on hopper

- New Filters will register approximately 1" water column (w.c.) on the gauge. Normal operating range for conditioned filters will show 20" – 30" (w.c) on gauge.
- If Magnehelic Gauge is reading above the normal operating range, see Troubleshooting Section.

Magnehelic Gauge located near intake filter housing

- New Filters will register approximately 2" water column (w.c.) on the gauge. Normal operating range will register approximately 10" water column (w.c.) on the gauge.
- If Magnehelic Gauge reading climbs rapidly, stop operating the unit, perform shut-down procedure, and check pulser system and filter bags.
- If reading above 30" (w.c.), stop operating the unit immediately, perform shut-down procedure, check pulser system, and replace filter bags.



Lubricate Grease Points

⚠ WARNING

W-562

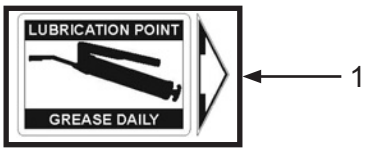
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

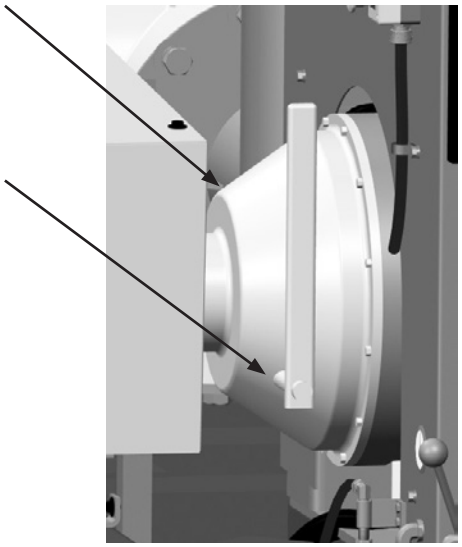
⚠ WARNING

W-587

Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.

Lubricate Vacmaster® 15T Tier III Diesel Abrasive Vacuums at points indicated. Points are indicated by Lubrication Point Grease Daily Decal (1).





Lubricate Grease Points (Cont)

⚠ WARNING

W-562

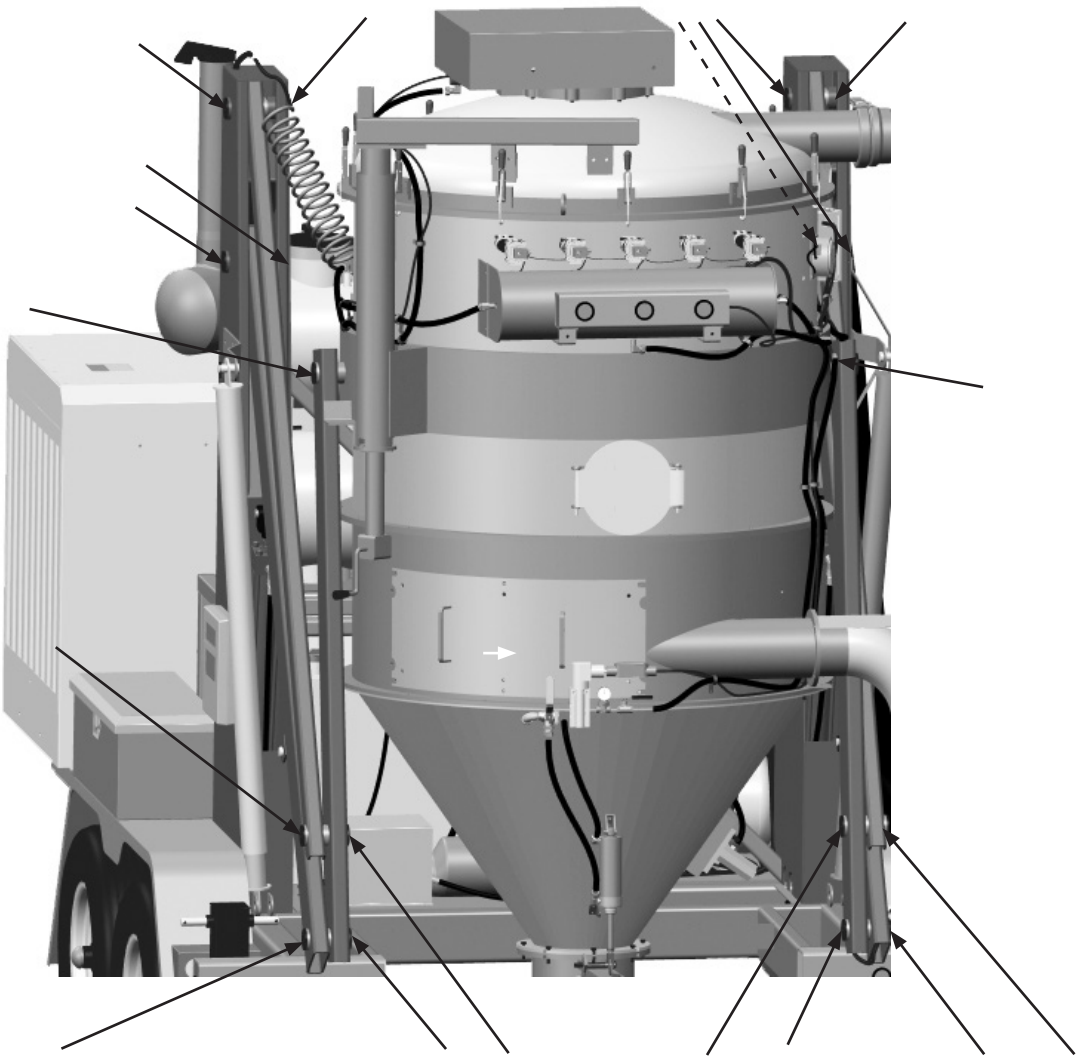
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING

W-587

Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.

Lubricate Vacmaster® 15T Tier III Diesel Abrasive Vacuums at points indicated. Points are indicated by Lubrication Point Grease Monthly Decal (1).



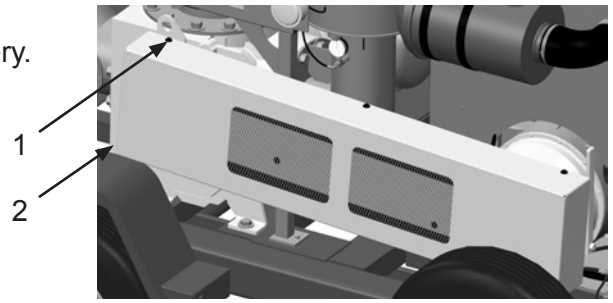
SPECIFICATIONS

Performance:	MAX 2367 CFM
Filter Cartridge Style:	Acrylic-Coated Filter Bags 37 Required
Filter Cleaning:	Pulse System, 25–30 second intervals. Pulse Duration: 200–350 millisecond
Vacuum	27" Hg
Ducting Connections:	6" I.D. Inlet with 4" adapter
Inspection Ports:	One 10" Viewable to Filters with access ports to hopper
Material Removal:	Automatic Direct Dump
Blower:	Rotary lobe, positive displacement with jet inlet
Engine:	Diesel, Tier 3, 174 Horsepower
Fuel Capacity:	Capacity: 116 Gallons Type: Diesel
Air Compressor:	On Board 13 CFM
Electrical System:	12-Volt DC
Engine Protection:	Engine Monitoring System with automatic shutdown
Fluid Specifications:	Hydraulic Oil: H46 or equivalent, 2 gallon capacity Diesel Fuel: See Engine Operator's Manual for type Grease/Lubricator: Shell Alvania Grease EP or equivalent Alcohol Evaporator: Alcohol 99 Isopropyl, 32 oz. capacity Vibrator Lubricator: 4 oz. pneumatic air tool oil Blower Oil: ROOTS™ synthetic lubricating oil
Unit Dimensions:	Weight: 11,250 pounds (empty) Length: 19' 7" Width: 7' 10" Height: 11' 6" Raised Height: 19' Dump Clearance: 8'

Adjust Tension of Blower Drive Belt

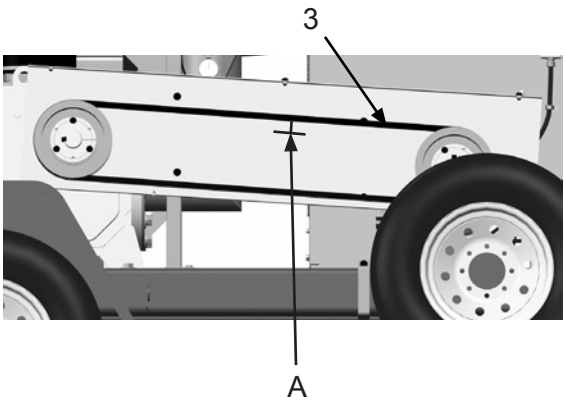
⚠ WARNING
W-562
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

1) Depressurize system.
2) Disconnect battery cables from battery.
3) Remove three Bolts (1).
4) Remove Front Belt Cover (2).

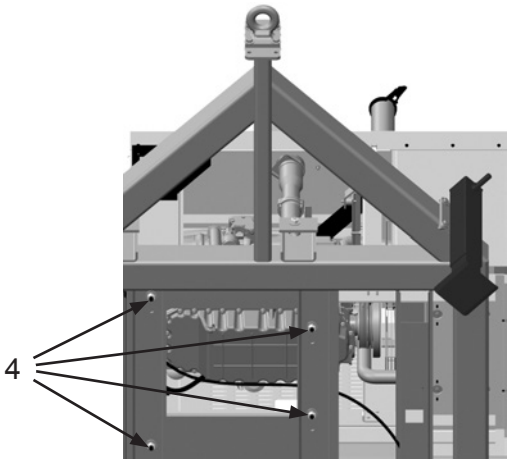


⚠ WARNING
W-586
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

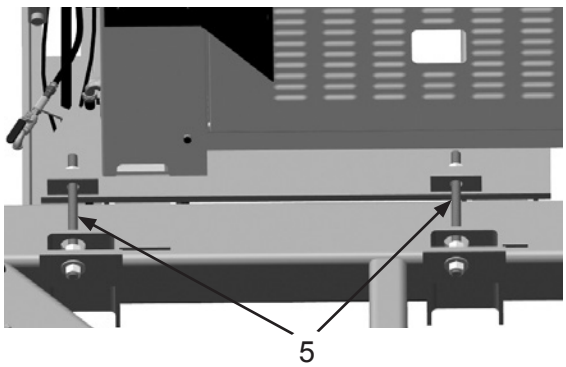
5) Inspect Belt (3) for damage. Replace as needed.
6) Check tension of Belt (3) by pushing downward on Belt and measure Distance (A) of travel. Belts should have a deflection distance of approximately 21/32 inch; applied force of approximately 88–94 pounds.
7) To adjust tension of Belt, loosen Slide Bolts (4). Adjust threaded rod (5) until deflection distance is approximately 21/32 inch; applied force of approximately 88–94 pounds. If distance cannot be attained, replace belt. Tighten Slide Bolts (4).
8) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.



⚠ WARNING
W-590
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.



⚠ WARNING
W-583
Do not walk on, stand on, or climb on any surface other than the designated work platform. Doing so poses a slip and fall hazard. Failure to comply with the above warning could result in death or serious injury.



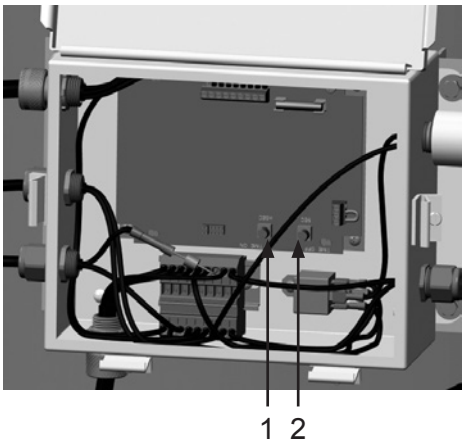
Adjust Pulse Separation

⚠ WARNING

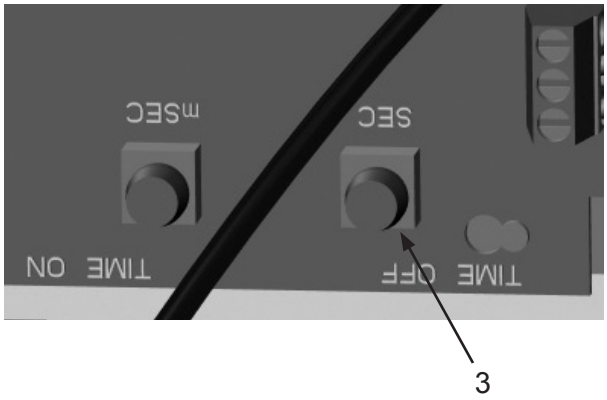
W-562

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

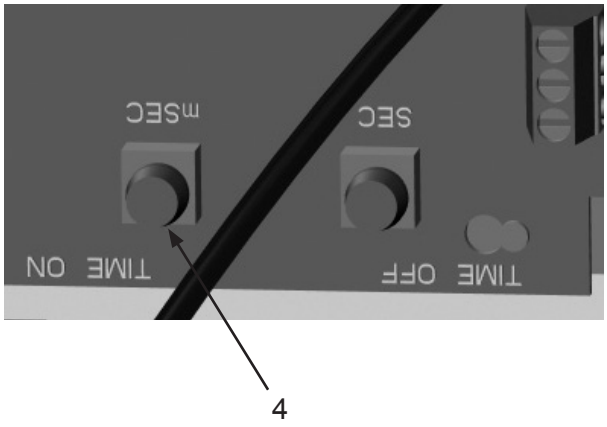
1) Depressurize system.
2) Disconnect battery cables from battery.
3) Open enclosure door of Timer Controller.
4) Locate Adjustment Knobs (1 and 2).



5) Set the Pulse Separation, the elapsed time between pulses, by rotating Knob (3). The recommended elapsed time between pulses is 25 seconds. Depending on conditions, the elapsed time may need to be changed. Elapsed time between pulses should be between 20–30 seconds.



6) Set Pulse Duration, the elapsed time of compressed air entering the filters, by rotating Knob (4). The recommended elapsed time of compressed air entering the filters is 200 milliseconds (mSEC). Depending on conditions, the elapsed time of air entering the filters should be between 200–350 milliseconds.
7) Close enclosure door of Timer Controller.

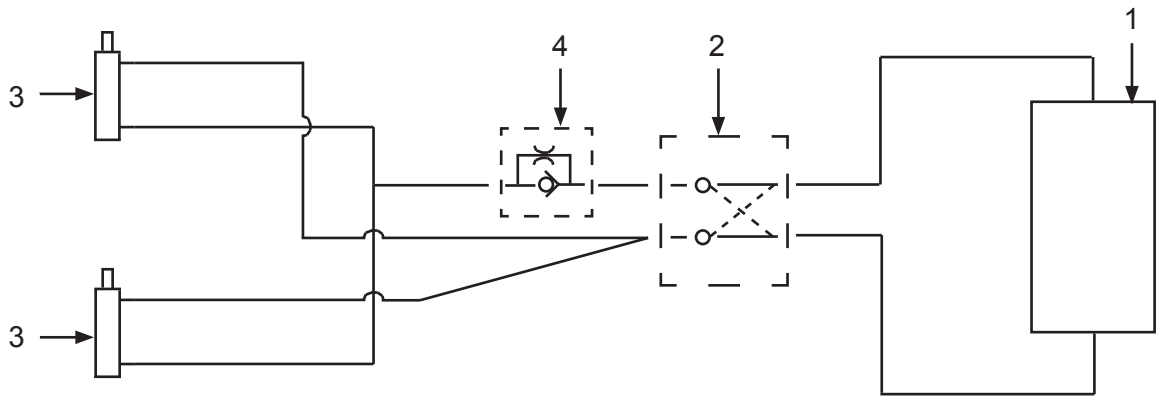


Hydraulic System Schematic

⚠ WARNING

W-587

Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.



1) Hydraulic Power Unit with Tank
2) Lock Valve
3) Cylinder
4) Flow Restrictor

Remove & Install Pressure Tank

⚠ WARNING

W-562

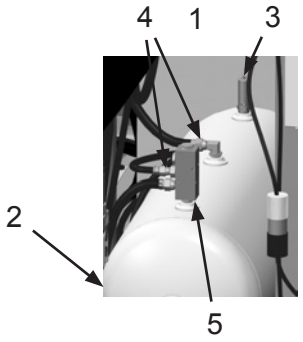
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

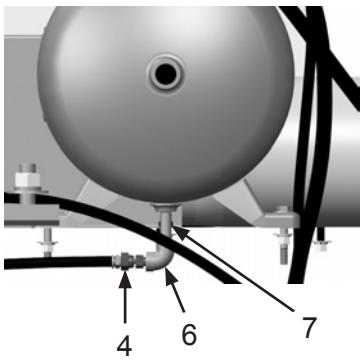
NOTICE

N-530

Label all hoses and connections to aid installation.

1) Depressurize system.
2) Ensure Ball Valve (1) is open.
3) Depressurize Tank (2)
4) Disconnect Hoses and Fittings (4).
5) Remove Pressure Relief Valve (3).
6) Remove Manifold (5).
7) Remove Elbow (6) and Nipple (7).

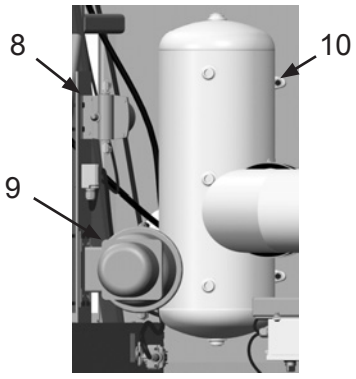




8) Remove Alcohol Evaporator (8). See Remove & Install Alcohol Evaporator.
9) Remove Air Dryer (9). See Remove & Install Air Dryer.

Note: Approximate weight of Pressure Tank is 51 pounds. Use suitable lifting device to support or maneuver Pressure Tank.

10) Attach a suitable lifting device to Pressure Tank.
11) Remove four Bolts, Lock Washers, Nuts and eight Washers (10).
12) Remove Pressure Tank.
13) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.
    - Use PTFE Sealing Tape on union and fitting threads.

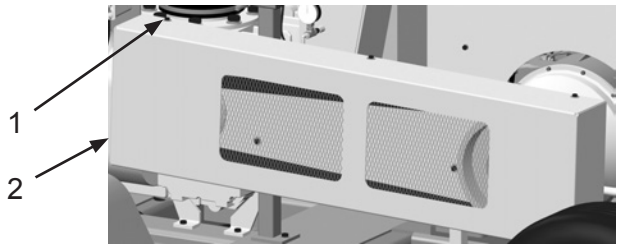


Remove & Install Blower Drive Belt Assembly

⚠ WARNING
W-562

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

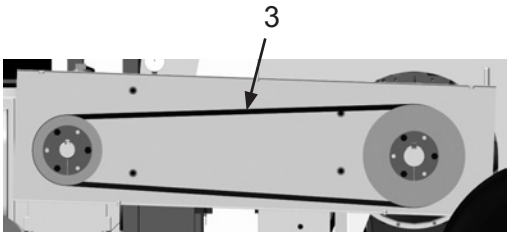
1) Depressurize system.
2) Disconnect battery cables from battery.
3) Remove three Bolts (1).
4) Remove Front Belt Cover (2).



⚠ WARNING
W-586

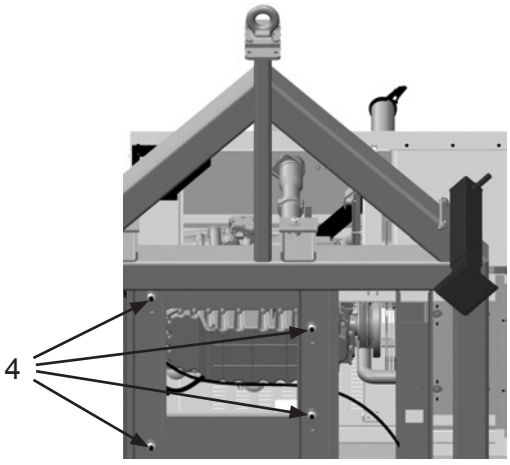
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

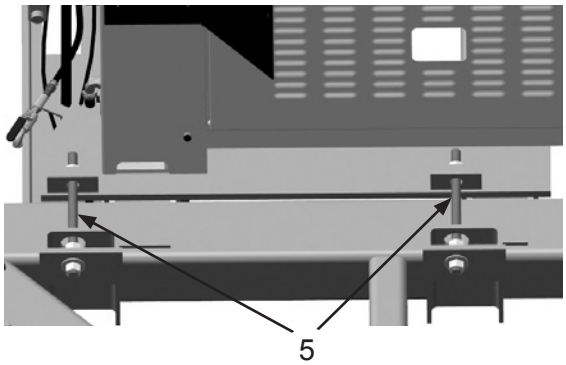
5) Loosen Slide Bolts (4).
6) Remove tension of belt by adjusting Threaded Rods (5) until belt is loose enough to remove.
7) Remove Belt (3).



⚠ WARNING
W-590

When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.





Remove & Install Blower Drive Belt Assembly (Cont.)

⚠ WARNING

W-562

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

⚠ WARNING

W-586

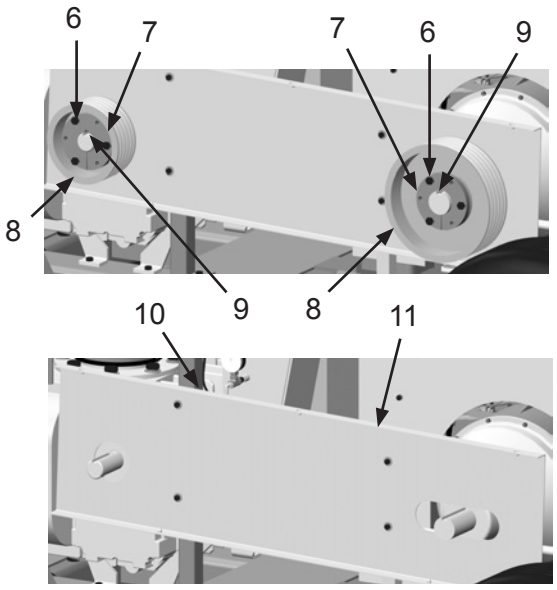
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

NOTICE

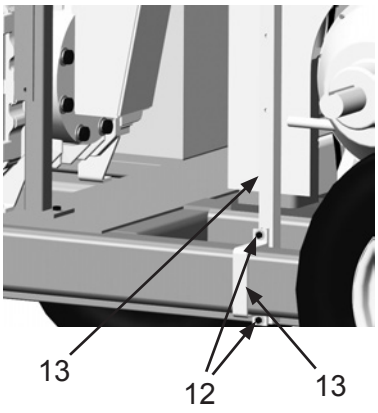
N-530

Label all hoses and connections to aid installation.

8) Remove six Bolts and Lock Washers (6) and Bushings (7).
9) Remove Sheaves (8) and Keys (9) from shaft.
10) Remove four Bolts, Lock Washers and eight Washers (10) from Belt Guard Back (11).
11) Remove Belt Guard Back (11).



12) Remove two Bolts, Lock Washers and four Washers (12) from two piece Belt Guard Bracket (13).
13) Remove two piece Belt Guard Bracket (13).
14) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.
    - Adjust blower drive belt tension. See Adjust Tension of Blower Drive Belt.



Remove & Install Engine Assembly

⚠ WARNING

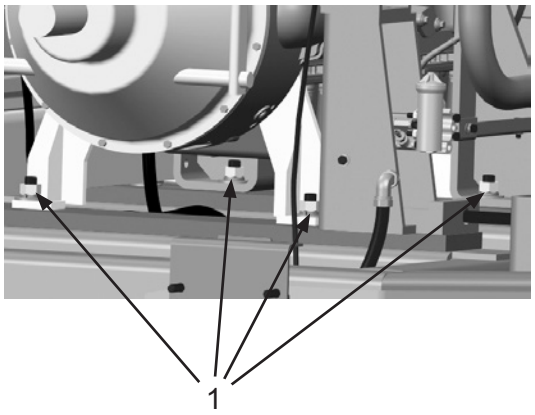
W-562

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

1) Depressurize system.
2) Remove Blower Drive Belt Cover Assembly. See Remove & Install Blower Drive Belt Cover Assembly.
3) Disconnect fuel supply hose and fuel return hose.
4) Disconnect fuel hoses and battery cables from engine. See engine Operator's Manual.
5) Route all hoses and wiring away from Engine Assembly.

Note: Approximate weight of Engine Assembly is 2450 pounds. Use suitable lifting devices to support or maneuver Engine Assembly.

6) Attach suitable lifting devices to Engine Assembly.
7) Remove four Washers, four Lock Washers and four Nuts (1).
8) Remove Engine Assembly.
9) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts.
   - Tighten Nuts to 320 ft.-lbs.



Remove & Install 12-Volt DC Hydraulic Power Unit With Tank

⚠ WARNING
W-562

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

⚠ WARNING
W-589

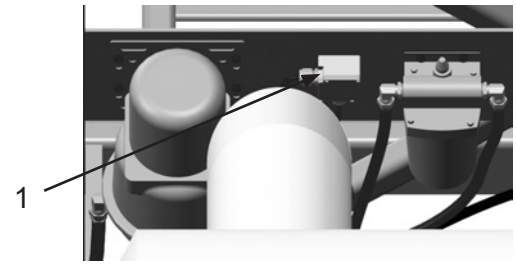
Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. If exposure to any of these products occurs, or if any of these products are ingested or if fumes are inhaled, please consult the product's SDS for proper first aid or medical procedures. Failure to comply with the above warning could result in death or serious injury.

NOTICE
N-530

Label all hoses and connections to aid installation.

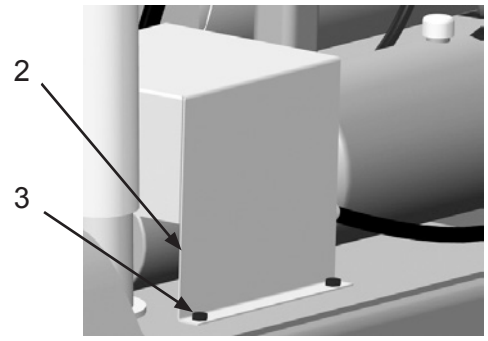
1) Depressurize system.
2) Disconnect battery cables from battery.
3) Disconnect power unit electrical wires from Terminal (1).

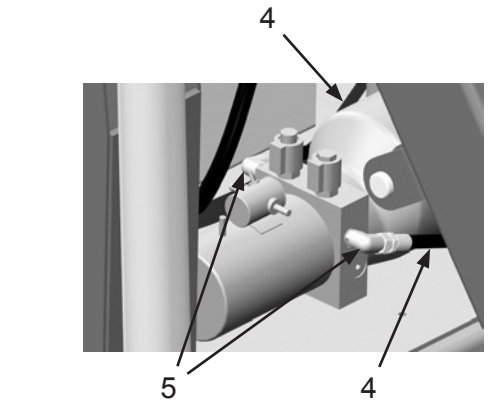
Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

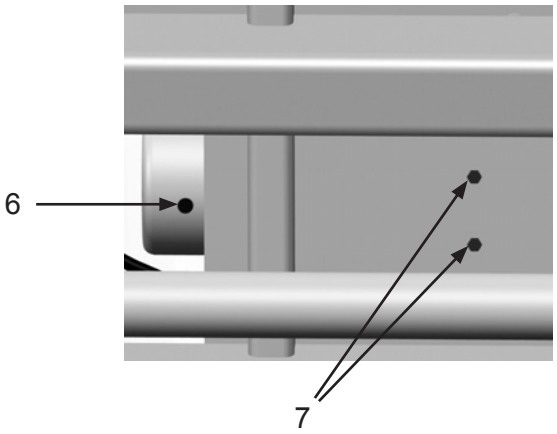


Note: Hydraulic Oil Tank capacity is approximately 2 gal.

4) Remove Drain Plug (6) to drain hydraulic oil.
5) Remove Hoses (4) and Fittings (5).
6) Remove four Bolts, Washers, Lock Washers and Nuts (3). Remove Shield (2).
7) Remove two Bolts and Lock Washers (7) and remove power unit with tank.
8) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.







Remove & Install Compressor

⚠ WARNING

W-562

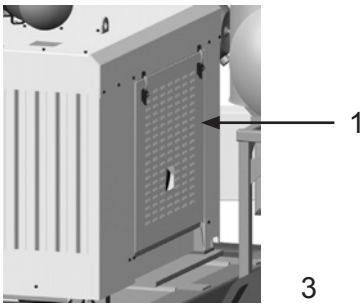
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

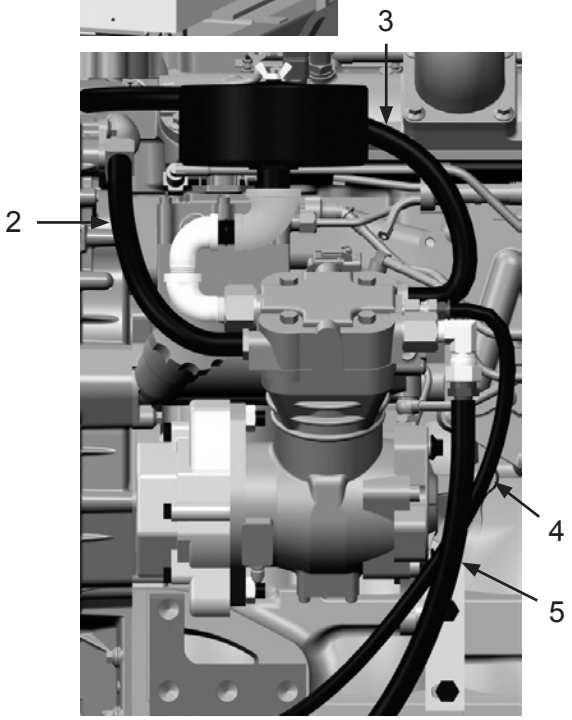
1) Depressurize system.
2) Disconnect battery cables from battery.
3) Remove Housing Panel (1).

Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

Note: Label all hoses and connections to aid installation.

4) Drain Radiator.
5) Disconnect Coolant Hoses (2 and 3).
6) Disconnect Air Hoses (4 and 5).





⚠ WARNING

W-589

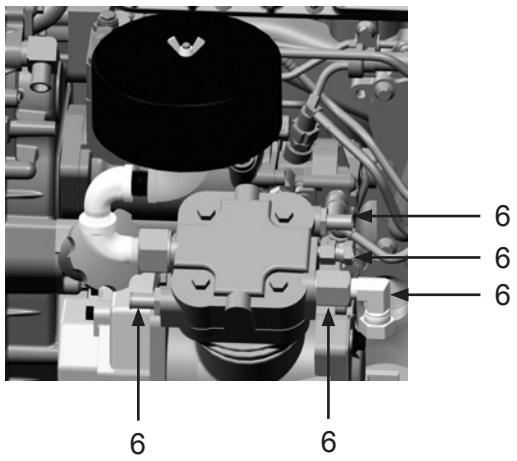
Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. If exposure to any of these products occurs, or if any of these products are ingested or if fumes are inhaled, please consult the product's SDS for proper first aid or medical procedures. Failure to comply with the above warning could result in death or serious injury.

NOTICE

N-530

Label all hoses and connections to aid installation.

7) Note orientation and location of five Fittings (6) and remove.



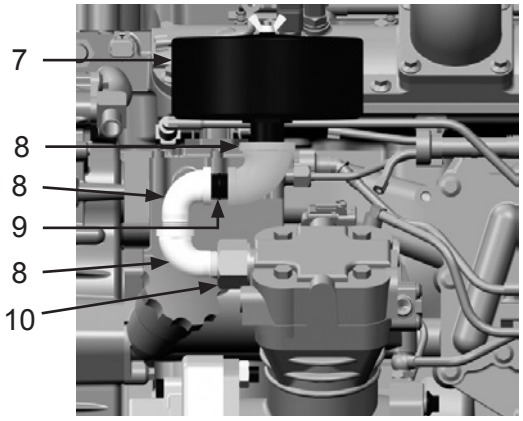
Remove & Install Compressor (Cont.)

⚠ WARNING

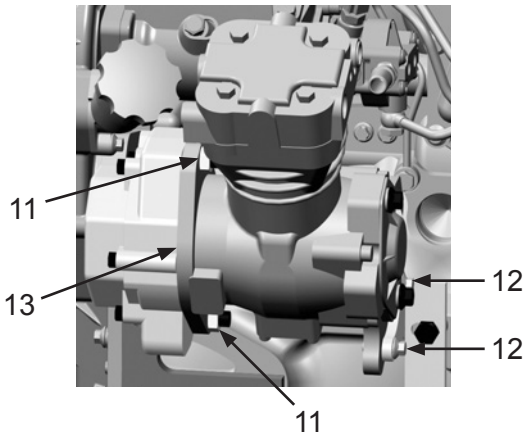
W-562

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

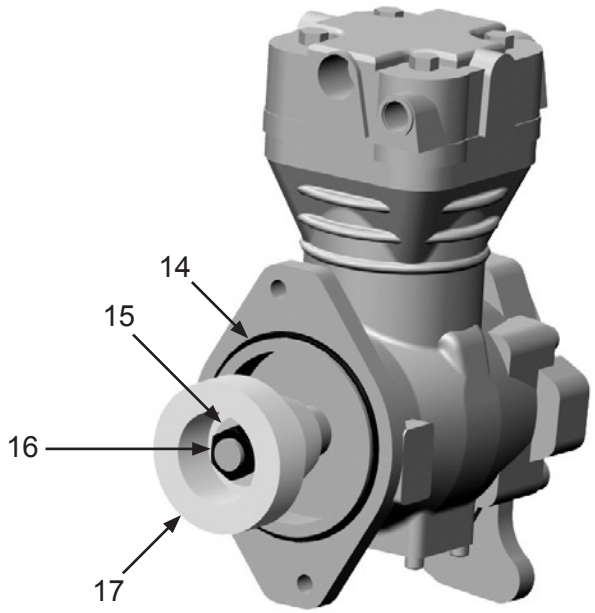
8) Remove Filter Assembly (7), Elbows (8), Nipple (9) and Fitting (10).



9) Remove Nuts (11), Bolts (12) and Compressor (13).



10) Remove Nut (16), Lock Washer (15), Gear (17) and O-ring (14). Inspect for wear or damage. Replace as needed.

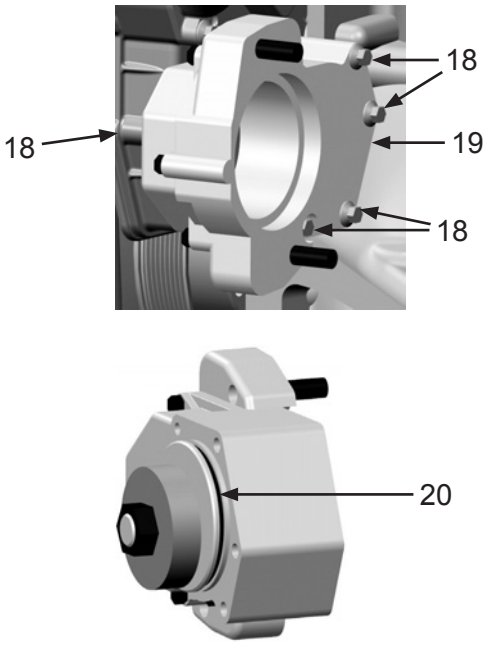


Remove & Install Compressor (cont.)

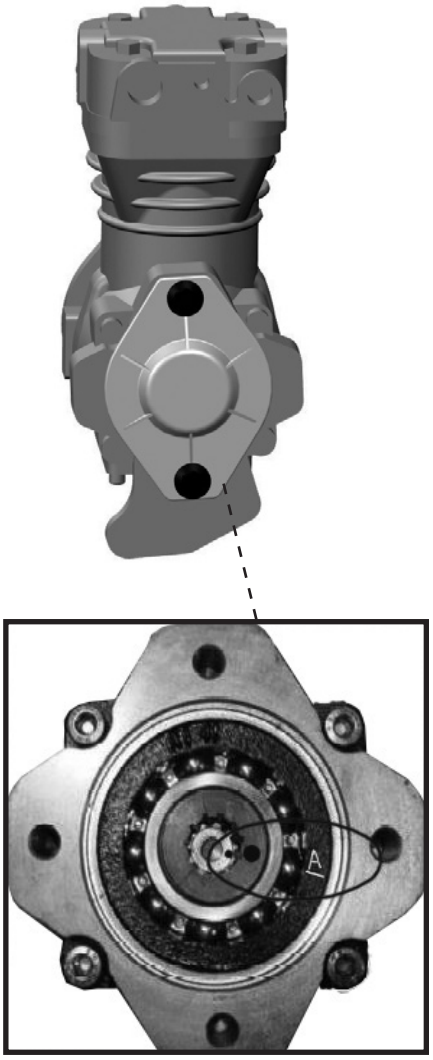
⚠ WARNING
W-562

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

11) Remove five Bolts (18) and Adapter Plate (19).
12) Remove and replace O-ring (20).



13) Install parts in reverse order using the following special instructions:
- Align dot found on rear of compressor to timing mark "A" that is closest to timing mark "6".
- Coat O-rings with engine oil before installing.
- Use medium-strength thread-locker on all nuts and bolts.
- Use PTFE Sealing Tape on all fitting threads.



Remove & Install Governor

⚠ WARNING

W-562

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

NOTICE

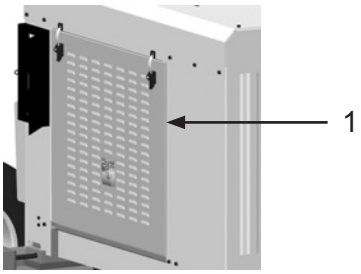
N-530

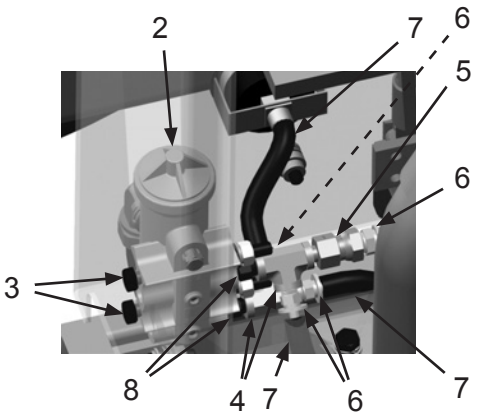
Label all hoses and connections to aid installation.

1) Depressurize system.
2) Disconnect battery cables from battery.
3) Remove Housing Panel (1).

Note: Label all hoses and connections to aid installation.

4) Disconnect Air Hoses (7).
5) Remove Swivel Union (5), four Push-On Fittings (6), two Tees (4) and two Hex Nipples (8).
6) Remove two Bolts, Lock Washers and Nuts (3).
7) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.
   - Use PTFE Sealing Tape on union and fitting threads.





Remove & Install Clutch

⚠ WARNING

W-562

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

⚠ WARNING

W-586

Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

NOTICE

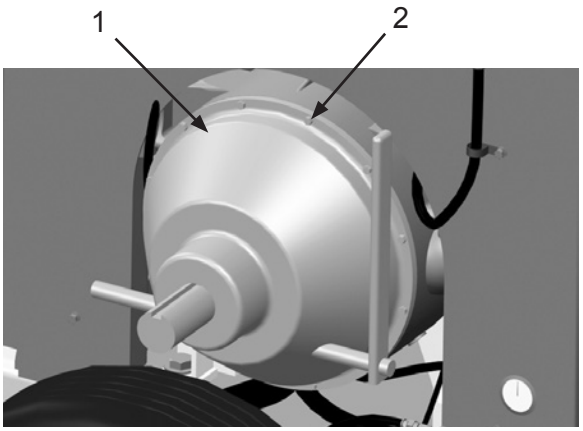
N-530

Label all hoses and connections to aid installation.

1) Disconnect battery cables from battery.
2) Remove Blower Drive Belt Cover Assembly. See Remove & Install Blower Drive Belt Cover Assembly.

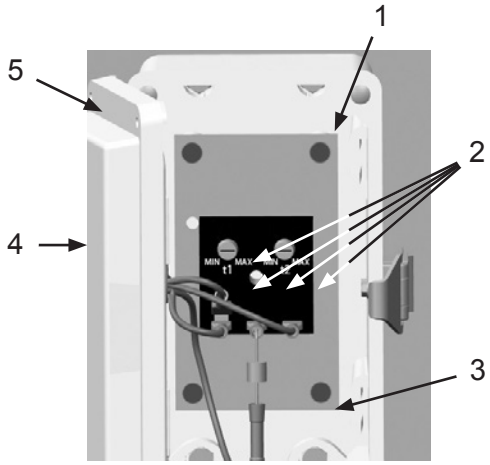
Note: Approximate weight of Clutch Assembly is 175 pounds. Use suitable lifting devices to support or maneuver Clutch Assembly.

3) Attach a suitable lifting device to Clutch Assembly (1).
4) Remove twelve Bolts (2), and remove Clutch Assembly (1).
5) Repair or replace Clutch Assembly (1) as needed. See Operator's Manual for Clutch Assembly.
6) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.



Remove & Install Vacuum Timer Control Box

1) Disconnect battery cables from battery.
2) Open enclosure door.
3) Remove four Screws (1).
4) Record connection location and label Wires (2).
5) Disconnect Wires (2).
6) Remove Conduit Hose (4).
7) Remove four Bolts, Washers and Nuts (3).
8) Remove Vacuum Timer Control Box (5).
9) Install parts in reverse order.
10) Adjust Vacuum duration and Dump duration. See Unit Startup & Shutdown.



Remove & Install Pulser Manifold

⚠ WARNING

W-562

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

⚠ WARNING

W-590

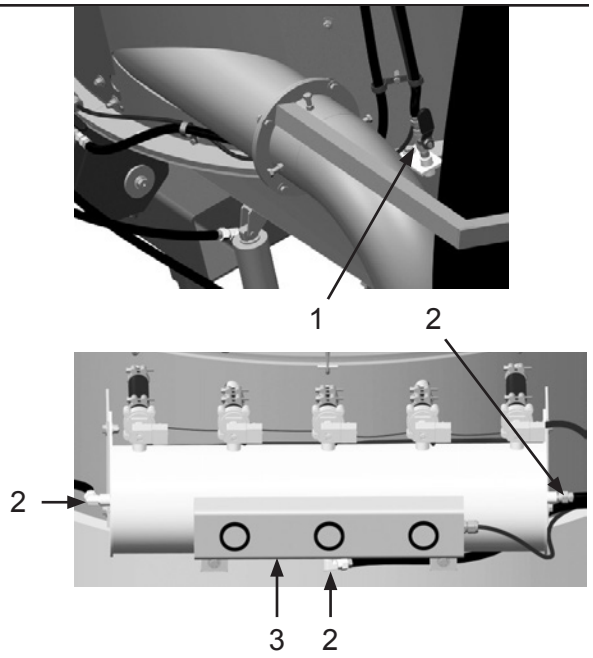
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.

NOTICE

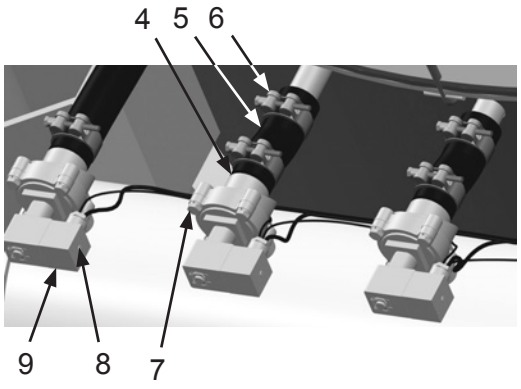
N-530

Label all hoses and connections to aid installation.

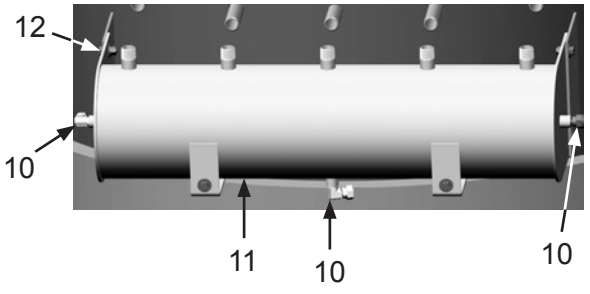
1) Open Ball Valve (1).
2) Disconnect Air Hoses (2).
3) Remove Light Bar (3).



4) Remove Connector (9) by loosening Screw (8).
5) Loosen two Clamps (6) and remove Hose (5) from Nipple (4).
6) Remove Nipple (4).
7) Remove Diaphragm Valve (7).
8) Repeat for remaining Diaphragm Valves.



9) Remove Fittings (10).
10) Remove four Bolts, eight Washers, four Lock Washers and four Nuts (12) and remove Pulser Manifold (11).
11) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.
    - Use PTFE Sealing Tape on union and fitting threads.



Remove & Install Auxiliary Pulser Manifold

⚠ WARNING

W-562

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

⚠ WARNING

W-590

When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.

NOTICE

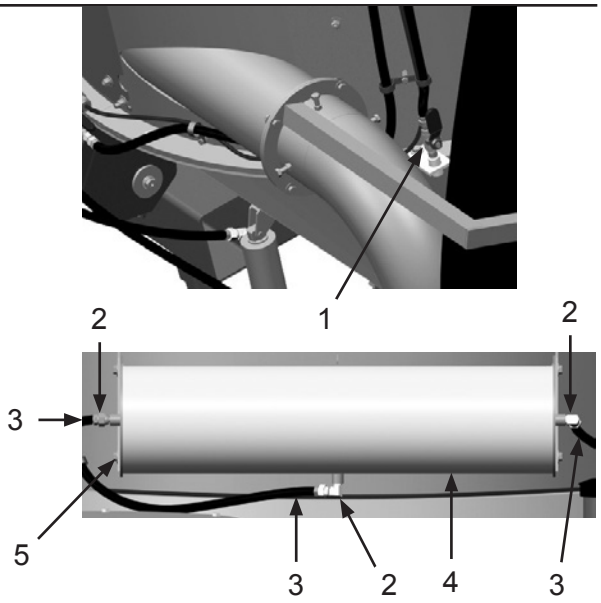
N-530

Label all hoses and connections to aid installation.

1) Open Ball Valve (1).
2) Disconnect Air Hoses (3).

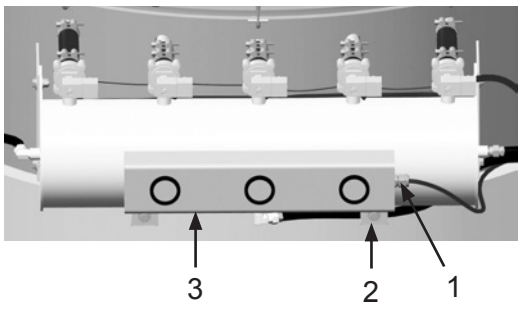
Note: Approximate weight of Auxiliary Pulser Manifold is 37 pounds. Use suitable lifting devices to support or maneuver Auxiliary Pulser Manifold.

3) Attach suitable lifting devices to Auxiliary Pulser Manifold (4).
4) Remove Fittings (2).
5) Remove four Bolts, eight Washers, four Lock Washers and four Nuts (5) and remove Auxiliary Pulser Manifold (4).
6) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.
   - Use PTFE Sealing Tape on union and fitting threads.



Remove & Install Vacuum Light Bar

1) Disconnect battery cables from battery.
2) Disconnect Cable (1).
3) Remove two Bolts, lock Washers, Nuts and four Washers (2).
4) Remove Light Bar (3).
5) Install parts in reverse order.



Remove & Install Timer Board

⚠ WARNING

W-562

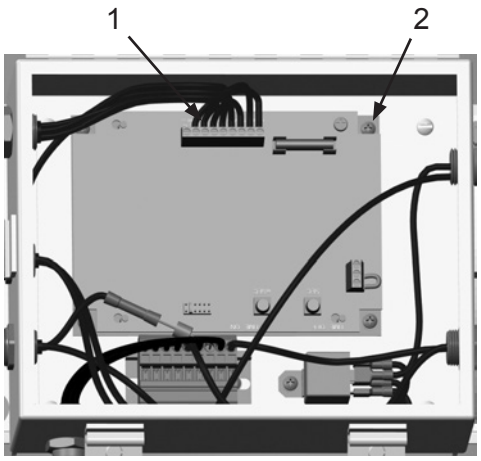
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

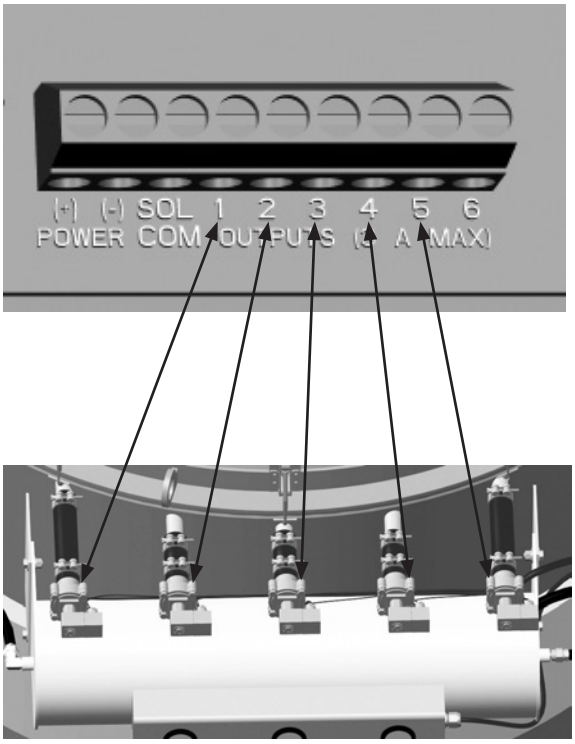
N-530

Label all hoses and connections to aid installation.

1) Disconnect battery cables from battery.
2) Open enclosure door.
3) Remove four Screws (2).
4) Record connection location and label Wires (1).
5) Disconnect Wires (1).



6) Install parts in reverse order using labels as a guide.
7) Adjust pulse duration and pulse separation. See Adjust Pulse Separation.



Remove & Install Air Dryer

⚠ WARNING

W-562

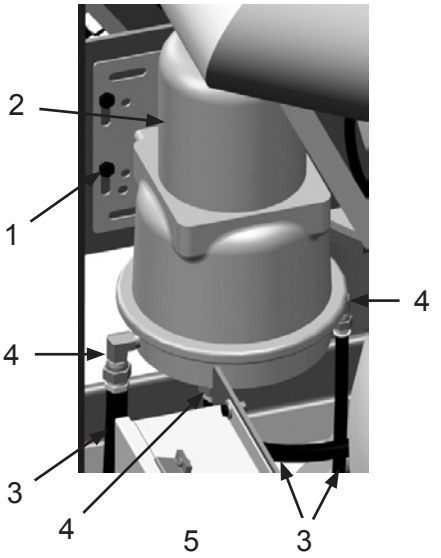
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

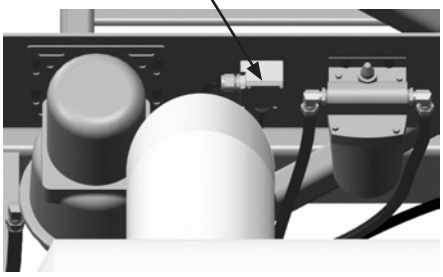
NOTICE

N-530

Label all hoses and connections to aid installation.

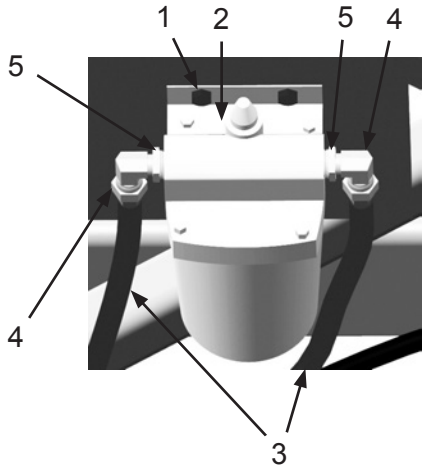
1) Depressurize system.
2) Disconnect Air Dryer electrical connections from Electrical Box (5).
3) Disconnect Hoses (3) from Air Dryer (2).
4) Remove three Fittings (4).
5) Remove four Bolts, Lock Washers, Nuts and eight Washers (1). Remove Air Dryer (2).
6) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.
   - Use PTFE Sealing Tape on union and fitting threads.





Remove & Install Alcohol Evaporator

1) Depressurize system.
2) Drain Evaporator (2).
3) Disconnect Hoses (3) from Alcohol Evaporator (2).
4) Remove two Fittings (4) and Bushings (5).
5) Remove two Bolts, Lock Washers, Nuts and four Washers (1). Remove Alcohol Evaporator (2).
6) Install parts in reverse order using the following special instructions:
   - Fill evaporator with 32 oz. Alcohol 99 Isopropyl.
   - Use medium-strength thread-locker on all nuts and bolts.
   - Use PTFE Sealing Tape on union and fitting threads.



Remove & Install Vacuum Control Box

⚠ WARNING

W-562

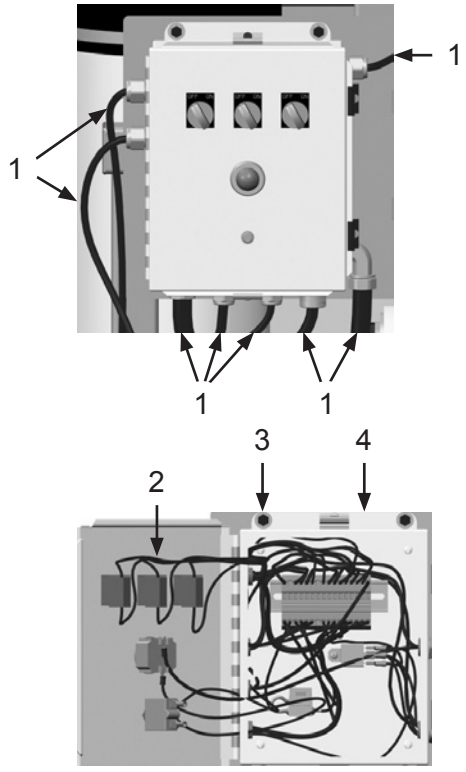
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

N-530

Label all hoses and connections to aid installation.

1) Disconnect battery cables from battery.
2) Open enclosure door.
3) Record connection location and label all Wires (2).
4) Disconnect Wires (2).
5) Remove Conduit Hoses (1).
6) Remove four Bolts, Washers and Nuts (3).
7) Remove Vacuum Control Box (4).
8) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.



Remove & Install Blower

⚠ WARNING

W-562

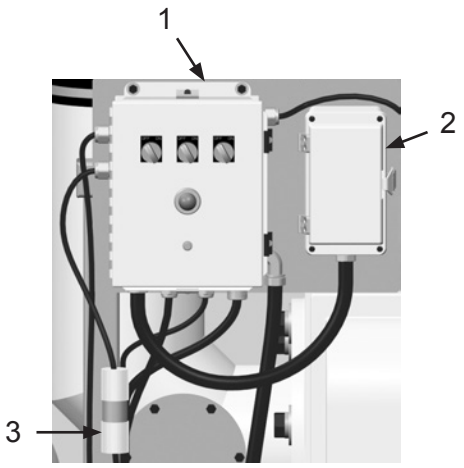
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

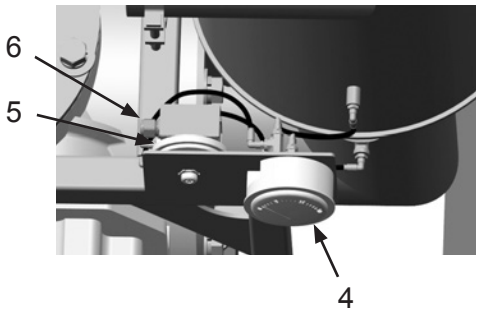
N-530

Label all hoses and connections to aid installation.

1) Depressurize system.
2) Disconnect battery cables from battery.
3) Remove Blower Drive Belt Cover Assembly. See Remove & Install Blower Drive Belt Cover Assembly.
4) Remove Vacuum Control Box (1). See Remove and Install Vacuum Control Box.
5) Remove Vacuum Timer Control Box (2). See Remove and Install Vacuum Timer Control Box.
6) Disconnect Emergency E-Stop at Plug (3).



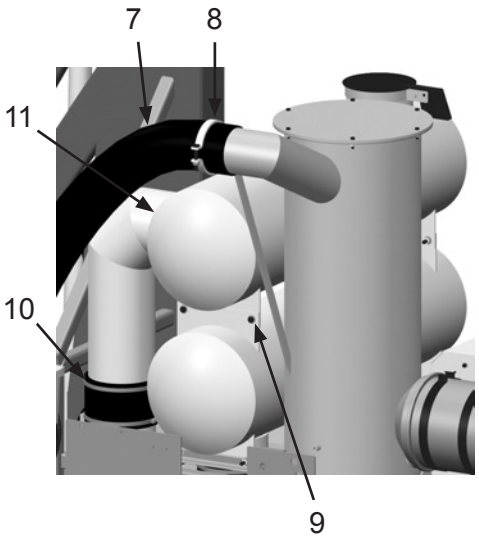
7) Remove Blower Filter Magnehelic Gauge (4). See Remove and Install Blower Filter Magnehelic Gauge.
8) Disconnect hoses from filter housing.
9) Disconnect Electrical Connector (6).
10) Remove Differential Pressure Switch (5).



11) Remove Double Bolt Clamp (8).
12) Remove Vacuum Hoses (7).

Note: Approximate weight of Blower Exhaust Silencer is 460 pounds. Use suitable lifting devices to support or maneuver Blower Exhaust Silencer.

13) Attach a suitable lifting device to Blower Exhaust Silencer (11).
14) Loosen top Banding Clamp (10).
15) Remove four Bolts, Lock Washers, Nuts and eight Washers (9).
16) Remove Blower Exhaust Silencer (11).



Remove & Install Blower (Cont.)

