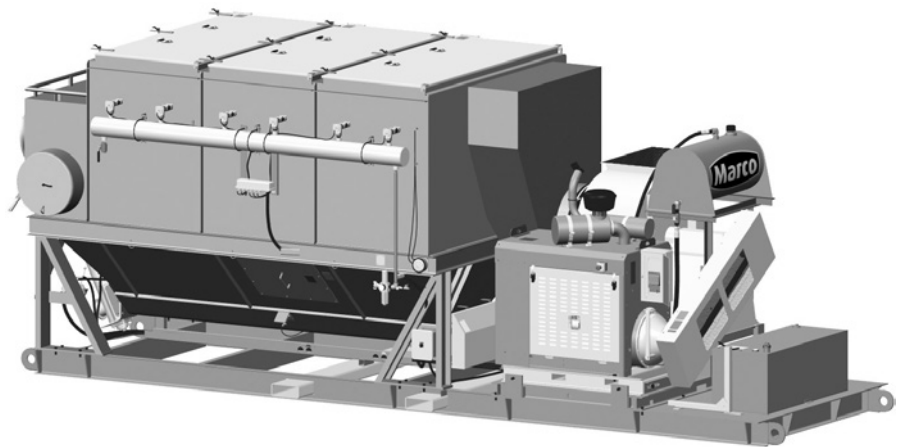
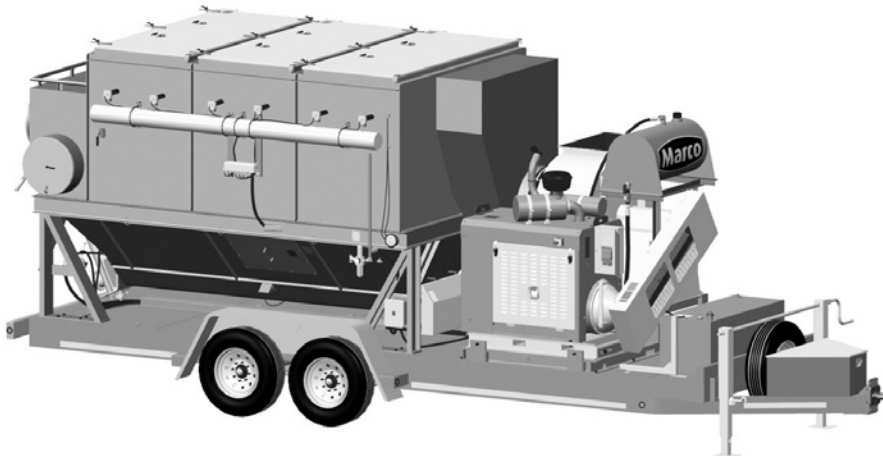


OPERATOR'S MANUAL

DUSTMASTER® 28,000 CFM TIER III DIESEL DUST COLLECTORS



**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.



Company Profile

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

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

The Marco Difference

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

Vision Statement

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

Mission Statement

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

Quality Statement

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

Management Philosophy

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

DEFINITION OF TERMS

DANGER

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

CAUTION

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

WARNING

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

NOTICE

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

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HAZARD IDENTIFICATIONS

WARNING

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

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

HAZARD IDENTIFICATIONS

WARNING

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

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

HAZARD IDENTIFICATIONS

CAUTION

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

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

NOTICE

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

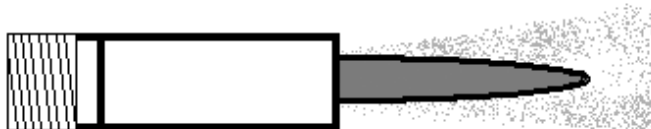
- ▶ See Air & Abrasive Consumption Chart for estimated abrasive consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.
- ▶ Always use abrasive that is dry and properly screened. This will reduce the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

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.

Air & Abrasive Consumption Chart*

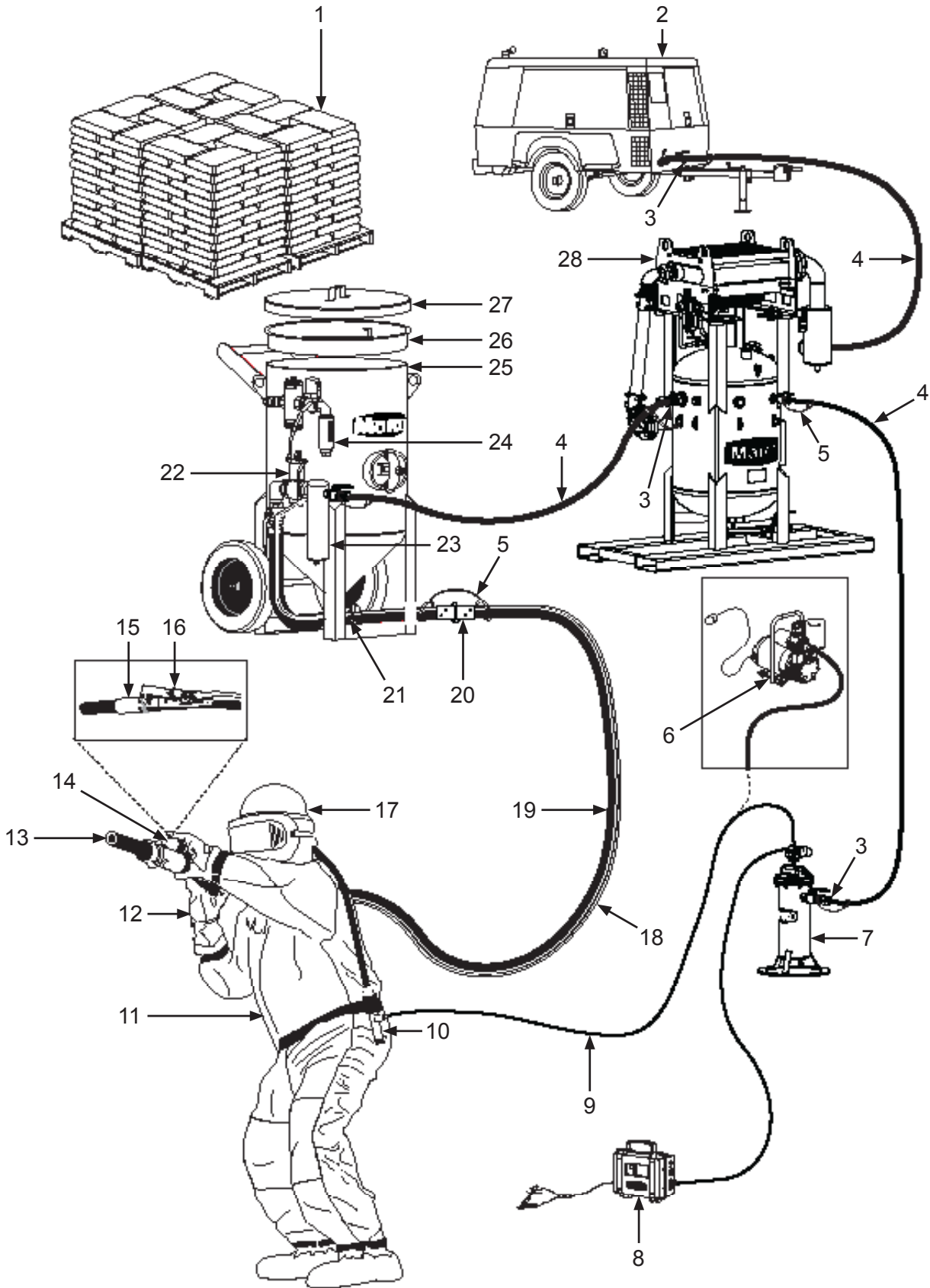
Nozzle Orifice	Pressure at the Nozzle (PSI)								Air (in cfm), Abrasive & Compressor Requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8")	11	13	15	17	18	20	25	28	Air (cfm)
	67	77	88	101	112	123	152	170	Abrasive (lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.2	Compressor Horsepower
No. 3 (3/16")	26	30	33	38	41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

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

NOTICE

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

"THE BIG PICTURE"



DAILY PRE-OPERATION CHECKLIST

Daily Pre-operation Checklist

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

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

Abrasive – Select the correct Abrasive (1) for the application. Review the 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

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-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-511

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

Description

A dust collector creates an engineered air flow in an enclosure, providing ventilation and collecting airborne dust and debris. Abrasive blasting performed in an enclosure requires a dust management system for compliance with OSHA regulations governing the work site. Removing airborne dust and debris from an enclosure improves work site safety and visibility, increasing production rates. The Dustmaster® 28,000 CFM Tier III Diesel Dust Collectors have a reverse incline blade fan matched to a 114 horsepower Perkins® Tier III diesel engine to generate up to 28,000 CFM of air flow. Typical applications include blast rooms, blast yards, bridges, oil refineries, offshore platforms, pipelines, shipyards, storage tanks, and water treatment plants.

Operational Requirements

- 12-Volt DC power source.
- 24 CFM @ 90 PSI regulated filtered air.

The following may cause safety hazards or reduced performance:

- Improper installation and/or maintenance of components.
- Failure to properly secure unit from movement when not in transport.
- Exceeding 55 mph speed limit when towing unit.
- Using unit in wet spray or coating containment areas.
- Failure to properly ground unit.
- Operating in an area with inadequate ventilation.

Operating Instructions

Before use:

- Position Dust Collector as near the containment area as possible. Using short lengths of duct hose and minimizing curves and bends improves performance.
- Ensure the surface is level, stable, and is sufficient to support the weight of the unit. Block wheels to prevent unintended movement.
- Level Dust Collector by adjusting height using Jack Stand (2).
- If using a Discharge Collection Drum (5), install optional Drum Cover (4).
NOTE: Follow all applicable guidelines for collection containers.
- Perform daily lubrication. (See Lubricate Grease Points.)
- Connect a 3/4" I.D. air supply line to Filter Regulator (3) of Pulser system.
- Open Air Inlet Door(s) and connect duct hose. (See Connect Duct Hose.)
- Ensure all unused Air Inlet Doors are closed securely.
- Close Pulser System Ball Valve (1).
- Turn on compressed air supply.

During use:

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

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

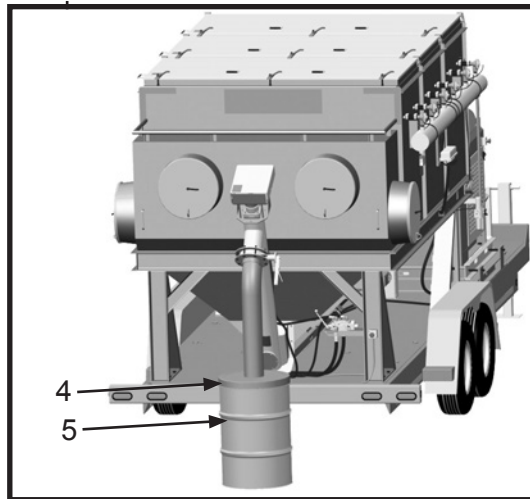
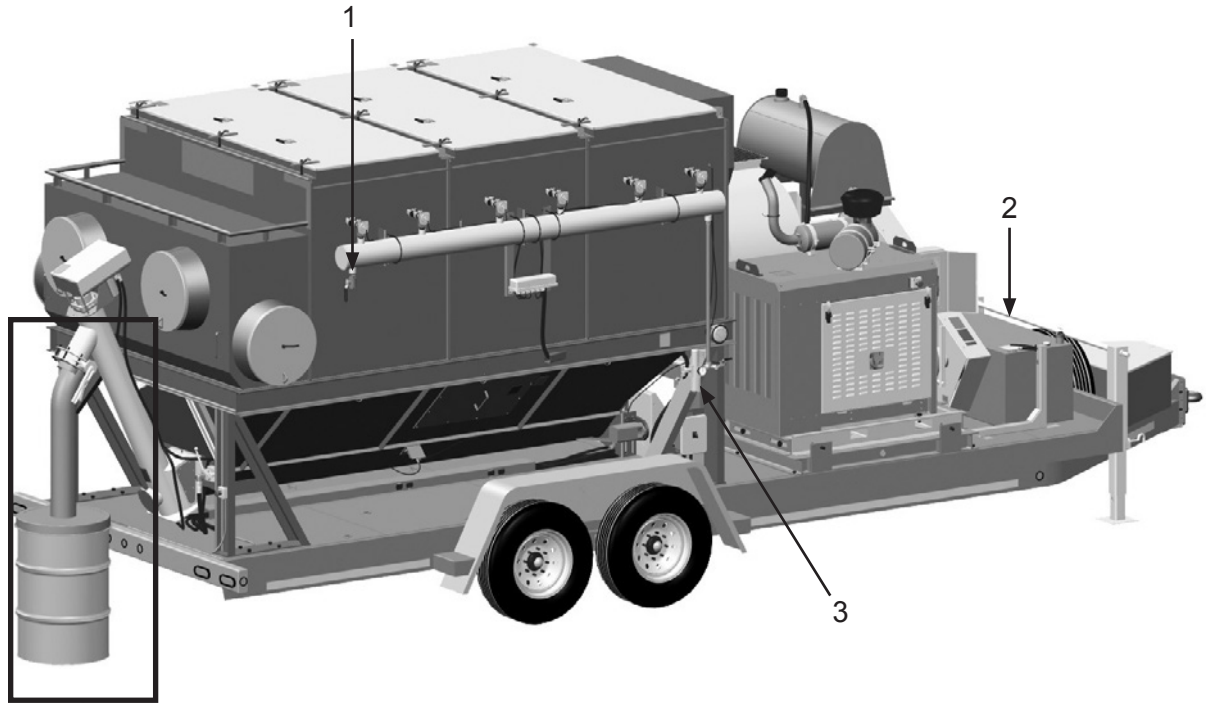
W-505

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.

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.



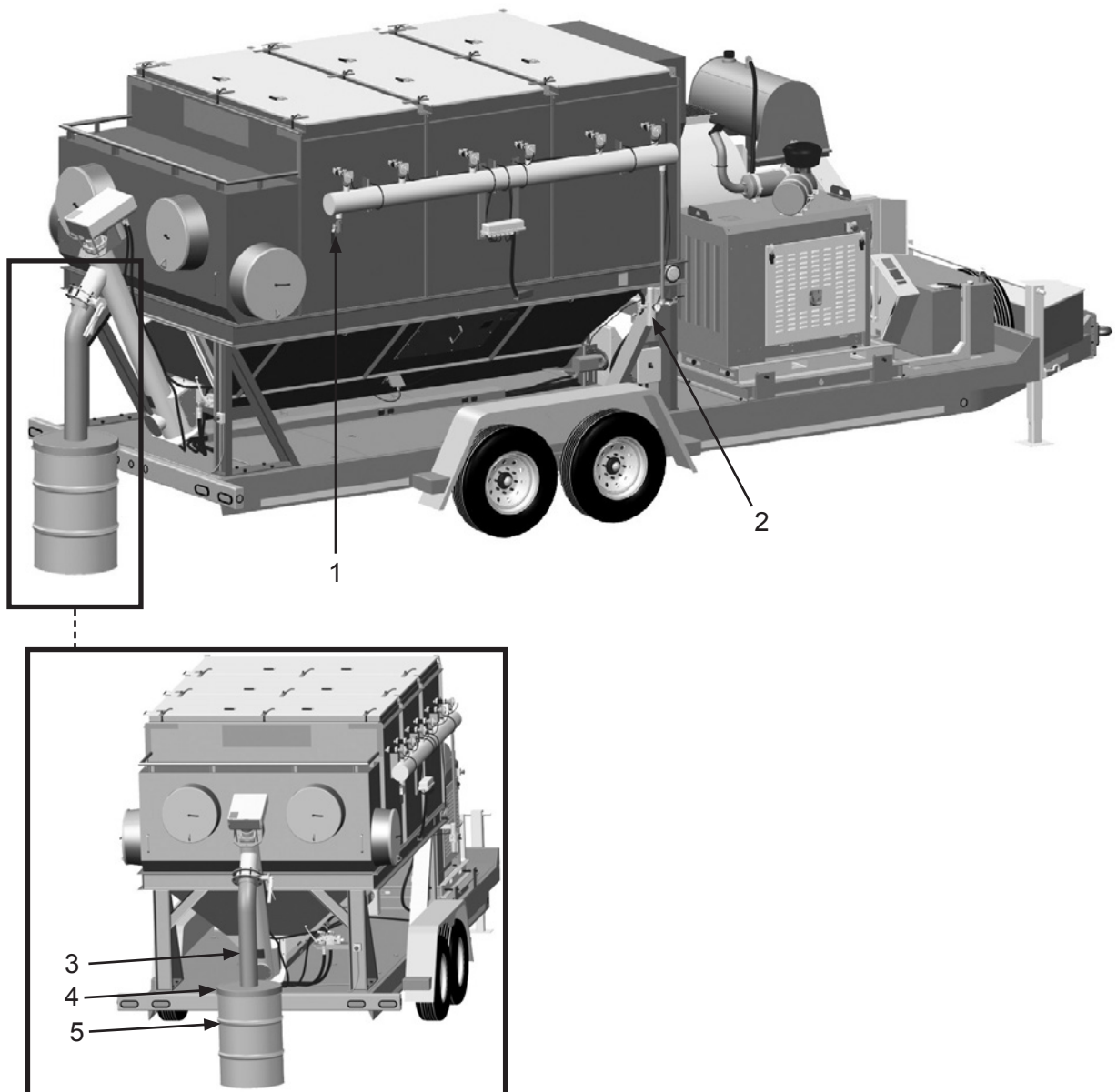
OPERATING INSTRUCTIONS

WARNING

W-505
Inspect all equipment for wear or damage before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components could void warranties and cause malfunctions. Failure to comply with the above warning could result in death or serious injury.

After use:

- 1) Decrease engine speed to idle (approximately 1000 RPM).
- 2) Disengage clutch with engine at idle.
- 3) Allow the pulser system to continue cleaning filters, with augers running. Operate at least 60 minutes to allow filters to clean with the fan turned off.
- 4) Disconnect Discharge Hose (3) from optional Drum Cover (4), if equipped. Remove Drum (5), if equipped.
- 5) Turn off compressed air supply.
- 6) Turn pulser off by turning the two-position Selector Switch (2) "OFF" after header has depressurized.
- 7) Turn the Auger Clean-out System "OFF" by returning the Hydraulic Control Valve Lever (3) on the control valve to center position.
- 8) Shut engine down.
- 9) Open Pulser System Ball Valve (1).
- 10) Disconnect duct hose from Air Inlet(s).
- 11) Close Air Inlet(s).



OPERATING INSTRUCTIONS

Connect Duct 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.

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.

- 1) Secure a Duct Hose (not shown) to Dust Collection Inlet (A,B,C, or D). See Configuration Chart, below.

Duct Hose Configurations:

A + D

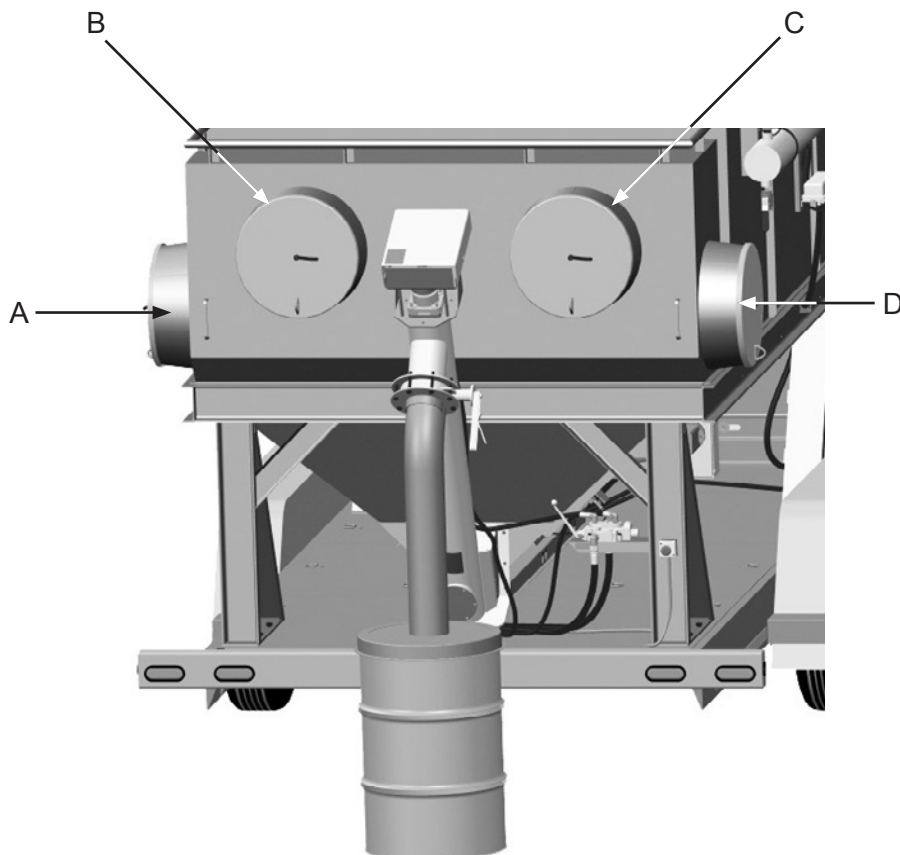
A + C

B + D

B + C

Note: Using only one Duct Hose will result in diminished performance.

- 2) Use Support Loops in place above Dust Collection Inlets to assist in securing Duct Hose.
- 3) Connect opposite end of Duct Hose (not shown) to Containment Area. Containment Area should have sufficiently sized air inlet openings on opposite side for air exchange and cross-flow ventilation.



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.

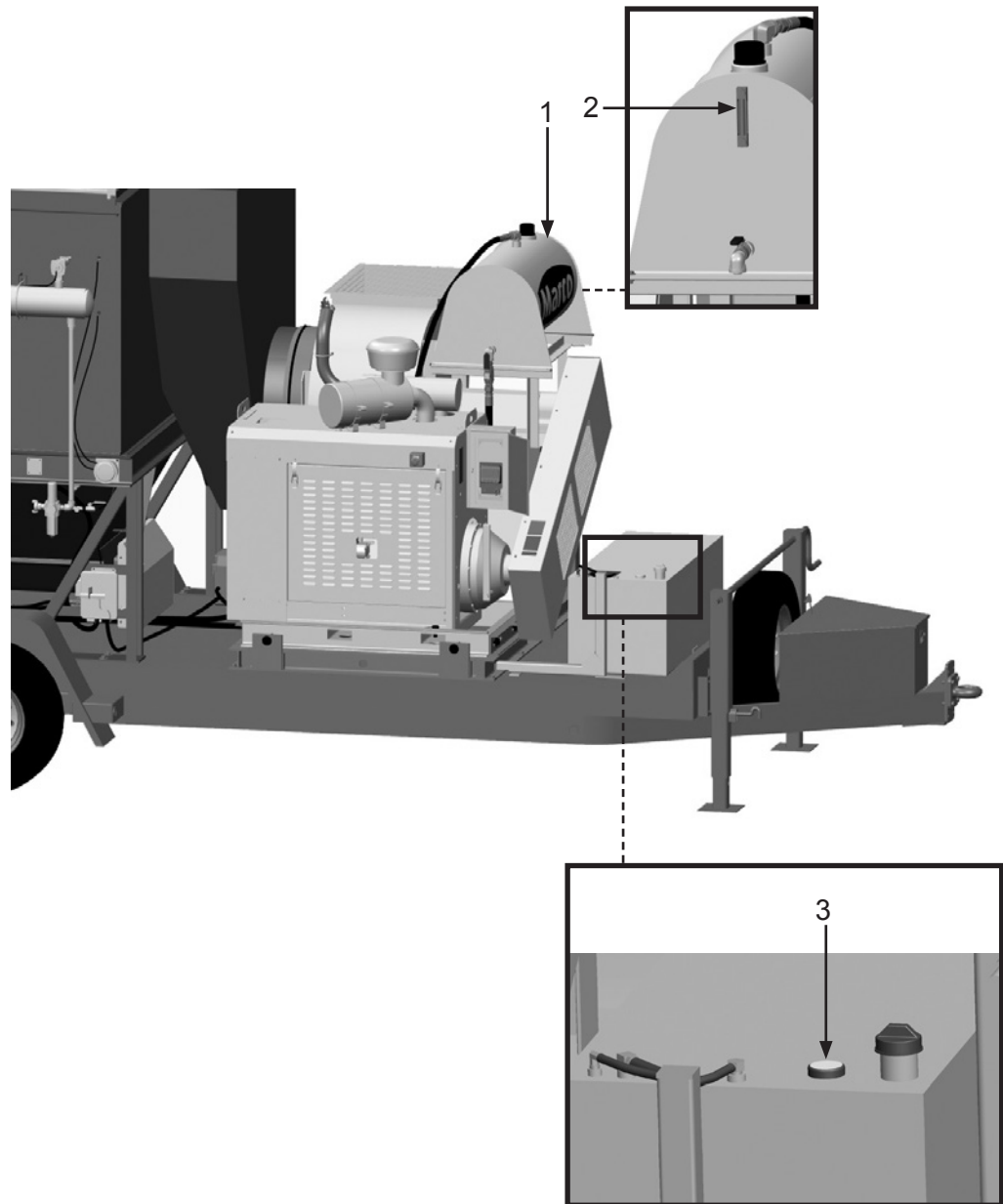
WARNING

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 Sight Gauge (3). Add diesel fuel, as needed.
- 3) Check hydraulic oil level using Sight Glass (2) on Hydraulic Oil Tank (1). Add hydraulic oil, as needed.



OPERATING INSTRUCTIONS

Unit Startup & Shutdown

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.

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.