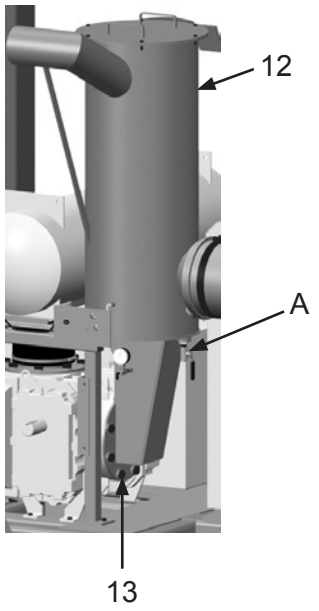
⚠ WARNING

W-562

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

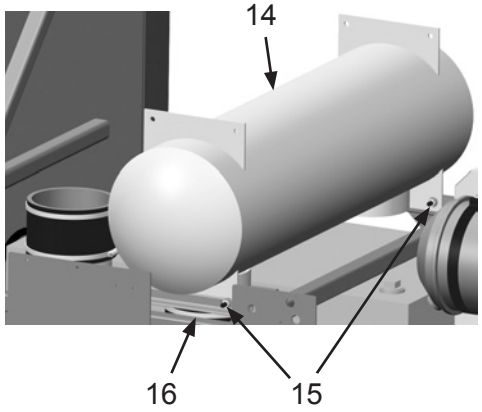
Note: Approximate weight of Intake Filter Housing is 390 pounds. Use suitable lifting devices to support or maneuver Filter Housing.

17) Open Valve (A) to remove any fluid build up.
18) Attach a suitable lifting device to Filter Housing (12).
19) Remove twelve Bolts, Lock Washers and Washers (13), and remove Filter Housing (12).



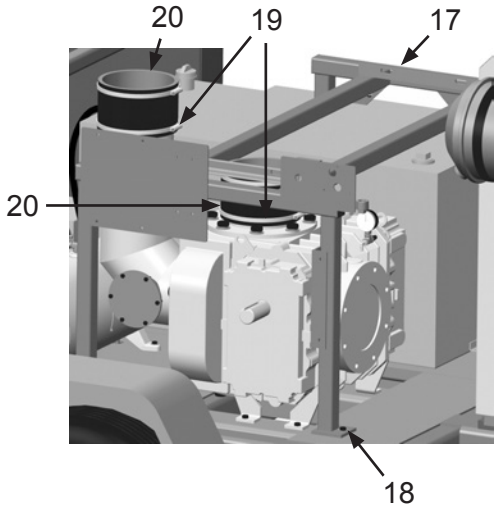
Note: Approximate weight of Blower Intake Silencer is 460 pounds. Use suitable lifting devices to support or maneuver Blower Intake Silencer.

20) Attach a suitable lifting device to Blower Intake Silencer (14).
21) Loosen top Banding Clamp (16).
22) Remove four Bolts, Lock Washers, Nuts and eight Washers (15).
23) Remove Blower Intake Silencer (14).



Note: Approximate weight of Silencer Mount is 140 pounds. Use suitable lifting devices to support or maneuver Filter Housing.

24) Attach a suitable lifting device to Silencer Mount (17).
25) Remove four Bolts, Lock Washers, Nuts and eight Washers (18), and remove Silencer Mount (17).
26) Loosen bottom Banding Clamps (19).
27) Remove Hoses (20) and Banding Clamps (19).



Remove & Install Blower (Cont.)

⚠ WARNING

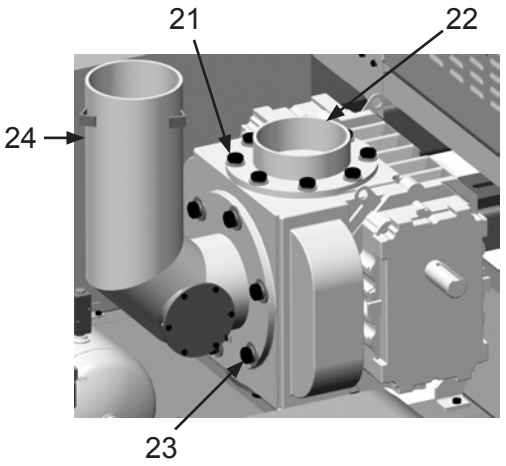
W-562

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

28) Remove twelve Bolts, Lock Washers and Washers (21), and remove Flange (22).

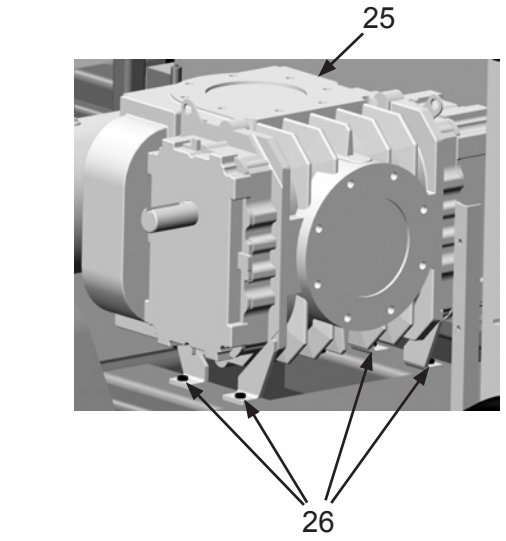
Note: Approximate weight of Elbow Flange is 115 pounds. Use suitable lifting devices to support or maneuver Elbow Flange.

29) Attach a suitable lifting device to Elbow Flange (24).
30) Remove twelve Bolts, Lock Washers and Washers (23), and remove Elbow Flange (24).



Note: Approximate weight of Blower is 1750 pounds. Use suitable lifting devices to support or maneuver Blower.

31) Attach a suitable lifting device to Blower (25).
32) Remove four Bolts, Nuts and eight Washers (26), and remove Blower (25).
33) Repair or replace Blower (25) as needed. See Operator's Manual for Blower.
34) Install parts in reverse order using the following special instructions:
    - Apply silicone sealant to base of flanges.
    - Use medium-strength thread-locker on all nuts and bolts.



Remove & Install Butterfly Springs

⚠ WARNING

W-562

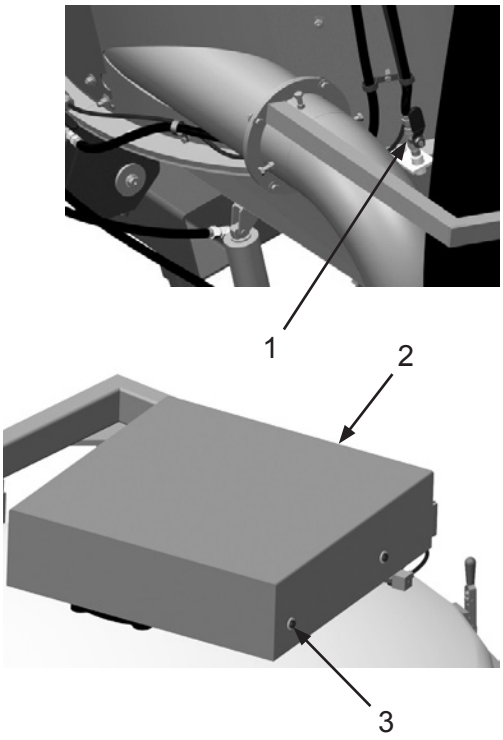
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING

W-590

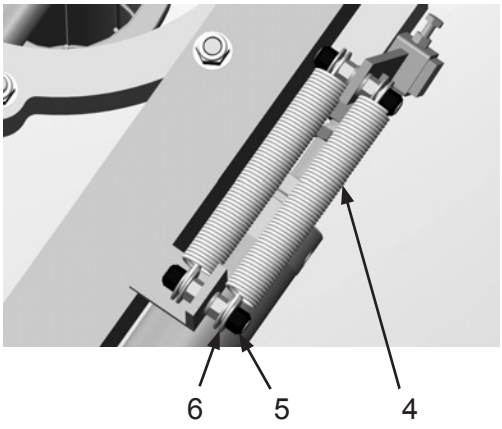
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.

1) Open Ball Valve (1).
2) Remove four Bolts and Washers (3).
3) Remove Butterfly Cover (2).



Note: Replace springs one at a time.

4) Remove Outer Nut (5) and Outer Washer (6) on each end of Spring (4).
5) Remove Spring (4) and replace.
6) Install Outer Nut (5) and Outer Washer (6) on each end of Spring (4).
7) Repeat for remaining spring.
8) Install butterfly cover.



MAINTENANCE

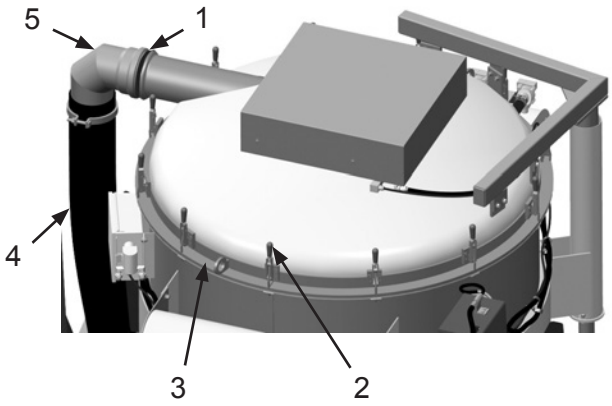
Remove & Install Filter Bags

⚠ WARNING

W-562

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

1) Depressurize system.
2) Loosen Clamp (1) and remove Hose Tube (5) and Vacuum Hose (4).
3) Lower Lid Clamps (2) to free Lid (3).

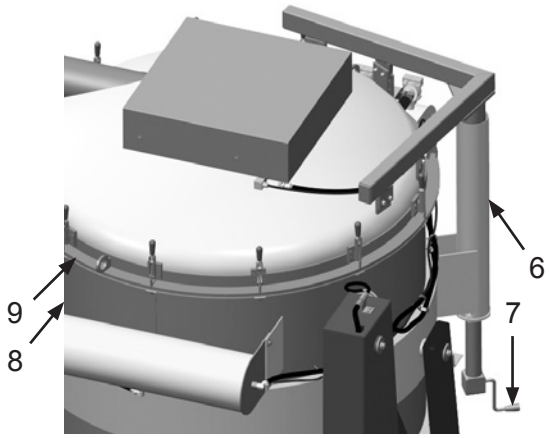


⚠ WARNING

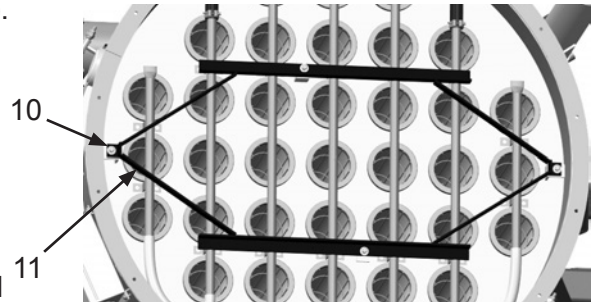
W-501

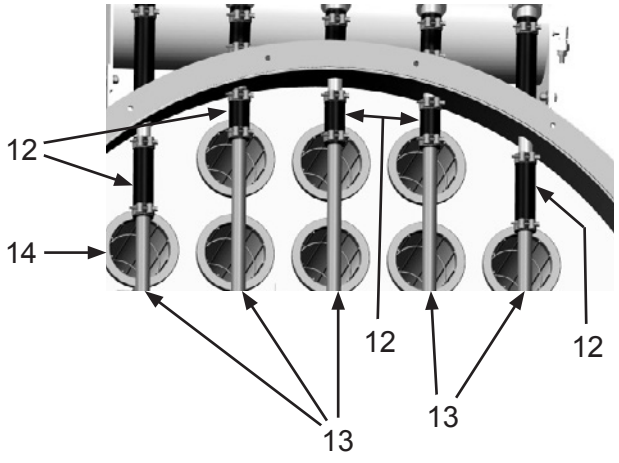
Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust. Failure to comply with the above warning could result in death or serious injury.

4) Turn Crank (6) to raise Lid (9).
5) Rotate lid on Shaft (7) counterclockwise until clear of Hopper (8).



6) Remove four Bolts, Washers and Nuts (10). Remove Frame (11).
7) Remove Air Hose with Clamps (12) from Pulser System Blowpipes (13).
8) Remove Pulser System Blowpipes (13).
9) Remove Filter Bags (14).
10) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.





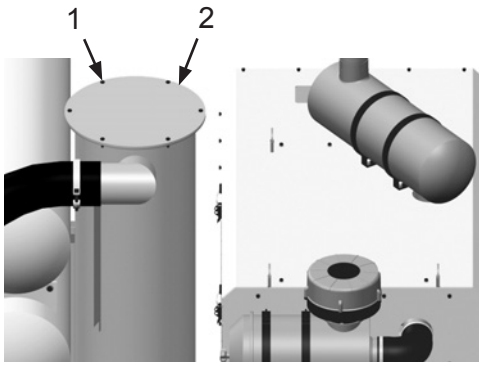
Remove & Install Filter Cartridge

⚠ WARNING

W-562

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

1) Depressurize system.
2) Remove six Bolts, Lock Washers and Nuts (1).
3) Remove Filter Cap and Housing Gasket (2).

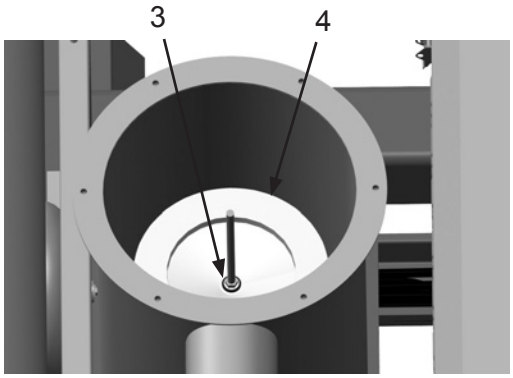


⚠ WARNING

W-501

Breathing dust containing silica could cause silicosis, a fatal lung disease. Breathing dust during abrasive blasting operations, post-blast cleaning operations, and/or servicing equipment within the abrasive blasting area may expose an individual to conditions that could cause asbestosis, lead poisoning and/or other serious or fatal diseases. Harmful dust containing toxic material from abrasives or surfaces being abrasive blasted can remain suspended in the air for long periods of time after abrasive blasting has ceased. A NIOSH-approved, well-maintained, respirator designed for the specific operation being performed must be used by anyone abrasive blasting, handling or using the abrasive, and anyone in the area of the dust. Failure to comply with the above warning could result in death or serious injury.

4) Remove Nut, Washer and Rubber Washer (3).
5) Remove Filter (4).
6) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.



Remove & Install Fuel Tank

⚠ WARNING
W-562

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

⚠ WARNING
W-589

Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. If exposure to any of these products occurs, or if any of these products are ingested or if fumes are inhaled, please consult the product's SDS for proper first aid or medical procedures. Failure to comply with the above warning could result in death or serious injury.

NOTICE
N-531

Drain tanks into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

NOTICE
N-530

Label all hoses and connections to aid installation.

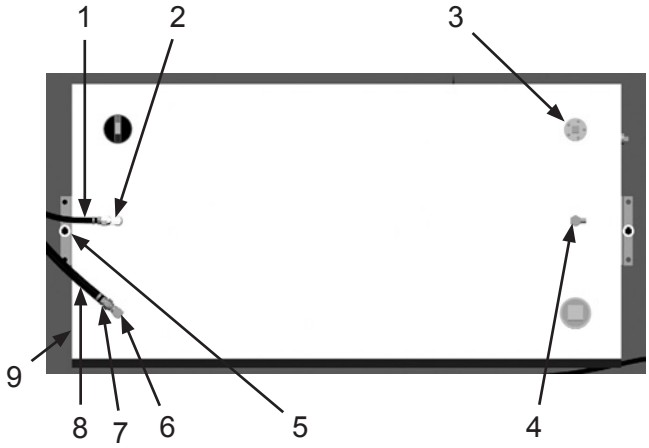
Note: Fuel Tank capacity is approximately 116 gallons.

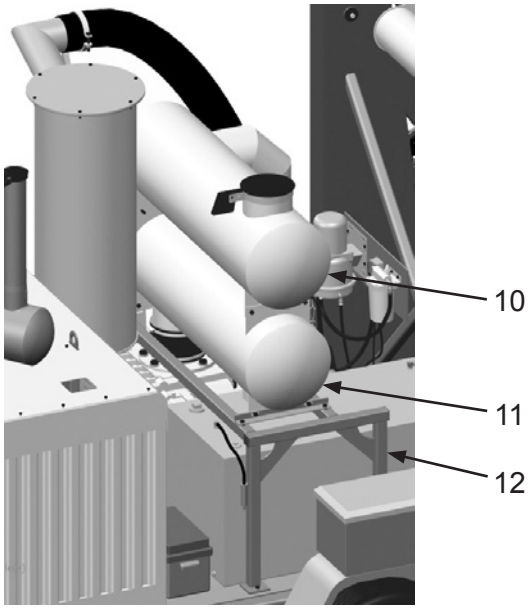
Note: Drain into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

1) Remove Blower Exhaust Silencer (10), Blower Intake Silencer (11) and Silencer Mount (12). See Remove & Install Blower.
2) Empty fuel from Tank (9).
3) Disconnect Supply Hose (8) and remove Fitting (7).
4) Remove Withdraw Tube (6).
5) Disconnect electrical cable from Sensor (3) and remove sensor.
6) Disconnect vent hose from Hose Fitting (4) and remove fitting.
7) Disconnect Return Hose (1) and Fitting (2) from tank.
8) Remove two Bolts, Lock Washers, Nuts and four Washers (5).

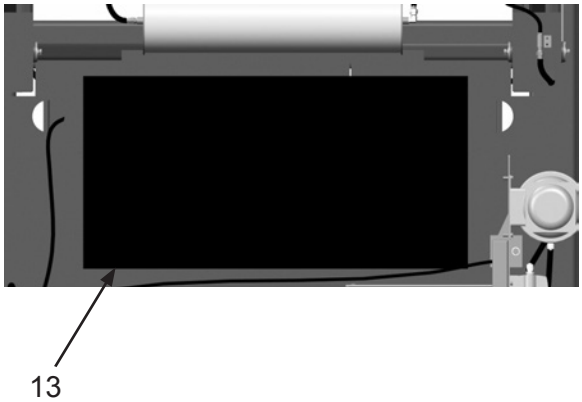
Note: Approximate empty weight of Fuel Tank is 100 pounds. Use suitable lifting devices to support or maneuver Fuel Tank.

9) Attach a suitable lifting device to Tank (9), and remove.





10) Inspect Isolation Mat (13) for damage. Replace as needed.
11) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.
    - See engine Operator's Manual for priming of engine.



Remove & Install Front Emergency-Stop Station

⚠ WARNING

W-562

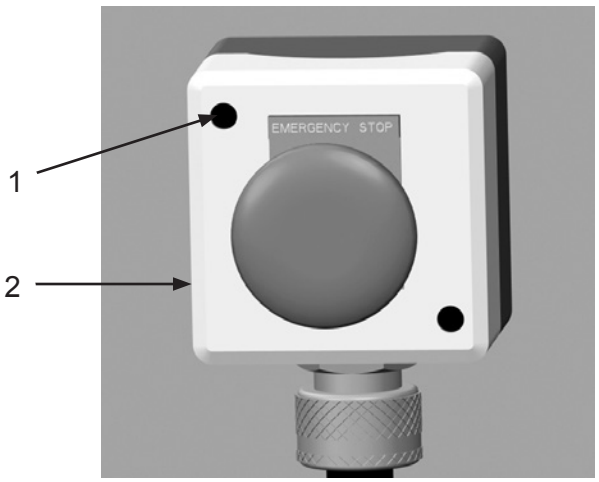
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

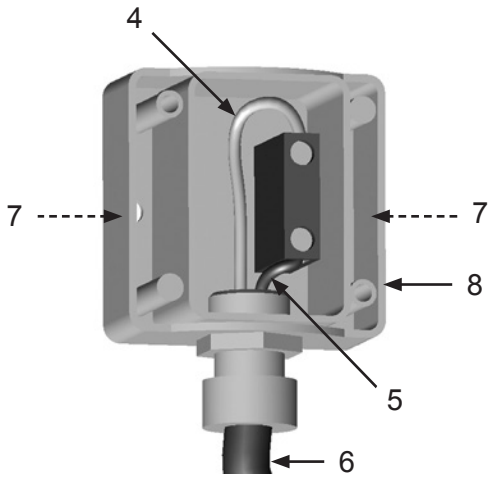
N-530

Label all hoses and connections to aid installation.

1) Disconnect battery cables from battery.
2) Remove two Screws (1) and Cover (2).



3) Label Wires (4 and 5) to aid installation.
4) Disconnect Wires (4 and 5) and pull Cable (6) from Housing (8).
5) Remove two Screws,Washers, and Nuts (7) and Housing (8).
6) Install parts in reverse order.



Remove & Install Pendant Emergency-Stop Station

⚠ WARNING

W-562

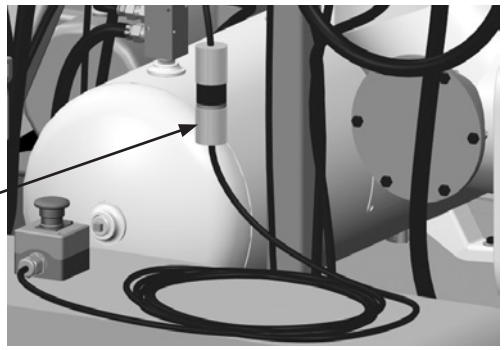
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

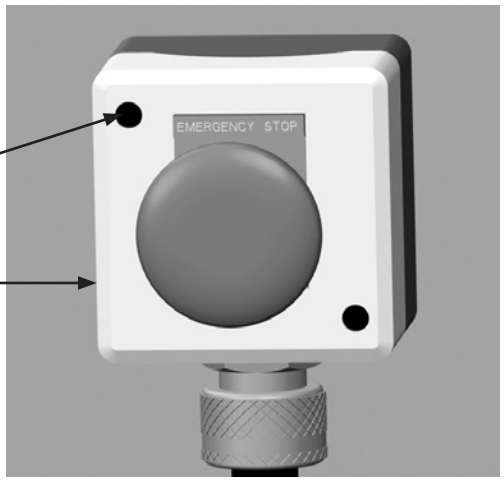
NOTICE

N-530

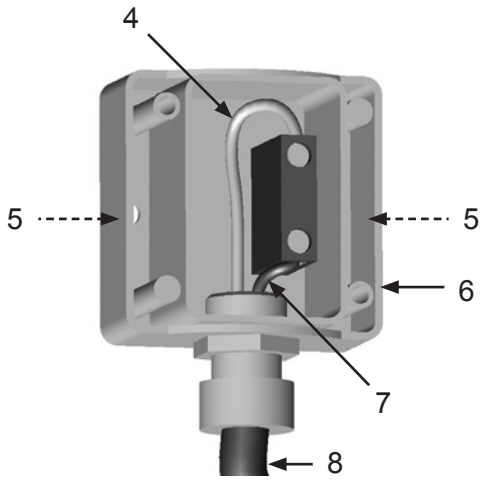
Label all hoses and connections to aid installation.

1) Disconnect Connector (1).
2) Remove two Screws (2) and Cover (3).
3) Label Wires (6 and 9) to aid installation.





4) Disconnect Wires (6 and 9) and pull Cable (10) from Housing (8).
5) Remove two Screws,Washers, and Nuts (7) and Housing (8).
6) Install parts in reverse order.



Remove & Install Hopper Magnehelic Gauge

⚠ WARNING

W-562

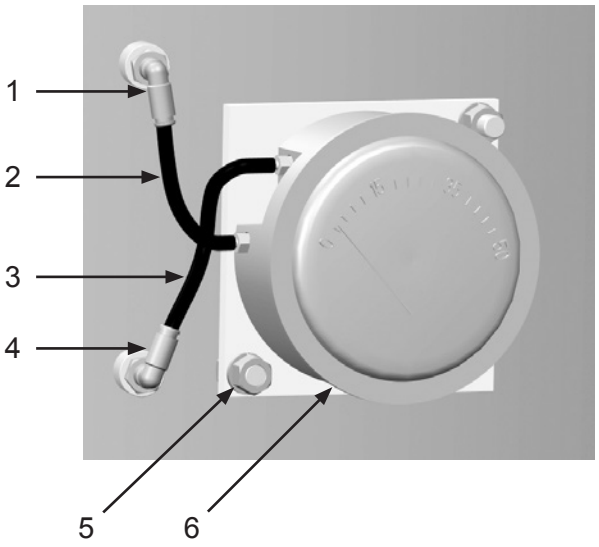
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

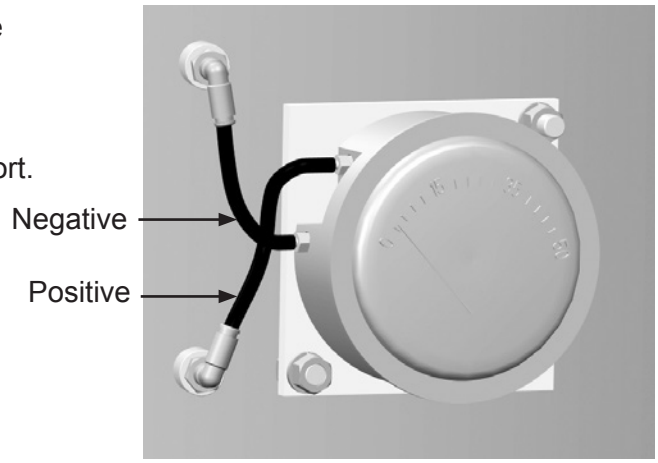
N-530

Label all hoses and connections to aid installation.

1) Label Hose (2) as "Negative".
2) Label Hose (3) as "Positive".
3) Disconnect Hoses (2,3) from 90° Elbows (1,4).
4) Disconnect Hoses (2,3) from Magnehelic Gauge (6).
5) Remove Washers and Bolts (5) and Magnehelic Gauge (6).



6) Install parts in reverse order using the following special instructions:
7) Ensure labeled hoses are installed correctly. "Negative" hose installed in lower port. "Positive" hose in upper port.



Remove & Install Blower Filter Magnehelic Gauge

⚠ WARNING

W-562

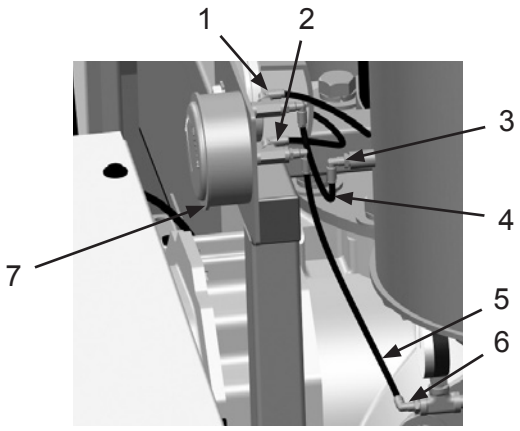
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

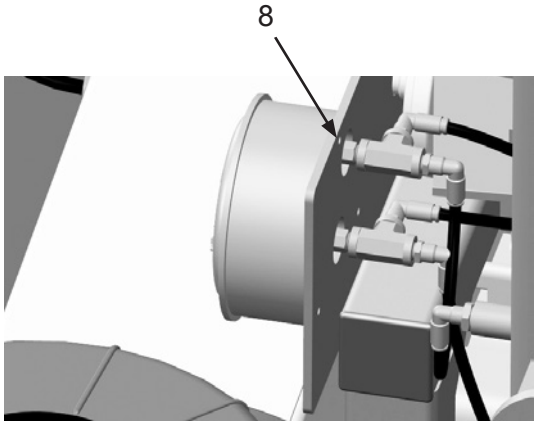
N-530

Label all hoses and connections to aid installation.

1) Label Hose (5) as "Negative".
2) Label Hose (4) as "Positive".
3) Disconnect Hoses (4,5) from 90° Elbows (3,6).
4) Disconnect Hoses (4,5) from tee fittings on Magnehelic Gauge (7).
5) Disconnect Hoses (1,2) from tee fittings on Magnehelic Gauge (7).



6) Remove three Screws (8) and Magnehelic Gauge (7).
7) Install parts in reverse order using the following special instructions:
   - Ensure labeled hoses are installed correctly.



Remove & Install Pneumatic Piston Vibrators

⚠ WARNING

W-562

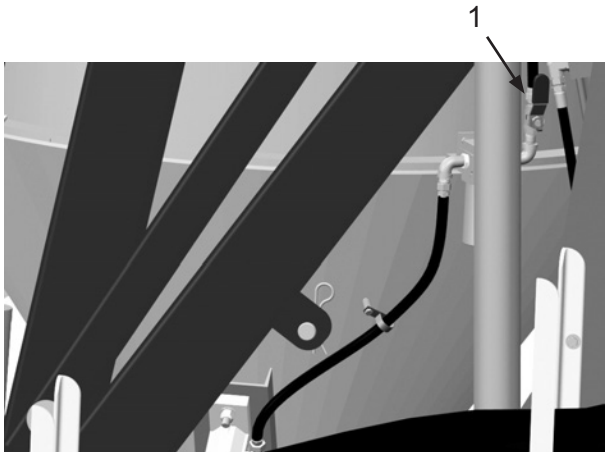
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

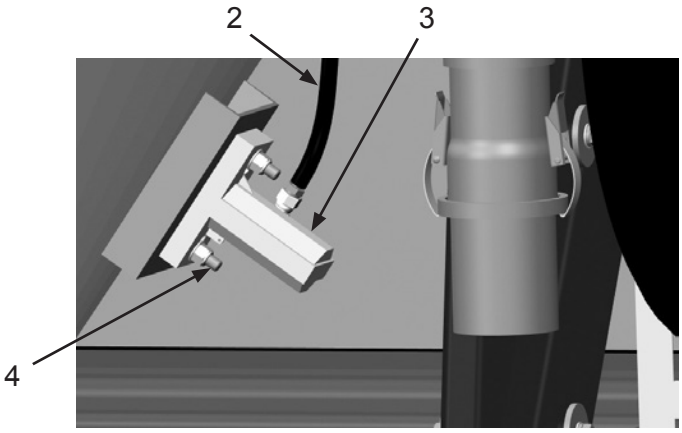
NOTICE

N-530

Label all hoses and connections to aid installation.

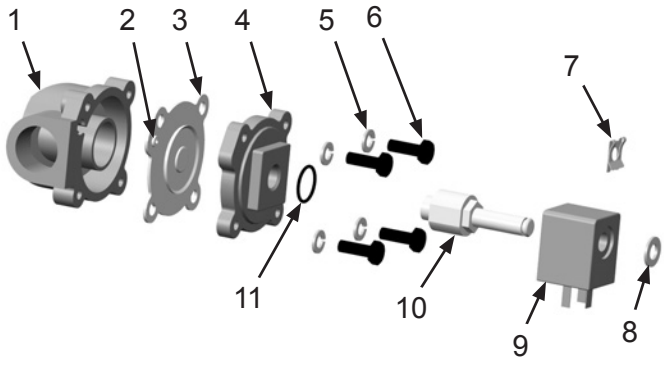
1) Depressurize system.
2) Close Ball Valve (1)
3) Disconnect Hose (2).
4) Remove two Bolts, Nuts and Flat Washers (4).
5) Remove Piston Vibrator (3).
6) Install parts in reverse order.





Disassemble & Assemble Diaphragm Valve

1) Remove Solenoid Assembly (7,8,9,10,11)
2) Remove four Bolts (6) and Washers (5).
3) Remove Cover (4).
4) Remove Diaphragm (3) from Base (1).
5) Install parts in reverse order using the following special instructions:
   - Check Vent Hole (2) is not blocked or occluded.



Check Lubricator Oil Level

⚠ WARNING

W-562

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

⚠ WARNING

W-587

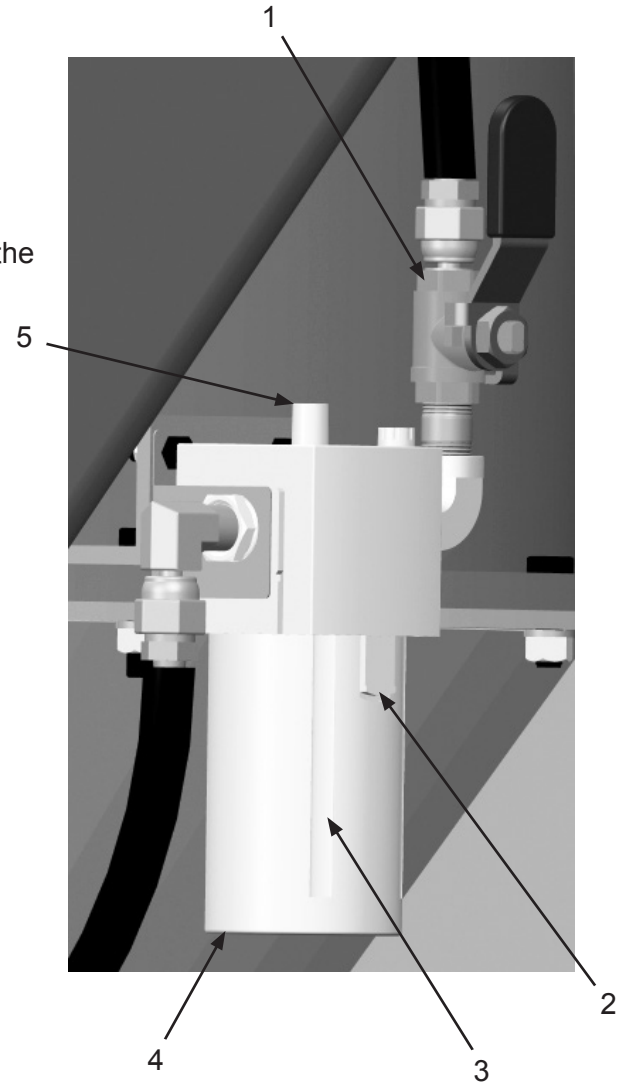
Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.

⚠ WARNING

W-589

Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. If exposure to any of these products occurs, or if any of these products are ingested or if fumes are inhaled, please consult the product's SDS for proper first aid or medical procedures. Failure to comply with the above warning could result in death or serious injury.

1) Check oil level in Sight Glass (3).
2) To add oil, close Ball Valve (1).
3) Pull down Lock Tab (2) and twist container (4) counterclockwise to release.
4) Add oil and install parts in reverse order.
5) Set oil drip rate if needed by turning the Site Dome Adjustment Screw (5).



Remove & Install Lubricator

⚠ WARNING

W-562

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

⚠ WARNING

W-587

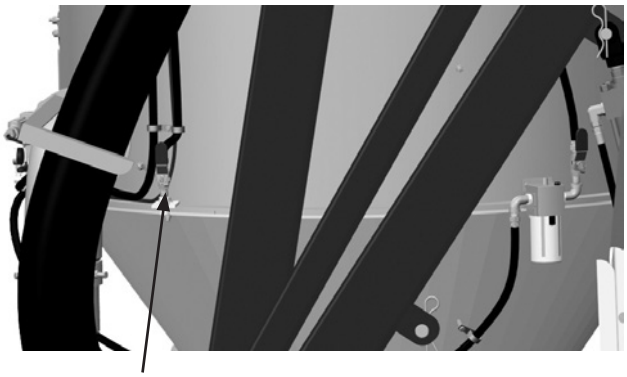
Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with the above warning could result in death or serious injury.

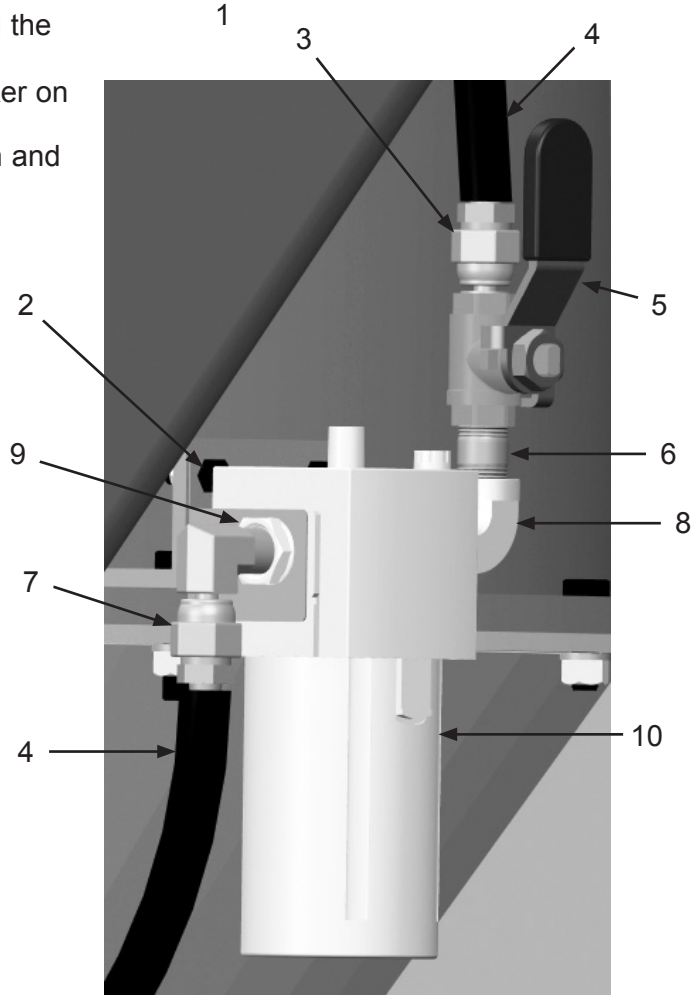
⚠ WARNING

W-589

Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. If exposure to any of these products occurs, or if any of these products are ingested or if fumes are inhaled, please consult the product's SDS for proper first aid or medical procedures. Failure to comply with the above warning could result in death or serious injury.

1) Depressurize system.
2) Ensure Ball Valve (1) is open.
3) Disconnect Hoses (4).
4) Remove Swivel (3).
5) Remove Ball Valve (5).
6) Remove Nipple (6).
7) Remove Swivel Union (7).
8) Remove Street Elbow (8).
9) Remove Bushings (9).
10) Remove two Bolts and Nuts (2).
11) Remove Lubricator (10).
12) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.
    - Use PTFE Sealing Tape on union and fitting threads.





Remove & Install Hopper Wear Plates

⚠ WARNING

W-562

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

⚠ WARNING

W-590

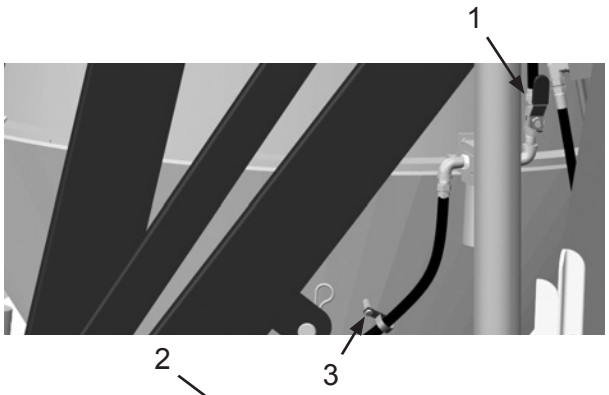
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the above warning could result in death or serious injury.

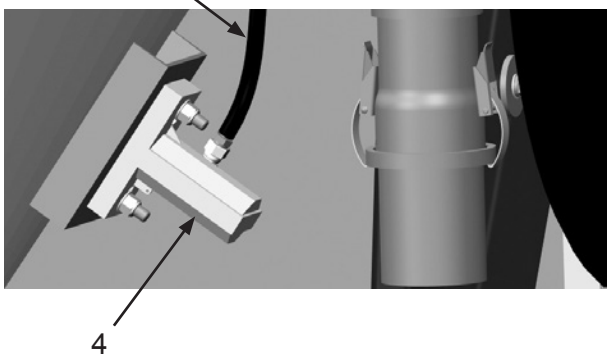
NOTICE

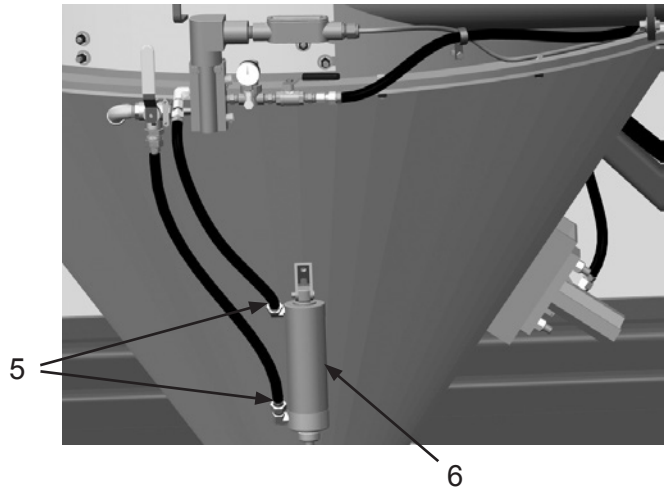
N-530

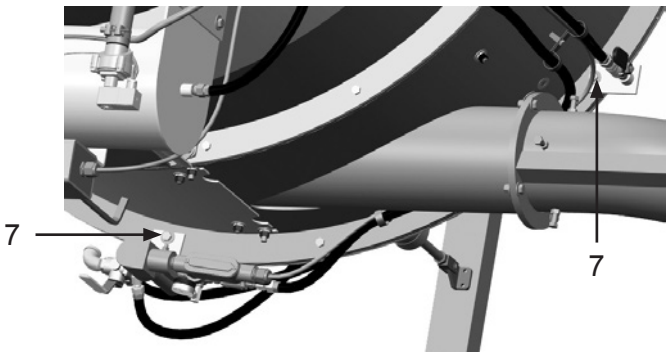
Label all hoses and connections to aid installation.

1) Depressurize system.
2) Close Ball Valve (1)
3) Disconnect Hose (2) from Piston Vibrator (4).
4) Remove Hose Clamp (3).
5) Disconnect Hoses (5) at Air Cylinder (6).
6) Remove Bolts, Washers, Lock Washers and Nuts (7) and move air assemblies out of way.









Remove & Install Hopper Wear Plates (Cont.)

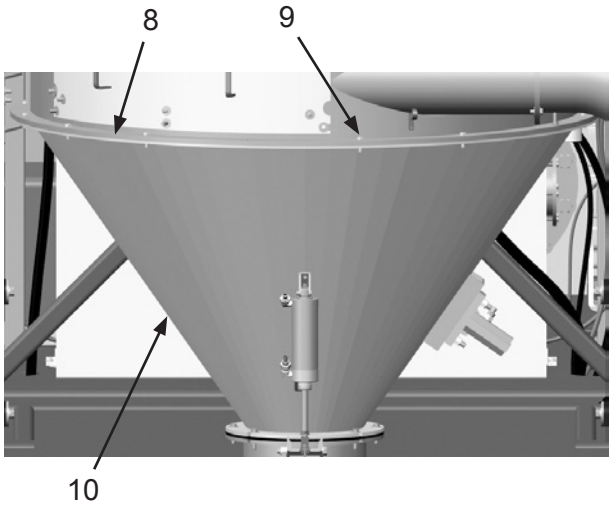
⚠ WARNING

W-562

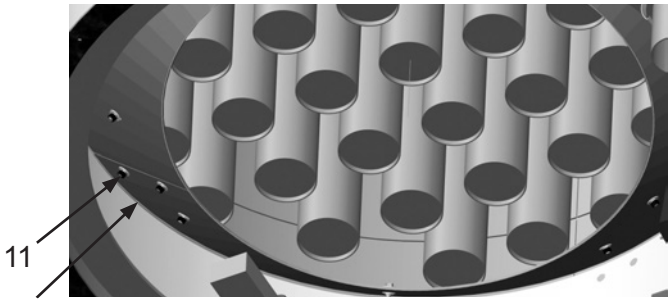
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

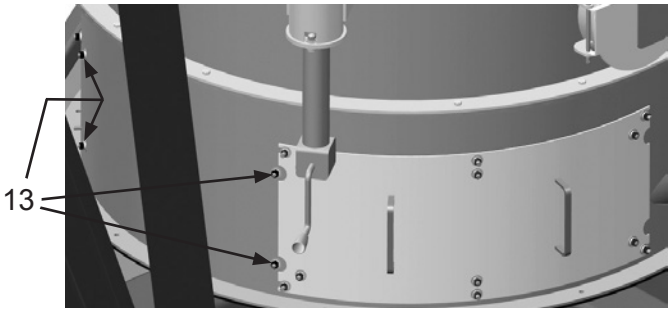
Note: Approximate empty weight of Hopper Cone is 190 pounds. Use suitable lifting device to support or maneuver Hopper Cone .

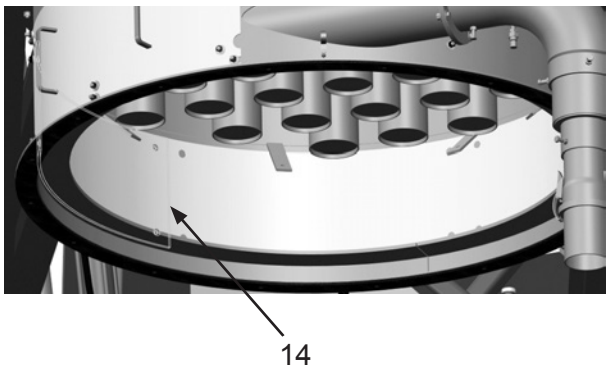
7) Attach a suitable lifting device to Hopper Cone (10).
8) Remove 14 Bolts, Lock Washers and Nuts (9) and remove Hopper Cone (10).
9) Remove Gasket (8). Inspect for damage. Replace as needed.



10) Remove 15 Bolts, Lock Washers, Nuts and 30 Washers (11).
11) Remove Baffles (12). Inspect for damage. Replace as needed.
12) Remove four Nuts, Lock Washers and Washers (13).
13) Remove Wear Plate (14).
14) Repeat steps 11-12 for all hopper wear plates being removed.
15) Install parts in reverse order using the following special instructions:
    - Use medium-strength thread-locker on all nuts and bolts.







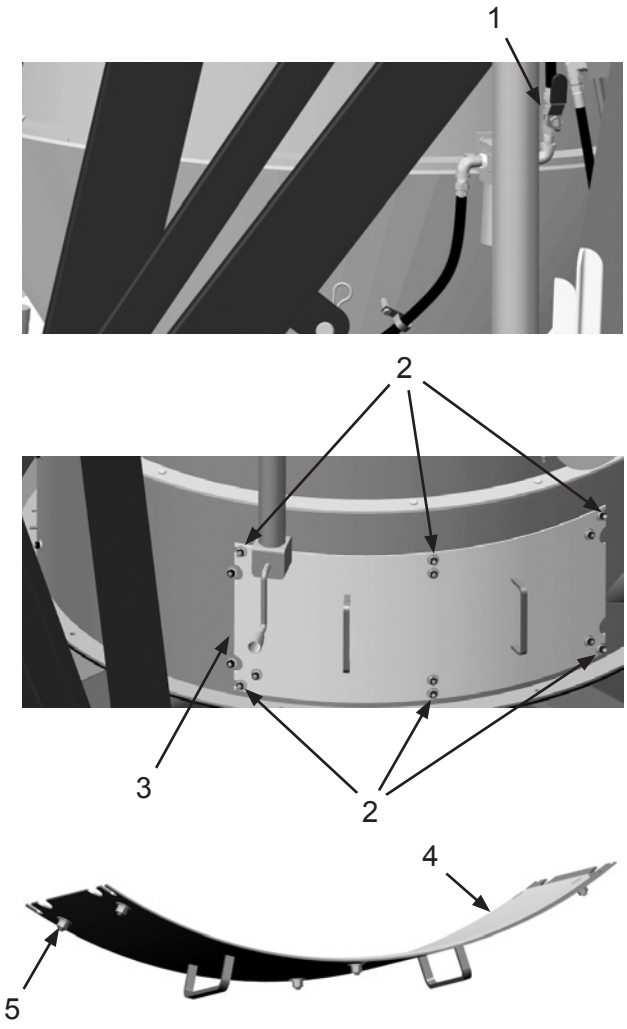
Remove & Install Hopper Access Door Wear Plate

⚠ WARNING

W-562

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

1) Depressurize system.
2) Close Ball Valve (1)
3) Remove six Nuts, Lock Washers and Washers (2).
4) Remove Hopper Access Door (3).
5) Remove six Nuts, Lock Washers and Washers (5).
6) Remove Hopper Access Door Wear Plate (4).
7) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.



MAINTENANCE

Remove & Install Double Lock Valve Assembly

⚠ WARNING

W-562

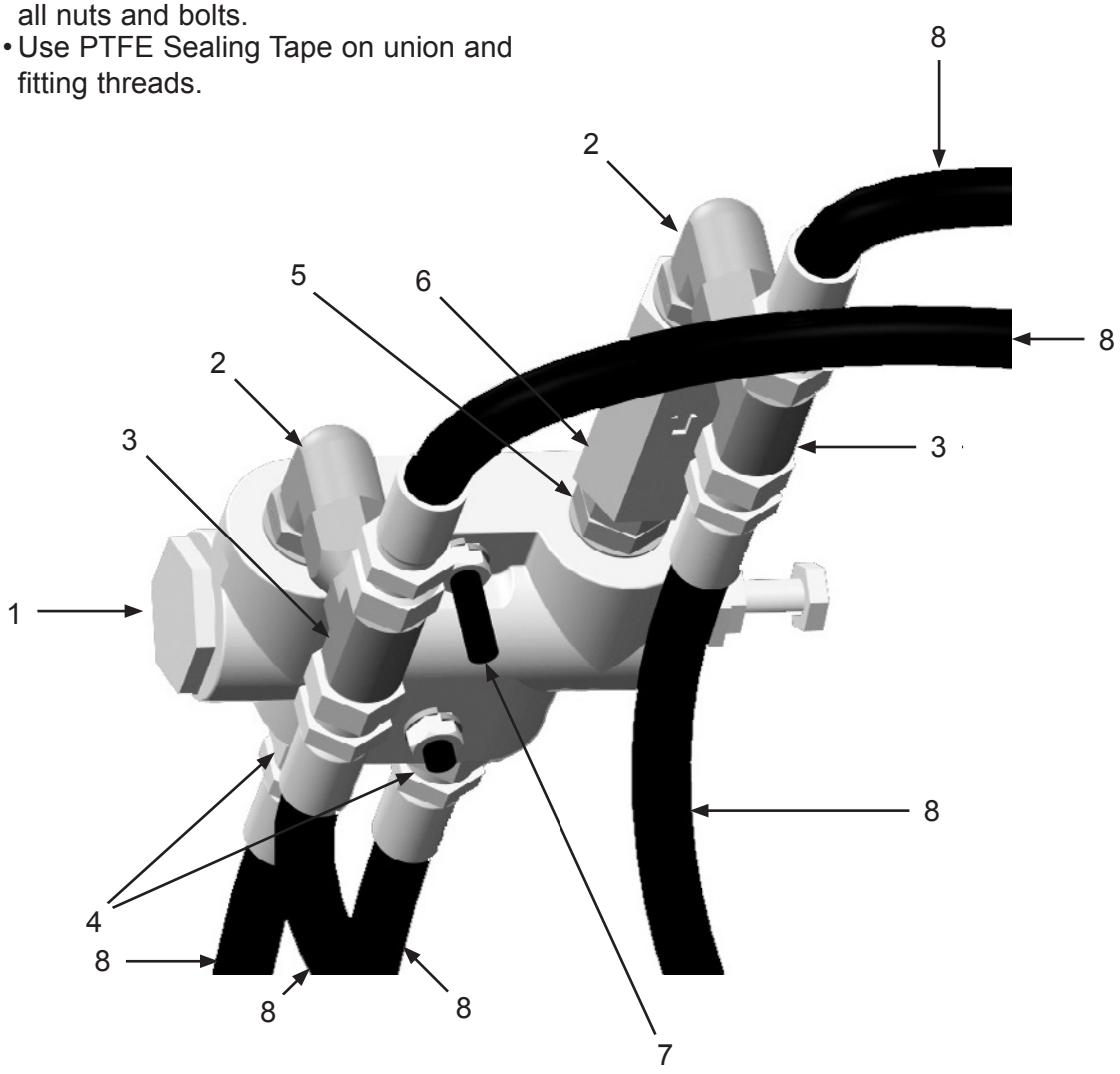
Always depressurize the entire system, disconnect all power sources and lockout/ tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

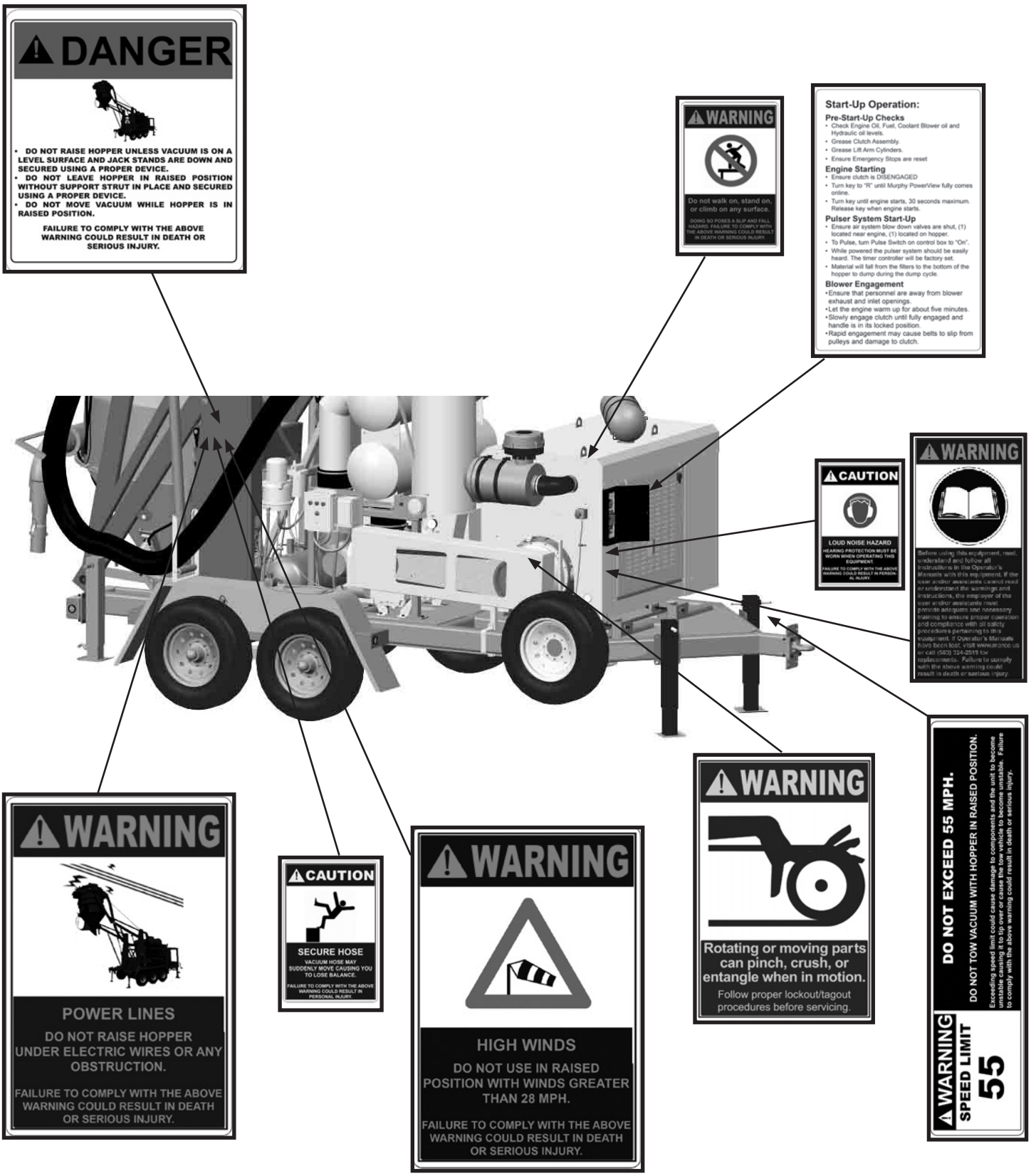
N-530

Label all hoses and connections to aid installation.

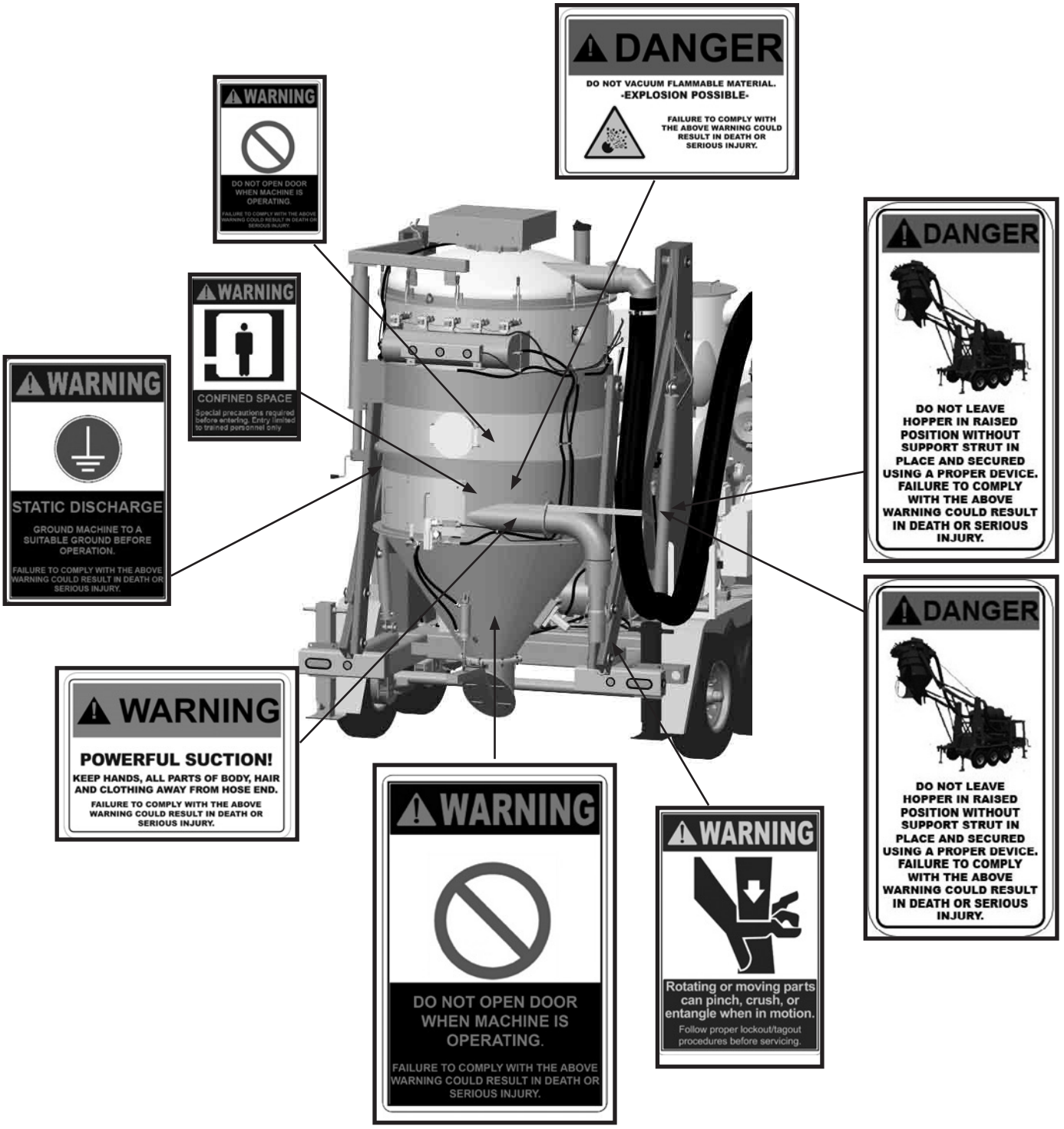
1) Depressurize system.
2) Disconnect Hoses (8).
3) Remove Tees (3).
4) Remove Elbows (2).
5) Remove Flow Restrictor (6).
6) Remove Unions (4,5).
7) Remove two Bolts, Nuts and Lock Washers (7).
8) Remove Double Lock Valve (1).
9) Install parts in reverse order using the following special instructions:
   - Use medium-strength thread-locker on all nuts and bolts.
   - Use PTFE Sealing Tape on union and fitting threads.