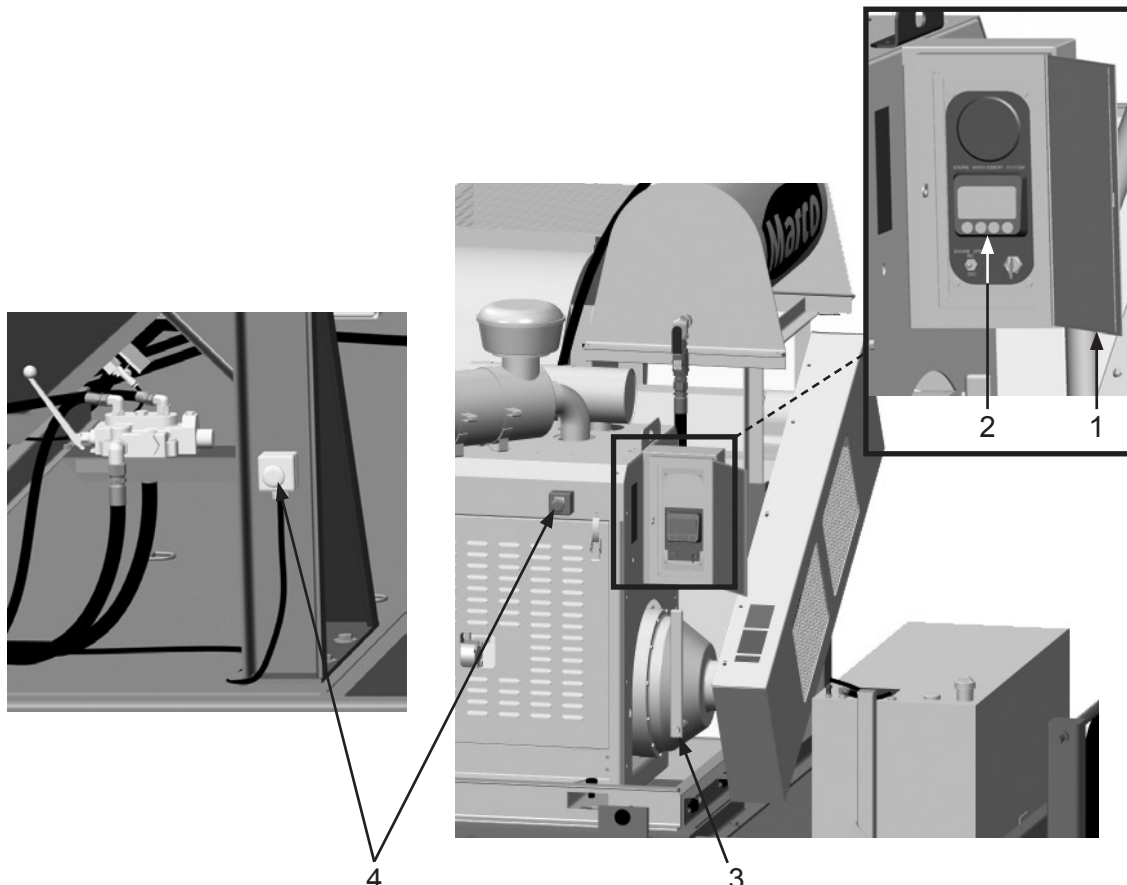
Unit Startup Instructions:

- 1) Ensure Clutch Handle (3) is disengaged.
- 2) Open Access Panel (1).
- 3) Start Engine. See Engine Operator's Manual for proper procedure.
- 4) Run engine for approximately 5 minutes.
- 5) Increase RPM to approximately 1000 RPM.
- 6) Bump Clutch Handle (3) three times so that fan gradually increases in speed. After three bumps, slowly move Clutch Handle until fully engaged and is in locked position. NOTE: Rapid engagement may cause damage to clutch and belts to slip from pulleys.
- 7) Once clutch is engaged, adjust RPM to recommended operating range of 1600–1800 RPM. NOTE: Do not exceed 1800 RPM.
- 8) Monitor engine functions using Murphy® PowerView™ (2). (See Murphy® PowerView™ Operator's Manual.)

Unit Shutdown Instructions:

Note: In the event of an emergency, press one of the Emergency-Stop Stations (4) to cease operation of the system.

- 9) Decrease engine speed to Idle (approximately 1000 RPM).
- 10) Disengage Clutch Handle (3).
- 11) If an Emergency-Stop Station(s) (4) was engaged, ensure Engine is in the "OFF" position and the Clutch Handle is in the disengaged position. Return Emergency-Stop Station to the operating position by pulling knob away from the base.
- 12) Follow After use instructions.



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.

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.

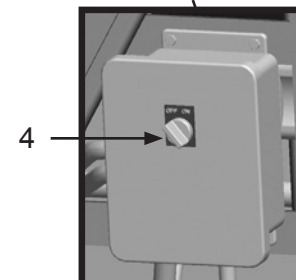
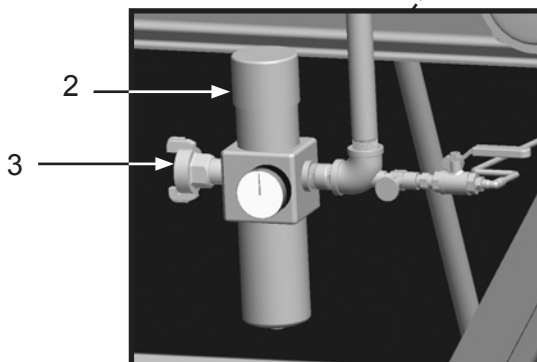
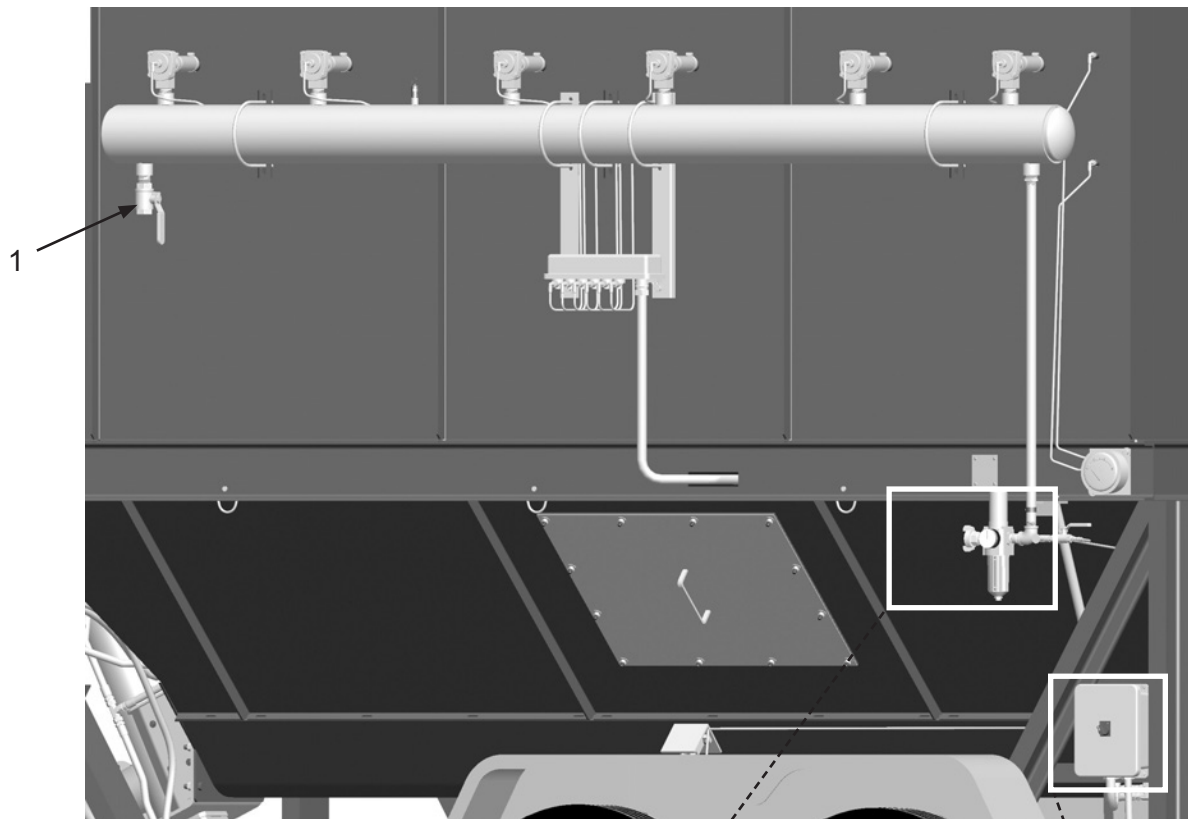
Pulser System Startup Instructions:

The Pulser System is a cleaning system for the filter cartridges. 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) Close Ball Valve (1).
- 2) Turn Switch (4) clockwise to "ON".
- 3) Supply compressed air to Regulator (3). Adjust compressed air pressure to 90 PSI using Regulator Control Knob (2). Normal operating range is 90-95 PSI.

NOTE: The timer controller is pre-set to pulse one row of filters every 8 seconds (see Adjust Pulse Separation.)

- 4) After use, turn Switch (4) counterclockwise to "OFF".
- 5) Disconnect supply of compressed air to the Regulator (3).
- 6) Open Ball Valve (1) to relieve pressure in Pulser System.



OPERATING INSTRUCTIONS

Auger Clean-out Startup

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.

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.

WARNING

W-587

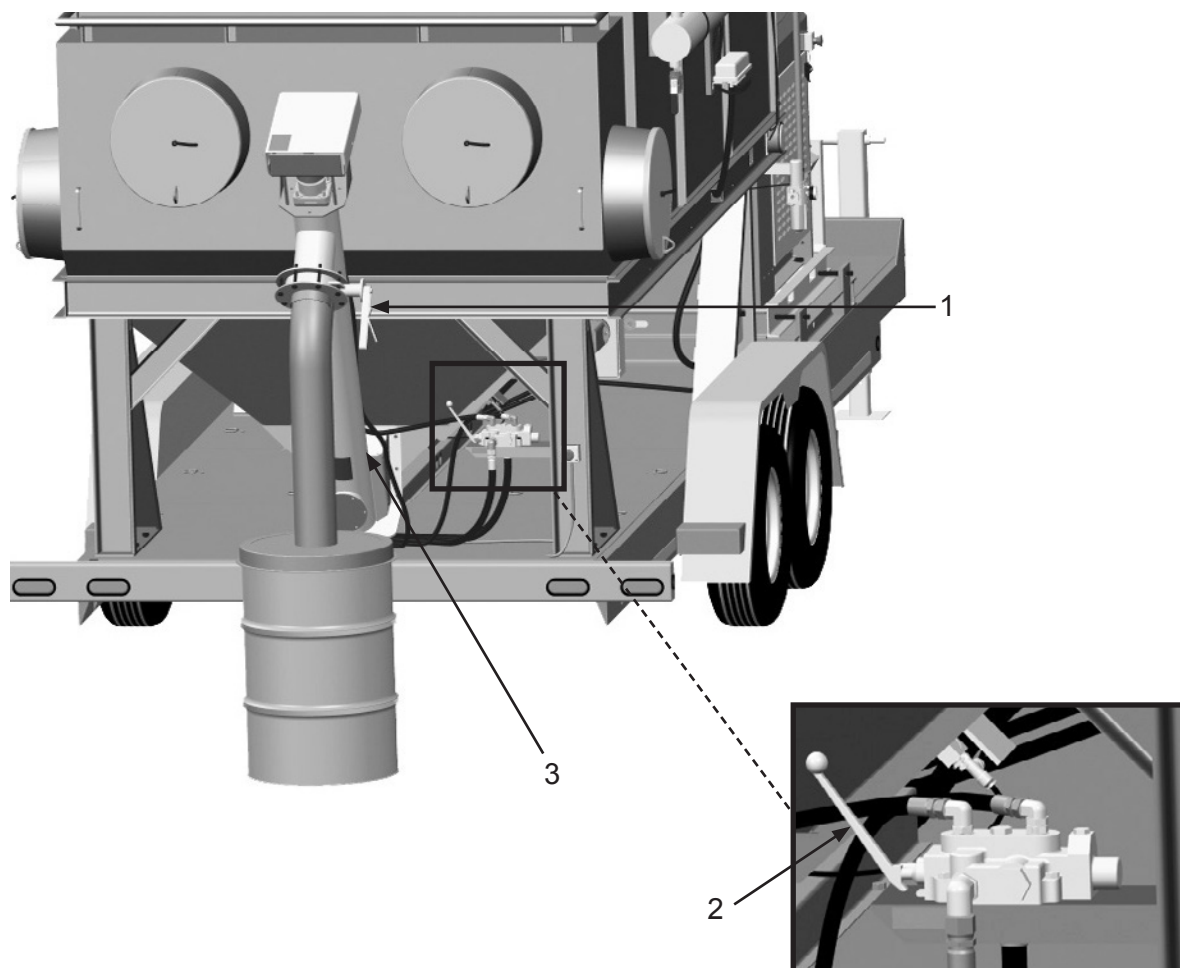
Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with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

Auger Clean-out System Startup Instructions:

The Auger Clean-out System removes collected dust and debris from the bottom of the hopper to the Discharge Auger for discharging.

- 1) Ensure personnel are clear of auger conveyors.
- 2) Open Butterfly Valve (1) on Discharge Auger (3).
- 3) Activate screw conveyors by moving Hydraulic Control Valve Lever (2) clockwise to detent position.

Note: Moving Hydraulic Control Valve Lever (2) counter-clockwise will allow the conveyor system to run in reverse but will not lock in position. Only operate in reverse momentarily to attempt to dislodge an item.



OPERATING INSTRUCTIONS

Activating & Deactivating Pneumatic Ball Vibrators

WARNING

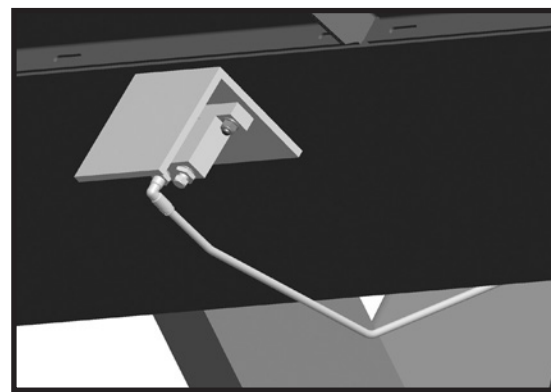
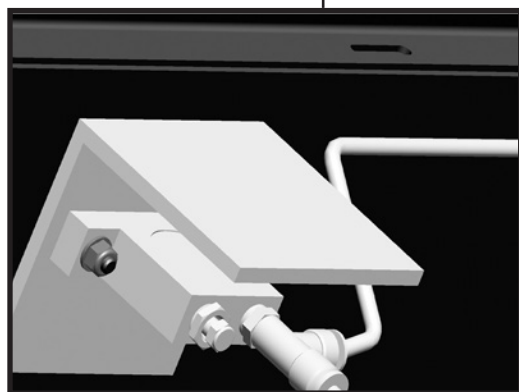
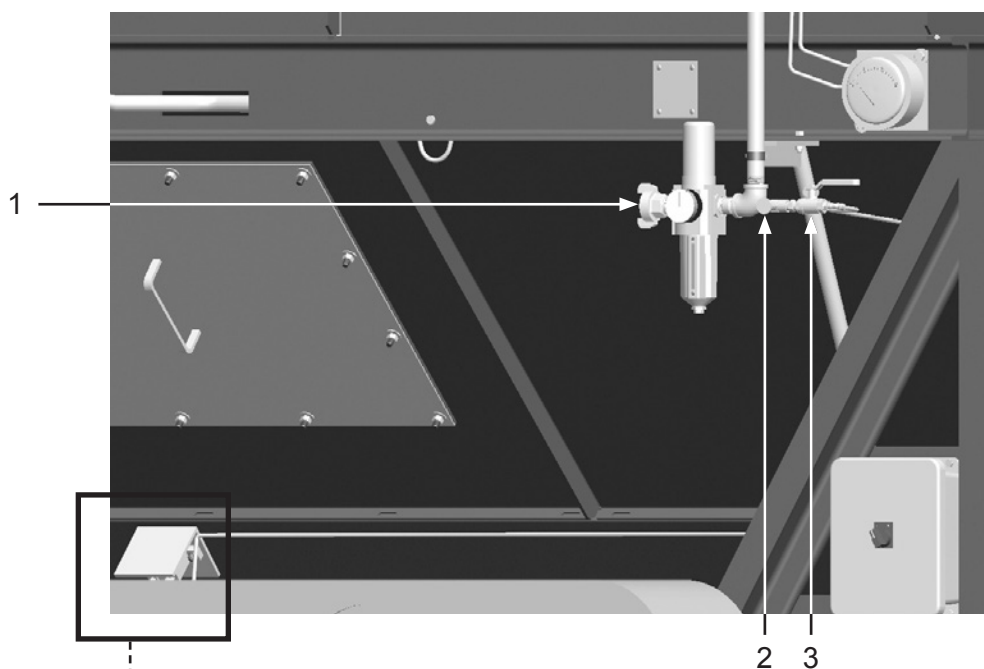
W-577

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.

Pneumatic Ball Vibrator Instructions:

Vibrators will help keep dust from building up on the hopper walls and facilitate removal of material. Run vibrators when running auger system.

- 1) With airline attached to Inlet (1) to pressurize header, open Ball Valve (3) near pressure regulator to "activate" vibrators.
- 2) Adjust vibration intensity by rotating Knob (2). Clockwise reduces vibration intensity. Counter-clockwise increases vibration intensity.



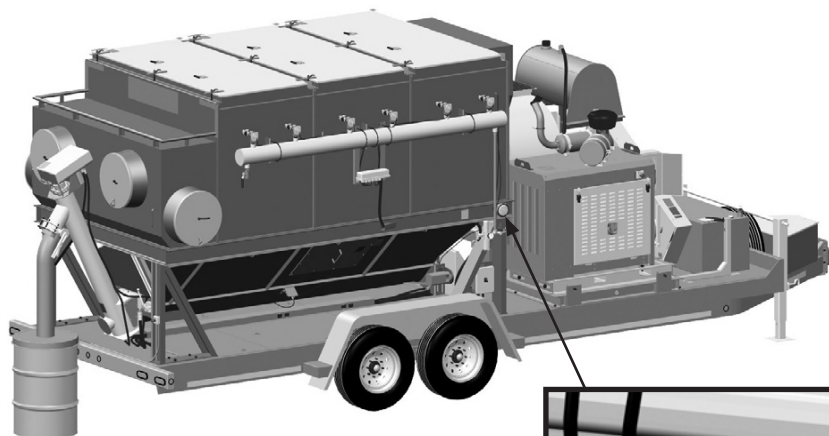
OPERATING INSTRUCTIONS

Reading Magnehelic Gauge

Reading Magnehelic Gauge (Dust Collector Differential Pressure) Instructions:

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

- New Filters will register approximately 1" water column (w.c.) on the gauge. Normal operating range for conditioned filters will show 3" – 14" (w.c.) on gauge.
- If Magnehelic Gauge is reading above the normal operating range, see Troubleshooting Section.
- If reading above 14" (w.c.), stop operating the unit, perform shut-down procedure, and check pulser system and filter cartridges.
- If reading above 16" (w.c.), stop operating the unit, perform shut-down procedure, check pulser system, and if static pressure will not drop below 16", replace filter cartridges.



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.

OPERATING INSTRUCTIONS

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

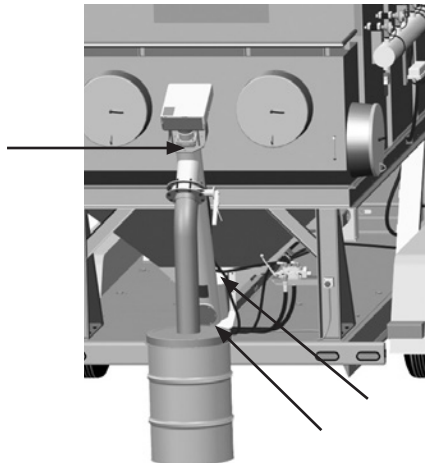
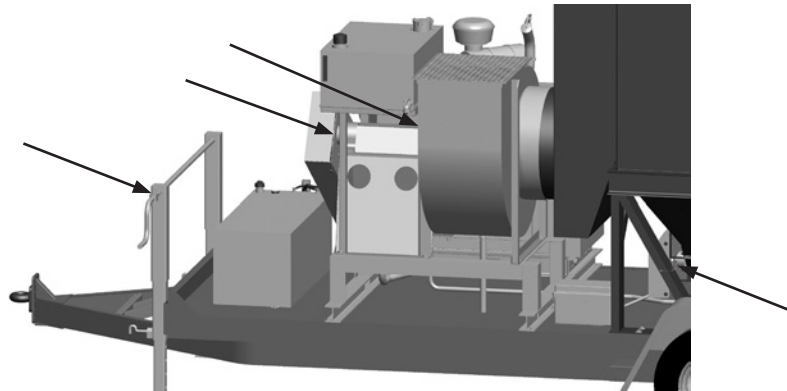
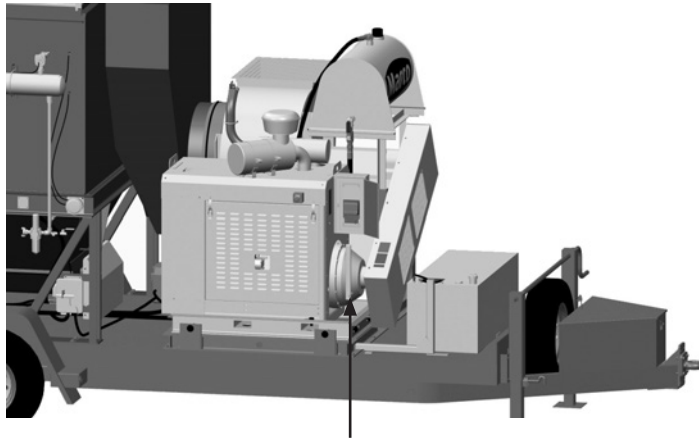
W-587

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 Dustmaster® 28,000 CFM Tier III Diesel Dust Collectors at points indicated. Points are indicated by Lubrication Point Grease Daily label (1).



1



SPECIFICATIONS

Performance:	CFM = 16,990 - 28,140 W.C. = 6 – 16”
Filter Cartridge Style:	Open Top with Flange, Closed Bottom 36 Required
Filter Cleaning:	Pulse System, 5–15 second intervals Pulse Duration: 200–350 millisecond
Air to Cloth Ratio:	2.72:1 @ 20,000 CFM
Filter Area:	7,361 square feet
Efficiency:	85/15 Blend Filters – 99.8% @ 0.5 micron HEPA Filters – 99.99% @ 0.3 micron Fire Retardant Filters – 96.8% @ 2.0 micron Spunbond Filters – 97% @ 3.0 micron
Ducting Connections:	20" I.D., Quantity of Four
Clean-out Ports:	One
Dust Removal Conveyor:	Main Auger, 6" Discharge Auger, Hydraulic Motor Drive
Fan:	Backward Inclined, non-overloading, spark resisting
Engine:	Diesel, Tier III, 114 Horsepower
Fuel Capacity:	Type: Diesel Capacity: 80 Gallons
Air Requirements:	Clean, Dry, Compressed Air 24 CFM @ 90 PSI
Electrical System:	12-Volt DC
Engine Protection:	Engine Monitoring System with automatic shutdown measures: coolant temperature, intake air temperature, engine intake manifold pressure, engine oil pressure, pressure in fuel rail, engine speed and timing.
Fluid Specifications:	Hydraulic Oil: H46 or equivalent, 40 Gallons Diesel Fuel: See Engine Operator's Manual for type, 80 Gallons Grease/Lubricator: Shell Alvania Grease EP or equivalent
Unit Dimensions Trailer:	Weight: 12,500 pounds (empty) Tongue Weight: 2620 pounds Length: 25' 7" Width: 8' Height: 9' 6"
Unit Dimensions Skid:	Weight: Approximately 11,000 pounds (empty) Length: 24' 5" Width: 8' 5" Height: 8' 11"

MAINTENANCE

Adjust Tension of Fan 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.

⚠ WARNING

W-586

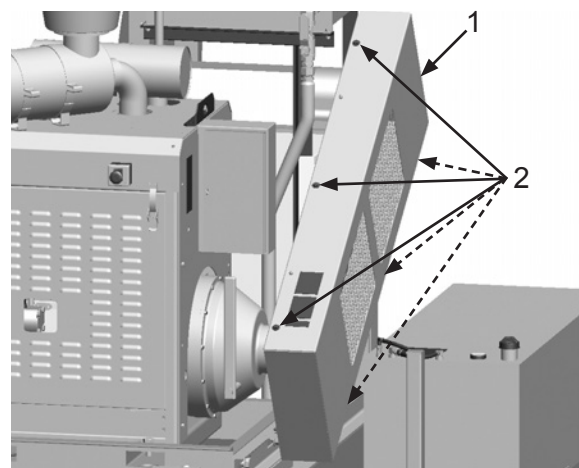
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

⚠ WARNING

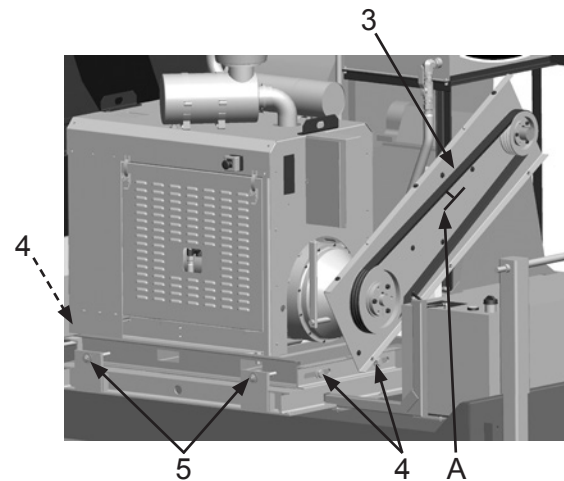
W-590

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.

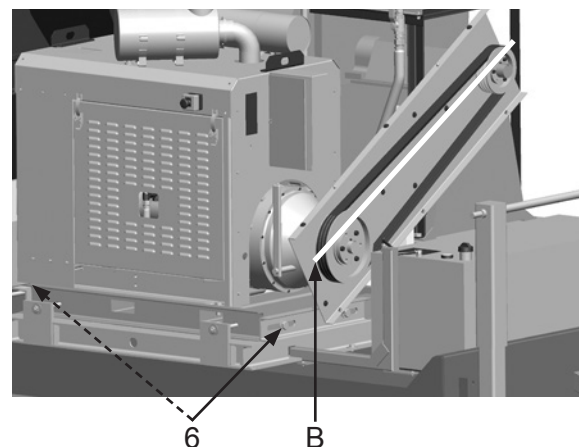
- 1) Disconnect battery cables from battery.
- 2) Remove six Bolts (2).
- 3) Remove Front Belt Cover (1).



- 4) Inspect Belt (3) for wear, abrasion, and damage. Replace as needed.
- 5) Check tension of Belt (3) by pushing downward on Belt and measure Distance (A) of travel. Belt should have a deflection distance of approximately 0.7 inch; applied force of approximately 40 pounds.
- 6) To adjust tension of Belt, loosen four Bolts (4) and turn Nuts (5) until deflection distance is approximately 0.7 inch; applied force of approximately 40 pounds. If distance cannot be attained, replace belt.



- 7) Using a Straightedge Device (B), ensure sheaves are even. If not, make adjustments until sheaves are even.
- 8) Tighten four Bolts (6).
- 9) Install parts in reverse order.



MAINTENANCE

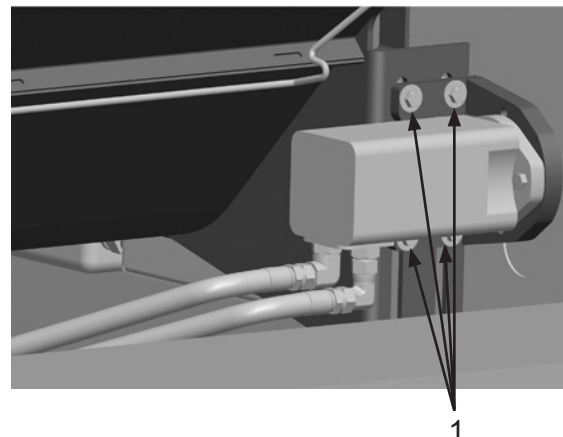
Adjust Main Auger Drive Chain

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) Loosen four Bolts (1).

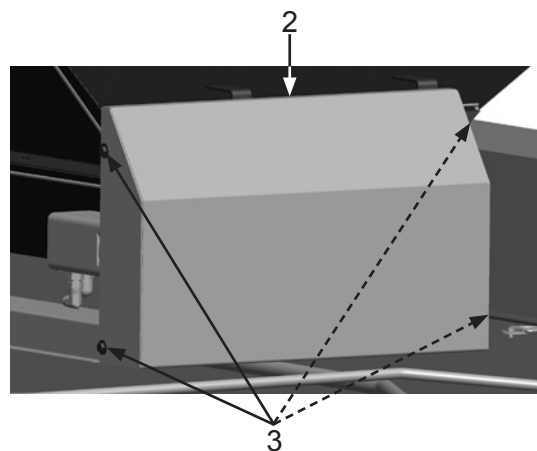


WARNING

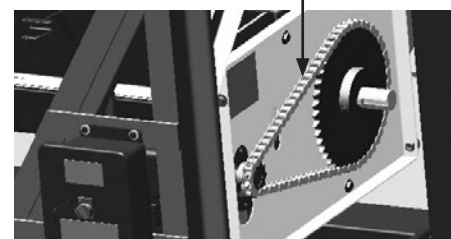
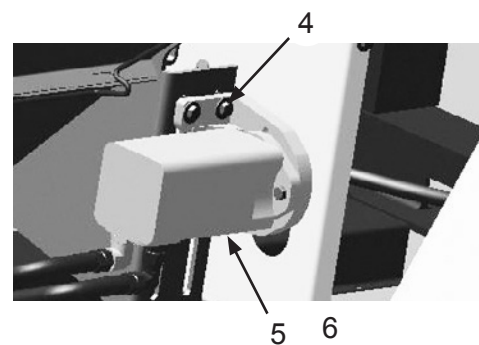
W-586

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.

- 2) Remove four Bolts and Washers (3) and remove Cover (2).



- 3) Move Hydraulic Motor (5) to set Chain (6) deflection to approximately .25 inch. Tighten four Bolts (4).



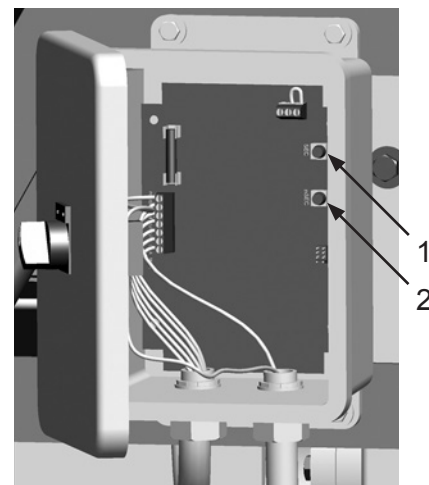
MAINTENANCE

Adjust Pulse Separation

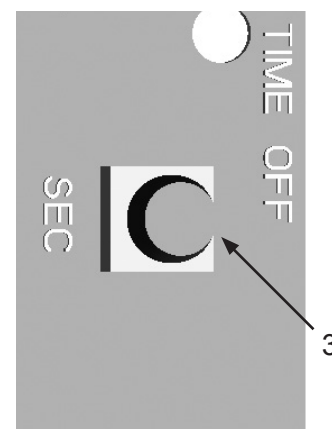
WARNING

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

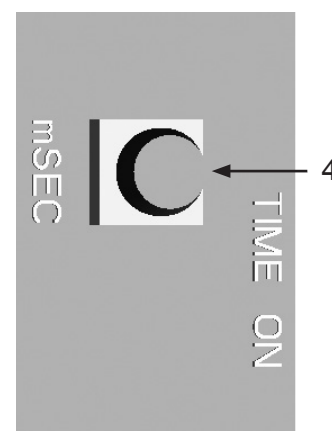
- 1) Open enclosure door of Timer Controller.
- 2) Locate Adjustment Knobs (1 and 2).



- 3) Set the Pulse Separation, the elapsed time between pulses, by moving Knob (3). The recommended elapsed time between pulses is the minimum time needed for pulse header to return to full pressure. Depending on conditions, the elapsed time may need to be changed. Elapsed time between pulses should be between 5–15 seconds.

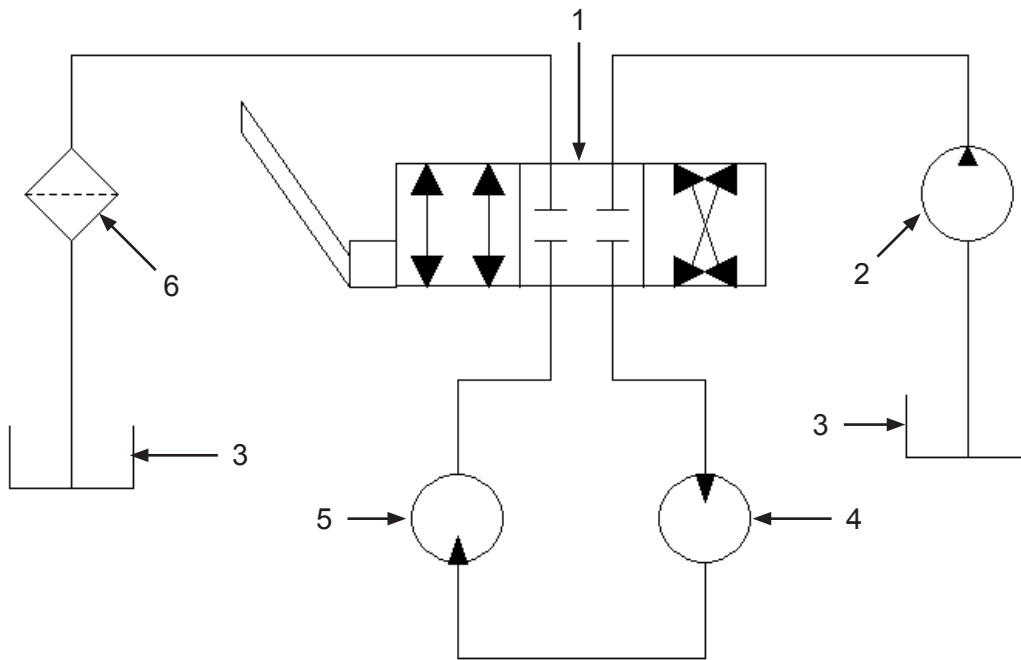


- 4) Set Pulse Duration, the elapsed time of compressed air entering the filters, by moving Knob (4). The recommended elapsed time of compressed air entering the filters is 200 milliseconds (mSEC). Depending on conditions, the elapsed time of air entering the filters should be between 200–350 milliseconds.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



MAINTENANCE

Hydraulic System Schematic



- 1) Hydraulic Control Valve
- 2) Hydraulic Pump
- 3) Hydraulic Oil Tank
- 4) Main Auger Motor
- 5) Discharge Auger Motor
- 6) Hydraulic Oil Filter

MAINTENANCE

Remove & Install Hydraulic Oil Tank

⚠ WARNING

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

⚠ WARNING

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

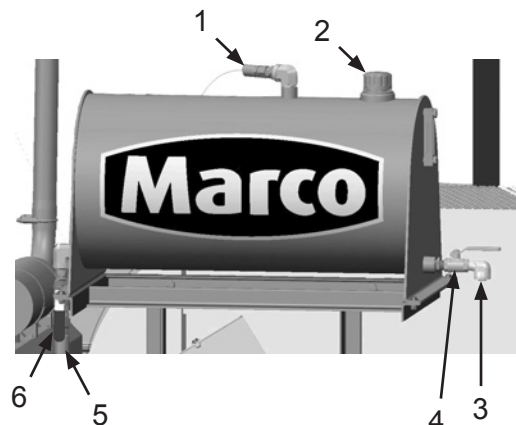
Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. 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) Close Ball Valve (6).
- 2) Remove Filler Cap (2).

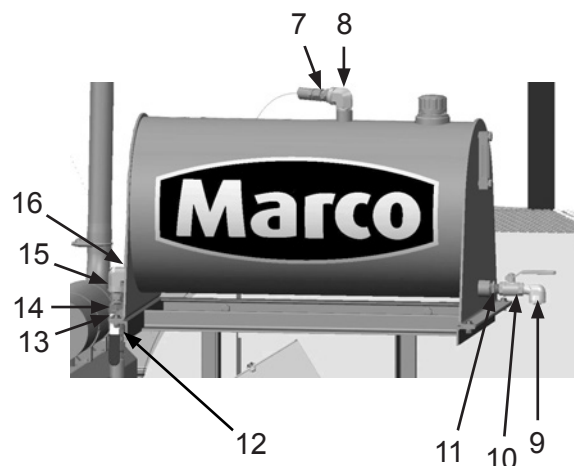
Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

Note: Hydraulic Oil Tank capacity is approximately 40 gal.

- 3) Remove Pipe Plug (3). Connect a hose to outlet to aid recovery of hydraulic fluid.
- 4) Open Ball Valve (4) and allow hydraulic oil to empty from tank.
- 5) Disconnect Hoses (1 and 5).

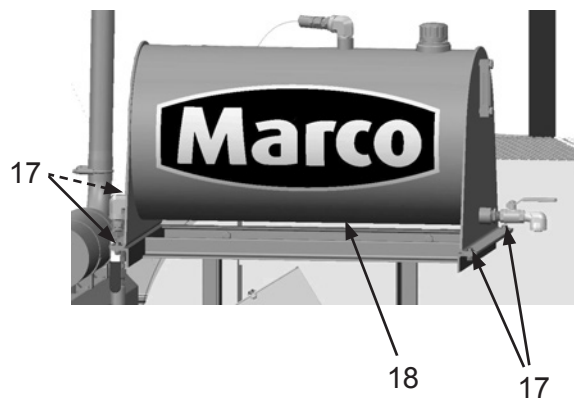


- 6) Remove Elbow (9), Ball Valve (10), and Nipple (11).
- 7) Remove Adapter (12), Ball Valve (13), Nipple (14), Elbow (15), Bushing (16), Adapter (7), and Elbow (8).



Note: Approximate empty weight of Hydraulic Oil Tank is 181 lbs. Use suitable lifting devices to support or maneuver Hydraulic Oil Tank.

- 8) Attach a suitable lifting device to Hydraulic Oil Tank (18).
- 9) Remove four Bolts, Washers, and Nuts (17).
- 10) Remove Hydraulic Oil Tank (18).
- 11) Install parts in reverse order using the following special instructions:
 - Fill Hydraulic Oil Tank using appropriate hydraulic oil. (See Pre-Startup).
 - Activate Auger System and check for leaks. Repair as needed.



MAINTENANCE

Remove & Install Hydraulic Oil Filter Assembly

WARNING

W-562

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

WARNING

W-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

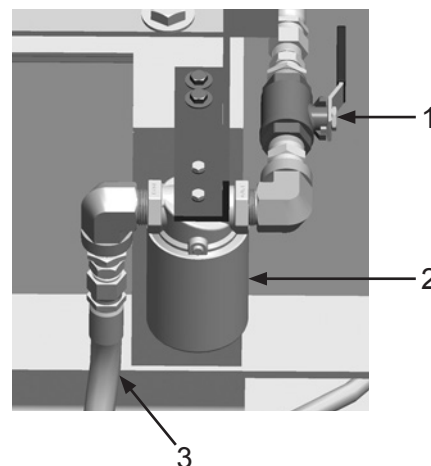
Exposure to diesel fuel, lubricant grease and oil, hydraulic oil, or engine coolant can cause personal injury. Do not allow these products to remain in contact with the skin or eyes. Ingestion of these products or inhalation of fumes from these products can cause dizziness, nausea, vomiting, or poisoning. 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) Close two Ball Valve (1).

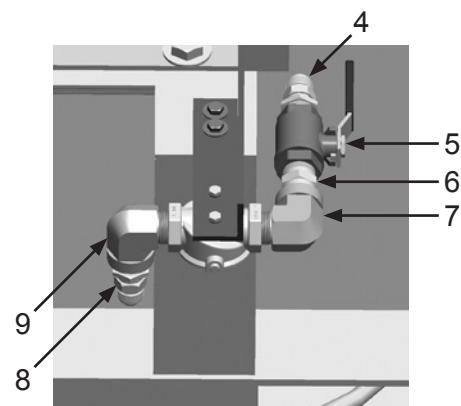
Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

Note: Label all hoses and connections to aid installation.

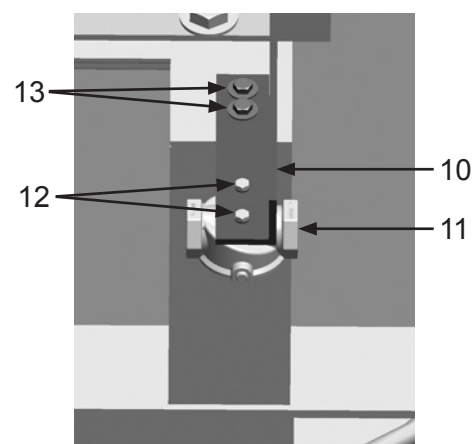
- 2) Disconnect Hose (3).
- 3) Remove Filter Element (2).



- 4) Remove Reducer Fitting (4).
- 5) Remove Ball Valve (5).
- 6) Remove Nipple (6).
- 7) Remove Elbow (7).
- 8) Remove Reducer Fitting (8).
- 9) Remove Elbow (9).



- 10) Remove two Bolts and Washers (12), and Filter Head (11).
- 11) Remove two Bolts, Nuts and Washers (13), and Bracket (10).
- 12) Install parts in reverse order.
- 13) Check hydraulic oil level (See Pre-Startup).
- 14) Activate Auger System and check for hydraulic oil leaks.



MAINTENANCE

Remove & Install Hydraulic Oil Pump

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) Disconnect battery.
- 2) Close Ball Valve (1).

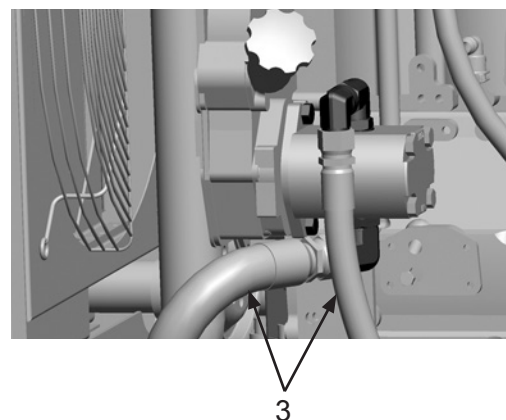
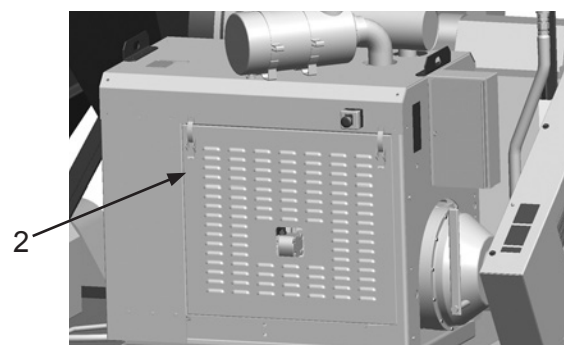


- 3) Remove Housing Panel (2).

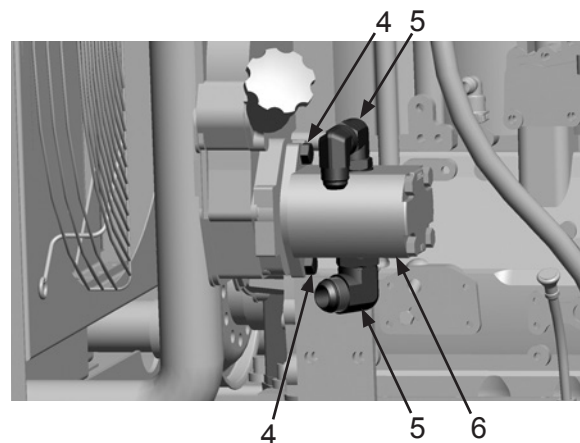
Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

Note: Label all hoses and connections to aid installation.

- 4) Disconnect Hydraulic Hoses (3).



- 5) Remove two Bolts (4) and Hydraulic Pump (6).
- 6) Note orientation and location of three Fittings (5) and remove Fittings.
- 7) Install parts in reverse order.
- 8) Check hydraulic oil level. (See Pre-Startup).
- 9) Activate Auger System and check for hydraulic oil leaks. Repair as needed.



MAINTENANCE

Remove & Install Hydraulic Control Valve

⚠ WARNING

W-562

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

⚠ WARNING

W-567

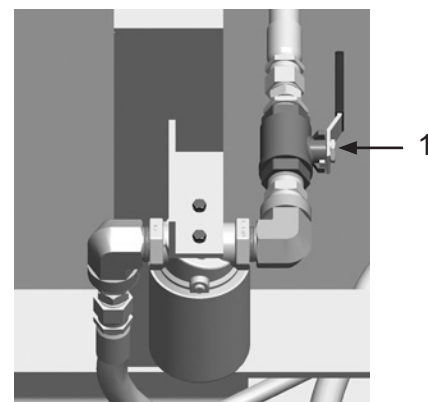
Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with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

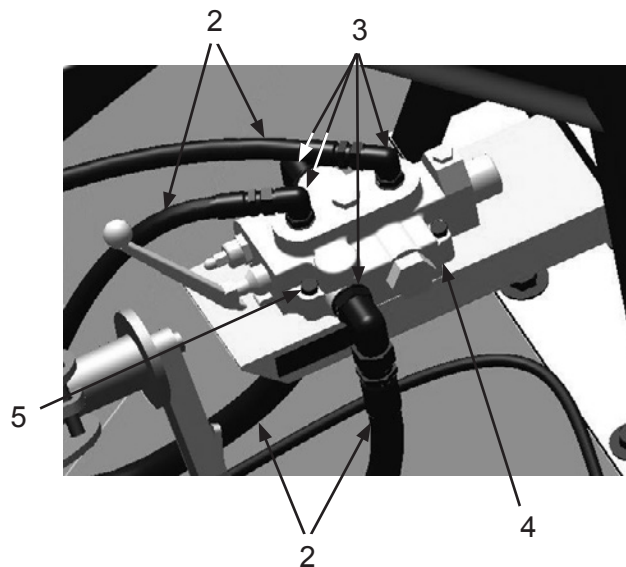
- 1) Close Ball Valves (1).



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.

- 2) Disconnect four Hydraulic Hoses (2).
- 3) Remove four Fittings (3).
- 4) Remove four Bolts (5) and Hydraulic Control Valve (4).
- 5) Install parts in reverse order.
- 6) Check hydraulic oil level, add as needed.
- 7) Activate Auger System and check for leaks. Repair as needed.



MAINTENANCE

Remove & Install Discharge Auger Hydraulic Motor

⚠ 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-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.

⚠ 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.

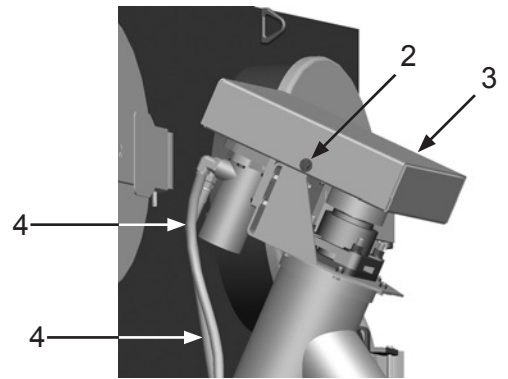
- 1) Close Ball Valves (1).

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.



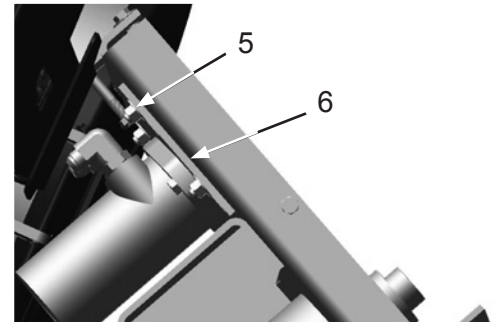
Note: Label all hoses and connections to aid installation.

- 2) Disconnect two Hydraulic Hoses (4).
- 3) Remove three Bolts, and Washers (2)



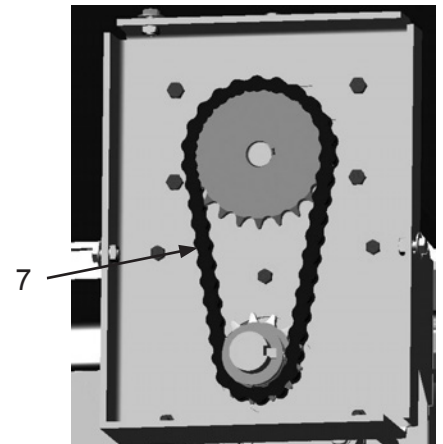
and Cover (3).

- 4) Loosen four Bolts (5) from Sliding Motor



Mount (6).

- 5) Remove Chain (7). Inspect for wear or damage. Replace as needed.



MAINTENANCE

Remove & Install Discharge Auger Hydraulic Motor (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

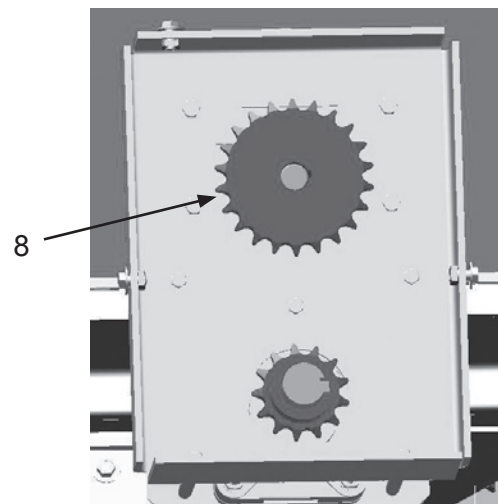
Escaping fluid under pressure can penetrate skin and tissue causing injury. Stop pump and relieve pressure before attempting maintenance or repair. Ensure all fittings are properly tightened before restoring pressure. If injury should occur, immediately seek medical attention. Failure to comply with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

WARNING

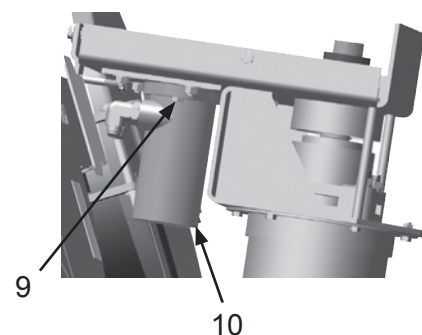
W-589

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.

- 6) Remove Sprocket (8)



- 7) Remove two Bolts (9) and Hydraulic Motor (10). Repair or replace Hydraulic Motor as needed.
- 8) Install parts in reverse order using the following special instructions:
 - Tighten Bolts (9) in an alternating pattern. Tighten to 9 ft.-lb.
 - Ensure Chain has approximately 3/16 - 1/4 inch of deflection (See Adjust Discharge Auger Drive Chain).
- 9) Check hydraulic oil level (See Pre-Startup).
- 10) Activate Auger System and check for hydraulic oil leaks.



MAINTENANCE

Remove & Install Main Auger Hydraulic Motor

⚠ 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-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.

⚠ WARNING

W-590

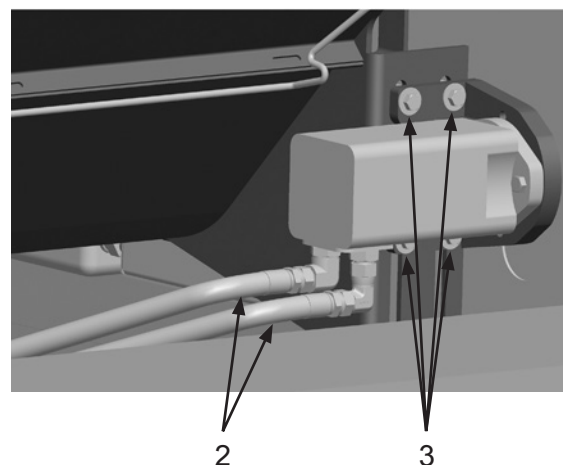
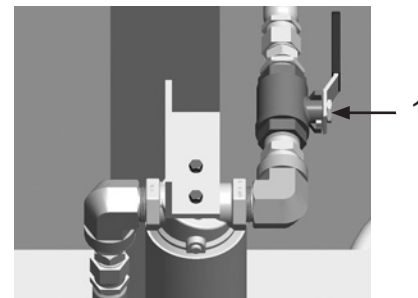
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the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

- 1) Close Ball Valves (1).

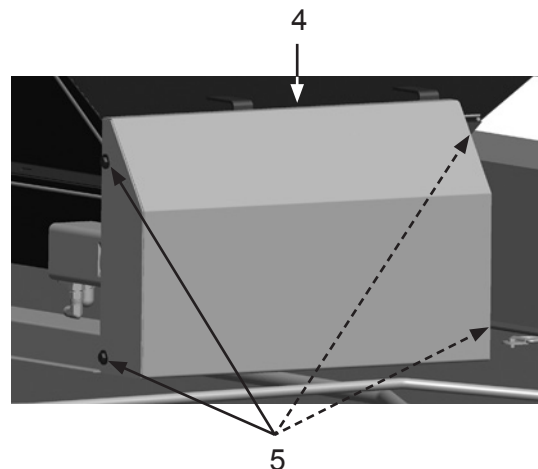
Note: Drain hoses into container suitable for collecting fluids. Comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment.

Note: Label all hoses and connections to aid installation.

- 2) Remove two Hydraulic Hoses (2)
- 3) Loosen four Bolts (3).



- 4) Remove four Bolts and Washers (5) and remove Cover (4).



MAINTENANCE

Remove & Install Main Auger Hydraulic Motor (cont.)

WARNING

W-562

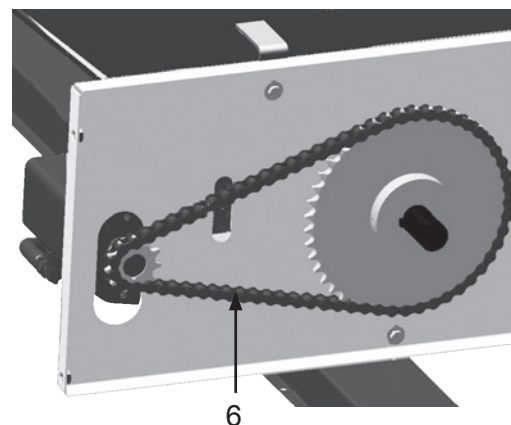
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

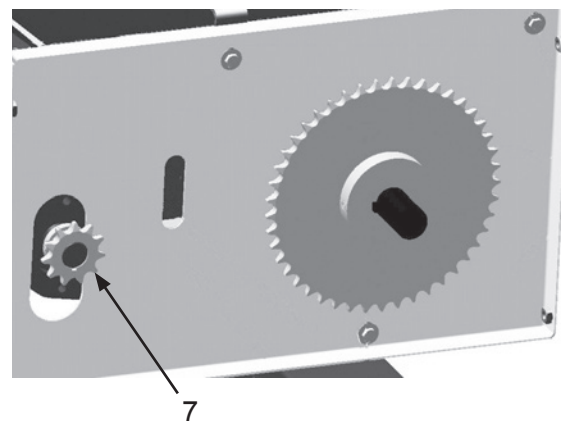
W-566

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.