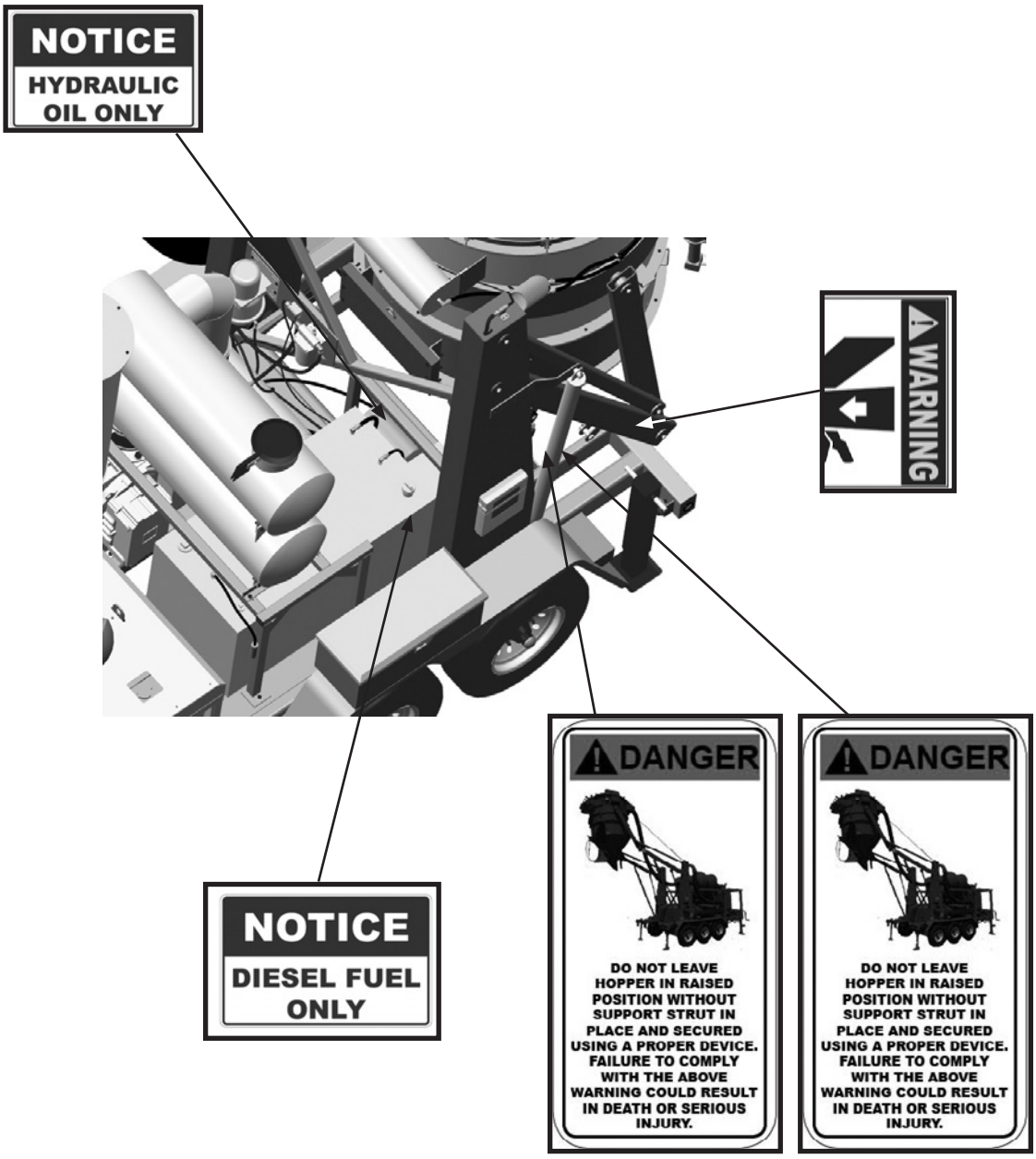
Hazard Identification Decals



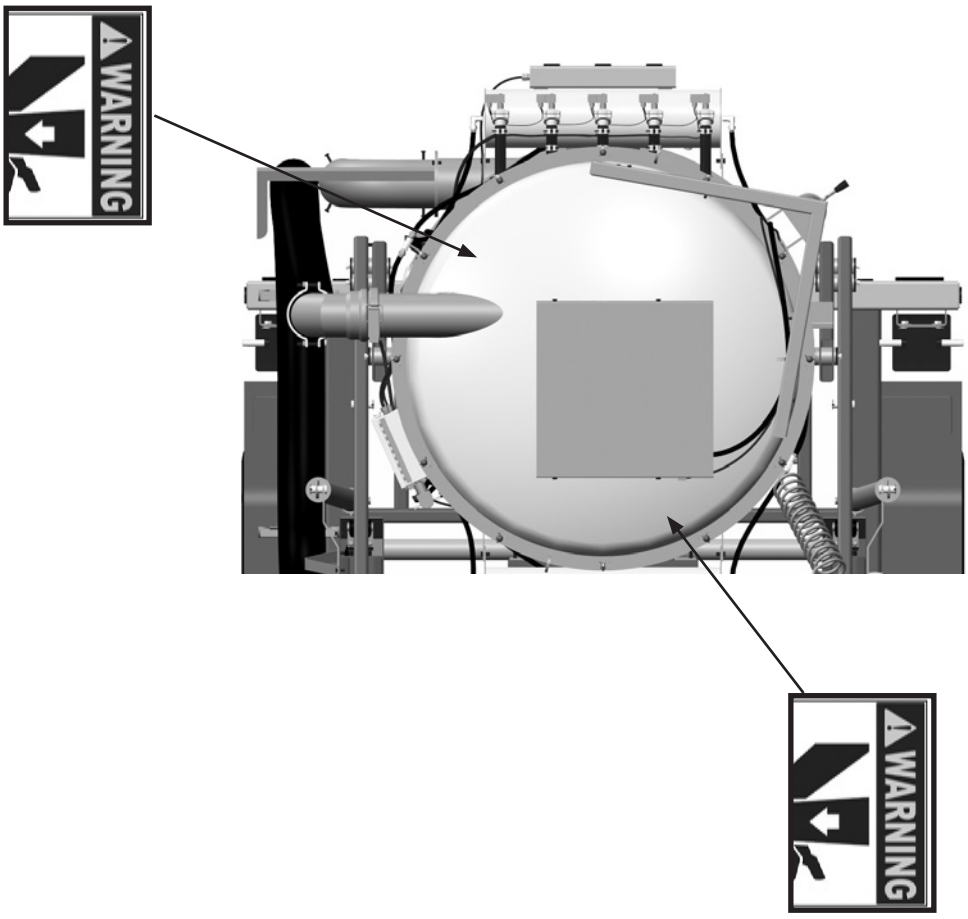
Hazard Identification Decals *(cont.)*



Hazard Identification Decals *(cont.)*



Hazard Identification Decals *(cont.)*



TROUBLESHOOTING

If the Vacmaster® 15T Tier III Diesel Abrasive Vacuum does not function properly, check the following:

⚠ WARNING

W-562

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

SYMPTOM (Cause)	ACTION
Diesel Engine will not start or runs poorly *(Damaged components, insufficient connections, fuel supply)*	See original equipment Operator's Manual for service. Ensure an Emergency-Stop Station is not activated. Return Emergency-Stop Station to operating position. Inspect Emergency-Stop Stations for damage. Repair as needed.
Drive Belt slips or vibrates *(Loose connections, worn parts)*	Inspect Blower Drive Belt for damage. Replace as needed. Inspect alignment. Adjust Blower Drive Belt Tension. See Adjust Blower Drive Belt Tension.
Magnehelic Gauge reading greater than normal operating range *(Hopper Filter Bags)*	A reading greater than 40” (w.c) on Magnehelic Gauge indicates clogged filters. Decrease engine RPM to idle speed and disengage clutch while allowing engine to run. Pulsers will clean down the filters. Once gauge reads back into the normal operation range of 20" – 30" (w.c), re-engage clutch and increase RPM to operating speed. If Magnehelic Gauge is reading above 30" (w.c.), perform After Use procedure. Inspect Pulser System and Filters. Replace filter bags, if needed. If Magnehelic Gauge is reading above 40" (w.c.), shut down unit immediately. Replace filter bags.

⚠ WARNING

W-562

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

⚠ WARNING

W-586

Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

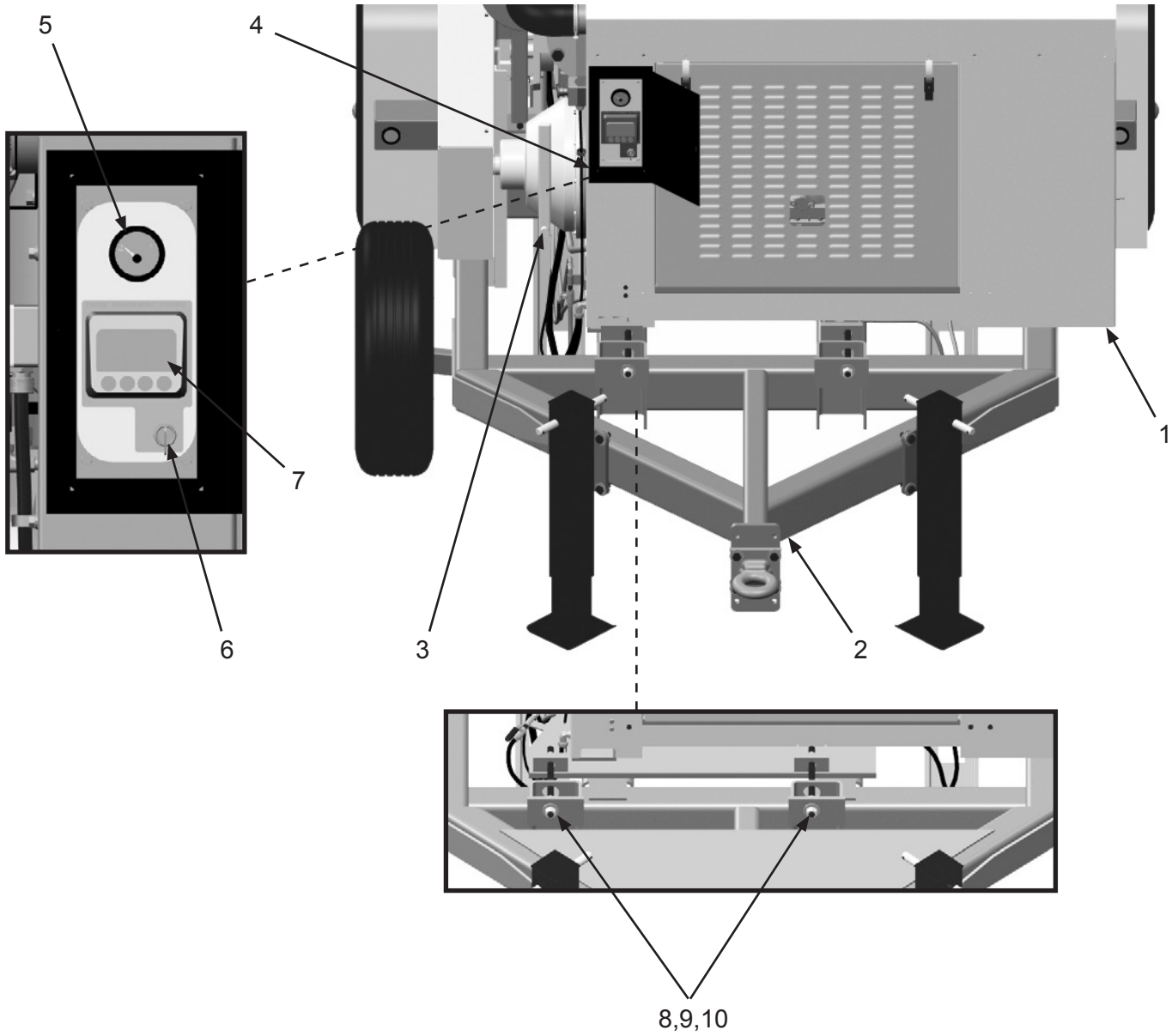
SYMPTOM (Cause)	ACTION
Filter Pulser System pressurizes but does not pulse *(No power to control box, blown fuse in control box or timer board, disconnected wires, timer board, solenoid, diaphragm valve)*	Inspect all power connections. Repair or replace faulty connections. Turn main power switch "OFF". Replace fuse if required. Inspect all solenoids and listen for audible sound as it engages to pulse. Replace solenoid. Inspect diaphragm valve breather vent for obstruction.
Pulser System leaks *(Loose or missing hoses or connections, loose or missing urethane tubing, damaged diaphragm valves)*	Check hose and hose connections between diaphragm valves and hopper wall. Check all tubing for secure connections and fittings. If fittings do not fit tightly in hose, cut a small section from the end of the hose and re-insert fitting in tube. Inspect diaphragm valve for damage or debris. Repair or replace diaphragm valve.

ASSEMBLY PART NUMBERS AND SCHEMATICS

Front Assembly

Item #	Part #	Description
Fig. 1		
1	10103494	Perkins Engine 174 Hp Tier 3
2	10104455	Trailer
3	10103986	Clutch
4	10103972	Engine Control Panel
5	10104821	Wema Analog Fuel Level Gauge
6	10103974	Key Switch
—	10103970	Perkins Key
7	10103969	Murphy PowerView
8	10103440R	3/4-10 UNC GR8 Draw Bolt *(Two Required)*
9	10103418	Washer - 3/4" - Grade 8 *(Four Required)*
10	10103420	3/4-10 UNC Grade 8 Nut *(Four Required)*
—	10104126	Oil Filter
—	10103958	Primary Fuel Filter
—	10104117	Secondary Fuel Filter
—	10106547	Fuel Filter Water Bowl
—	10104130	Outer Air Filter
—	10104131	Inner Air Filter
—	1091147	Vacmaster® Abrasive Vacuum Label Sheets
—	109V044	Operator's Manual - Perkins® Engine
—	109V039	Operator's Manual - Murphy PowerView®
—	105M132	Features & Specifications Guide – Vacmaster® 15T Tier III Diesel Abrasive Vacuums
—	106M132	Part Numbers & Schematics Guide – Vacmaster® 15T Tier III Diesel Abrasive Vacuums
—	1090132	Operator's Manual – Vacmaster® 15T Tier III Diesel Abrasive Vacuums

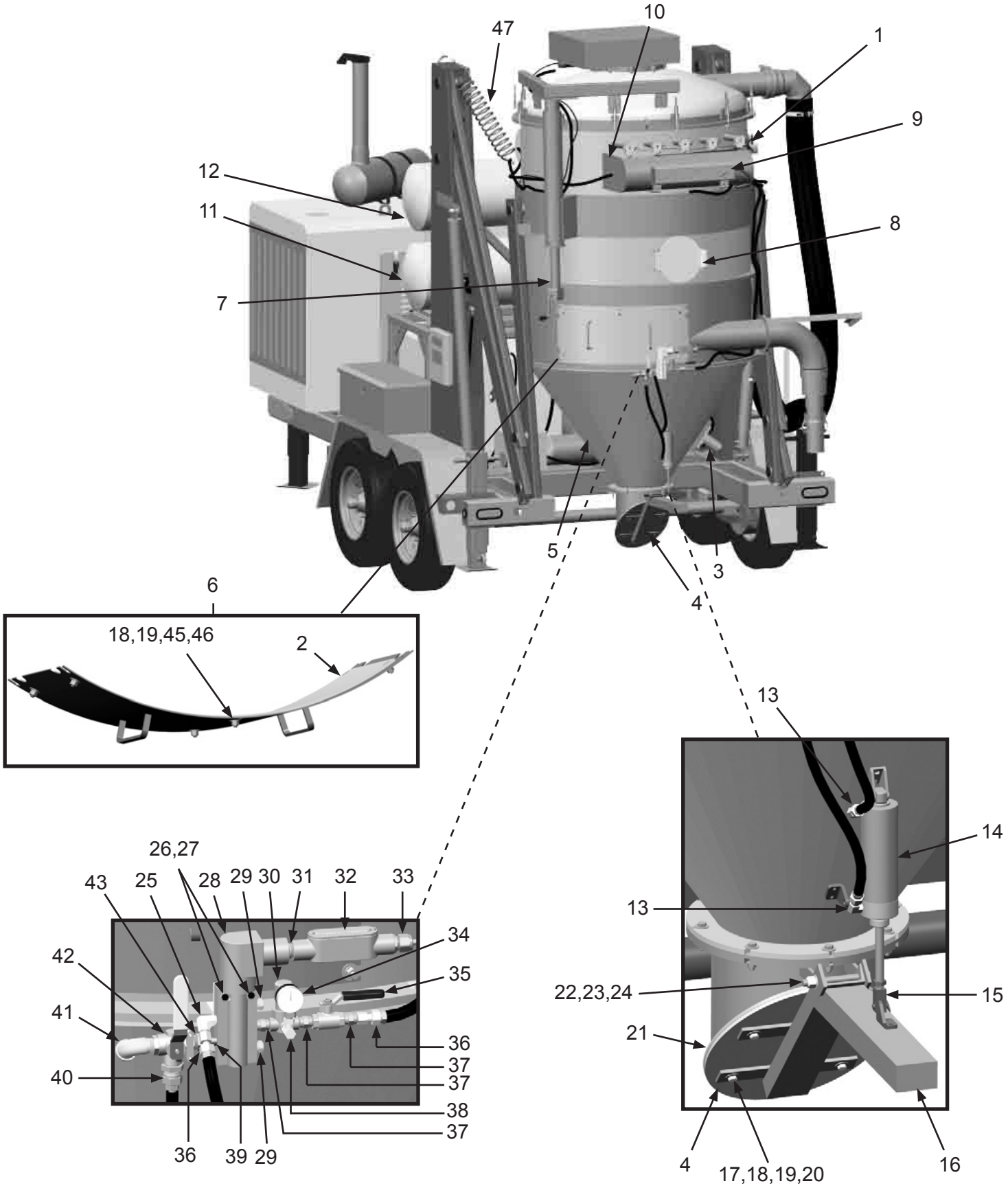
Figure 1: Front Assembly



Rear Assembly

Item #	Part #	Description
Fig. 2		
1	10104673	0-50" Differential Pressure Gauge
2	10105189	Wear Door Liner
3	10104665	APV Series Piston Vibrator
4	10104506	Dump Door
5	10104411	Vacuum Hopper Cone
6	10106511	Vacuum Wear Door Assembly *(Includes Item #'s: 18, 19, 48, 49, and 50)*
7	10104638	Bulldog Trailer Jack
8	10104439	Knappco Hatch
9	10105334	Vacuum Light Bar
10	10104498	Vacuum Header
11	10104459	Blower Exhaust Silencer
12	10104461	Blower Intake Silencer
13	20PFHA60UA0406	1/4" (M) x 3/8" (F) 90° Swivel *(Two Required)*
14	10104667	Pneumatic Cylinder – 2.5"
15	10104668	Piston Rod Clevis
16	10104507	Dump Arm
17	10104234	3/8-16 x 1-1/4 Hex Bolt Zinc *(Four Required)*
18	10101942	3/8" Flat Washer – Galvanized *(20 Required)*
19	10101936	3/8" Lock Washer – Zinc *(16 Required)*
20	1012318	3/8-16 Hex Nut *(Four Required)*
21	10104512	Dump Door Gasket
—	10104511	Dump Door Internal Plate
22	20100160	1/2-13 x 4-1/2" Zinc Hex Bolt
23	10100674	1/2" Flat Washer *(Two Required)*
24	20100124	1/2-13 Hex Lock Nut – Zinc
25	20PFHA25UA0404	1/4" Male 90° Elbow
26	1019044	1/4-20 x 1-3/4" Zinc Bolt *(Two Required)*
27	1012323	1/4-20 Zinc Lock Nut with Nylon Insert *(Two Required)*
28	10104670	Solenoid
29	1019024	Breather Vent
30	10104676	Series MPR Mini Pressure Relief
31	10L803035	1/2" Close Nipple
32	1019025	1/2" Straight Conduit Body
33	10104703	Cord Grip 1/2" Nylon .2-.47 Diameter
34	10104678	Pressure Gauge 100 psi 1/8"
35	1080050	1/4" Ball Valve
36	20PFHA60SG0406	1/4" (F) x 3/8" (F) Swivel Union *(Two Required)*
37	20PFHA24SA0404	1/4" Hex Nipple *(Three Required)*
38	1014239	1/8" x 1/8" 90° Fitting
39	1011210	1/4" NPT x 1 1/2" Nipple
40	20PFHA60SA0806	1/2" (M) x 3/8" (F) Swivel Union
41	1011819	1/2" Street Elbow
42	20100571	1/2" NPT 3-Way Brass Ball Valve
43	1011818	1/2" x 1/4" Galvanized Bushing
44	10104486	Vacuum Lid Overcenter Clamp *(12 Required)*
45	10101938	3/8-16 Hex Nut – Galvanized *(12 Required)*
46	10104705	3/8-16 FH SQ Neck x 1" Bolt Zinc *(12 Required)*
47	10104679	3/8" (M) Swivel Recoil AH 225 psi
—	109V521	Operator's Manual – Blower

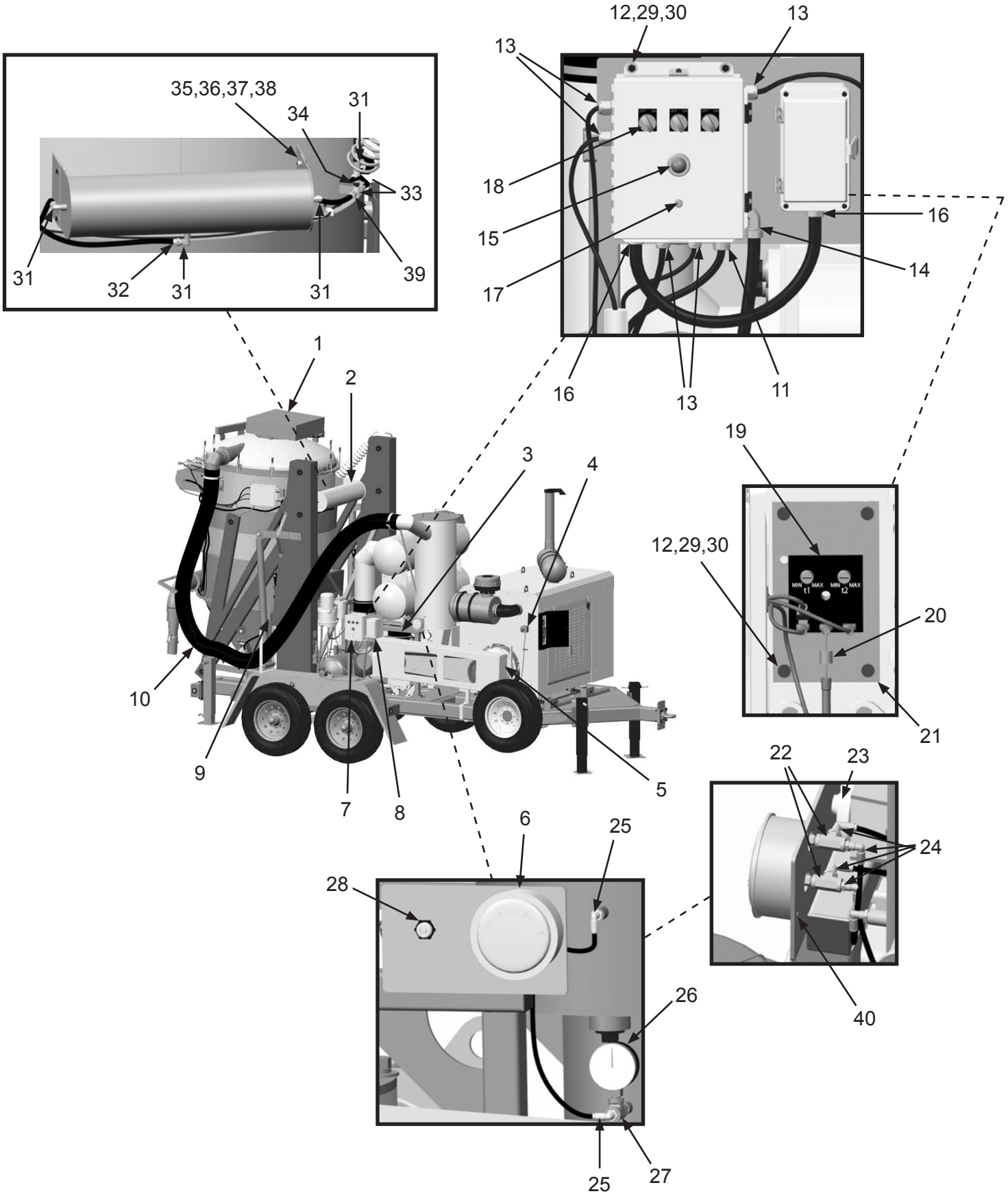
Figure 2: Rear Assembly



Right Side Front Assembly

Item #	Part #	Description
Fig. 3		
1	10104559	Vacuum Butterfly Cover
2	10104493	Vacuum Aux Header
3	10104456	Blower Top Shaft Left Discharge
4	10104071	E-Stop Control Station
5	10104579	Vacuum Belt Guard Cover
6	10104673	0–50" Differential Pressure
7	10104614	10" x 8" x 4" Nema 4 Enclosure
8	10104615	8" x 4" x 5" Fiberglass Latch Enclosure
9	10104674	Lubricator 1/2" NPT 156 CFM *(See Figure 5)*
10	10VH620B	6" I.D. Vacuum Hose 20' Section
11	20RCG5050	1/2" NPT x .5–.625 Diameter Cord Grip
12	20100125	1/4-20 x 3/4" Zinc Hex Bolt *(Eight Required)*
13	10104703	1/2" NPT x .2–.47 Diameter Nylon Cord Grip *(Three Required)*
14	20RST9050	90° Liquid Tite Connection Fitting
15	10104692	12-Volt Pilot Light – Red
16	20RST50	Straight Liquid Tite Connection Fitting *(Two Required)*
17	10104686	10 Amp Circuit Breaker
18	10103305	Selector Switch – 2-Way *(Three Required)*
19	10106818	Vacuum Control Timer
20	10104109	6 Amp 50-Volt Rectifier
21	10105193	Enclosure Panel for 10104614
22	20PFHA25VJ02	1/8" Female Tee *(Two Required)*
23	10104672	Differential Pressure Switch
24	20100579	1/4" O.D. Tube x 1/8" NPT PTC Swivel *(Four Required)*
25	20PFBA31095614	1/4" Tube x 1/4" NPT 90° Fitting *(Two Required)*
26	10104677	Liquid Filled Vacuum Gauge
27	1011844	1/4" Pipe Tee – Galvanized
28	10104073	Panel Lock Nut – 1/2"
29	10101940	1/4" Flat Washer – Galvanized *(Four Required)*
30	10101939	1/4-20 Stainless Steel Lock Nut with Nylon Insert *(Four Required)*
31	20PFHA60UA0606	3/8" (M) x 3/8" (F) 90° Swivel Union *(Four Required)*
32	10103631	3/8" Barb x 3/8" NPTF Brass *(Seven Required)*
33	1011809	3/8" NPT Tee *(Two Required)*
34	1011209	3/8 NPT Close Nipple
35	1011747	3/8-16 x 1" Bolt – Zinc *(Four Required)*
36	10101942	3/8" Flat Washer – Galvanized *(Four Required)*
37	10101936	3/8" Lock Washer – Zinc *(Four Required)*
38	10101938	3/8"-16 Hex Nut – Galvanized *(Four Required)*
39	20PFHA60SA0606	Union Swivel 3/8" (M) x 3/8" (F) *(Two Required)*
40	10104048	6-32 x 3/8" L Pan Head Machine Screw *(Three Required)*

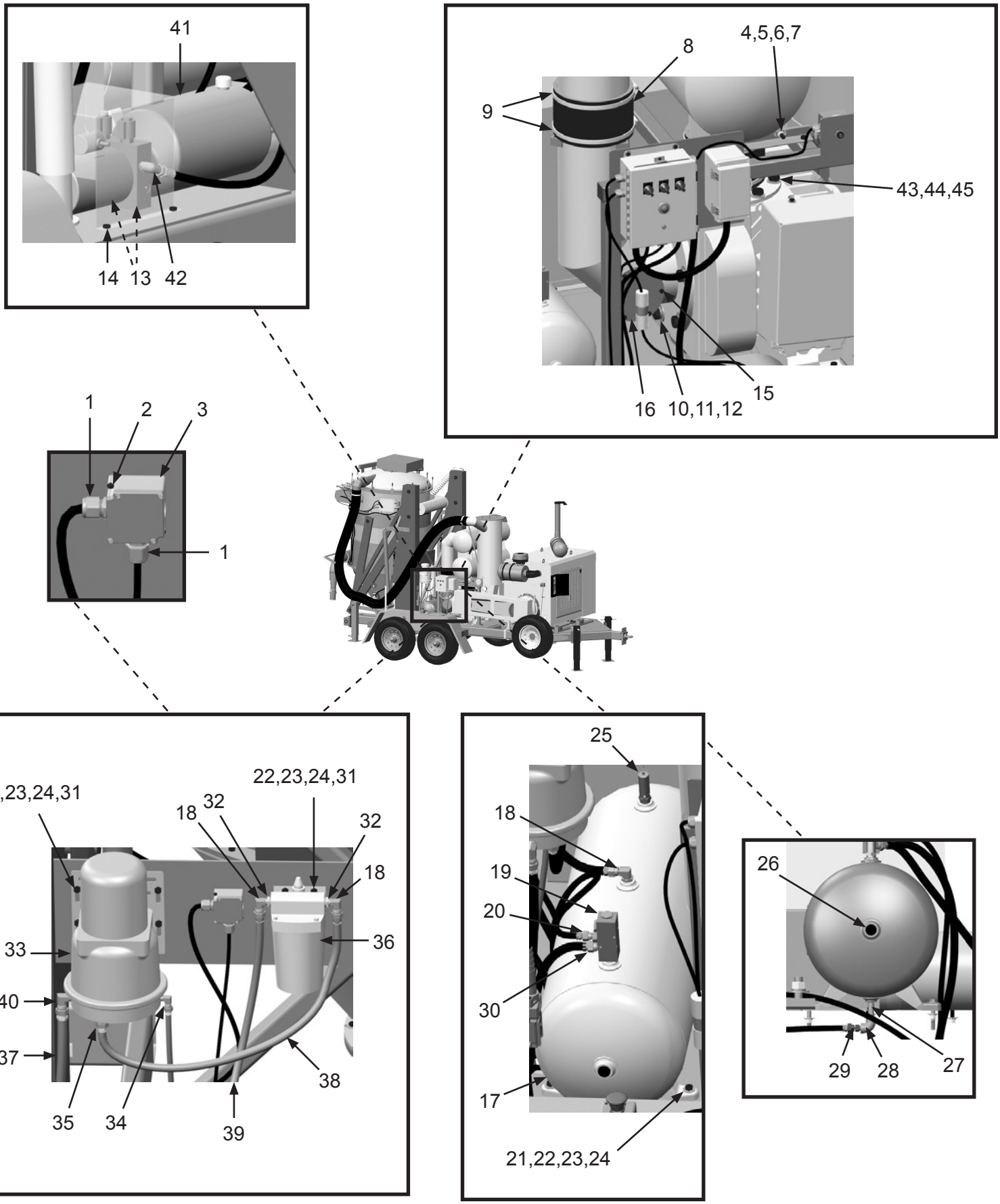
Figure 3: Right Side Front Assembly



Right Side Center Assembly

Item #	Part #	Description
Fig. 4		
1	10104703	1/2" Npt x .2—.47 Diameter Nylon Cord Grip *(Two Required)*
2	20000031	8-32 x 1-1/2" Machine Screw *(Two Required)*
3	10105897	Terminal Box
4	10101943	1/2-13 x 1-3/4" Hex Bolt *(Eight Required)*
5	10100674	1/2" Flat Washer *(16 Required)*
6	10100675	1/2" Lock Washer *(Eight Required)*
7	10101941	1/2-13 Hex Nut - *(Eight Required)*
8	10104774	10-3/4" I.D. Hose *(Two Required)*
9	10103416	Banding Clamp *(Four Required)*
10	10104715	7/8-9 X 2" Grade 5 Bolt
11	10104716	7/8" Flat Washer - Zinc
12	10104717	7/8" Lock Washer - Zinc
13	20100195	3/8-16 X 1" Bolt *(Two Required)*
14	10103400	3/8-16 X 3/4" Bolt *(Four Required)*
15	1035045	5/16-18 x 1" Bolt *(Six Required)*
16	10103235	Cover
17	10104610	Compressed Air Tank - 15 Gal
18	20PFHA60UA0606	3/8"M x 3/8"F 90° Swivel Union *(Three Required)*
19	10104618	3 Outlet Pressure Manifold
20	20PFHA60SA0604	3/8"M x 1/4"F Swivel Union *(Two Required)*
21	1028617	3/8-16 x 1-3/4" Shoulder Bolt *(Four Required)*
22	10101942	3/8" Flat Washer *(48 Required)*
23	10101936	3/8" Lock Washer - Zinc *(15 Required)*
24	1012318	3/8-16 Hex nut *(15 Required)*
25	10104681	1/2" NPT Pressure Relief Valve
26	10DSHP75	3/4" Square Head Pipe Plug *(Two Required)*
27	1011217	Galvanized 1/4" x 2" Nipple
28	1011832	Galvanized 1/4" 90° Elbow
29	10SME025	1/4" NPT x 1/4" (F) Straight Swivel
30	20PFHA60SA0606	3/8"M x 3/8"F Swivel Union
31	20100195	3/8-16 x 1" Bolt *(12 Required)*
32	20PFHA24SB0806	1/2" x 3/8" Reducing Bushing *(Three Required)*
33	10104611	Haldex Air Dryer
34	1012326	1/4"M x 1/4"F 90° Swivel Union
35	20PFHA60SA0806	1/2"M x 3/8"F Swivel Union
36	10104612	Haldex Alcohol Evaporator
37	10105838	1/2" x 168" Stainless Steel Braided Hose Assembly with 1/2" (M) NPT Ends
38	10104684	3/8" x 2' Braided Hose
39	10104683	3/8" x 4-1/2' Braided Hose
40	20PFHA60UA0808	1/2"M x 1/2"F 90° Swivel Union
41	10105779	Hydraulic Power Unit
42	10105782	SAE 6 x JIC 8 Elbow *(Two Required)*
43	10104714	3/4-10 X 1-5/8" Bolt *(Eight Required)*
44	10100596	3/4" Lock Washer *(Eight Required)*
45	10100704	3/4" Flat Washer *(Eight Required)*
—	10105292	Alcohol 99 Isopropyl - 16 Oz

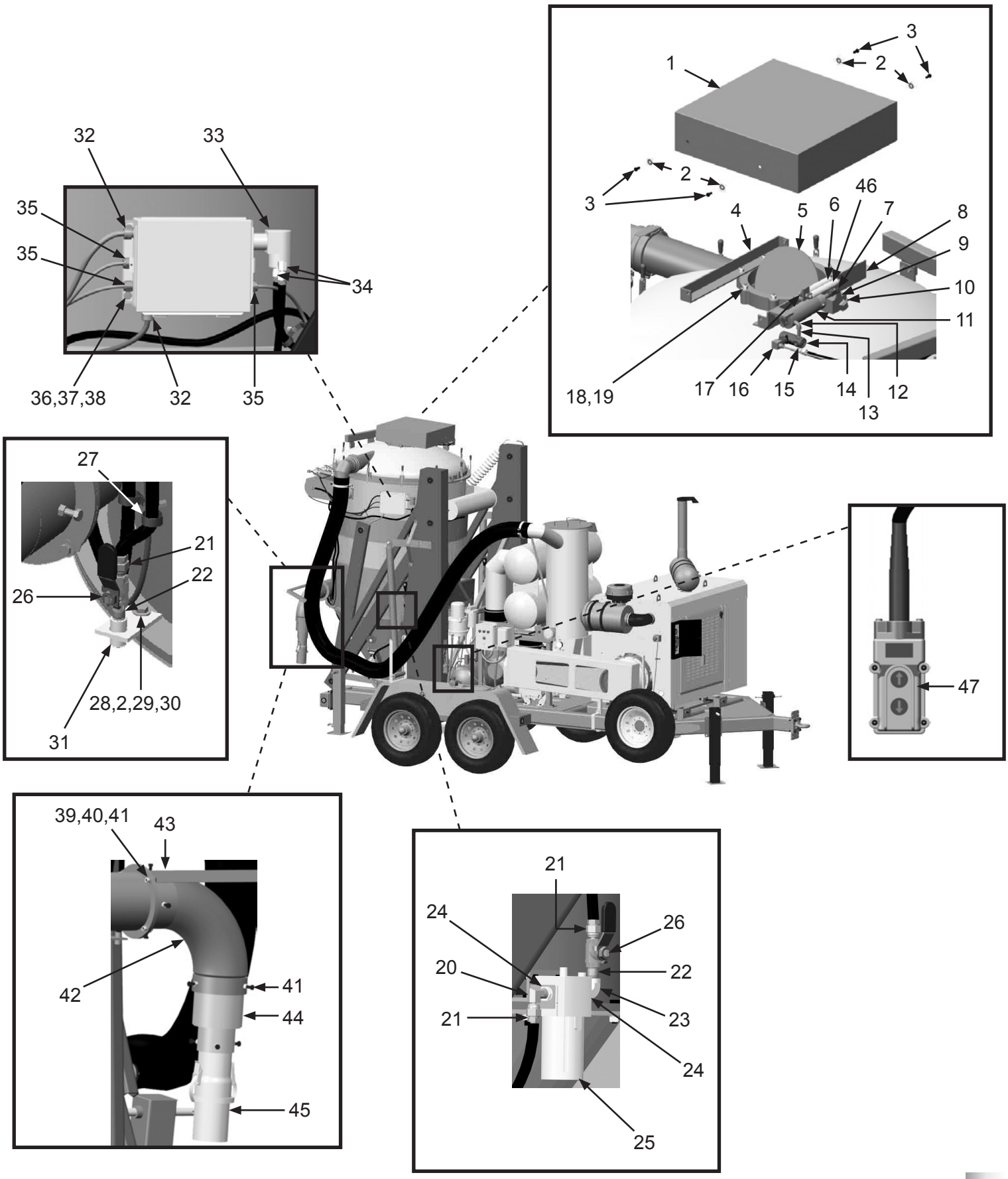
Figure 4: Right Side Center Assembly



Right Side Rear Assembly

Item #	Part #	Description
Fig. 5		
1	10104559	Vacuum Butterfly Cover
2	10101942	3/8" Flat Washer - Galvanized *(Five Required)*
3	10103400	3/8-16 x 3/4" Bolt *(Four Required)*
4	10104554	Butterfly Cover Mount Weldment
5	10104537	Betts 12" Butterfly
6	10107175	6.5" Extension Spring
7	10104668	Piston Rod Clevis
8	10104538	Vacuum Butterfly Cylinder Weldment
9	10104543	Butterfly Actuating Arm
10	20100125	1/4-20 x 3/4" Zinc Hex Bolt
11	10104667	Pneumatic Cylinder - 2.5"
12	1011824	1/4" Street Elbow
13	1011217	Galvanized 1/4" x 2" Nipple
14	10104669	Solenoid For Butterfly
15	20PFHA60UA0406	1/4" (M) x 3/8" (F) 90° Swivel
16	10105287	Humphrey Din Connector
17	10104706	3/8-16 x 2-1/2" Thread Stud
18	10100674	1/2" Flat Washer *(Eight Required)*
19	20100124	1/2 - 13 Hex Lock Nut *(Eight Required)*
20	20PFHA60UA0606	3/8"M x 3/8"F 90° Swivel Union
21	20PFHA60SA0606	Union Swivel 3/8" (M) x 3/8" (F) *(Three Required)*
22	1011209	3/8 NPT Close Nipple
23	20PFHA25UG0606	3/8" Street Elbow
24	20PFHA24SB0806	1/2" x 3/8" Reducing Bushing *(Two Required)*
25	10104674	Lubricator 1/2" NPT 156 CFM
26	1080060	3/8" NPT Full Port Brass Ball Valve *(Two Required)*
27	10103624	1" Rubber Cushioned Loop Clamp
28	1028617	3/8-16 x 1-3/4" Shoulder Bolt
29	10101936	3/8" Lock Washer - Zinc
30	1012318	3/8 -16 Hex Nut
31	10104597	Airline Drain
32	20RCG5050	1/2" Npt x .5—.625 Diameter Cord Grip *(Two Required)*
33	10104671	Vibrator Solenoid
34	20PFHA60UA0406	1/4" (M) x 3/8" (F) 90° Swivel *(Two Required)*
35	10104703	1/2" Npt x .2—.47 Diameter Nylon Cord Grip *(Three Required)*
36	10101939	1/4-20 Stainless Steel Lock Nut with Nylon Insert *(Four Required)*
37	10101940	1/4" Flat Washer - Galvanized *(Four Required)*
38	20100125	1/4-20 x 3/4" Zinc Hex Bolt *(Four Required)*
39	10101942	3/8" Flat Washer - Galv. *(Eight Required)*
40	10101938	3/8 -16 Hex Nut GALV. *(Four Required)*
41	1011747	3/8 -16 x 1" Bolt - Zinc *(13 Required)*
42	10104546	Vacuum Inlet Elbow
43	10104496	Vacuum Inlet Insert
44	10104550	Vac Inlet Adapter
45	10107797	4" Quick Disconnect Coupling Assy
46	10107176	6.5" Long Extension Spring - Zinc
47	10107204	Remote Control Pendant

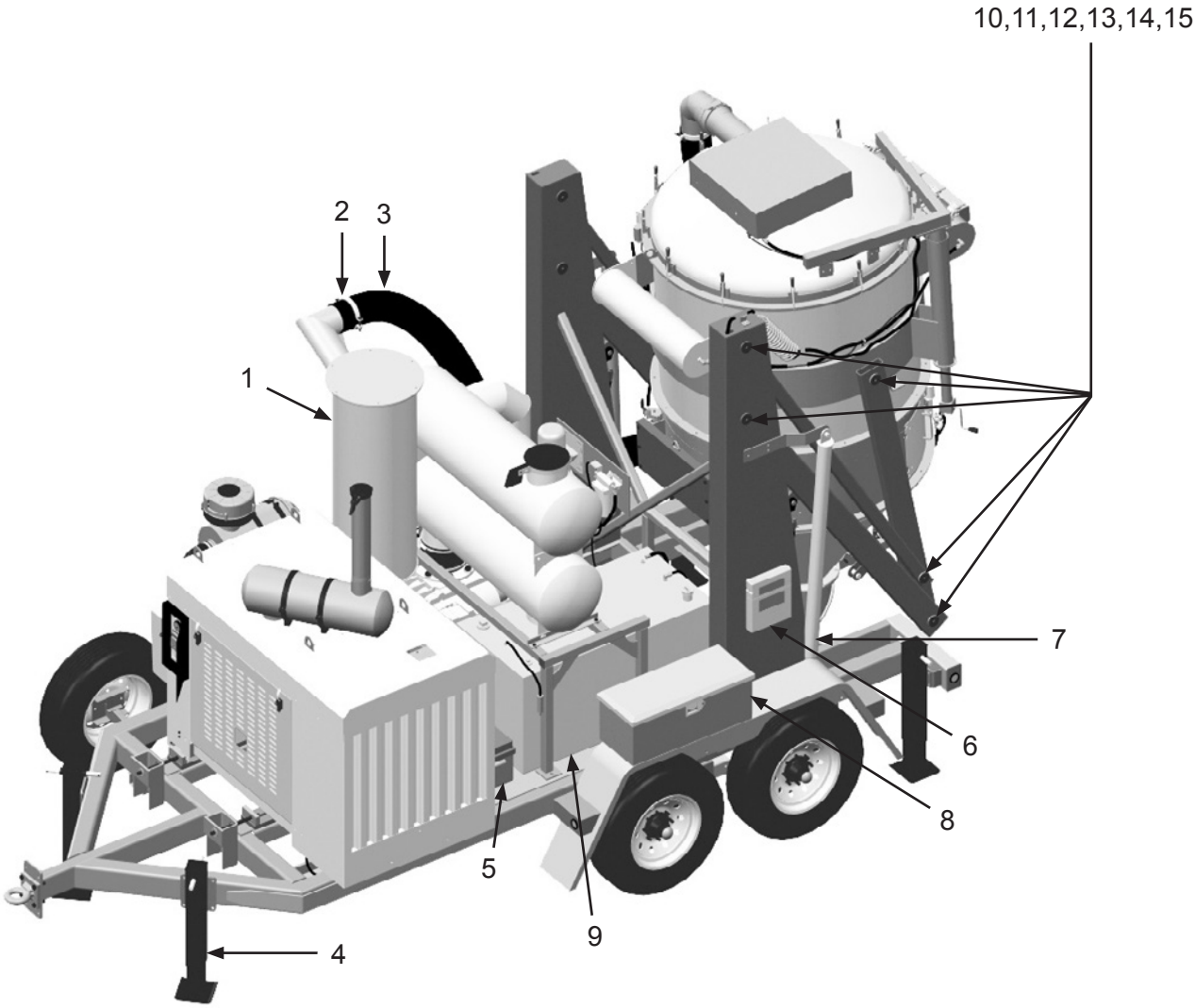
Figure 5: Right Side Rear Assembly



Left Side Front Assembly

Item #	Part #	Description
Fig. 6		
1	10104457	Intake Filter Housing *(See Figure 11)*
2	10104640	6" Double Bolt Clamp
3	10VH620B	6" I.D. x 20' Vacuum Hose
4	10104082	Jack Stand *(Four Required)*
5	10103342	Battery Box
6	10104273	Document Holder
7	10104608	Support Arm
8	10105896	Tool Box
9	10104704	116 Gallon Rectangle Fuel Tank *(See Figure 9)*
10	10104708	Straight Grease Zerk - 1/4"-28
11	10106402	5/8-11 Grease Zerk Thru Bolt
12	10106403	3/16" x 5/8" Dowel Pin
13	10101061	5/8" Lock Washer
14	10104600	Vacuum Pin Cap
15	10104602	Vacuum Shoulder Pin
—	10103343	Battery Cables, 156" Long
—	10103341	Battery *(not shown)*

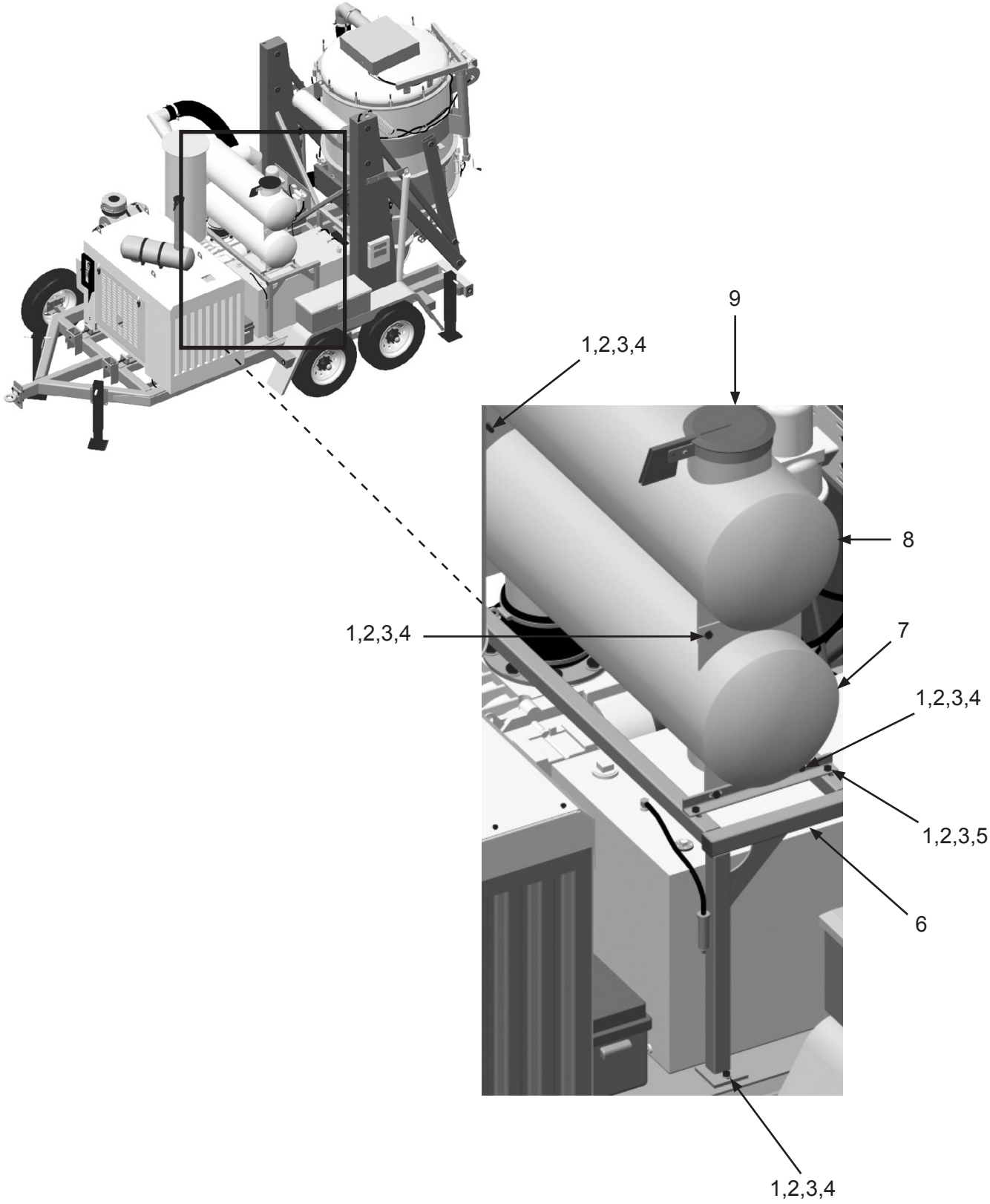
Figure 6: Left Side Front Assembly



Left Side Center Assembly

Item #	Part #	Description
Fig. 7		
1	10101943	1/2-13 x 1-3/4" Hex Bolt *(12 Required)*
2	10100674	1/2" Flat Washer *(24 Required)*
3	10100675	1/2" Lock Washer *(12 Required)*
4	10101941	1/2-13 Hex Nut - *(12 Required)*
5	10101927	1/2-13 x 3" Galvanized Hex Bolt *(Four Required)*
6	10104584	Silencer Mount Weldment
7	10104461	Blower Intake Silencer
8	10104459	Blower Exhaust Silencer
9	10104824	8" Raincap

Figure 7: Left Side Center Assembly



Left Side Rear Assembly

Item #	Part #	Description
Fig. 8		
1	10104234	3/8-16 x 1-1/4" Hex Bolt Zinc *(Eight Required)*
2	10101942	3/8" Flat Washer - Galvanized *(40 Required)*
3	10101936	3/8" Lock Washer - Zinc *(11 Required)*
4	1012318	3/8 -16 Hex Nut *(11 Required)*
5	10104472	Vacuum Lid Lift
6	10104434	Vacuum Top Section
7	10104638	Bulldog Trailer Jack
8	10104728	Lift Arm Support Bracket *(Two Required)*
9	10104729	Lift Arm Support Bracket Pin *(Two Required)*
10	10104608	Support Arm Outer *(Two Required)*
—	10104605	Support Arm Inner *(Two Required) (not shown)*
11	10103308	Elbow - 90° - JIC 8 x SAE 10 10 *(Four Required)*
12	10104645	Hopper Lift Cylinders *(Two Required)*
13	10104646	Lift Cylinder Clevis *(Two Required)*
14	10104647	1" x 3-1/8" Pin *(Two Required)*
15	10105290	3/16" x 1-5/8" Pin
16	10104486	Over Center Clamp *(12 Required)*

Figure 8: Left Side Rear Assembly

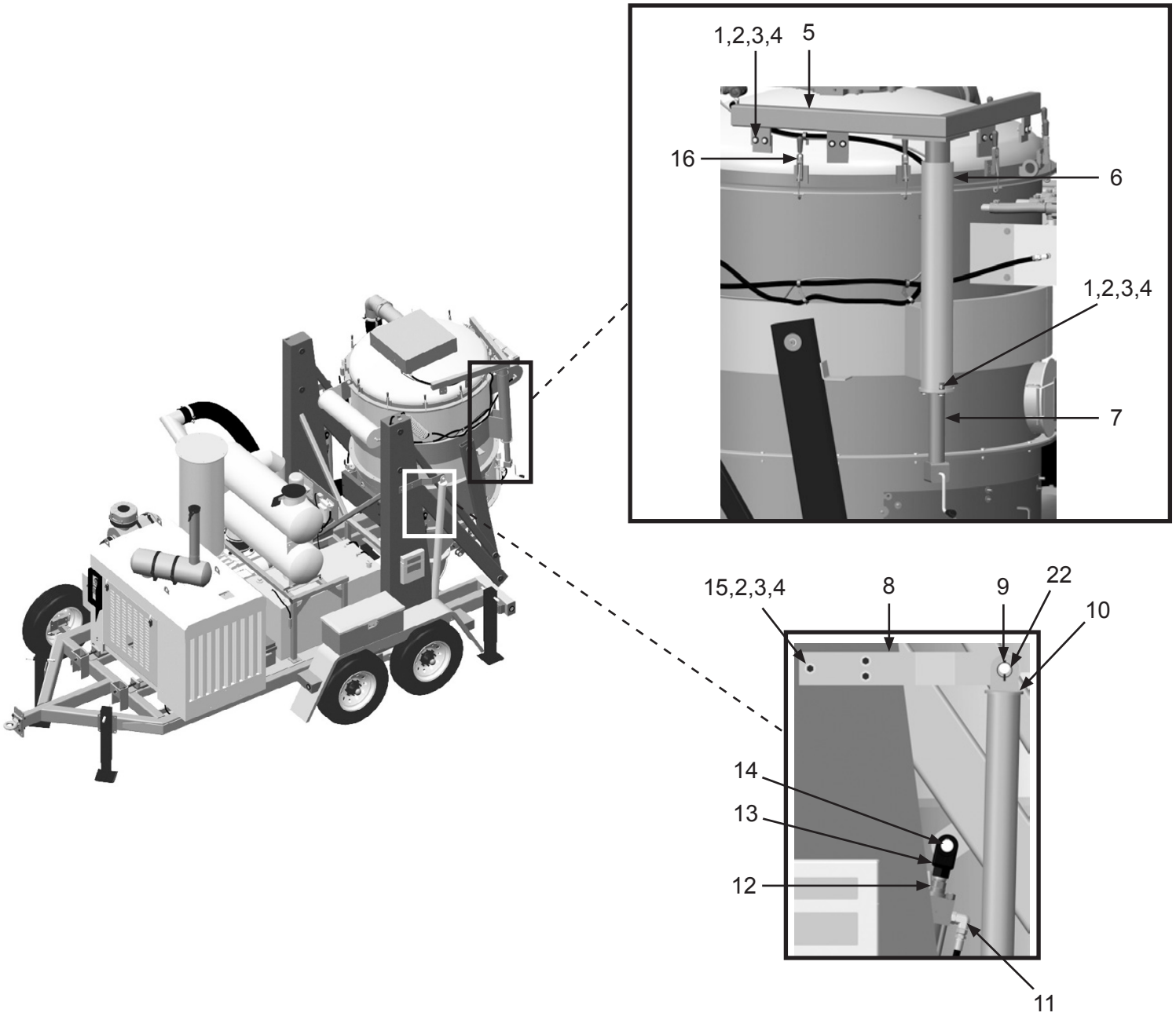


Figure 9: Double Lock Valve Assembly

Item #	Part #	Description
Fig. 9		
1	10104650	Double Lock Valve
2	10103309	Elbow - 90° - JIC 8 x SAE 8 *(Two Required)*
3	10105081	JIC 8 Tee *(Two Required)*
4	10104651	Union - Straight SAE 8 x JIC 8 *(Two Required)*
5	10103613	Union - Straight SAE 8 x SAE 8
6	10105288	Flow Restrictor SAE 8
7	10105286	5/16-18 x 2-1/2" Grade 5 Zinc Bolt *(Two Required)*
8	10L805014	5/16" Lock Washer *(Two Required)*
9	1035046	5/16-18 Nut *(Two Required)*