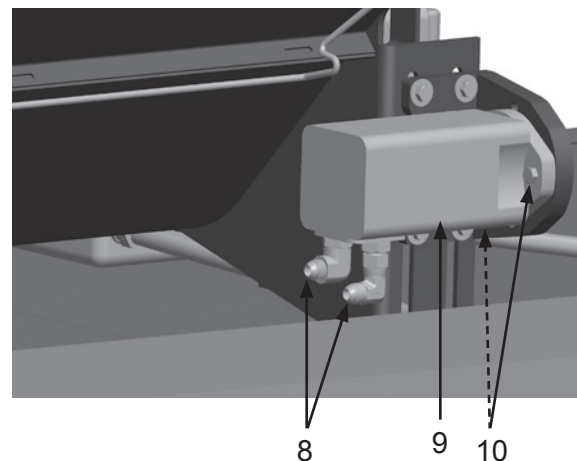
- 5) Remove Chain (6).



- 6) Remove Sprocket (7).



- 7) Remove two Fittings (8).
- 8) Remove two Bolts (10) and Hydraulic Motor (9). Repair or replace Hydraulic Motor as needed.
- 9) Install parts in reverse order using the following special instructions:
 - Ensure Chain has approximately 5/8 - 7/8 inch of deflection (See Adjust Main Auger Drive Chain).
- 10) Check hydraulic oil level (See Pre-Startup).
- 11) Operate Auger System and check for hydraulic oil leaks and Auger System function.



MAINTENANCE

Remove & Install Fan 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.

⚠ WARNING

W-586

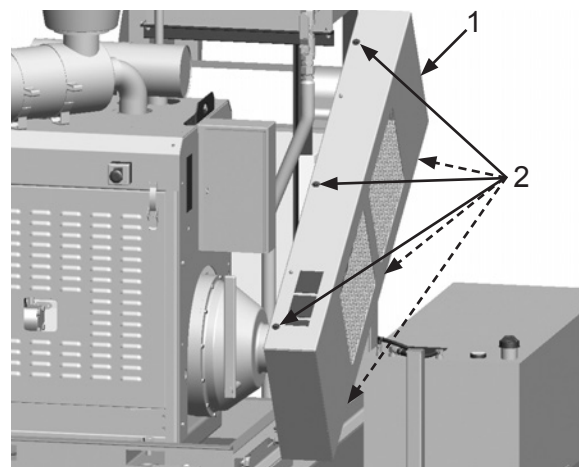
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

⚠ WARNING

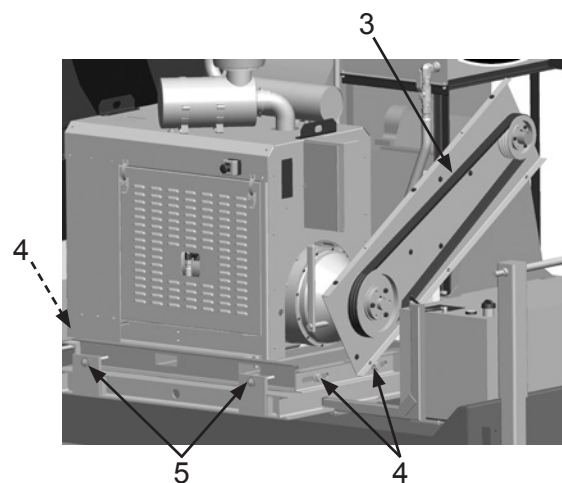
W-590

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) Disconnect battery cables from battery.
- 2) Remove six Bolts and Washers (2).
- 3) Remove Front Belt Cover (1).



- 4) Loosen four Bolts (4).
- 5) Rotate two Bolts (5) counter-clockwise until Belt (3) is loose and can be removed.
- 6) Remove Belt (3). Inspect Belt (3) for wear, abrasion, and damage. Replace as needed.



MAINTENANCE

Remove & Install Fan 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.

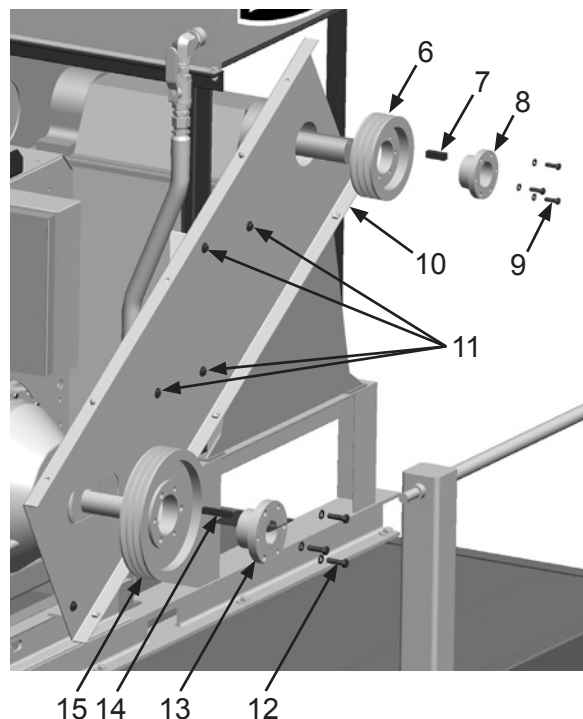
⚠ WARNING

W-586

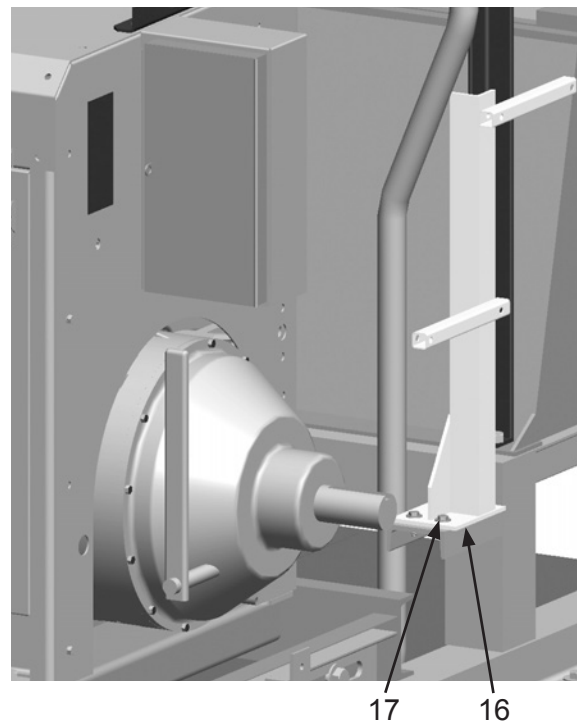
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

Note: Fuel tank is not shown for clarity.

- 7) Remove three Bolts (9) and Bushing (8).
- 8) Remove Sheave (6) and Key (7) from shaft.
- 9) Remove three Bolts (12) and Bushing (13).
- 10) Remove Sheave (15) and Key (14) from shaft.
- 11) Remove four Bolts (11) from Belt Guard Back (10).



- 12) Remove four Bolts, Washers, and Nuts (17).
- 13) Remove Bracket (16).
- 14) Install parts in reverse order using the following special instructions:
 - Adjust fan drive belt tension. (See Adjust Tension of Fan Drive Belt.)



MAINTENANCE

Remove & Install Discharge Auger Assembly

WARNING

W-562

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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) Close Ball Valves (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.

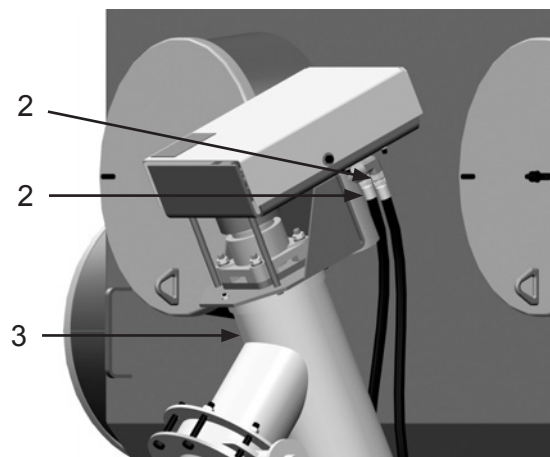
Note: Label all hoses and connections to aid installation.



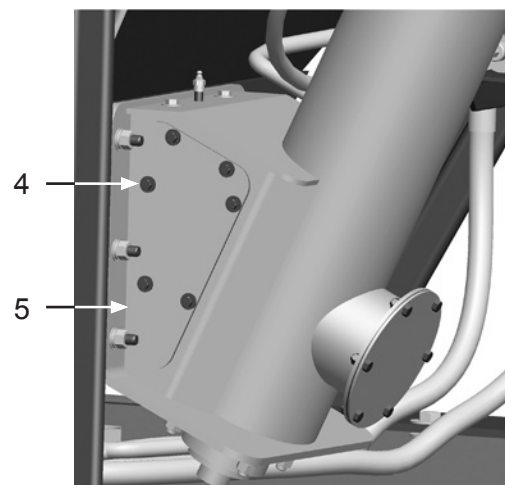
- 2) Disconnect two Hydraulic Hoses (2).
- 3) Route Hydraulic Hoses away from Discharge Auger Assembly.

Note: Approximate weight of Discharge Auger Assembly is 180 lbs. Use suitable lifting devices to support or maneuver Discharge Auger Assembly.

- 4) Attach a suitable lifting device to Discharge Auger Assembly (3).



- 5) Remove six Bolts and Washers (4).
- 6) Remove Cover and Gasket (5). Inspect Gasket for wear or damage. Replace as needed.
- 7) Repeat for opposite side.



MAINTENANCE

Remove & Install Discharge Auger Assembly (cont.)

WARNING

W-562

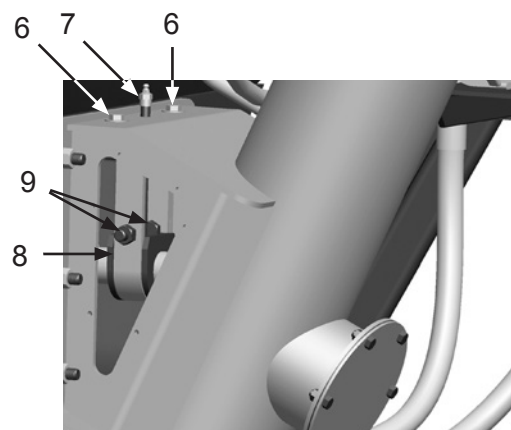
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

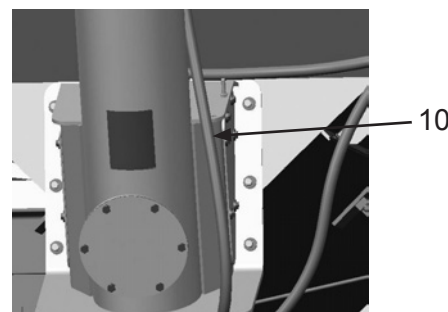
W-590

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.

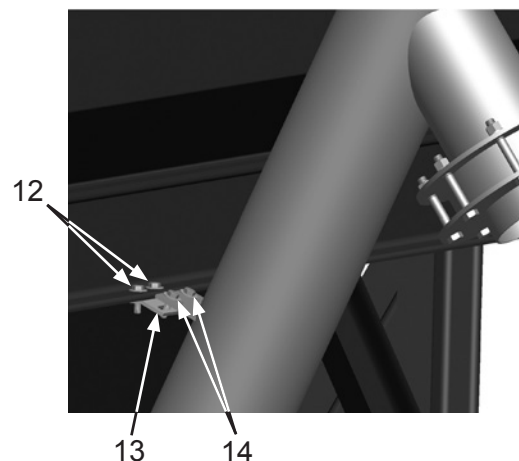
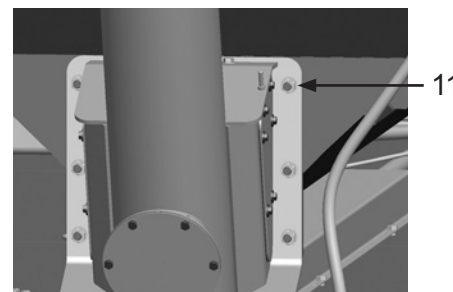
- 8) Remove two Bolts and Nuts (9).
- 9) Remove Grease Fitting (7).
- 10) Remove two Bolts and Washers (6).
- 11) Remove Bearing Hanger Assembly (8).



- 12) Route hydraulic hose (10) away from Discharge Auger Assembly.



- 13) Remove six Nuts and Washers (11).
- 14) Remove two Bolts, Washers, and Nuts (14).
- 15) Raise and remove Discharge Auger Assembly.
- 16) Remove two Bolts, Washers, and Nuts (12), and Bracket (13).
- 17) Install parts in reverse order.
- 18) Check hydraulic oil level (See Pre-Startup).
- 19) Activate Auger System and check for hydraulic oil leaks. Repair as needed.



MAINTENANCE

Remove & Install Main Auger

WARNING

W-562

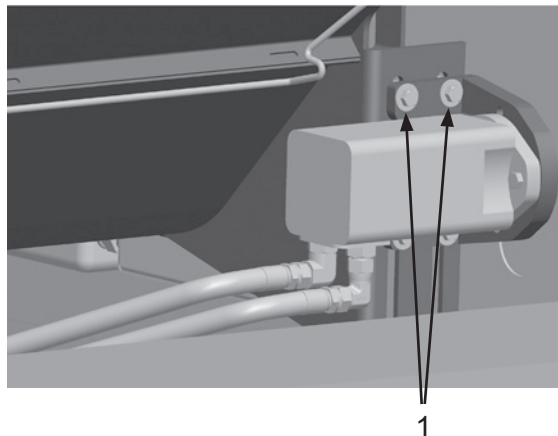
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

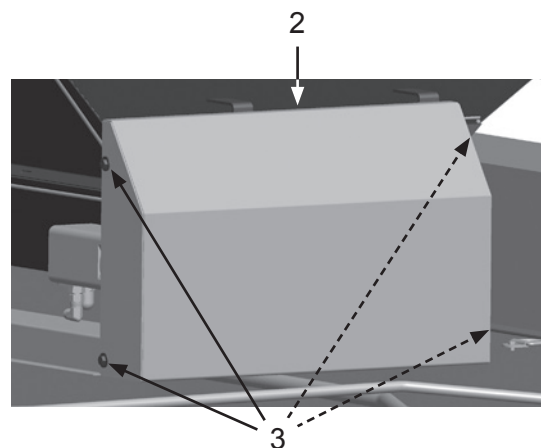
W-586

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.

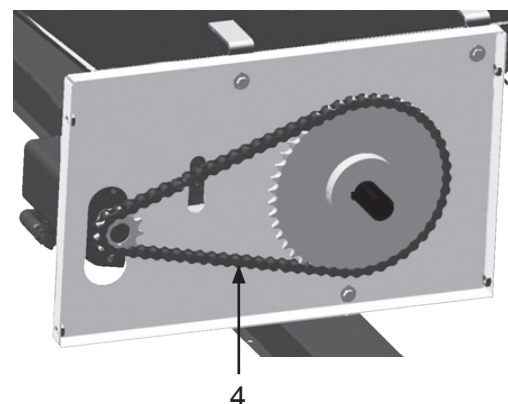
- 1) Remove Discharge Auger Assembly. See Remove & Install Discharge Auger Assembly.
- 2) Loosen four Bolts (1).



- 3) Remove four Bolts and Washers (3) and remove Cover (2).



- 4) Remove Chain (4).



MAINTENANCE

Remove & Install Main Auger (cont.)

WARNING

W-562

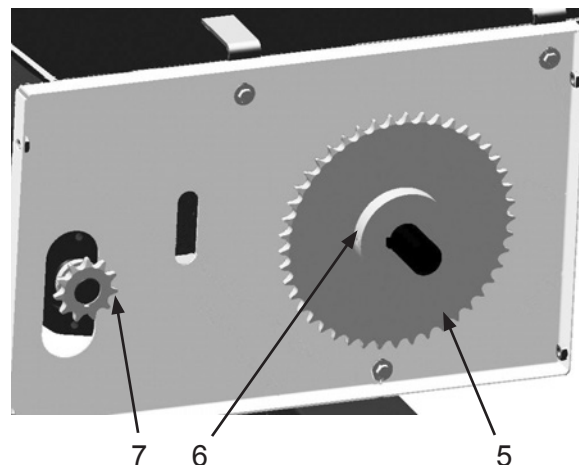
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

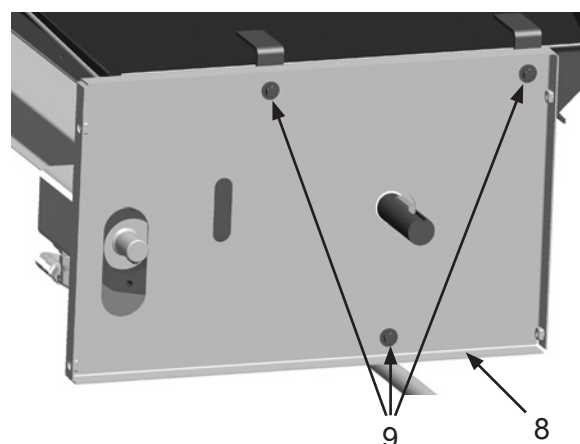
W-586

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.

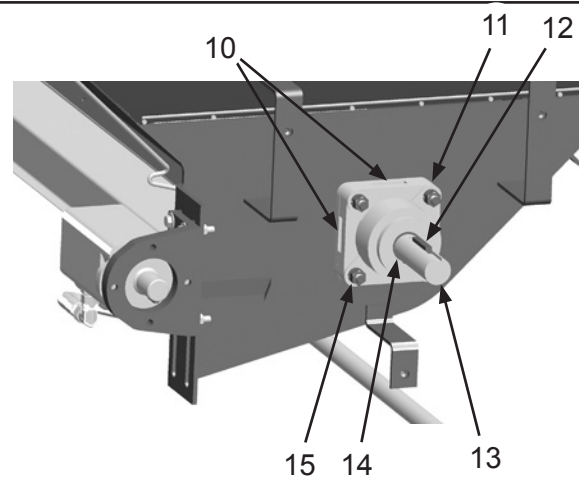
- 5) Loosen two Set Screws (6) and remove Sprocket (5).
- 6) Remove Sprocket (7).



- 7) Remove three Bolts and Washers (9).
- 8) Remove Back Cover (8).



- 9) Remove Key (12).
- 10) Remove Snap Ring (14).
- 11) Rotate Shaft (13) until two Set Screws (10) are visible in the slots. Loosen two Set Screws.
- 12) Remove four Nuts and Washers (15).
- 13) Remove Thrust Bearing (11).



MAINTENANCE

Remove & Install Main Auger (cont.)

WARNING

W-562

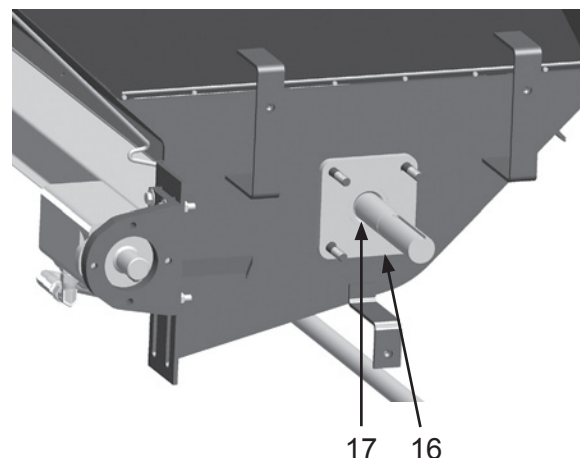
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

W-586

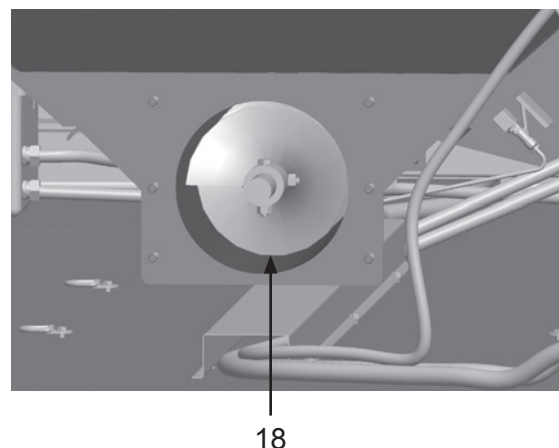
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

- 1) Remove Snap Ring (17) and Seal Plate (16).

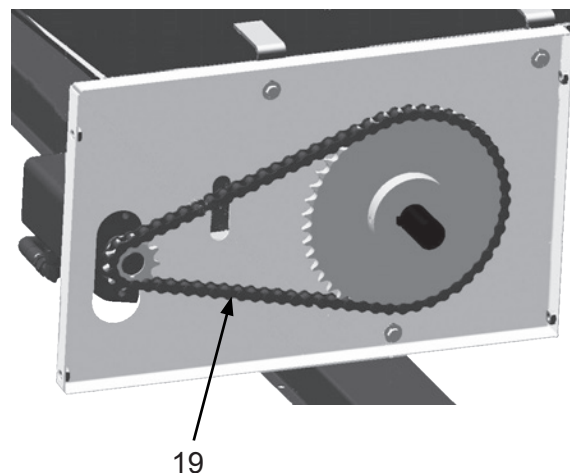


Note: Approximate weight of Main Auger is 105 pounds. Use suitable lifting devices to support or maneuver Main Auger.

- 2) Remove Main Auger (18).



- 3) Install parts in reverse order using the following special instructions:
 - Ensure Chain (19) has approximately 5/8 - 7/8 inch of deflection. Adjust as needed. (See Adjust Main Auger Drive Chain).



MAINTENANCE

Remove & Install Discharge Auger

⚠ WARNING

W-562

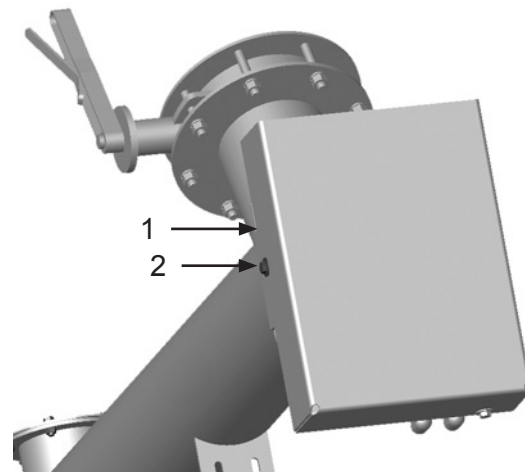
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING

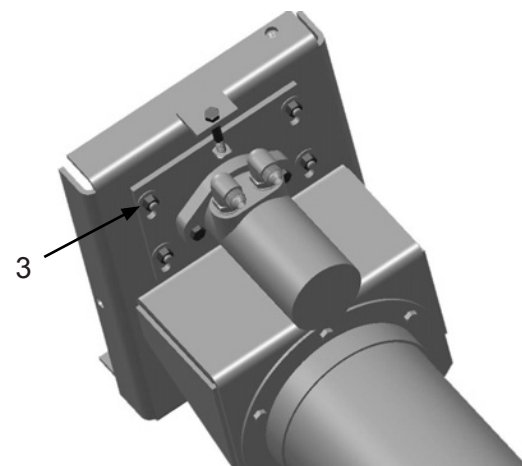
W-586

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.

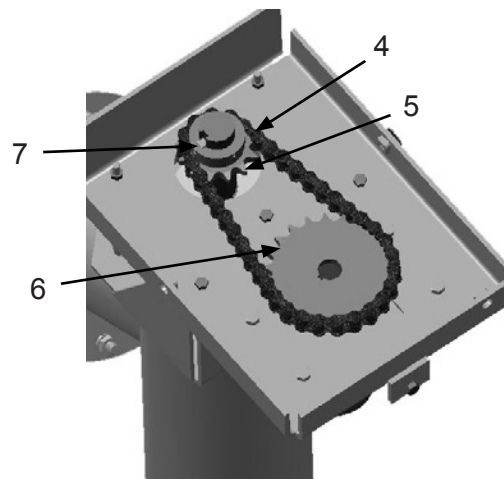
- 1) Remove Discharge Auger Assembly. See Remove & Install Discharge Auger Assembly.
- 2) Remove three Bolts (2) and Chain Drive Cover (1).



- 3) Loosen four Bolts (3).



- 4) Remove Chain (4). Inspect for wear or damage. Replace as needed.
- 5) Remove Sprocket (6).
- 6) Loosen two Set Screws (7) retaining Sprocket (5) to shaft and remove Sprocket. Inspect Sprocket for wear or damage. Replace as needed.



MAINTENANCE

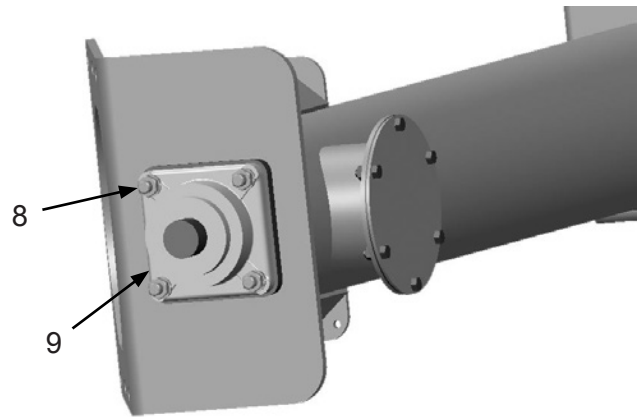
Remove & Install Discharge Auger (cont.)

WARNING

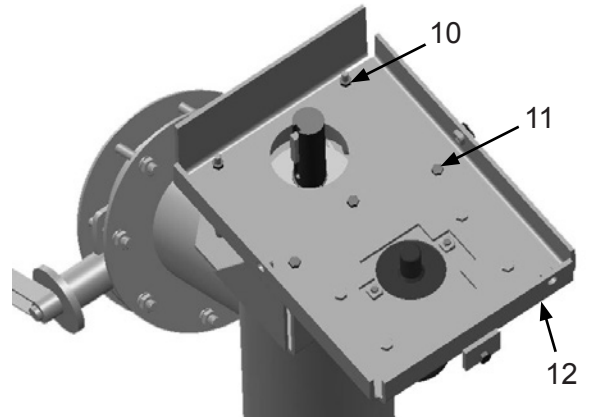
W-562

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.

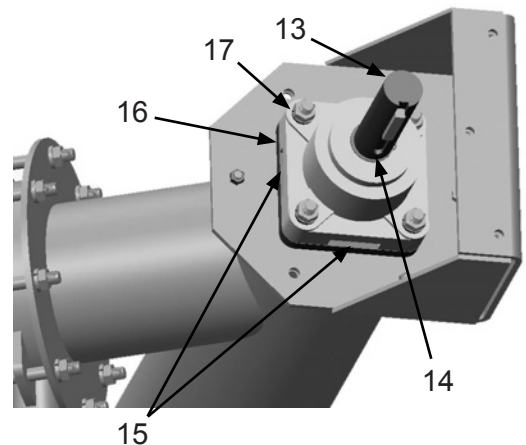
- 7) Remove four Nuts (8) and Bearing (9).



- 8) Remove three Bolts (11); two Nuts, Bolts and Spacers (10) and Chain Guard Bottom Cover (12).



- 9) Rotate shaft (13) until two Set Screws (15) are visible, and loosen Set Screws.
10) Remove Snap Ring (14).
11) Remove four Nuts and Lock Washers (17), and Bearing Housing (16).



MAINTENANCE

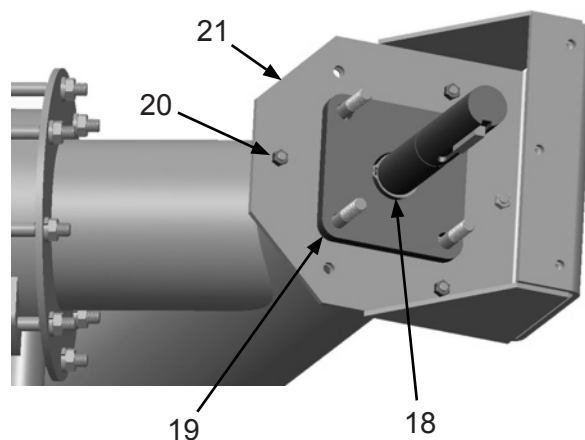
Remove & Install Discharge Auger (cont.)

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.

- 12) Remove Snap Ring (18) and Seal Plate (19).
- 13) Remove four Bolts, Washers, and Nuts (20).
- 14) Remove Shaft Cover (21).



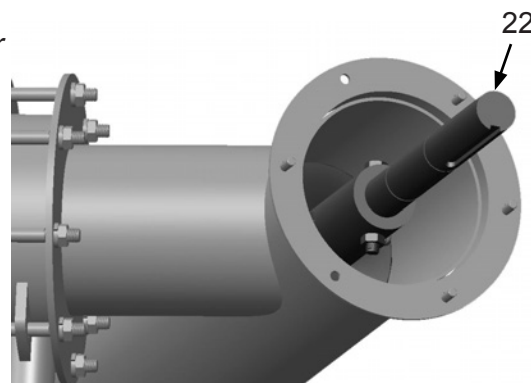
WARNING

W-586

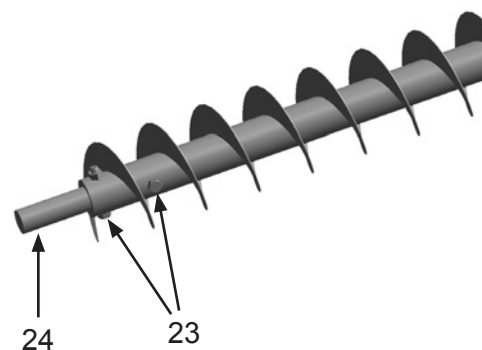
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

Note: Approximate weight of Discharge Auger is 60 pounds. Use suitable lifting devices to support or maneuver Discharge Auger.

- 15) Remove Discharge Auger (22).



- 16) Remove two Bolts and Nuts (23) and Shaft End (24). Repeat for opposite end.



MAINTENANCE

Remove & Install Discharge Auger (cont.)

⚠ WARNING

W-562

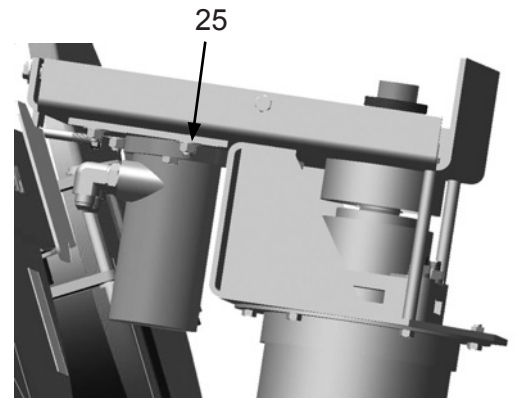
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ 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.

- 17) Install parts in reverse order using the following special instructions:
 - Tighten four Bolts (25) in an alternating pattern. Tighten to 9 ft.-lb.
 - Ensure Chain has approximately 3/16 - 1/4 inch of deflection (See Adjust Discharge Auger Drive Chain).
- 18) Check hydraulic oil level. (See Pre-Startup).
- 19) Activate Auger System and check for hydraulic oil leaks.



MAINTENANCE

Remove & Install Fan

WARNING

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

WARNING

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

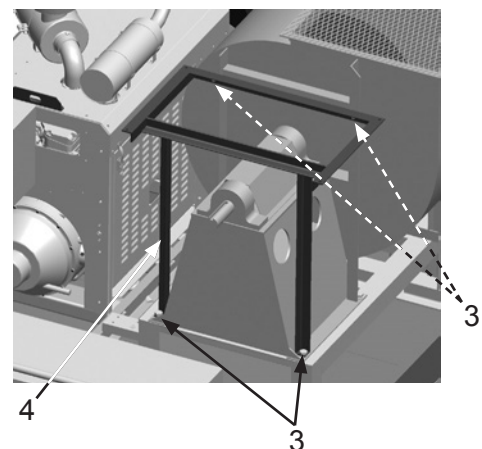
WARNING

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) Remove Fan Drive Belt Cover (2) Assembly (See Remove & Install Fan Drive Belt Assembly).
- 2) Remove Hydraulic Oil Tank (1). (See Remove & Install Hydraulic Oil Tank.)

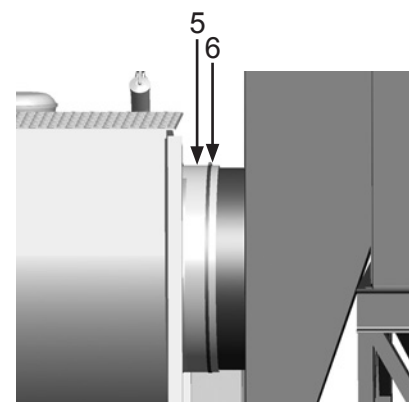


- 3) Remove Fan Drive Belt Cover (2) Assembly (See Remove & Install Fan Drive Belt Cover Assembly.)
- 4) Remove Hydraulic Oil Tank (1). (See Remove & Install Hydraulic Oil Tank.)



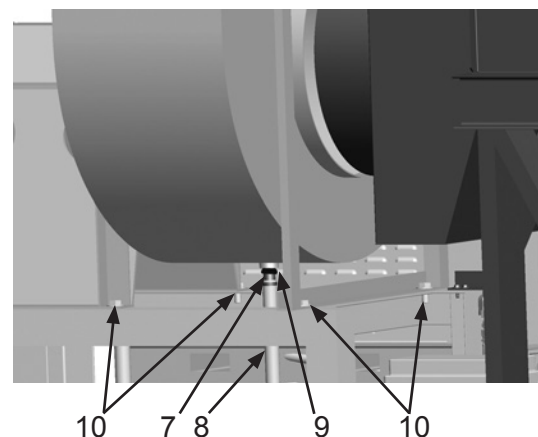
Note: Approximate weight of hydraulic tank stand is 55 lbs. Use suitable lifting devices to support or maneuver hydraulic oil tank stand.

- 5) Remove four Bolts, Washers, and Nuts (3).
- 6) Attach a suitable lifting device to Hydraulic Oil Tank Stand (4), and remove.
- 7) Remove two Clamps (6) and Rubber Connection Gasket (5).



Note: Approximate weight of fan is 1100 lbs. Use suitable lifting devices to support or maneuver fan.

- 8) Remove Hose (8), Toe Nipple (9), and Bushing (7).
- 9) Attach a suitable lifting device to fan, and remove four Bolts, Washers, and Nuts (10).
- 10) Remove Fan.
- 11) Install parts in reverse order.



MAINTENANCE

Remove & Install Engine Assembly

WARNING

W-562

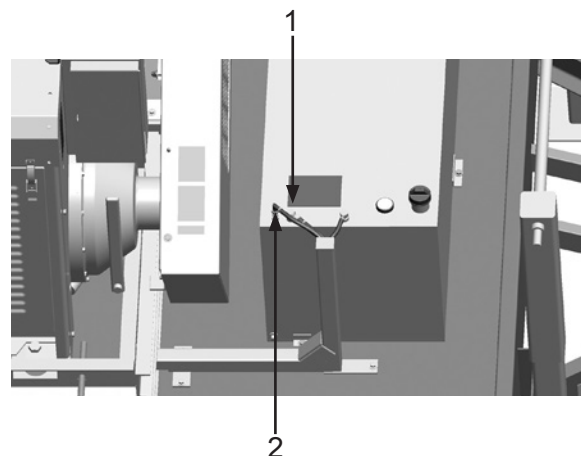
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

N-530

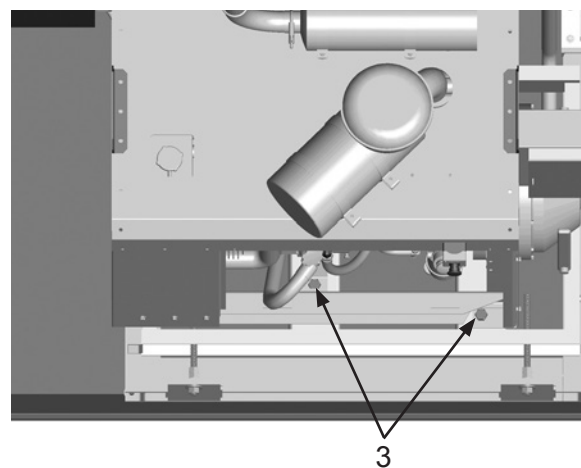
Label all hoses and connections to aid installation.

- 1) Disconnect battery cables from battery.
- 2) Remove Fan Drive Belt Cover Assembly. (See Remove & Install Fan Drive Belt Cover Assembly.)
- 3) Remove Hydraulic Pump. (See Remove & Install Hydraulic Pump.)
- 4) Disconnect Fuel Supply Hose (1) and Fuel Return Hose (2).
- 5) Disconnect fuel hoses and battery cables from engine. (See engine Operator's Manual.)
- 6) Route all hoses and wiring away from Engine Assembly.



Note: Approximate weight of Engine Assembly is 1300 pounds. Use suitable lifting devices to support or maneuver Engine Assembly.

- 7) Attach suitable lifting devices to Engine Assembly.
- 8) Remove two Bolts (3). Repeat for opposite side.
- 9) Remove Engine Assembly.
- 10) Install parts in reverse order using the following special instructions:
 - Tighten four Bolts (3) to 320 ft.-lbs.



MAINTENANCE

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

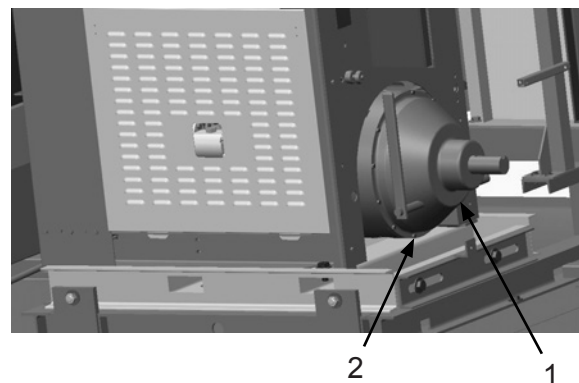
W-586

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.

- 1) Remove Fan Drive Belt Cover Assembly. (See Remove & Install Fan Drive Belt Cover Assembly.)

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

- 2) Attach a suitable lifting device to Clutch Assembly (1).
- 3) Remove twelve Bolts (2), and remove Clutch Assembly (1).
- 4) Repair or replace Clutch Assembly (1) as needed. (See Operator's Manual for Clutch Assembly.)
- 5) Install parts in reverse order.



MAINTENANCE

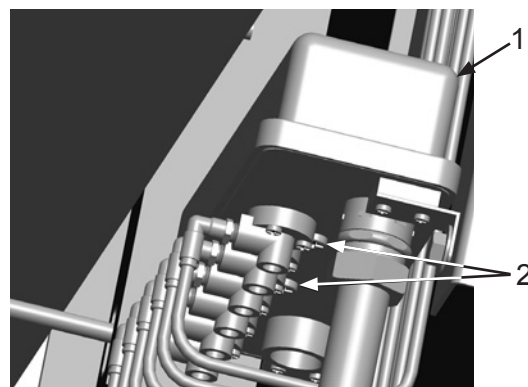
Remove & Install Pulsar Solenoid

⚠ WARNING

W-562

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

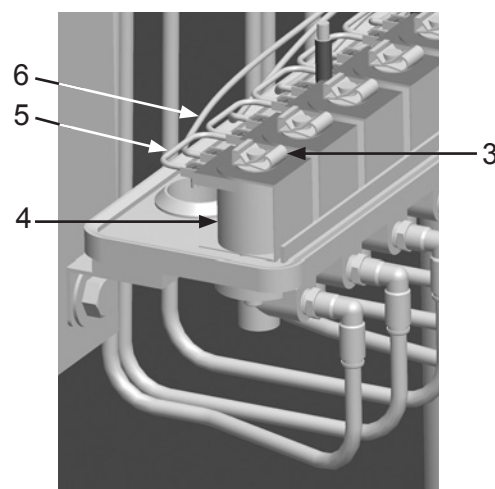
- 1) Disconnect battery cables from battery.
- 2) Disconnect air hose from filter/regulator.
- 3) Loosen two Screws (2) and remove Cover (1).



⚠ 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.

- 4) Disconnect Wire (6) and Wire (5).
- 5) Remove Retaining Clip (3).
- 6) Remove Operator (4).

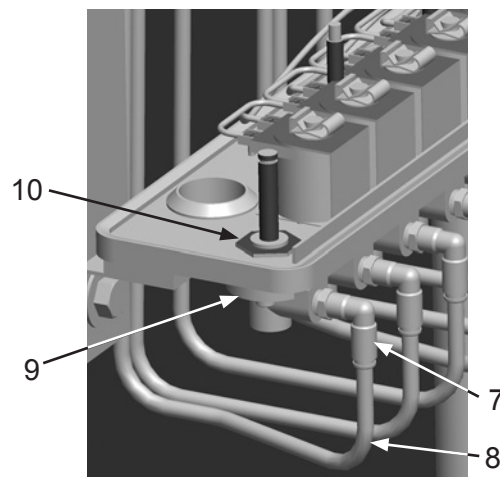


⚠ WARNING

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.

- 7) Disconnect Tubing (8).
- 8) Remove Fitting (7).
- 9) Remove Nut (10) and Valve (9).
- 10) Install parts in reverse order.



NOTICE

N-530

Label all hoses and connections to aid installation.

MAINTENANCE

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

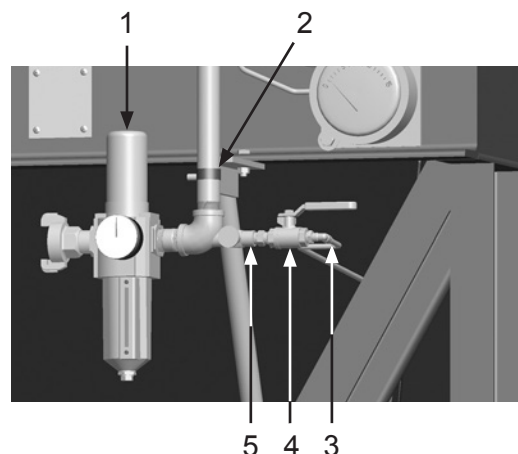
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the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

NOTICE

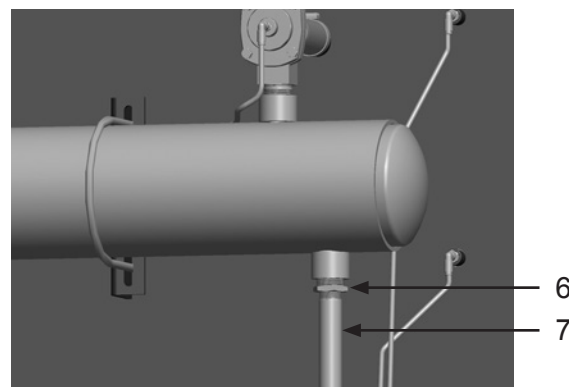
N-530

Label all hoses and connections to aid installation.

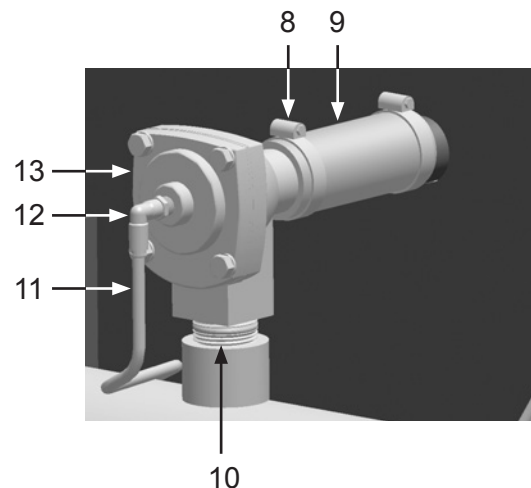
- 1) Disconnect air hose from filter/regulator.
- 2) Disconnect Air Hose (3).
- 3) Remove Ball Valve (4) and Needle Valve (5).
- 4) Remove Clamp (2).
- 5) Remove Filter/Regulator (1).



- 6) Remove Pipe (7) and Bushing (6).



- 7) Disconnect Urethane Tubing (11).
- 8) Remove Fitting (12).
- 9) Loosen two Clamps (8) and disconnect Hose (9) from Diaphragm Valve (13).
- 10) Remove Diaphragm Valve (13).
- 11) Remove Nipple (10).
- 12) Route Urethane Tubing (11) away from manifold.
- 13) Repeat for remaining Diaphragm Valves.



MAINTENANCE

Remove & Install Pulser Manifold (cont.)

WARNING

W-562

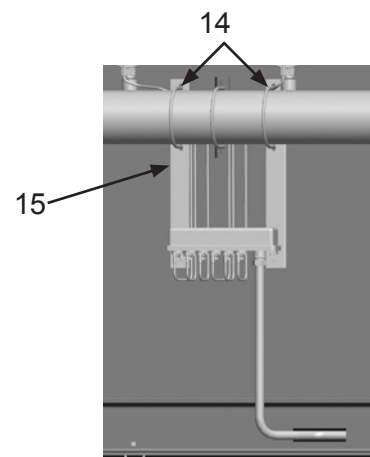
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

W-590

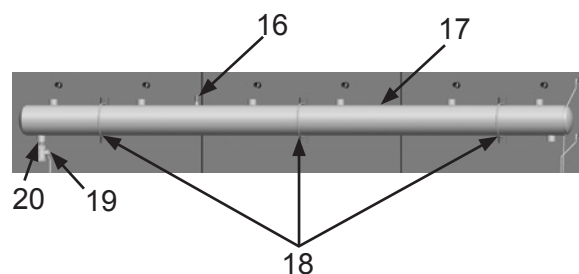
When performing service or maintenance on systems or devices requiring access from an elevated position, you must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, as related to working in elevated work areas. Failure to comply with the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

- 1) Attach a suitable support to Bracket (15).
- 2) Remove two U-bolts (14).
- 3) Place and support Bracket (15) so it is clear of the area.



Note: Approximate weight of Pulser Manifold is 120 pounds. Use suitable lifting devices to support or maneuver Pulser Manifold.

- 4) Attach suitable lifting devices to Pulser Manifold (17).
- 5) Remove Pressure Relief Valve (16).
- 6) Remove Ball Valve (19) and Pipe Nipple (20).
- 7) Remove two U-bolts (18) and remove Pulser Manifold (17).
- 8) Install parts in reverse order.



MAINTENANCE

Remove & Install Timer Board

WARNING

W-562

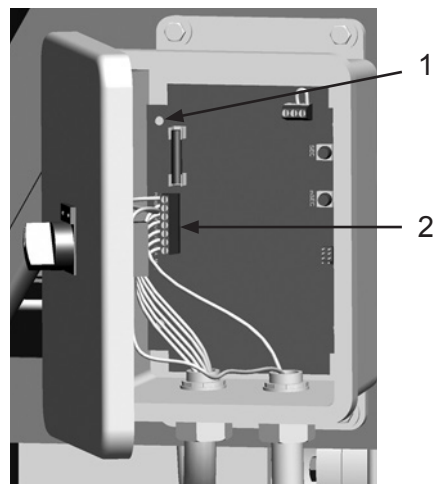
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

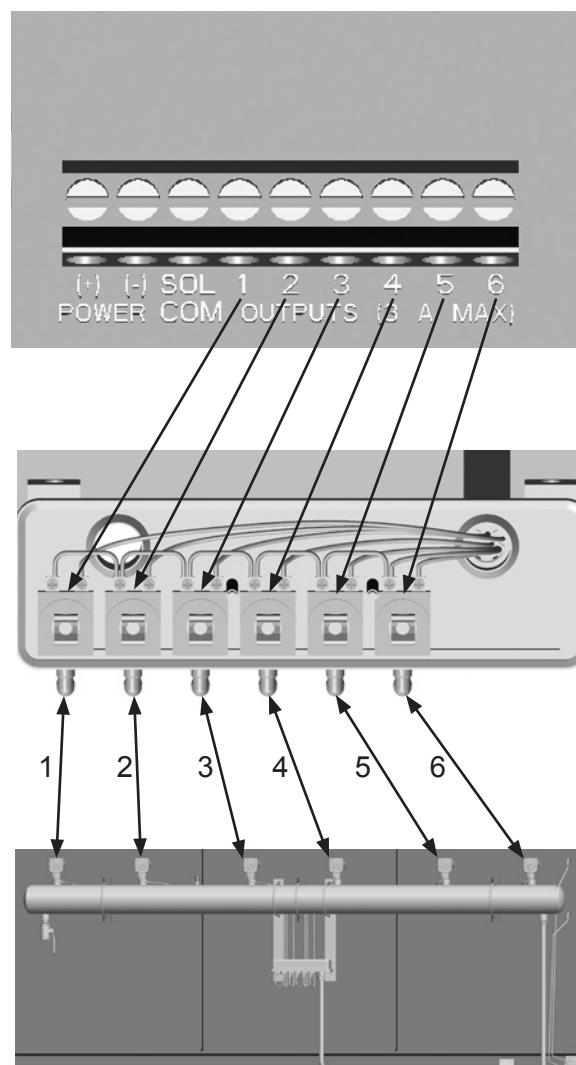
N-530

Label all hoses and connections to aid installation.

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



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



MAINTENANCE

Remove & Install Dust Collector Filter Cartridges

⚠ WARNING

W-562

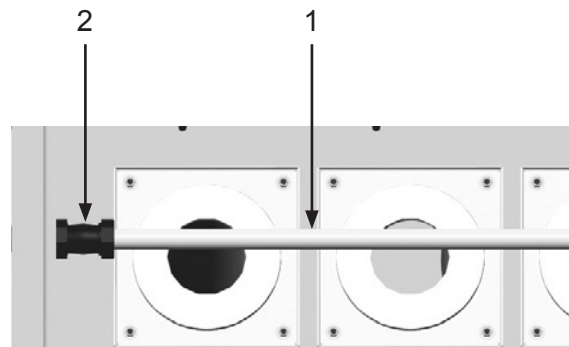
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

⚠ WARNING

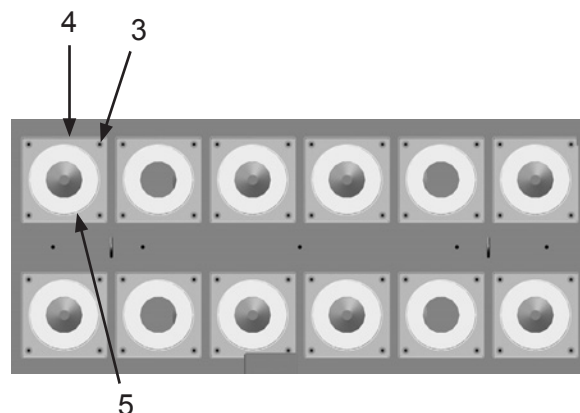
W-501

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.

- 1) Remove Compression Coupling (2) from Pulser System Blowpipe (1).
- 2) Remove Pulser System Blowpipe (1).



- 3) Remove four Washers and Nuts (3) and remove Filter Retainer (4). Repeat for remaining Filter Retainers.
- 4) Remove Filter Cartridge (5). Repeat for remaining Filter Cartridges.
- 5) Install parts in reverse order.



MAINTENANCE

Remove & Install Dust Collector Filter Cartridge Hatch Assembly

WARNING

W-562

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

WARNING

W-566

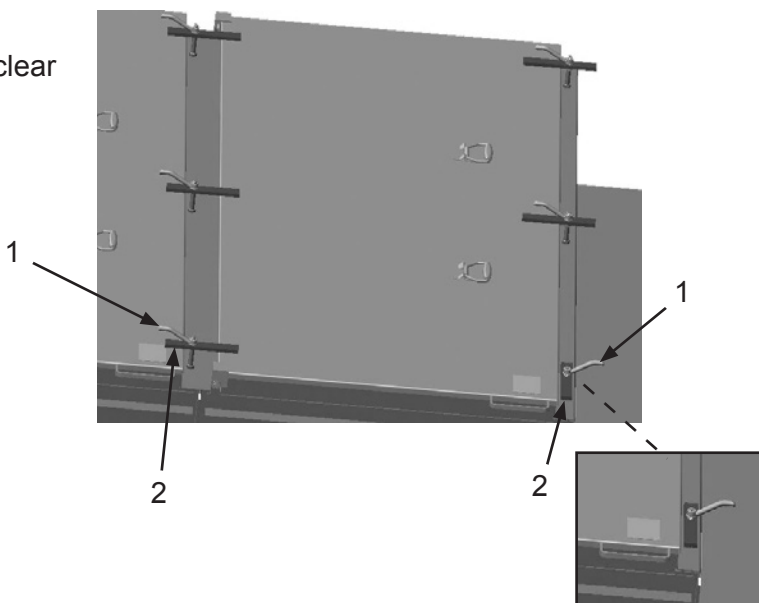
Moving parts can present an area where crushing, pinching, entanglement or amputation may occur. Do not place body parts or foreign objects in any area where there are moving parts.

WARNING

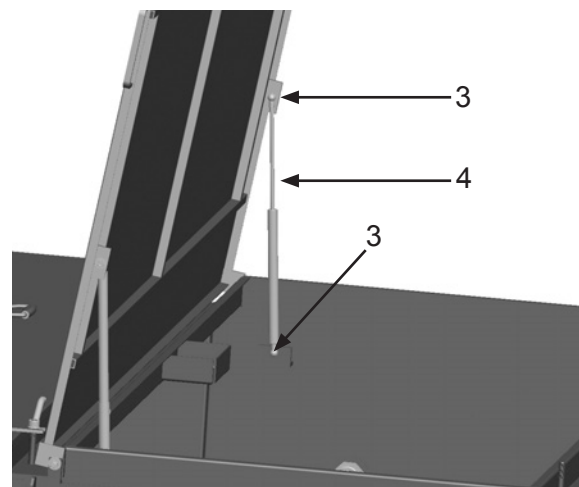
W-590

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) Loosen six Handles (1).
- 2) Rotate Latch Bars (2) 90° to clear hatch door.
- 3) Open hatch door (1).