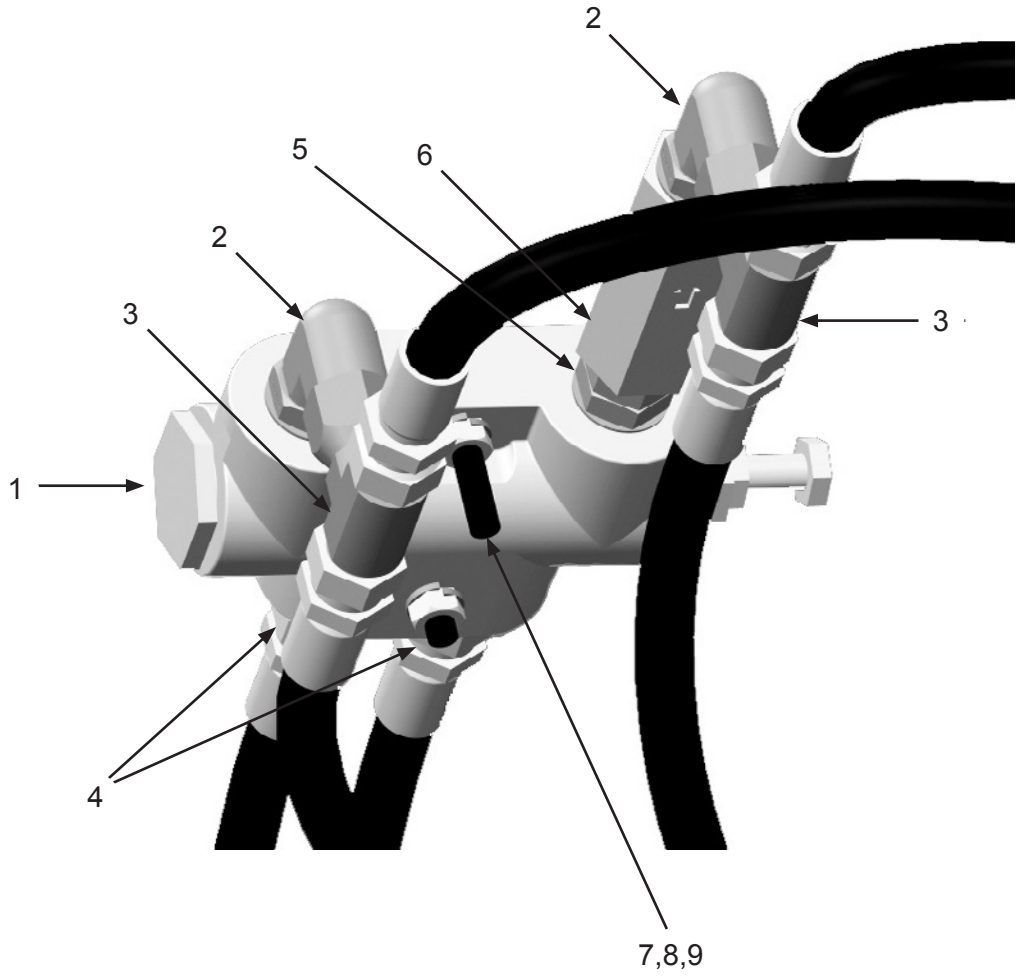
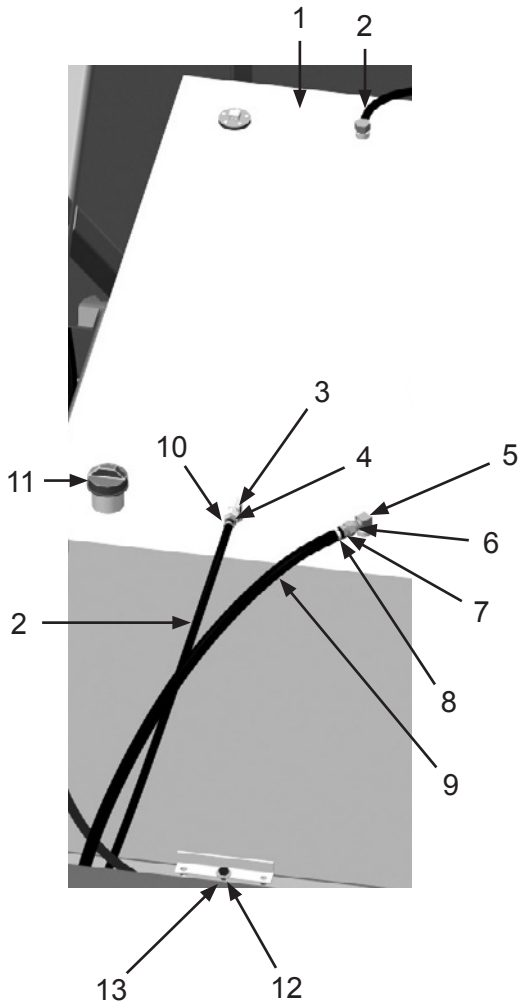
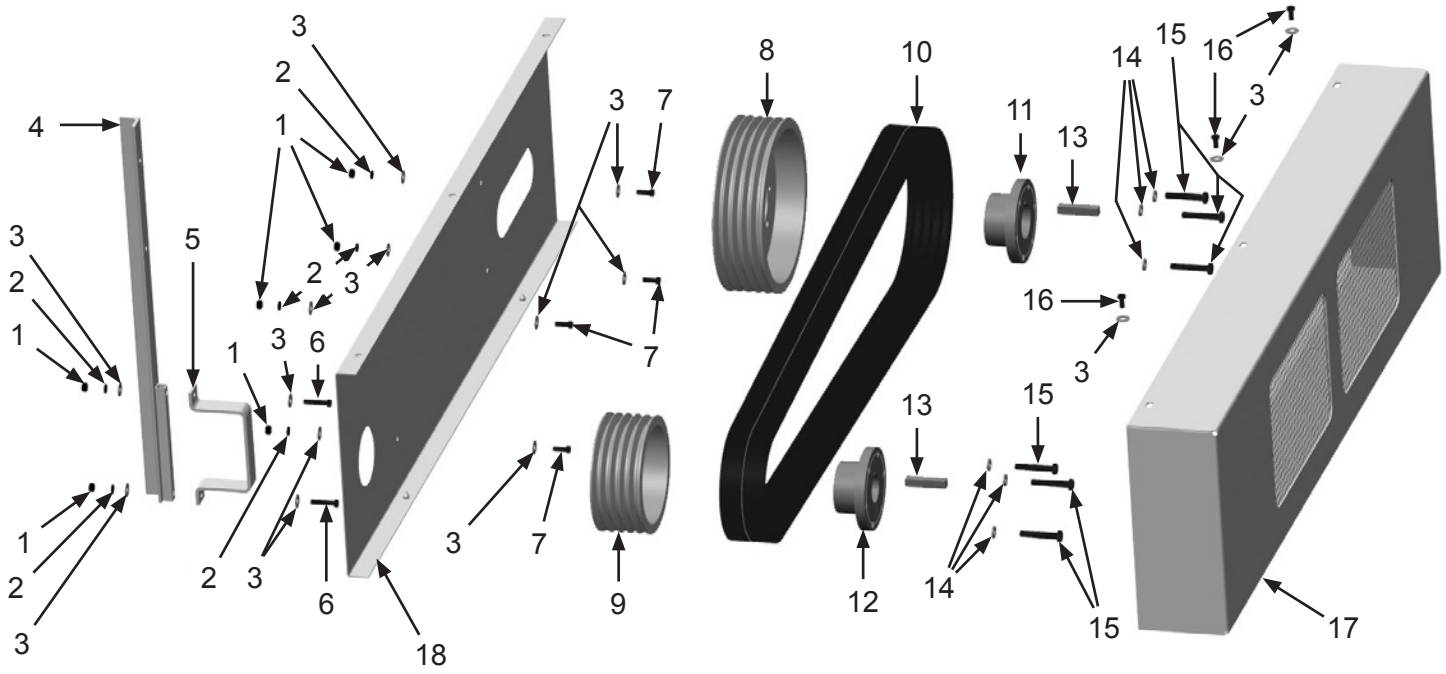


Figure 10: Fuel Tank



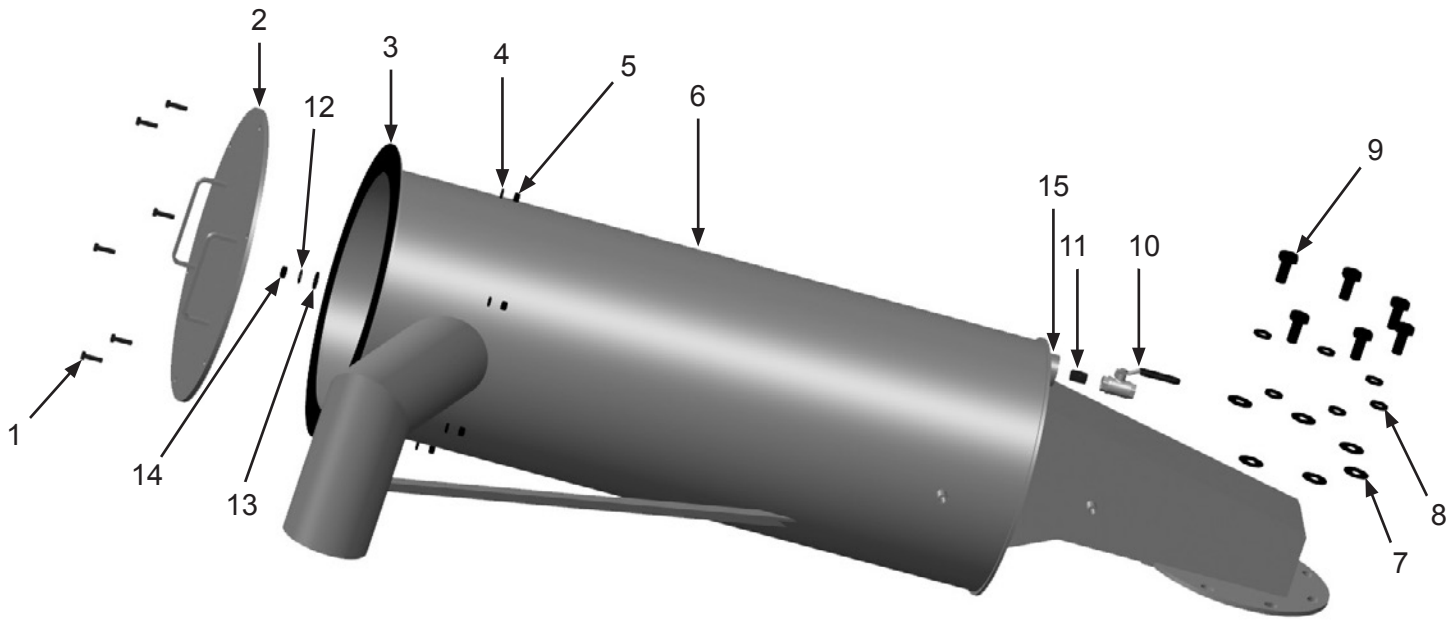
Item #	Part #	Description
Fig. 10		
1	10104704	116 Gallon Rectangle Fuel Tank
2	10103423	3/8" I.D. Fuel Hose *(Per Foot)*
3	20PFHA60UA0606	3/8" (M) x 3/8" (F) 90° Swivel Union
4	10103631	3/8" Barb x 3/8" NPT Brass Female Fitting
5	10103617	Withdraw Tube - 16"
6	20PFHA60SA0606	3/8" (M) x 3/8" (F) Swivel Union
7	10103618	Straight - 3/8" NPT x 1/2"
8	10104064	Oetiker Clamp For 1/2" Hose
9	10103619	1/2" Flexible Fuel Line *(Per Foot)*
10	10104065	Oetiker Clamp - 3/8" I.D. Hose
11	10103968	Locking Fuel Cap with Keys
12	10104234	3/8-16 x 1-1/4" Hex Bolt Zinc *(Two Required)*
13	10101942	3/8" Flat Washer - Galvanized *(Two Required)*
—	10104631	Fuel Tank Rubber Cushioning Pad *(not shown)*
—	10103620	3/8" Inline Filter *(not shown)*

Figure 11: Fan Belt Assembly



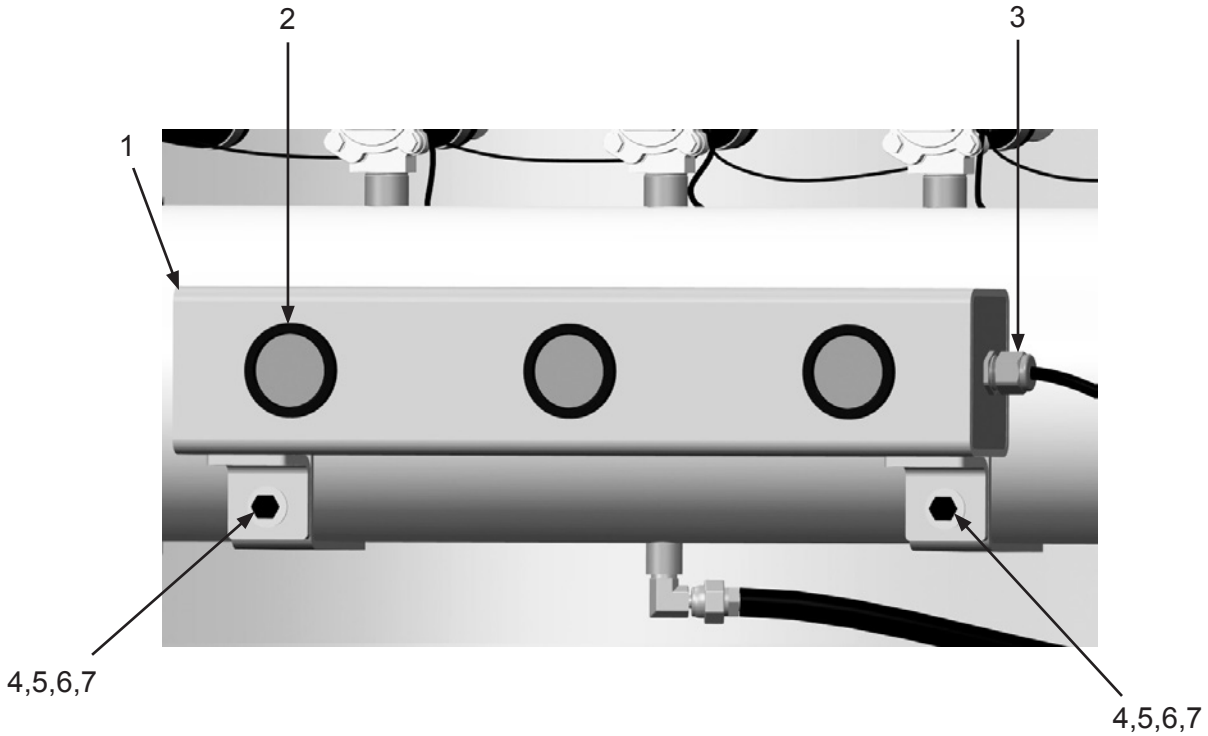
Item #	Part #	Description
Fig. 11		
1	1012318	3/8" Galvanized Hex Nut *(Four Required)*
2	10101936	3/8" Zinc Lock Washer *(Four Required)*
3	10101942	3/8" Galvanized Flat Washer *(15 Required)*
4	10104573	Vacuum Belt Guard Mount
5	10104576	Belt Guard Clamp
6	1028617	3/8-16 x 1-3/4" Shoulder Bolt *(Two Required)*
7	1011747	3/8-16 x 1" Bolt *(Four Required)*
8	10104641	12.5" 5V 5 Groove Sheave
9	10104642	8.5" 5V 5 Groove Sheave
10	10104644	5VX 1180 Banded Belt
11	10103485	Bushing 2.5" Bore
12	10104643	Bushing 2" Bore
13	10103643	5/8" Key Cut *(Two Required)*
14	10100675	1/2" Lock Washer *(Six Required) (Included with Item 12)*
15	10102820	1/2-13 x 2-3/4" Gade 5 Bolt *(Six Required) (Included with Item 12)*
16	10103400	3/8-16 x 3/4" Bolt *(Three Required)*
17	10104579	Belt Guard Cover
18	10104577	Belt Guard Back

Figure 12:Intake Filter Housing



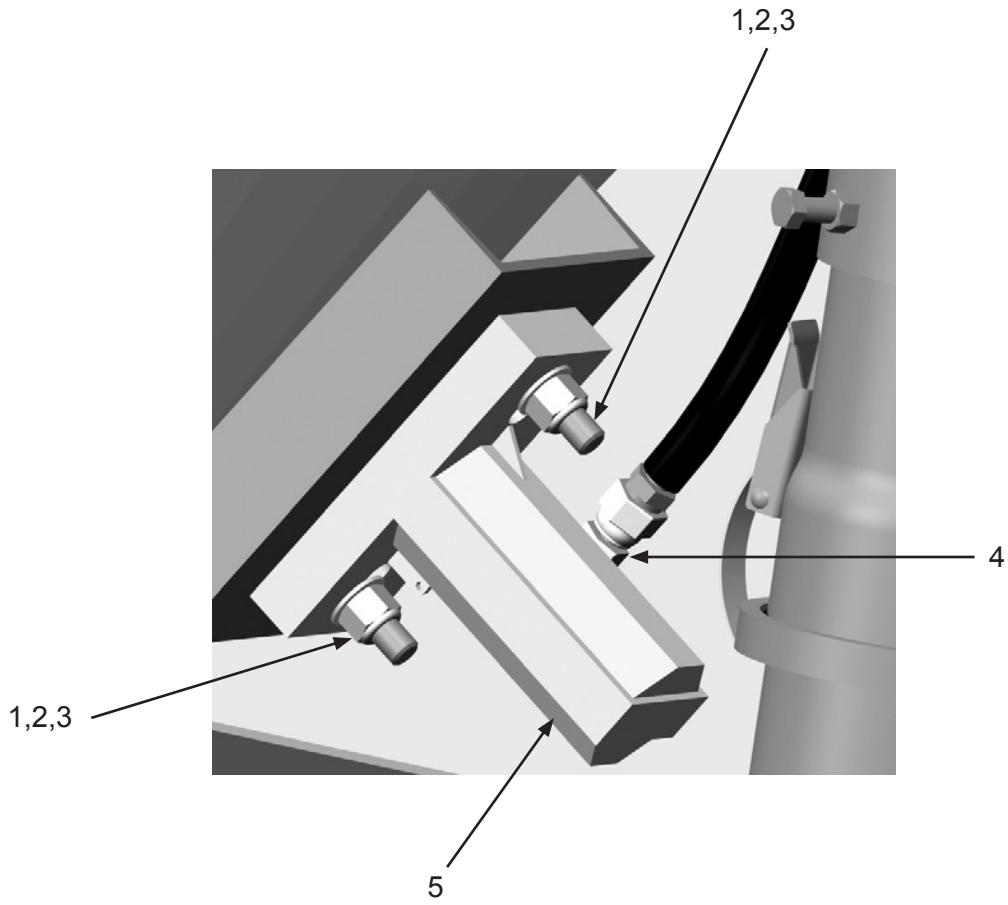
Item #	Part #	Description
Fig. 12		
1	10104234	3/8-16 x 1-1/4" Hex Bolt Zinc *(Six Required)*
2	10106508	Intake Filter Housing Cap
3	10104727	Air Filter Housing Gasket
4	10101936	3/8" Lock Washer - Zinc *(Four Required)*
5	10101938	3/8-16 Hex Nut - Galvanized *(Four Required)*
6	10104457	Intake Filter Housing
7	10100704	3/4" Flat Washer *(Six Required)*
8	10100596	3/4" Lock Washer *(Six Required)*
9	10104714	3/4-10 x 1-5/8" Zinc Bolt *(Six Required)*
10	10L363	1/2" Npt Full Port Ball Valve
11	10L803035	Galvanized 1/2" Close Nipple
12	10100674	1/2" Flat Washer
13	10102005	Rubber Washer 1.25OD x .375ID x .13
14	10101941	1/2-13 Hex Nut - Galvanized
15	1011820	1-1/4" x 1/2" Bushing - Galvanized
—	10102253	Filter Cartridge

Figure 13: Vacuum Light Bar



Item #	Part #	Description
Fig. 13		
1	10105334	Vacuum Light Bar *(Includes Item #2)*
2	10104086	2" Round LED Red Clearance Light *(Three Required)*
3	10104703	Cord Grip Nylon 1/2" NPT .2-.47 Diameter
4	10101942	3/8" Flat Washer - Galvanized *(Four Required)*
5	10101936	3/8" Lock Washer - Zinc *(Two Required)*
6	1011747	3/8-16 x 1" Bolt *(Two Required)*
7	1012318	3/8 -16 Hex Nut *(Two Required)*

Figure 14: Pneumatic Piston Vibrators



Item #	Part #	Description
Fig. 14		
1	20100124	1/2-13 Hex Lock Nut - Zinc *(Two Required)*
2	10100674	1/2" Flat Washer *(Two Required)*
3	10102652	1/2-13 x 2-1/4" Grade 5 Bolt *(Two Required)*
4	20PFHA60UA0406	1/4" (M) x 3/8" (F) 90° Swivel Union
5	10104665	APV Series Piston Vibrator

Pulser System Assembly

Item #	Part #	Description
Fig. 15		
1	10101942	3/8" Flat Washer - Galvanized *(Eight Required)*
2	10101936	3/8" Lock Washer - Zinc *(Four Required)*
3	1011747	3/8-16 x 1" Bolt *(Four Required)*
4	10101938	3/8 -16 Hex Nut *(Four Required)*
5	20PFHA60UA0606	3/8"M x 3/8"F 90° Swivel Union
6	10104498	Vacuum Header
7	10103736	T-Bolt Hose Clamp For 1" I.D. *(10 Required)*
8	10106509	Air Hose 1" ID 200 psi - Red
9	10104500	3/4" NPT x 1-1/2" Toe Nipple *(Five Required)*
10	10105287	Humphrey Din Connector *(Included with Item #16) (Five Required)*
11	10104666	3/4" Diaphragm Valve with Solenoid *(Five Required)*
—	10107192	Pilot Valve Repair Kit
—	10107193	Diaphragm Repair Kit

Figure 15: Pulser System Assembly

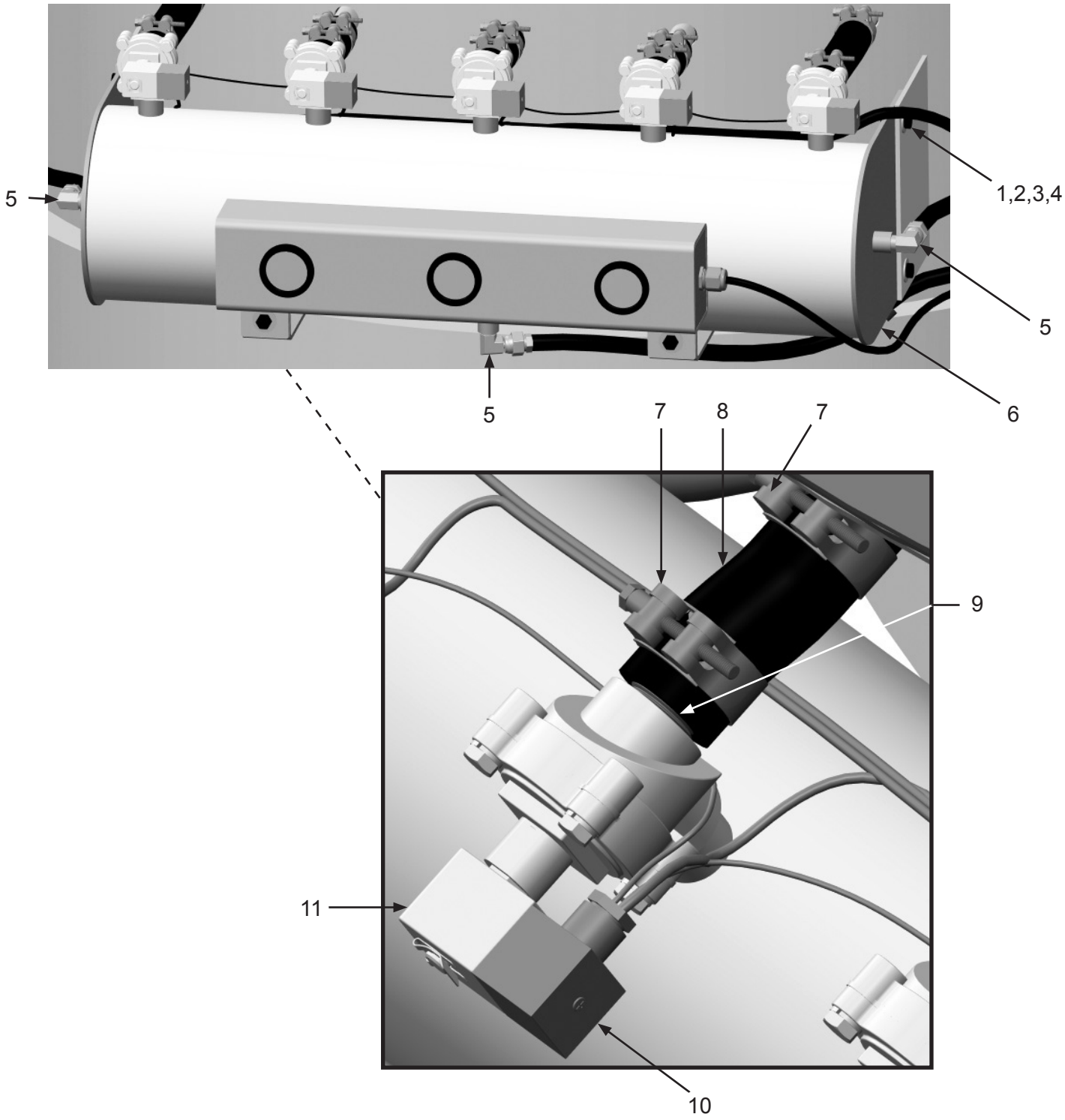
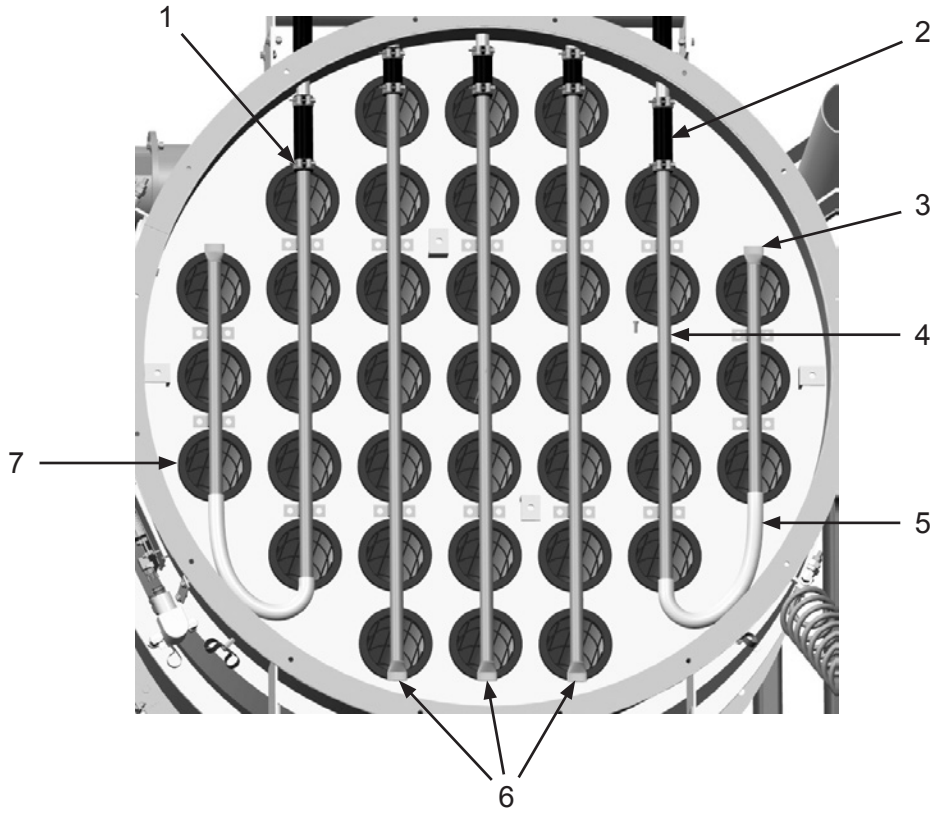
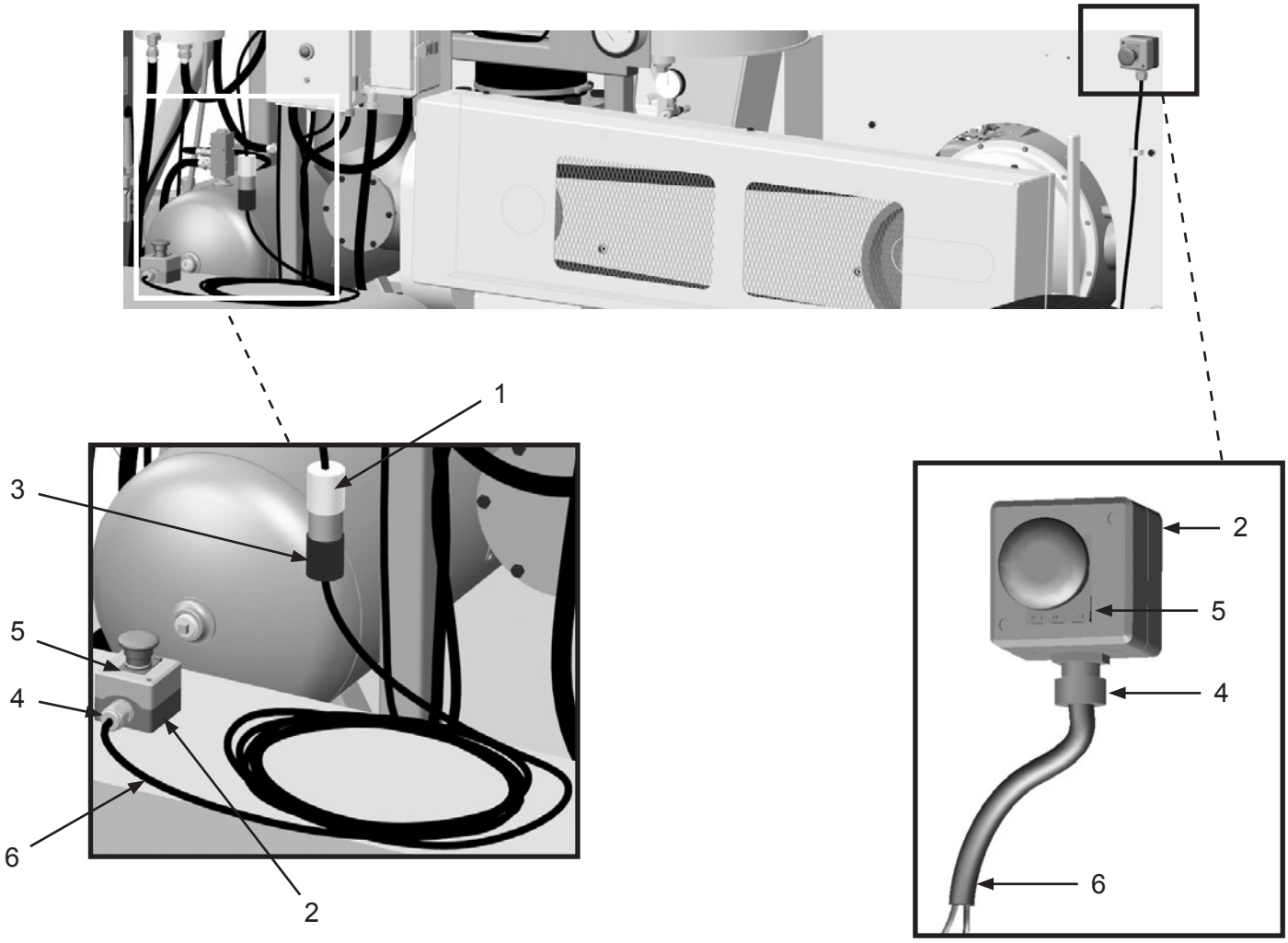