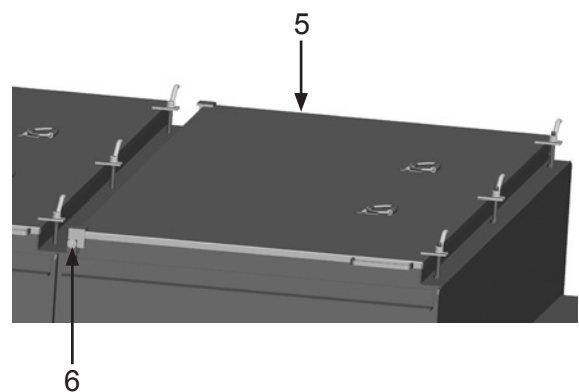
- 4) Remove two Hex Nuts (3).
- 5) Remove Gas Spring (4).
- 6) Repeat for other side.



- 7) Move Hatch Door (5) to closed position.
- 8) Remove two Bolts (6).
- 9) Remove Hatch Door (5).

Note: Approximate weight of Hatch Door is 86 pounds. Use suitable lifting devices to support or maneuver Hatch Door.

- 10) Install parts in reverse order using the following special instructions:
 - Ensure Gas Spring installed on left side of hatch door is a "locking" style.



MAINTENANCE

Remove & Install Fuel Tank

WARNING

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

WARNING

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

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.

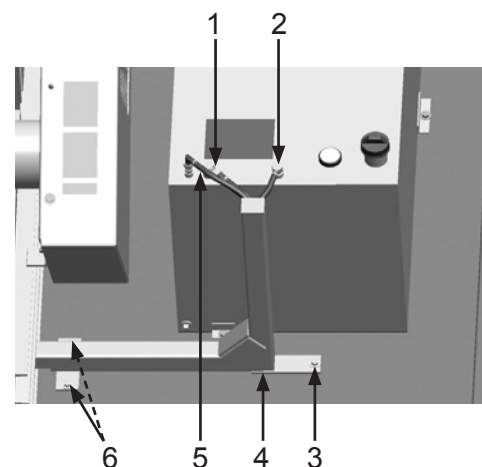
NOTICE

Label all hoses and connections to aid installation.

Note: Fuel Tank capacity is approximately 80 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.

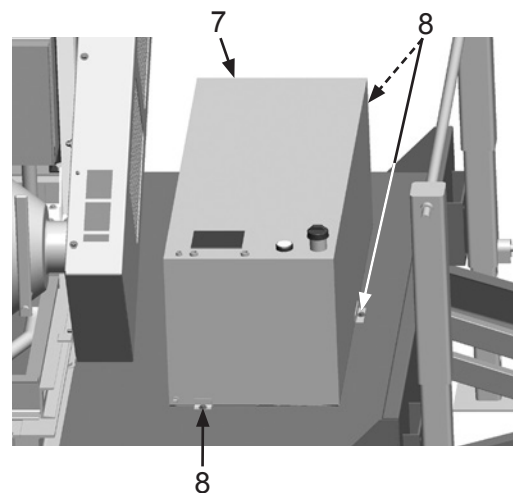
- 1) Empty fuel from Tank.
- 2) Disconnect Supply Hose (1) and remove fitting from tank.
- 3) Disconnect Vent Hose (2).
- 4) Disconnect Return Hose (5) and fitting from tank.
- 5) Remove Bolts, Washers, and Nuts (3 and 6) and move Hose Housing (4) to side.



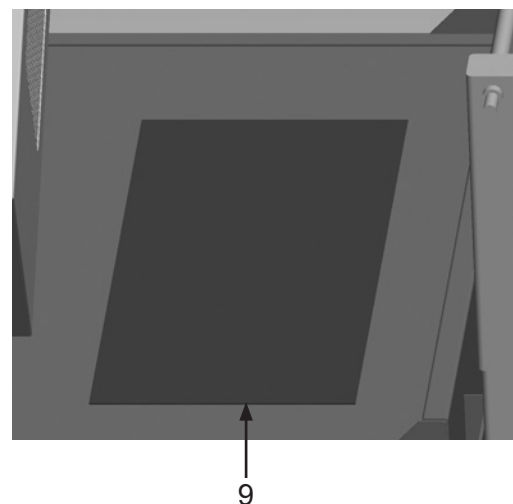
- 6) Remove three Bolts, Washers, Spacers and Nuts (8). Record location and quantity of spacers to aid installation.

Note: Approximate empty weight of Fuel Tank is 70 pounds. Use suitable lifting devices to support or maneuver Fuel Tank.

- 7) Attach a suitable lifting device to Tank (7), and remove.



- 8) Inspect Isolation Mat (8) for damage. Replace as needed.
- 9) Install parts in reverse order using the following special instructions:
 - See engine Operator's Manual for priming of engine.



MAINTENANCE

Remove & Install Main Auger Protective Grate

WARNING

W-562

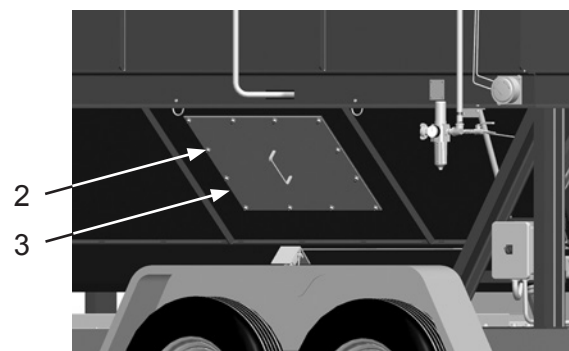
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

WARNING

W-588

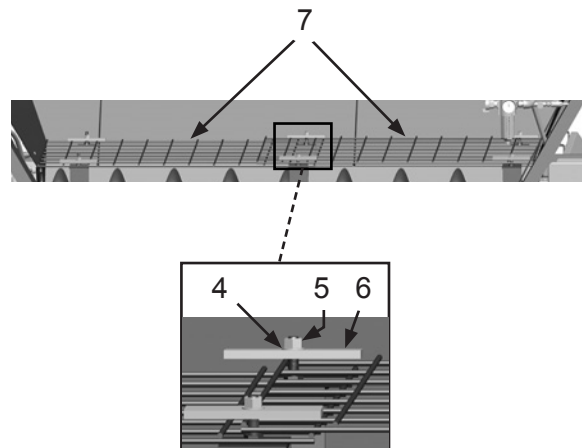
Special precautions required before entering, Entry limited to trained personnel only. Compliance with all local, state, and federal regulations is required before entry. Failure to comply with the above warning could result in death or serious injury.

- 1) Close Ball Valves (1).
- 2) Remove twelve Bolts and Washers (2) and Access Panel (3).



Note: Side panels of hopper are not removed during this process. Side panels are not shown for clarity.

- 3) Remove Nut (5), Washer (4), and Retainer (6). Repeat for remaining seven retainers.
- 4) Remove three Grates (7). Label and record position of grates to aid installation.
- 5) Install parts in reverse order.



MAINTENANCE

Remove & Install Front Emergency-Stop Station

WARNING

W-562

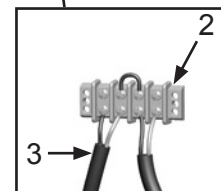
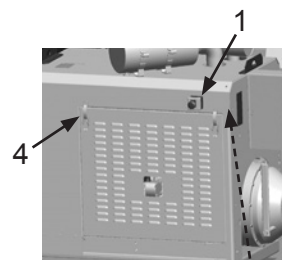
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

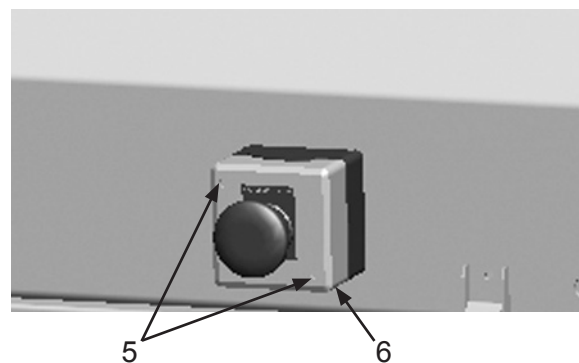
N-530

Label all hoses and connections to aid installation.

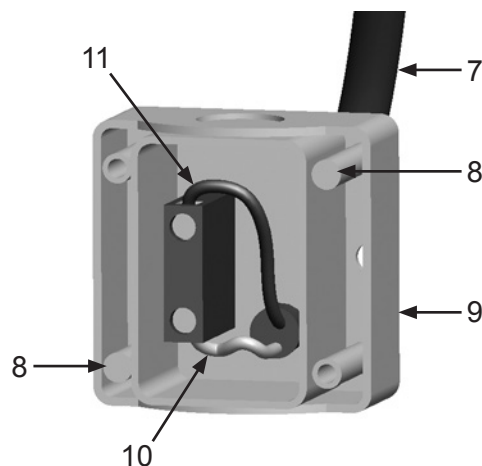
- 1) Disconnect battery cables from battery.
- 2) Remove Engine Cover (4).
- 3) Locate Terminal Block (2) and disconnect two wires of Cable (3).



- 4) Remove two Screws (5) and Cover (6).



- 5) Label Wires (10 and 11) to aid installation.
- 6) Disconnect Wires (10 and 11) and pull Cable (7) from Housing (9).
- 7) Remove two Screws, Washers, and Nuts (8) and Housing (9).
- 8) Install parts in reverse order.



MAINTENANCE

Remove & Install Rear Emergency-Stop Station

WARNING

W-562

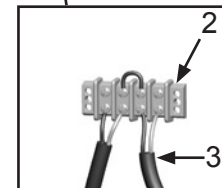
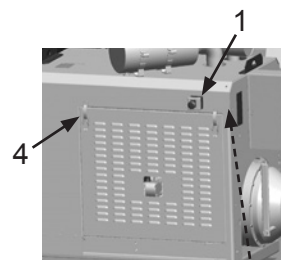
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

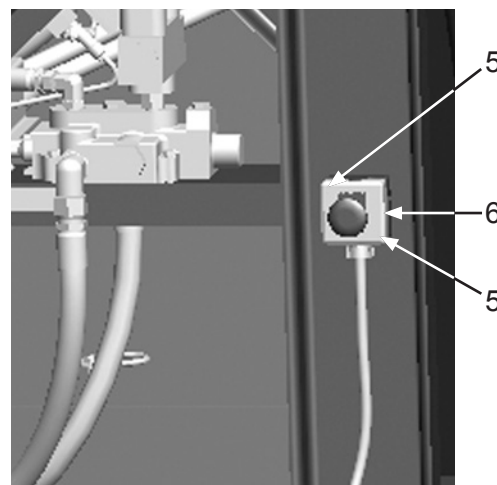
N-530

Label all hoses and connections to aid installation.

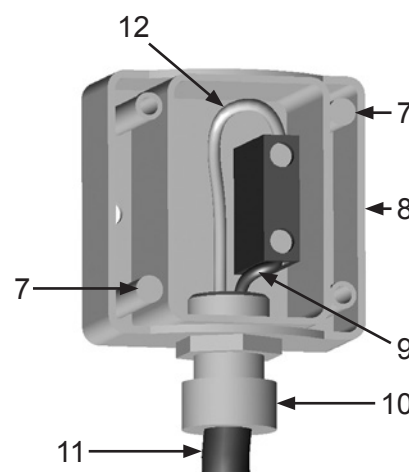
- 1) Disconnect battery cables from battery.
- 2) Remove Engine Cover (4).
- 3) Locate Terminal Block (2) and disconnect two wires of Cable (3).



- 4) Remove two Screws (5) and Cover (6).



- 5) Label Wires (9 and 12) to aid installation.
- 6) Loosen Cord Grip (10).
- 7) Disconnect Wires (9 and 12) and pull Cable (11) from Housing (8).
- 8) Remove two Screws, Washers, and Nuts (7) and Housing (8).
- 9) Install parts in reverse order.



MAINTENANCE

Remove & Install Magnehelic Gauge

WARNING

W-562

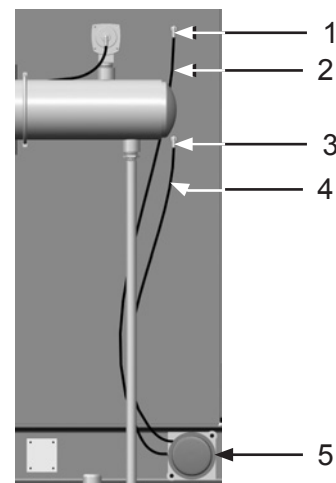
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

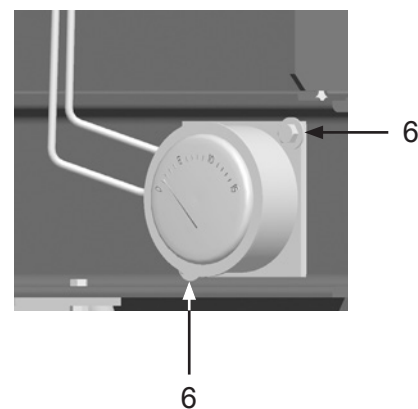
N-530

Label all hoses and connections to aid installation.

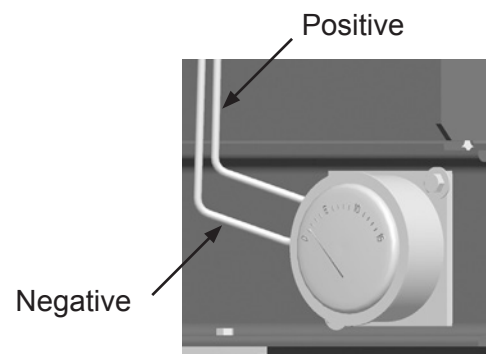
- 1) Label Hose (2) as "Negative".
- 2) Label Hose (4) as "Positive".
- 3) Disconnect Hoses (2,4) from 90° Elbows (1,3).
- 4) Disconnect Hoses (2,4) from Magnehelic Gauge (5).



- 5) Remove Washers and Bolts (6).



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



MAINTENANCE

Remove & Install Pneumatic Ball Vibrators

WARNING

W-562

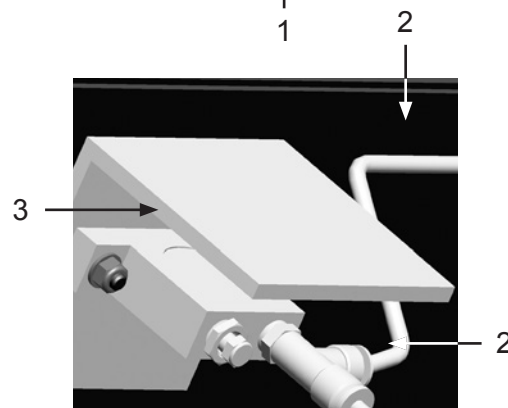
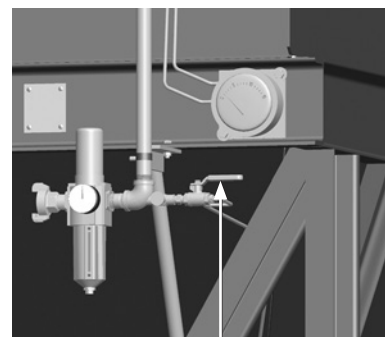
Always depressurize the entire system, disconnect all power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to comply with the above warning could cause electrical shock and inadvertent activation of equipment resulting in death or serious injury.

NOTICE

N-530

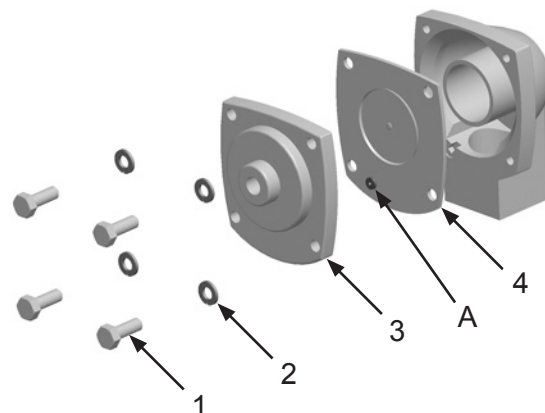
Label all hoses and connections to aid installation.

- 1) Close Ball Valve (1)
- 2) Disconnect Hoses (2).
- 3) Remove two Hex Nuts and Flat Washers (3).
- 4) Repeat on opposite side of dust collector.
- 5) Install parts in reverse order.



Disassemble & Assemble Diaphragm Valve


- 1) Remove four Bolts (1) and Washers (2).
- 2) Remove Cover (3).
- 3) Remove Diaphragm (4).
- 4) Install parts in reverse order using the following special instructions:
 - Check Vent Hole (A) is not blocked or occluded.



MAINTENANCE

Hazard Identification Decals

WARNING



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.

Start-Up Operation:

Pre-Start-Up Checks

- Check levels of Engine oil, Fuel, Coolant and Hydraulic oil.
- Grease Clutch Assembly
- Grease Fan Bearings
- Grease Auger bearings as required

Engine Starting

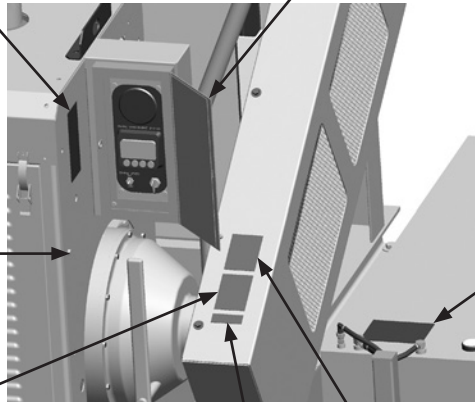
- Ensure clutch is **DISENGAGED**
- Turn key partway until Murphy PowerView fully comes online.
- Turn key until engine starts, 30 seconds maximum. Release key when engine starts.

Pulser System Start-Up

- Turn pulser system on by turning the two-position selector switch to "ON"
- Pressurize Pulser Header to 80-85 PSI. Regulate pressure via the regulator on the dust collector.

Fan Engagement

- Ensure that personnel are away from fan exhaust and air inlet openings.
- Let the engine warm up for approximately 5 minutes.
- Adjust RPM to about 1000 or less. Bump the clutch handle three (3) times so that fan gradually increase in speed. After three (3) bumps, gradually engage clutch until fully engaged and handle is in the locked position.
- Rapid engagement may cause belts to slip from pulleys and damage to clutch.
- Once engaged adjust RPM to recommended operating range.

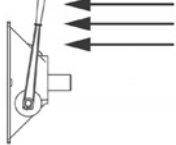



MAX PERFORMANCE AT 1800 RPM. INCREASING RPM PAST 1800 RPM WILL NOT INCREASE AIR MOVEMENT.

CAUTION

Diesel Fuel Only

BUMP CLUTCH HANDLE THREE TIMES TO ENGAGE




CLUTCH STATE

← **ENGAGED**

DISENGAGED →

WARNING

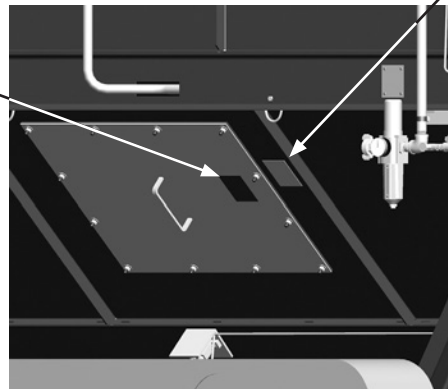
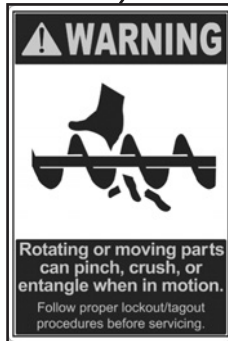
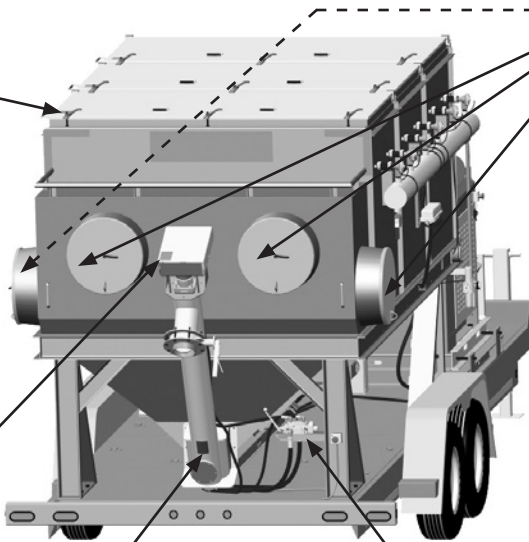
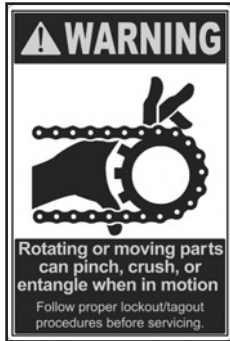


Rotating or moving parts can pinch, crush, or entangle when in motion.

Follow proper lockout/tagout procedures before servicing.

MAINTENANCE

Hazard Identification Decals (cont.)



TROUBLESHOOTING

If the Dustmaster® 28,000 CFM Tier III Diesel Dust Collector 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.

Diesel Engine RPM does not change when Throttle is adjusted

(Damaged components, improper adjustment of Throttle Cable)

Check Throttle Cable for damage. Repair or replace as needed.

See original equipment Operator's Manual for service.

Fan Drive Belt slips or vibrates

(Loose connections, worn parts)

Inspect Fan Drive Belt for damage. Replace as needed.

Adjust Fan Drive Belt Tension. See Adjust Fan Drive Belt Tension.

See fan Operator's Manual for service.

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.

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 "ON", and look for indicator light. If indicator light does not signal, turn switch "OFF". Replace fuse.

Turn main power switch "OFF". Replace fuse.

Turn main power switch "ON", and look for indicator light. If indicator light does not signal, turn switch "OFF". Inspect all electrical connections.

Inspect all solenoids and listen for audible sound as it engages to pulse. Replace solenoid.

Inspect diaphragm valve breather vent for obstruction.

TROUBLESHOOTING

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)

Discharge Augers do not turn
(Object in auger, hydraulic fluid levels, hydraulic pressure relief valve, hydraulic pump, hydraulic motor, stripped gear, broken chain)

ACTION

Run Discharge Auger in reverse to dislodge item. Dismantle Discharge Auger if object still lodged.

Fill hydraulic system with hydraulic fluid.

Check line pressure at by-pass gauge, reset or replace hydraulic valve.

Test hydraulic pump pressure. Replace hydraulic pump.

Bench test hydraulic motor. Repair or replace hydraulic motor.

Magnehelic Gauge reading greater than normal operating range

(Dust Collector Filter Cartridges)

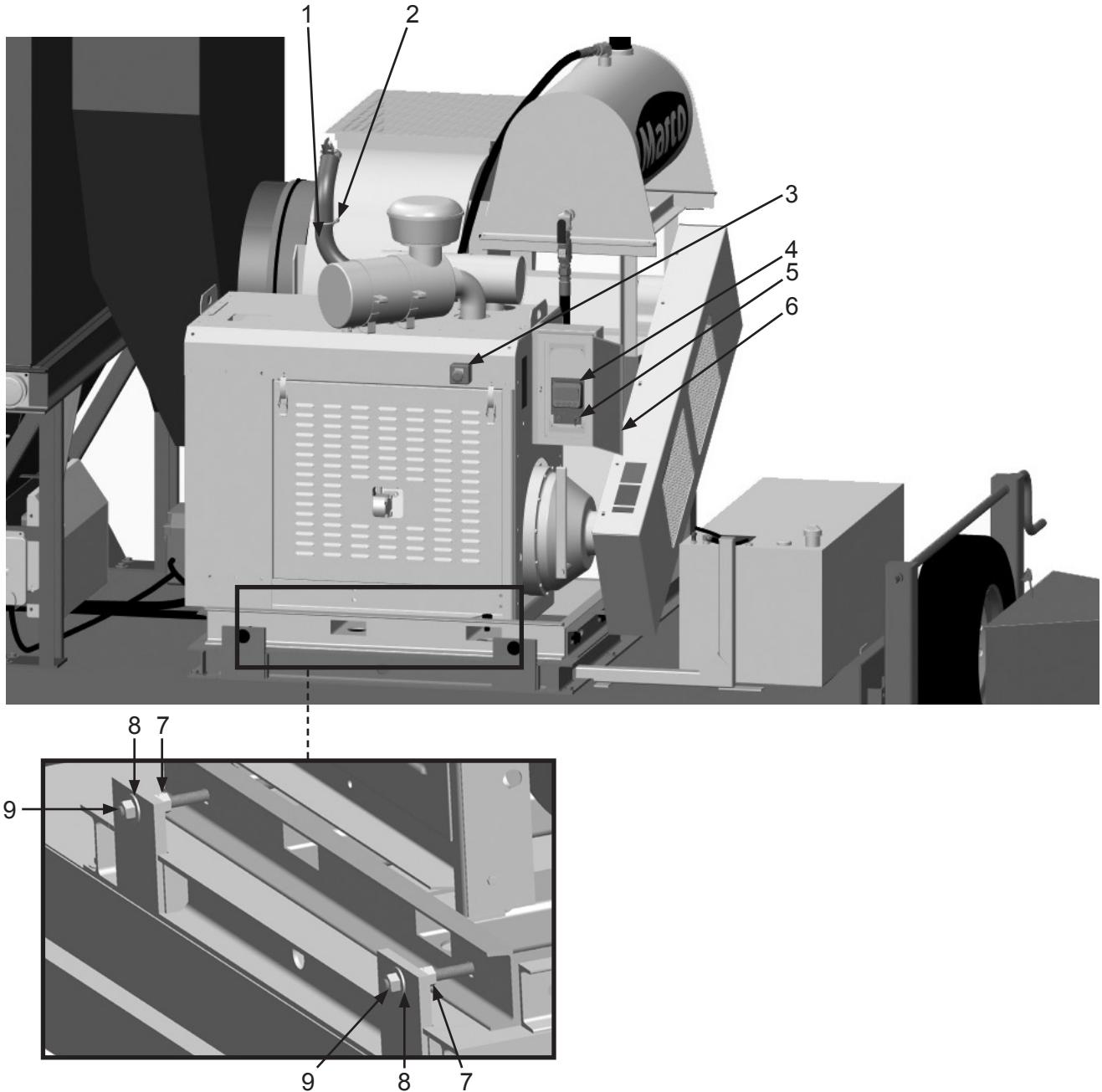
A reading greater than 10" (w.c) on Magnehelic Gauge indicates clogged filters. Decrease engine RPM to idle speed and disengage clutch while allowing engine to run. Pulsers will clean down the filters. Once gauge reads back into the normal operation range of 3" – 10" (w.c), re-engage clutch and increase RPM to operating speed.

If Magnehelic Gauge is reading above 10" (w.c.), perform After Use procedure. Inspect Pulser System and Filters. Replace filter cartridges, if needed.

If Magnehelic Gauge is reading above 15" (w.c.), shut down unit immediately. Replace filter cartridges.

ASSEMBLY PART NUMBERS AND SCHEMATICS

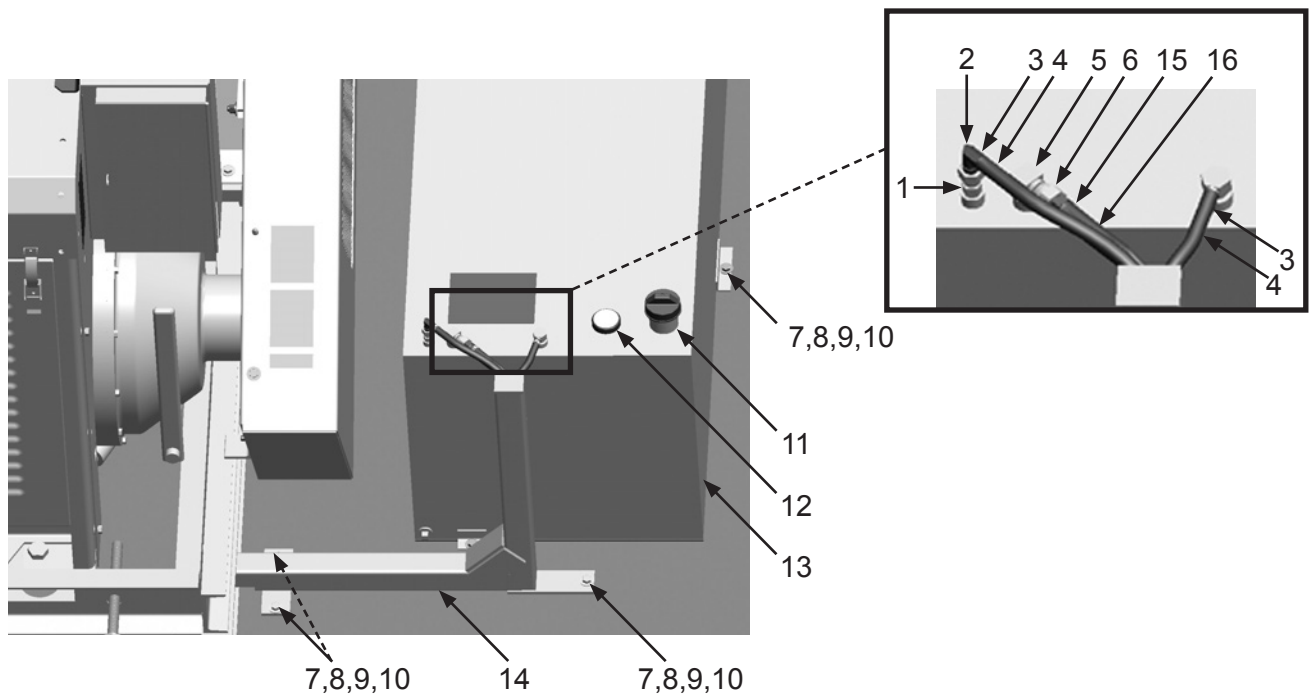
Figure 1: Front Assembly



Item#	Part#	Description
Fig. 1		
1	10103920	2-1/2" Exhaust Pipe Elbow
2	10103821	2-1/2" Exhaust Pipe Clamp
3	10104062	Emergency-Stop Station (See Fig. 28)
4	10103969	Murphy® PowerView™ Gauge
5	10103974	Engine Control Panel Key Switch
	10103970	Engine Start-up Key
6	10104072	Engine Control Door Panel
7	10103440	3/4-10 Draw Bolt (Two Required)
8	10103718	3/4" Washer (Four Required)
9	10103420	3/4-10 Nut (Four Required)
—	10106772	Clutch Arm Extension

PART NUMBERS AND SCHEMATICS

Figure 2: Fuel Tank



Item #	Part #	Description
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Fig. 2

1	10SME025	1/4" NPT (M) x 1/4" NPS (F) Straight Swivel
2	10103421	3/8" Barb x 1/4" NPT Elbow Fitting
3	10104065	Hose Clamp - 3/8" i.d. Hose
4	10103423	3/8" Fuel Hose (Per Foot)
5	20PFHA60SA0606	Swivel Union - 3/8" (M) x 3/8" (F)
6	10103618	3/8" NPT x 1/2" Barb Hose Fitting
7	10101059	3/8-16 x 1-1/4" Galvanized Bolt (<i>Six Required</i>)
8	10101942	3/8" Galvanized Flat Washer (<i>12 Required</i>)
9	1012318	3/8-16 Hex Nut (<i>Six Required</i>)
10	10101936	3/8" Zinc Lock Washer (<i>Six Required</i>)
11	10103968	Locking Fuel Cap with Key
12	10103424	Sight Gauge
13	10103251	Fuel Tank - 80 gallon
14	10103677	Fuel Line Guard
15	10104064	Hose Clamp - 1/2" i.d. Hose
16	10103619	1/2" Fuel Hose (Per Foot)
—	10103617	Withdraw Tube - 16"
—	10103620	3/8" Inline Filter (<i>Not Shown</i>)
—	10103961	Fuel Tank Rubber Cushioning Pad (<i>Not Shown</i>)

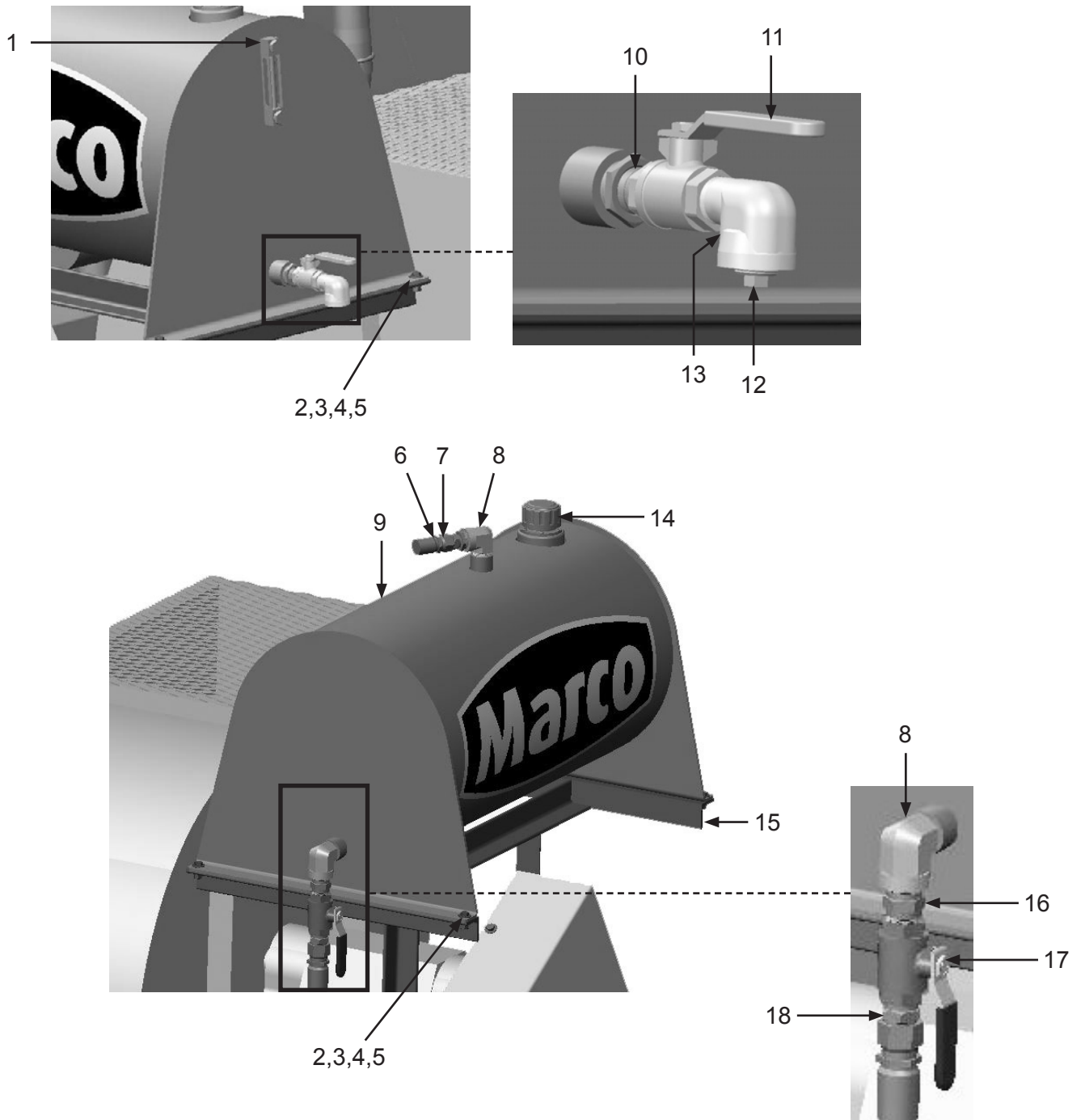
PART NUMBERS AND SCHEMATICS

Hydraulic Oil Tank

Item #	Part #	Description
Fig. 3		
1	10103942	Sight Level Gauge
2	1011747	Bolt - 3/8-16 x 1" - <i>(Four Required)</i>
3	10101942	3/8" Flat Washer <i>(Eight Required)</i>
4	10101936	3/8" Zinc Lock Washer <i>(Four Required)</i>
5	1012318	3/8-16 Hex Nut <i>(Four Required)</i>
6	10103314	Straight Adapter - 3/4" NPT x 12 JIC
7	20PFHA24SB1612	Reducing Bushing - 1" NPT x 3/4" NPT
8	20PFHA25UG1616	Street Elbow - 90° - 1" NPT <i>(Two Required)</i>
9	10105031	Hydraulic Oil Reservoir - 40 Gallon
10	1011213	Close Nipple - 3/4" NPT - Galvanized
11	10L8074C	Full Port Ball Valve - 3/4" NPT
12	10DSHP75	Pipe Plug - Square Head - 3/4" NPT
13	10102479	Street Elbow - 90° - 3/4" NPT - Galvanized
14	10103971	Filler/Breather Cap
15	10102958	Hydraulic Oil Tank Mount
16	20PFHA24SA1616	Hex Nipple - 1" NPT
17	1011601	Full Port Ball Valve - 1" NPT
18	10103312	Straight Adapter - 1" NPT x 16 JIC

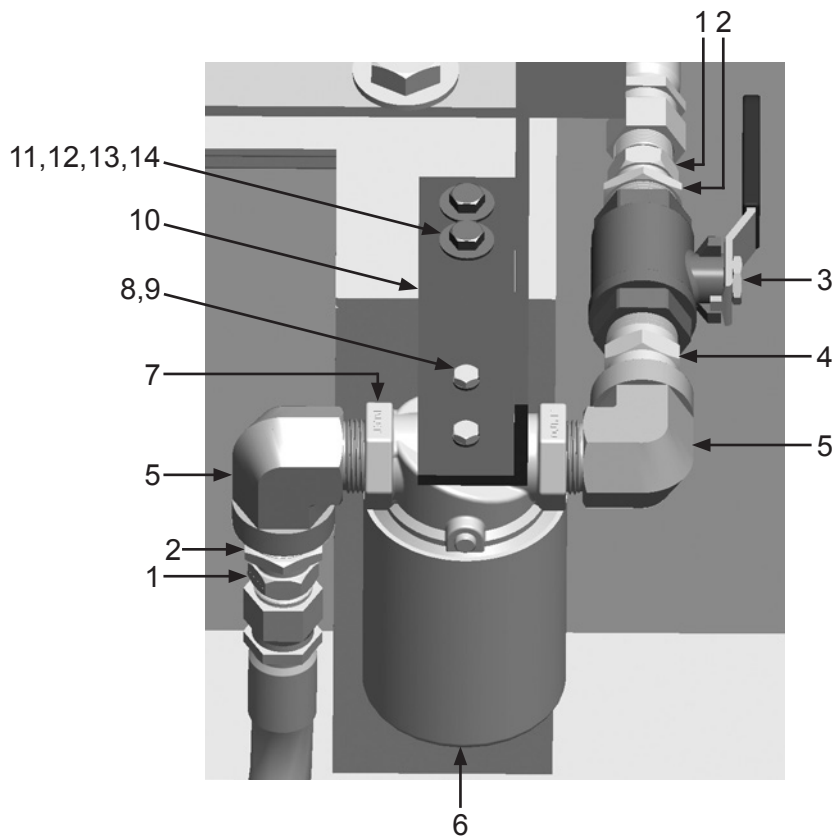
PART NUMBERS AND SCHEMATICS

Figure 3: Hydraulic Oil Tank



PART NUMBERS AND SCHEMATICS

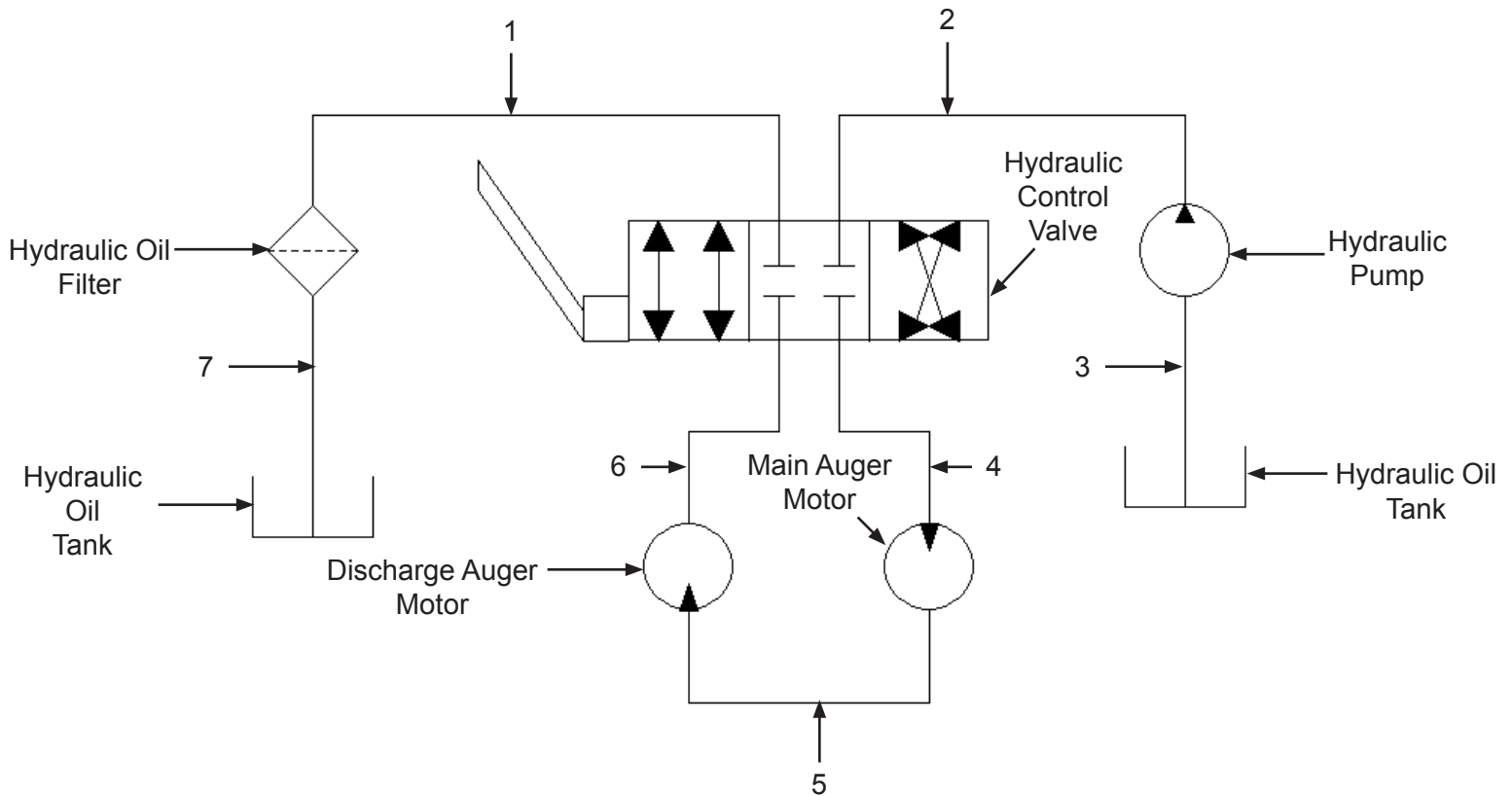
Figure 4: Hydraulic Oil Filter Assembly



Item #	Part #	Description
Fig. 4		
1	10103314	Straight Adapter - 3/4" NPT x 12 JIC (Two Required)
2	20PFHA24SB1612	Reducing Bushing - 1" x 3/4" (Two Required)
3	1011601	Full Port Brass Ball Valve - 3/4"
4	20PFHA24SA1616	Hex Nipple - 1"
5	20PFHA25UG1616	Street Elbow - 1" (Two Required)
6	10104058	Hydraulic Oil Filter
7	10104057	Hydraulic Oil Filter Head
8	1012153	Lock Washer - 1/4"
9	20100125	Bolt - 1/4-20 x 3/4" - Zinc
10	10104051	Bracket - Hydraulic Oil Filter Head
11	10101059	Bolt - 3/8-16 x 1-1/4" - Galvanized
12	10101942	Flat Washer - 3/8" - Galvanized
13	10101936	Lock Washer - 3/8" - Zinc
14	1012318	Hex Nut - 3/8-16 -

PART NUMBERS AND SCHEMATICS

Figure 5: Hydraulic Hoses



Item #	Part #	Description
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Fig. 6

1	10104069	Hydraulic Hose - 3/4" I.D. x 17 feet - 3045 psi
2	10103406	Hydraulic Hose - 3/4" I.D. x 21 feet - 3045 psi
3	10103405	Hydraulic Hose - 1" I.D. x 9.5 feet - 2000 psi
4	10103407	Hydraulic Hose - 1/2" X 14' - 2000 psi
5	10103501	Hydraulic Hose - 1/2" X 18'8" - 2000 psi
6	10103409	Hydraulic Hose - 1/2" I.D. x 7.08 feet - 2000 psi
7	10104055	Hydraulic Hose - 3/4" I.D. x 7 feet - 3045 psi

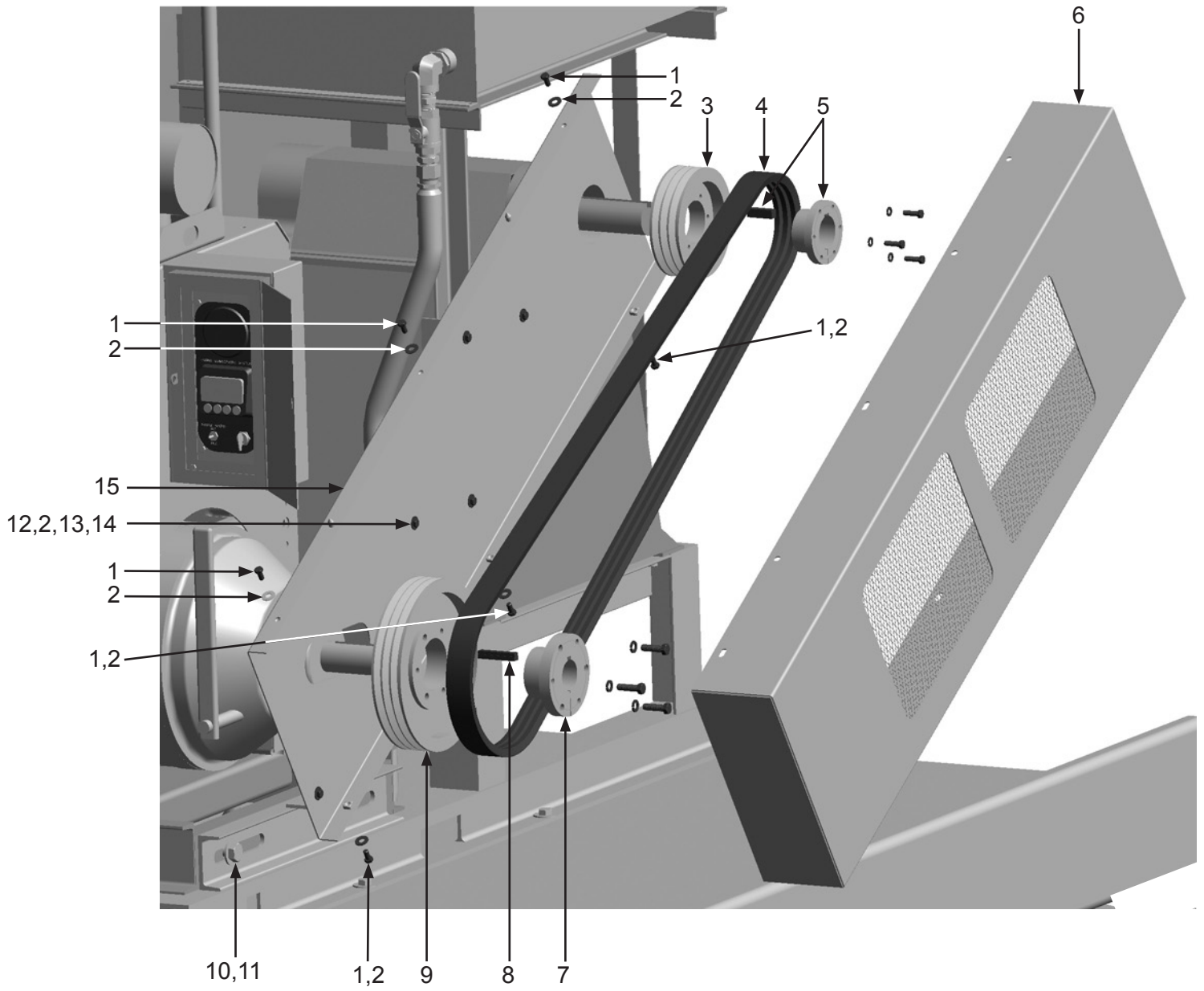
PART NUMBERS AND SCHEMATICS

Fan Belt Assembly

Item #	Part #	Description
Fig. 6		
1	10103400	3/8-16 x 3/4" Bolt <i>(Six Required)</i>
2	10101942	3/8" Galvanized Flat Washer <i>(16 Required)</i>
3	10103324	8" Sheave
4	10103327	3-Band Fan Drive Belt – 125"
5	10103323	8" Sheave Bushing with Key <i>Includes Mounting Hardware</i>
6	10102964	Belt Guard Cover
7	10103325	12-1/2" Sheave Bushing <i>Includes Mounting Hardware</i>
8	10103644	1/2" x 1/4" x 5/8" x 5/16" Step Key
9	10103326	12-1/2" Sheave
10	10103417	3/4-10 x 1-3/4" Bolt <i>(Four Required)</i>
11	10103418	3/4" Washer <i>(Four Required)</i>
12	1028617	3/8-16 x 1-3/4" Shoulder Bolt <i>(Five Required)</i>
13	10101936	3/8" Zinc Lock Washer <i>(Five Required)</i>
14	1012318	3/8" Hex Nut <i>(Five Required)</i>
15	10102967	Belt Guard Back

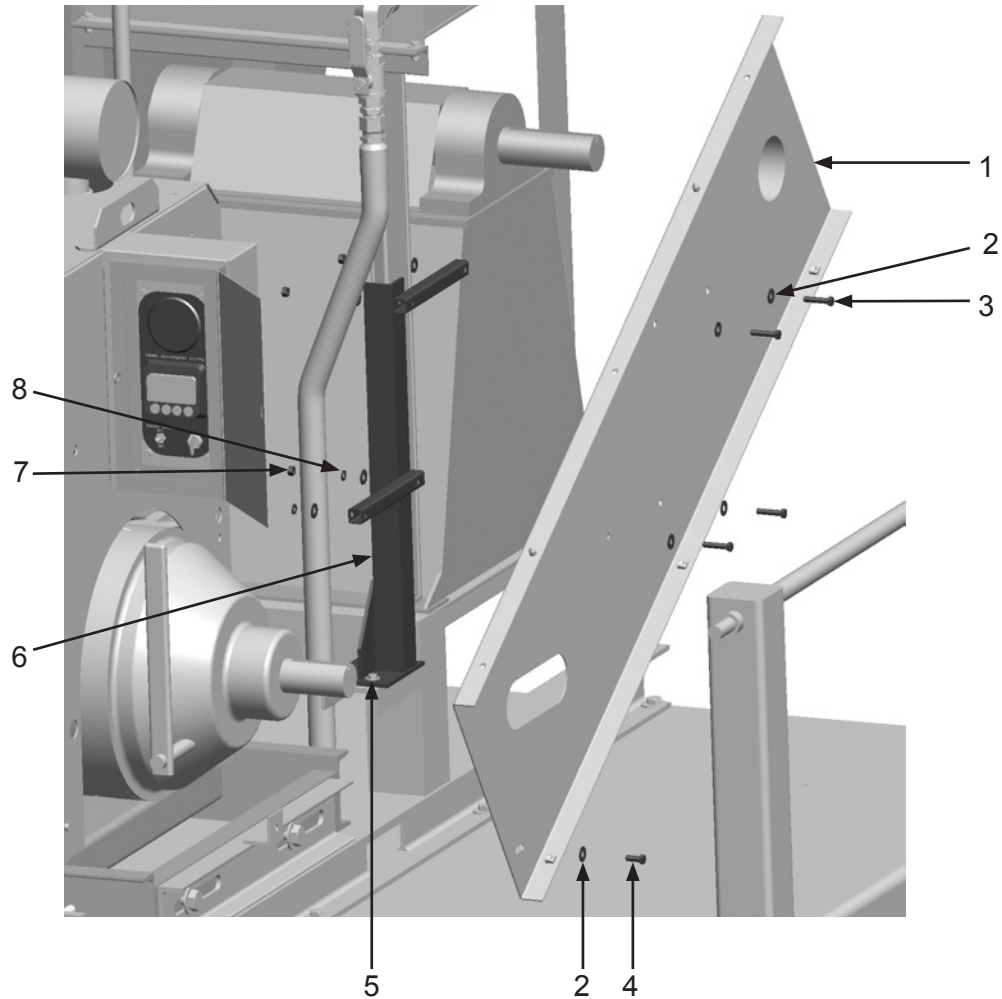
PART NUMBERS AND SCHEMATICS

Figure 6: Fan Belt Assembly



PART NUMBERS AND SCHEMATICS

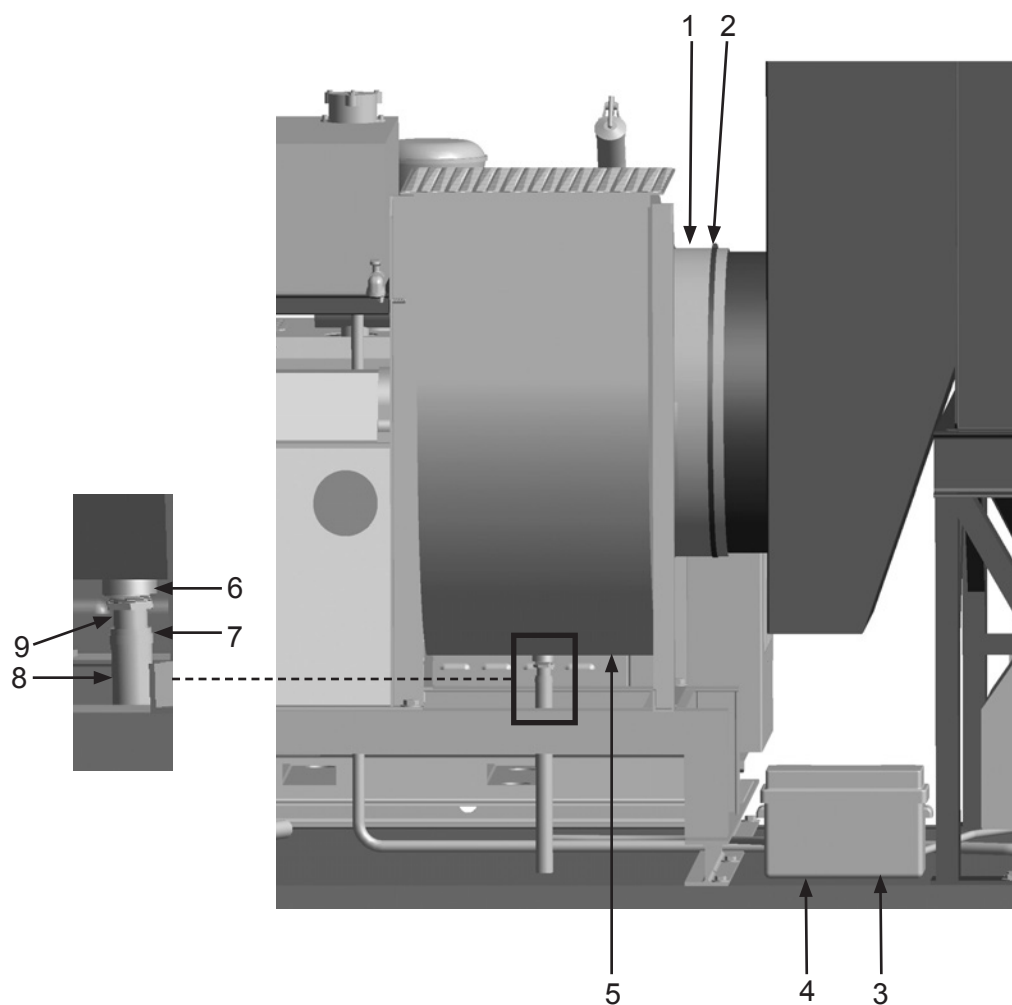
Figure 7: Fan Belt Guard Back Assembly



Item #	Part #	Description
Fig. 7		
1	10102967	Belt Guard Back
2	10101942	3/8" Galvanized Flat Washer (18 Required)
3	1028617	3/8-16 x 1-3/4" Shoulder Bolt (Four Required)
4	1011747	3/8-16 x 1" Bolt
5	10101059	3/8-16 x 1-1/4" Galvanized Bolt (Four Required)
6	10103354	Belt Guard Mount
7	1012318	3/8-16 Hex Nut (Nine Required)
8	10101936	3/8" Zinc Lock Washer (Nine Required)