Figure 16: Filter Bag Pulsers



Item #	Part #	Description
Fig. 16		
1	10103736	T-Bolt Hose Clamp For 1" I.D. *(10 Required)*
2	10106509	1" 75W Marine Hose - 100 PSI *(Five Required)*
3	10104562	Pulser System Short Blowpipe *(Two Required)*
4	10104565	Pulser System Medium Blowpipe *(Two Required)*
5	10104680	1" Flexible Tubing For Blowpipes *(Two Required)*
6	10104567	Pulser System Long Blowpipe *(Three Required)*
7	10104633	Vacuum Baghouse Filter *(37 Required)*
—	10104634	Vacuum Baghouse Filter Cage *(37 Required)*

Figure 17: Emergency-Stop Stations



Item #	Part #	Description
Fig. 17		
—	**10107200**	**Remote Emergency-Stop Station** *(Includes Item #'s: 2, 4, 5, and 6 (100'))*
1	1015552	Female twist lock plug two prong
2	10104071	E-Stop Control Station
3	1015551	Male Twist Lock Plug Two Prong
4	10104703	Cord Grip Nylon 1/2"-NPT .2-.47 Diameter
5	10104063	Legend Plate - Emergency Stop
6	1015540	16/2 Xtreme Duty Power Cord - Red
—	1015009	8-32 x 1" Pan Head Phillips Screw *(Four Required)*
—	20000021	8-32 Zinc Nut *(Four Required)*
—	20000018	#8 Zinc Lock Washer *(Four Required)*
—	20000019	#8 Zinc Flat Washer *(Four Required)*

Compressor Assembly

Item #	Part #	Description
Fig. 18		
—	**10105814**	**Compressor 3054 Kit**
1	10106030	Compressor to PTO Adapter
2	10106031	M8 x 80 Bolt *(Four Required)*
3	10106032	SAE A O-Ring
4	10101062	5/8-11 Hex Nut
5	10101061	5/8" Lock Washer
6	10106033	Compressor Gear
7	10106034	Compressor
8	10106035	SAE A 2-Bolt Cover with O-Ring
9	10106036	M8 x 16 Bolt *(Two Required)*
10	20PFHA60SA0204	1/8" (M) x 1/4" (F) Swivel Union
11	10106037	M8 x 25 Bolt *(Two Required)*
12	10106042	PTO O-Ring
13	10101941	1/2-13 Hex Nut *(Two Required)*
14	10106038	Metric Straight to NPT
15	10103615	M10 x 25MM Zinc Bolt *(Two Required)*
16	10106039	Compressor Bracket
17	10101002	1/2" x 1" 90° Elbow
18	10106040	Metric Straight to 1/2" Hose Barb *(Two Required)*
19	10PAF025	1/4" x 1/4" Push-On Fitting
20	20PFHA60UA0808	1/2" (M) x 1/2" (F) 90° Swivel Union
21	10000057	1/2" x 1/2" Street Elbow *(Two Required)*
22	10L803035	1/2" Close Nipple
23	10105870	Filter Assembly *(Includes 10106362)*
24	10106041	Metric Straight to NPT
—	10106362	5 Micron Filter Element *(Replacement Filter for 10105870)*

Figure 18: Compressor Assembly

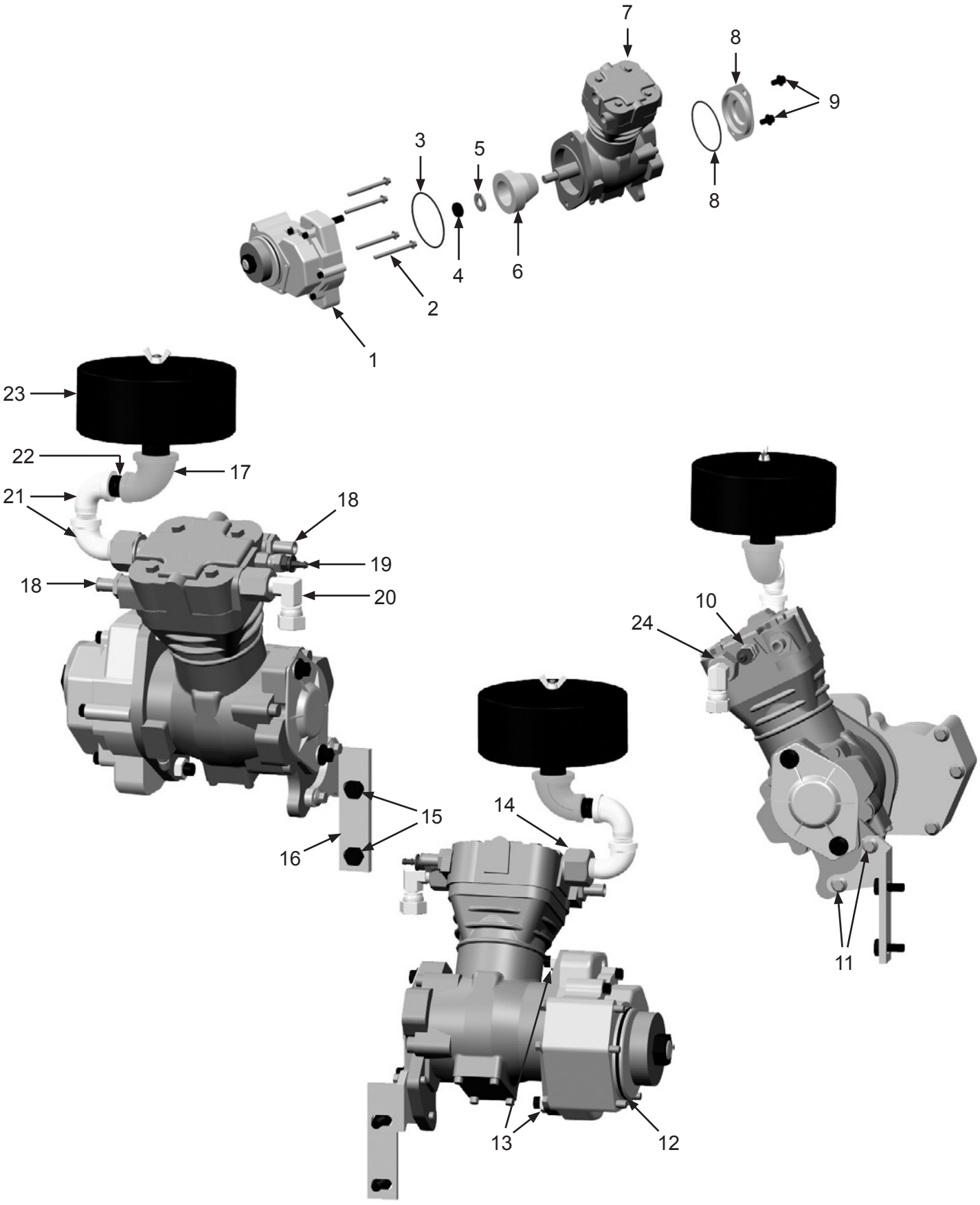


Figure 19: Compressor Governor

Item #	Part #	Description
Fig. 19		
1	10PAF025	1/4" x 1/4" Push on Fitting *(Four Required)*
2	20PFHA60SA0204	1/8" (M) x 1/4" (F) Swivel Union
3	20PFHA25VJ02	1/8" Female Tee *(Two Required)*
4	1035046	5/16-18 Nut *(Two Required)*
5	10L805014	5/16" Lock Washer *(Two Required)*
6	1012905	1/8" Breather Muffler
7	10105816	Compressor Governor
8	1014112	5/16-18 X 3-1/4" Hex Bolt *(Two Required)*
9	10105717	1/8" Hollow Hex Pipe Plug Male *(Four Required)*
10	20PFHA24SA0202	1/8" Hex Nipple *(Two Required)*

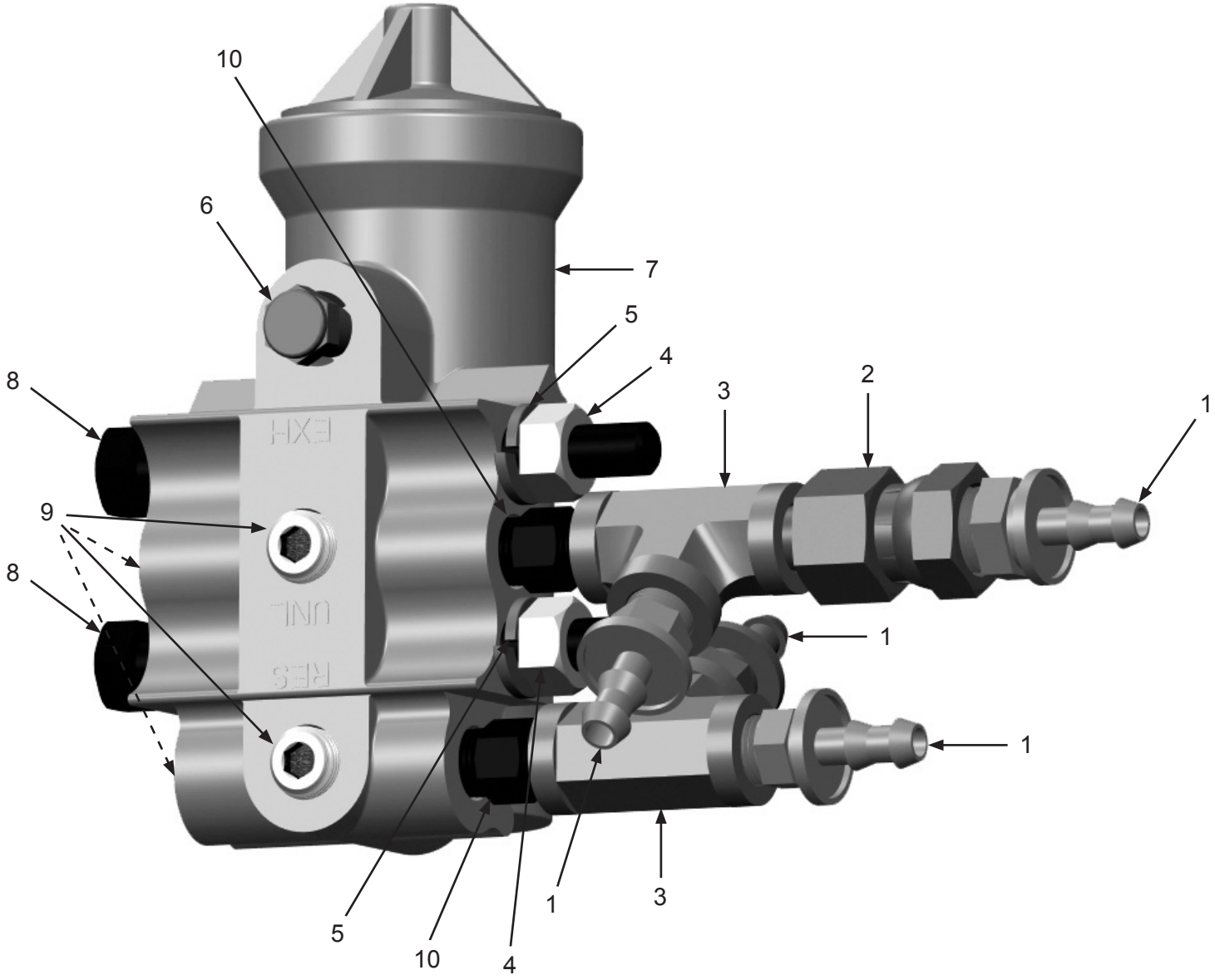
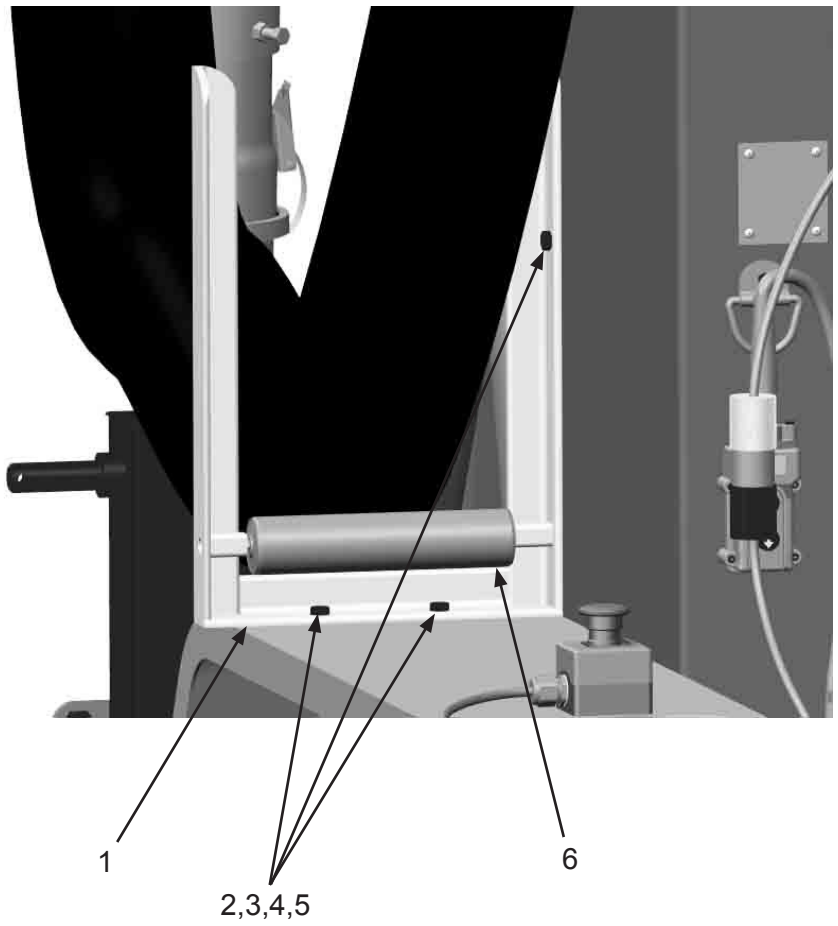


Figure 20: Vacuum Hose Support Bracket

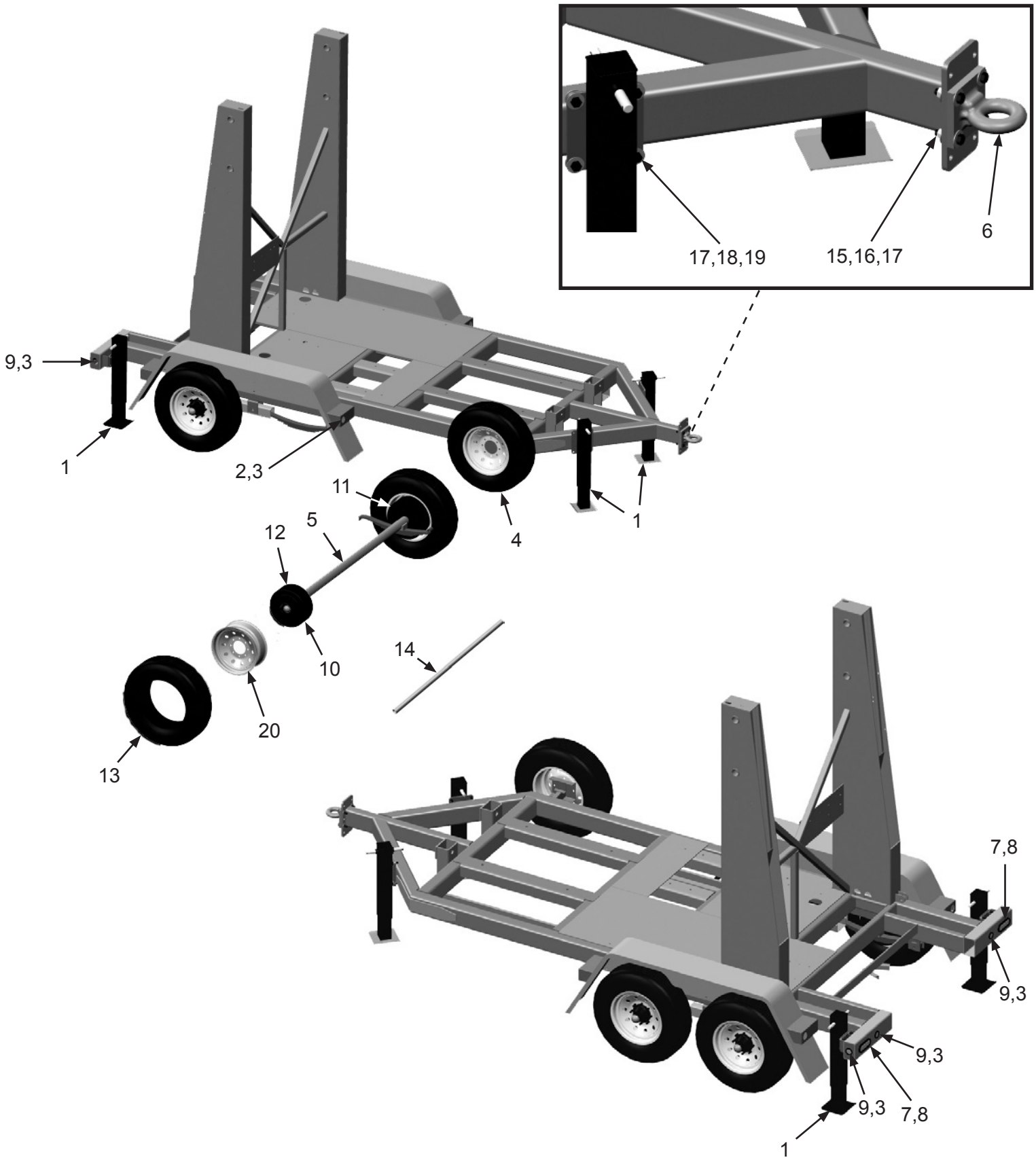
Item #	Part #	Description
Fig. 20		
1	10105264	Vacuum Hose Bracket
2	1011747	3/8-16 x 1" Bolt - Zinc
3	10101942	3/8" Flat Washer - Galvanized
4	10101936	3/8" Lock Washer - Zinc
5	10101938	3/8-16 Hex Nut - Galvanized
6	10106374	1.9" Diameter Conveyor Roller - 9" Long



Trailer

Item #	Part #	Description
Fig. 21		
—	**10104455**	**7 Ton Double Axle Trailer**
1	10104082	10,000# Heavy Spring Loaded Jack *(Four Required)*
2	10104087	2" Round LED Amber Clearance Light *(Two Required)*
3	10104088	2" Round Rubber Grommet *(Six Required)*
4	10104089	16 - 8 Hole Pattern Rim with Tire *(Five Required)*
5	10106084	7,000# Axle With Electric Brakes, Complete With Hubs And Springs 89" HF x 71" SC
6	10104079	Pintle Hitch with Flat Plate
7	10104085	Oval Rubber Grommet *(Two Required)*
8	10104084	Oval LED Red Tail Light *(Two Required)*
9	10104086	2" Round LED Red Clearance Light *(Four Required)*
10	10106086	Axle Hub Only - No Bearings or Seal (Two Required)
11	10106087	Left-Hand Electric Brake Assembly (Two Required)
12	10106088	Right-Hand Electric Brake Assembly (Two Required)
13	10104096	Tire - ST235/80R/16 - 10-ply *(Five Required)*
14	10106085	Axle Beam/Tube Only
15	10105746	5/8 x 2-1/2" Grade 8 Bolt *(16 Required)*
16	10105747	5/8 Reverse Lock Nut *(16 Required)*
17	10103398	5/8" Flat Washer *(40 Required)*
18	10103397	5/8 x 2" Grade 8 Bolt *(4 Required)*
19	10103393	5/8 Reverse Lock Nut *(4 Required)*
20	10107126	16 x 6 8-Hole White Rim
—	10105826	Redline 12V - 5AH Battery Sealed
—	10104081	Breakaway Kit
—	10104142	Wire Harness - Complete *(Front, Middle & Rear)*
—	10105827	Breakaway Switch with Pin
—	10104769	3/8" x 41" Safety Chain with Hook
—	10103879	2" x 6" x 6" Red/White Conspicuity Tape
—	10105829	Cable With Plug
—	10105826	Redline 12V - 5AH Battery Sealed
—	109V582	Operator’s Manual - Behnke Trailer

Figure 21: Trailer



Wear Plates and Baffles

Item #	Part #	Description
Fig. 22		
1	10101942	3/8" Flat Washer – Galvanized *(35 Required)*
2	10101936	3/8" Lock Washer – Zinc *(35 Required)*
3	10101938	3/8-16 Hex Nut *(35 Required)*
4	1011747	3/8-16 x 1" Bolt *(15 Required)*
5	10104489	Vacuum Wear Plates *(Four Required)*
6	10104490	Vacuum Baffle *(Three Required)*
7	10104705	3/8-16 FH Square Neck x 1" Bolt Zinc *(16 Required)*
8	10101942	3/8" Flat Washer – Galvanized *(Six Required)*
9	10101936	3/8" Lock Washer – Zinc *(Six Required)*
10	10101938	3/8-16 Hex Nut – Galvanized *(Six Required)*
11	10106511	Vacuum Wear Door Assembly *(See Figure 2)*

Figure 22: Wear Plates and Baffles

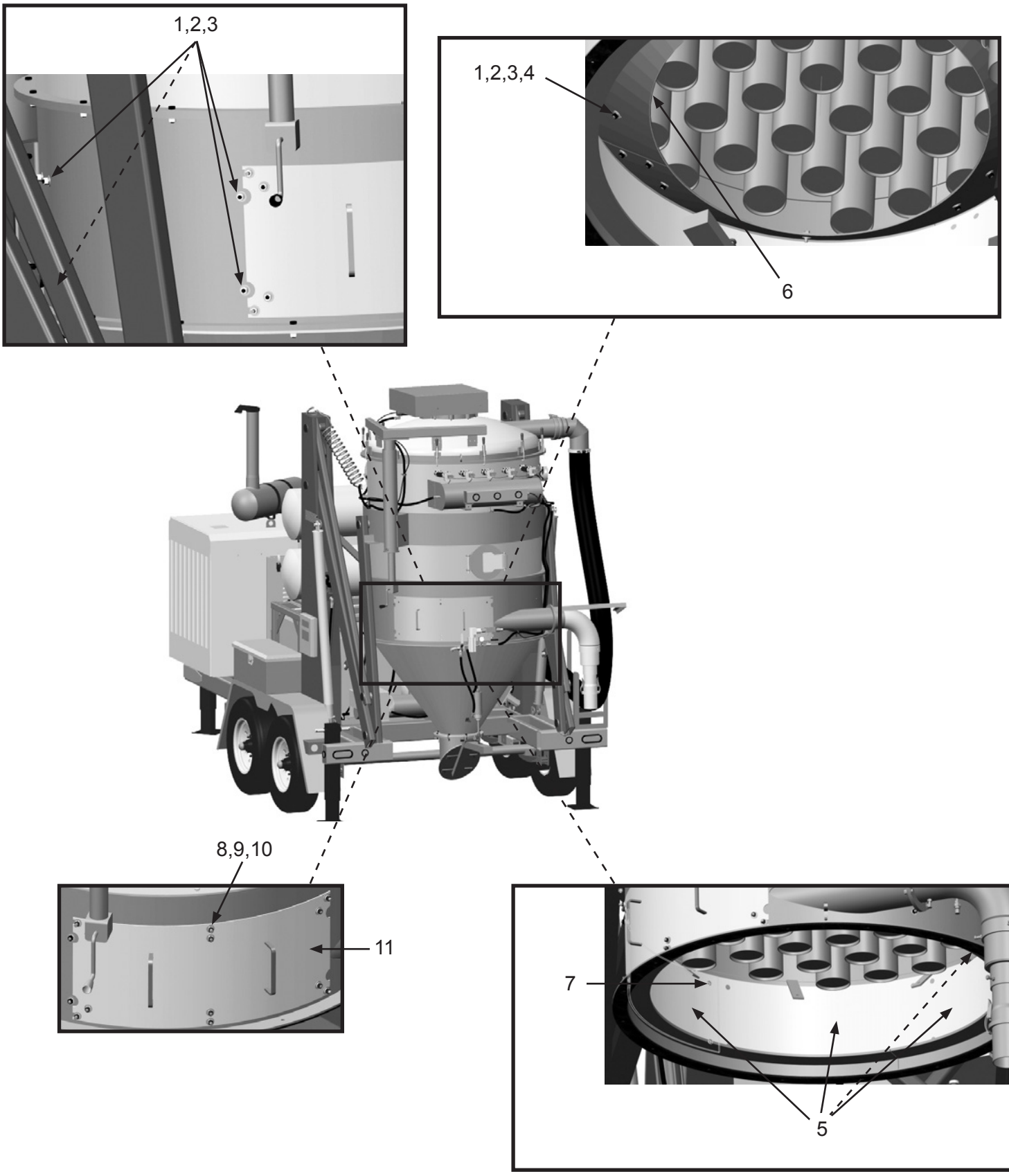
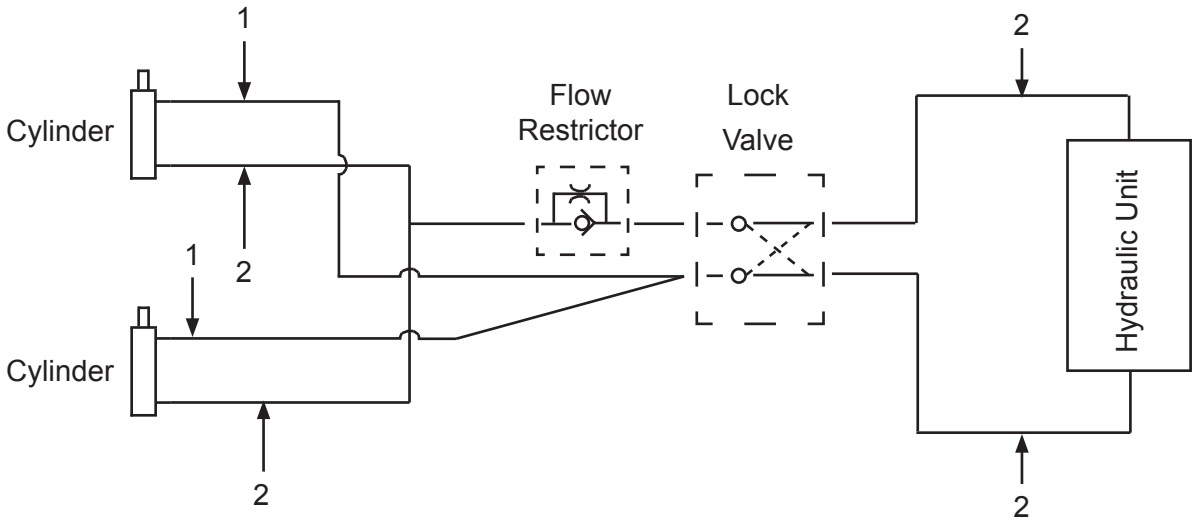


Figure 23: Hydraulic Hoses

Item #	Part #	Description
Fig. 23		
1	10104664	3/8-16 x 1-1/4" Hex Bolt Zinc *(Eight Required)*
2	10104663	3/8" Flat Washer - Galvanized *(40 Required)*



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

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