PART NUMBERS AND SCHEMATICS

Figure 8: Fan Assembly and Battery Box



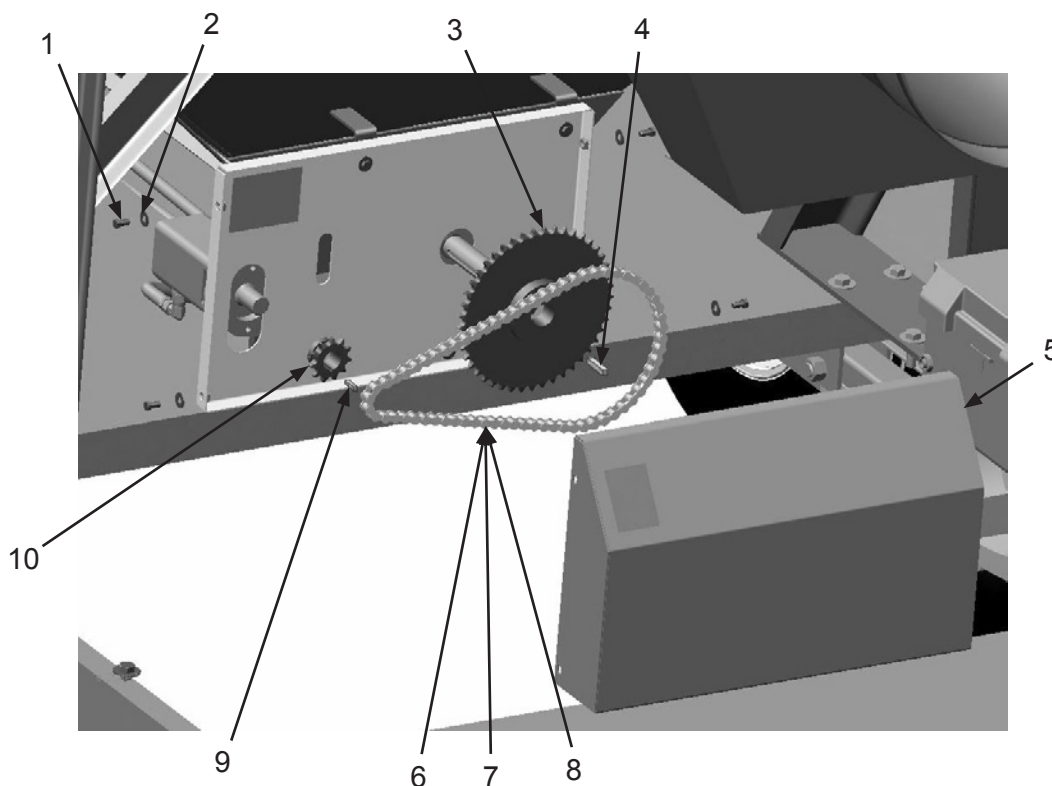
Item #	Part #	Description
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Fig. 8

1	10103962	Connection Rubber Gasket
2	10103623	Adjustable Clamp Fastener <i>(Two Required)</i>
3	10103342	Battery Box
4	10103963	Rubber Cushioning Pad
5	10103626	Fan
6	20PFHA24SB2016	1-1/4" x 1" Reducing Bushing
7	10104136	T-Bolt Clamp 1-9/16" X 1-11/16" OD
8	10103654	1-1/4" I.D. Hose <i>(Per Foot)</i>
9	10105207	1" NPT X 3" Toe Nipple
—	10105867	Battery Cables <i>(Not Shown)</i>
—	10103341	Battery <i>(Not Shown)</i>

PART NUMBERS AND SCHEMATICS

Figure 9: Main Auger Drive Assembly



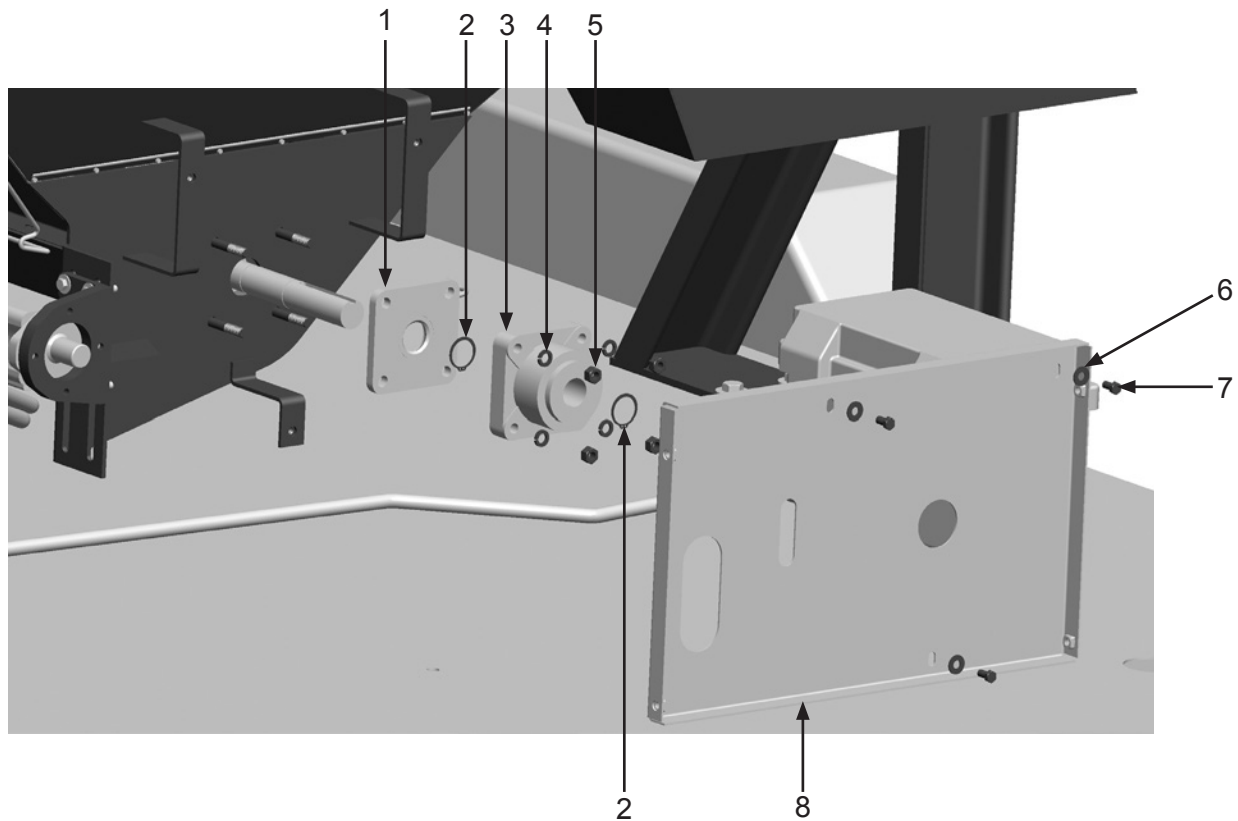
Item #	Part #	Description
--------	--------	-------------

Fig. 10

1	10103400	3/8-16 x 3/4" Bolt (<i>Four Required</i>)
2	10101942	3/8" Galvanized Flat Washer (<i>Four Required</i>)
3	10104218	45-Tooth Sprocket
4	10103641	3/8" Key Cut
5	10102952	Main Auger Motor Cover
6	10103391	60# Cottered Roller Chain (<i>Per Foot</i>)
7	10103392	60# Connecting Link
8	10103614	60# Offset Link
9	10103642	5/16" x 1/4" x 1/8" x 1/8" Key
10	10103265	11-Tooth Sprocket
—	10104192	Main Auger Chain Kit <i>Includes Item #'s: 7, 8, and 9</i>

PART NUMBERS AND SCHEMATICS

Figure 10: Main Auger Bearing



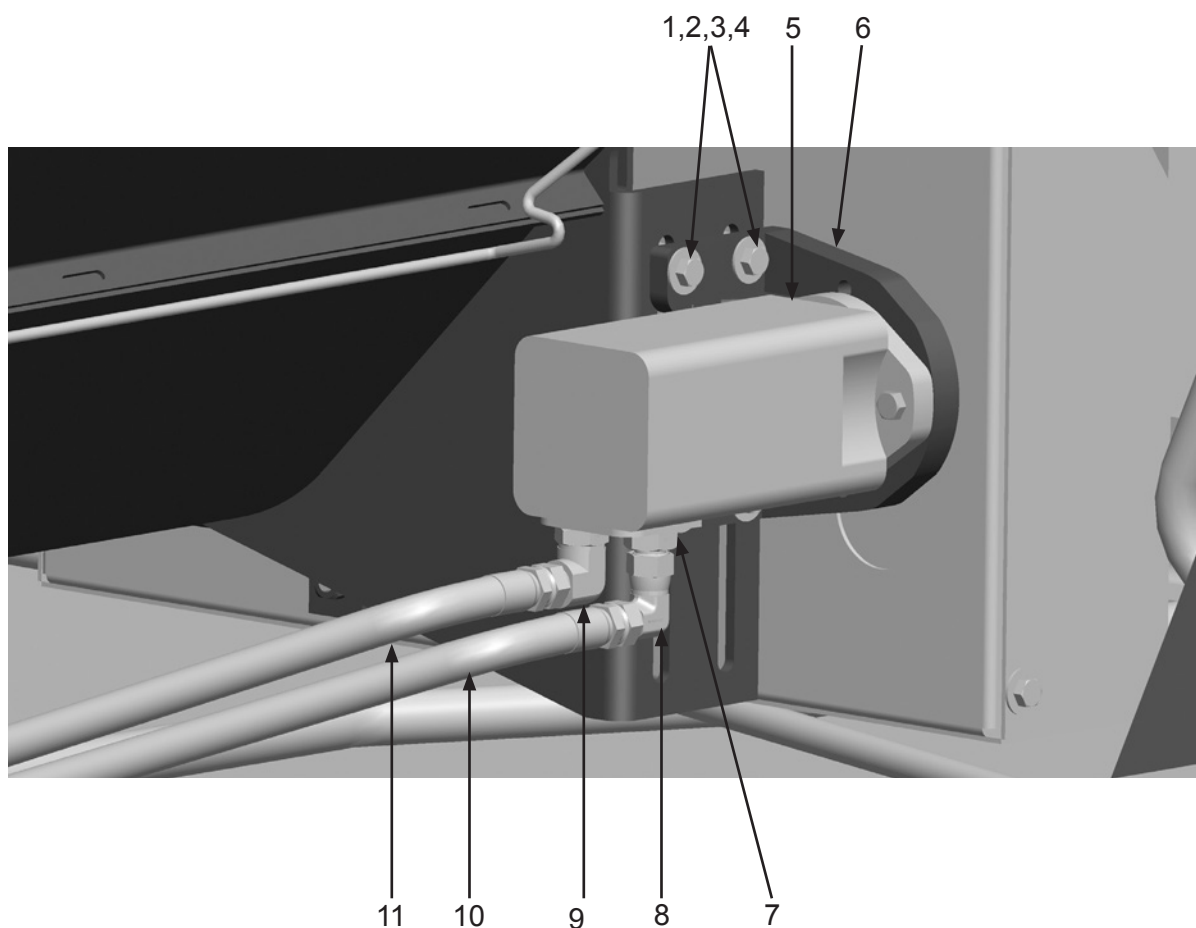
Item #	Part #	Description
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Fig. 10

1	10102902	Seal Plate
2	10103605	Snap Ring (<i>Two Required</i>)
3	10102903	Thrust Bearing
4	10100675	1/2" Lock Washer (<i>Four Required</i>)
5	1014022	1/2-13 Hex Nut (<i>Four Required</i>)
6	10101942	3/8" Galvanized Flat Washer (<i>Three Required</i>)
7	10103400	3/8-16 x 3/4" Bolt (<i>Three Required</i>)
8	10102955	Main Auger Guard Back

PART NUMBERS AND SCHEMATICS

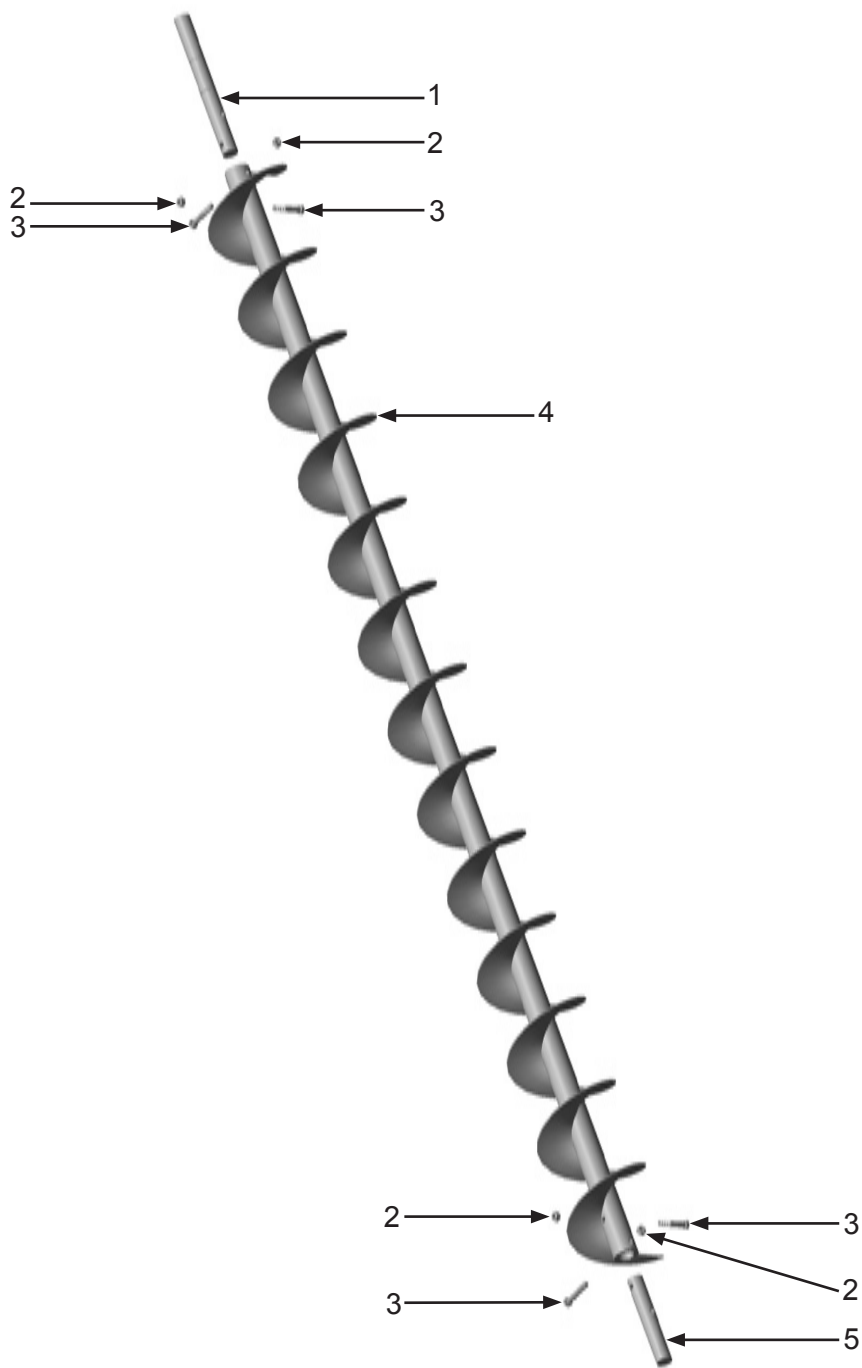
Figure 11: Main Auger Motor



Item #	Part #	Description
Fig. 11		
1	1028617	3/8-16 x 1-3/4" Shoulder Bolt (<i>Four Required</i>)
2	10101942	3/8" Galvanized Flat Washer (<i>Eight Required</i>)
3	10101936	3/8" Zinc Lock Washer (<i>Four Required</i>)
4	1012318	3/8-16 Hex Nut (<i>Four Required</i>)
5	10103266	18.7 Displacement Hydraulic Motor
6	10102881	Hydraulic Motor Mount with Hardware
7	10103612	JIC 8 x SAE 10 Straight Adapter
8	10103611	JIC 8 x JIC 8 90° Elbow
9	10103308	JIC 8 x SAE 10 90° Elbow
10	10104224	1/2" x 24' Hydraulic Hose
11	10103502	1/2" x 20' Hydraulic Hose - 4500 PSI
—	10103941	Seal Kit for 18.7 Displacement Hydraulic Motor

PART NUMBERS AND SCHEMATICS

Figure 12: Main Auger



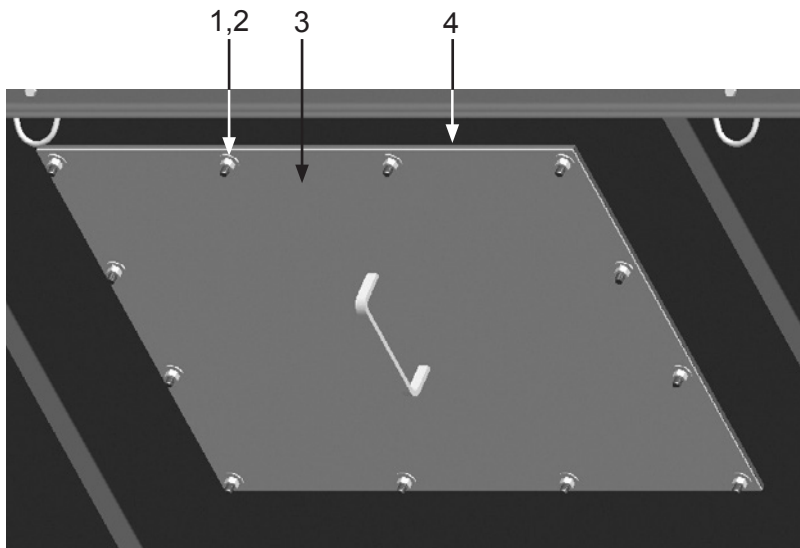
Item #	Part #	Description
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Fig. 12

1	10103306	Drive Shaft
2	10101941	1/2-13 Galvanized Hex Nut (<i>Four Required</i>)
3	10103401	1/2-13 x 3" Galvanized Bolt (<i>Four Required</i>)
4	10103262	118" x 9" Standard Pitch Auger
5	10102910	Auger Shaft End

PART NUMBERS AND SCHEMATICS

Figure 13: Access Panel Assembly

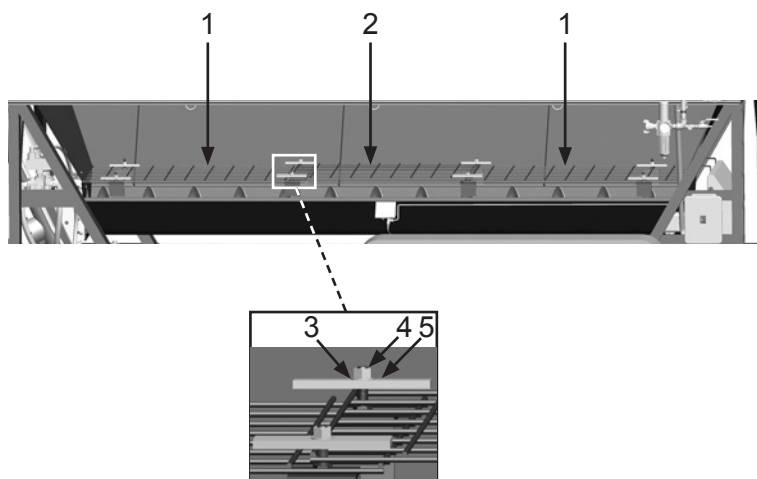


Item #	Part #	Description
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Fig. 13

1	1012318	3/8-16 Hex Nut (12 Required)
2	10101942	3/8" Flat Washer (12 Required)
3	10102933	20" Access Panel Door
4	10103344	1/4" X 1-1/2" Adhesive-Backed Gasket (Per Foot)

Figure 14: Main Auger Protective Grate



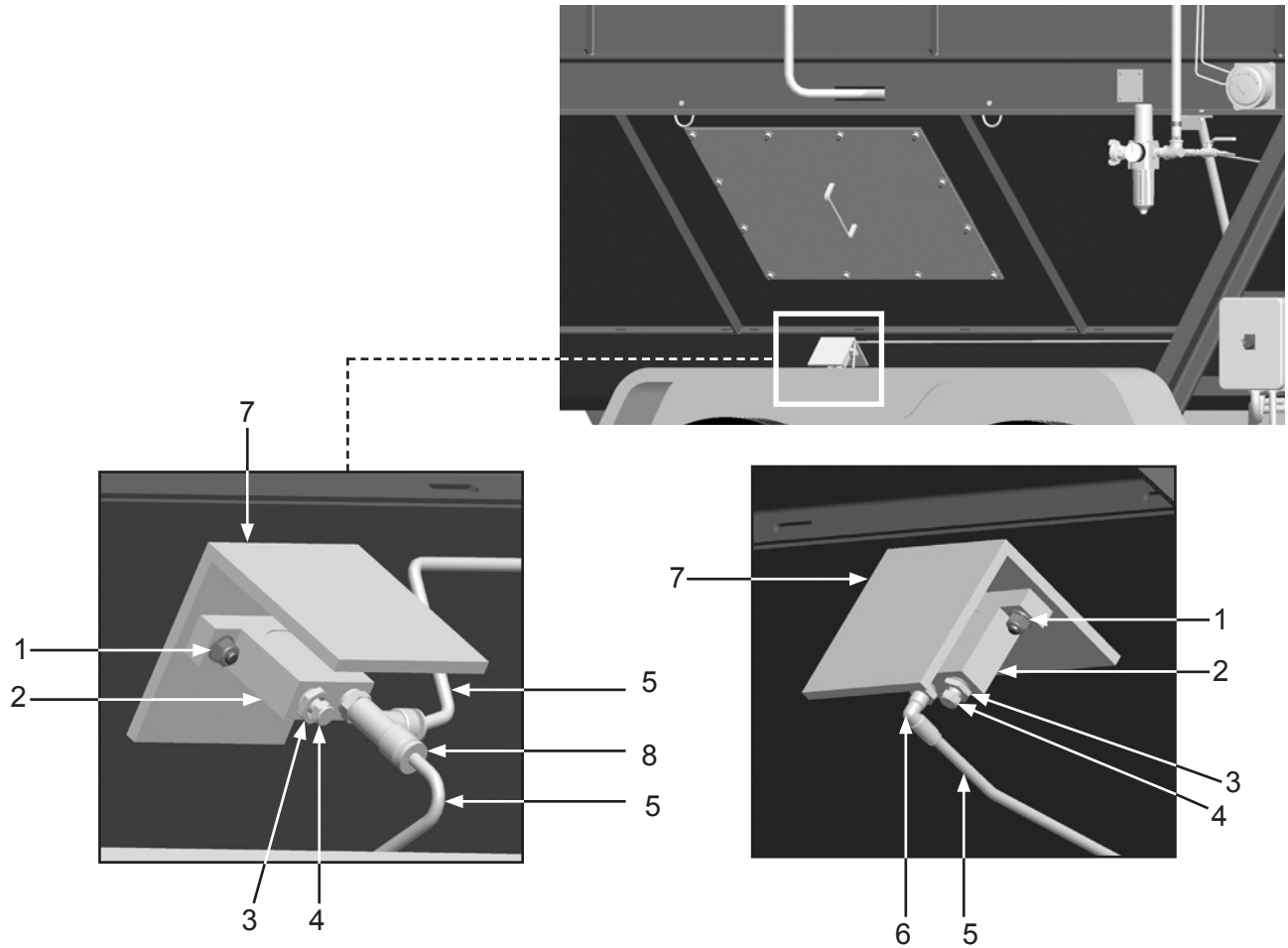
Item #	Part #	Description
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Fig. 14

1	10103966	Protective Grate - 44 Inches (Two Required)
2	10103967	Protective Grate - 36 Inches
3	10100674	Flat Washer - 1/2" (Eight Required)
4	1014022	1/2-13 Hex Nut (Eight Required)
5	10102936	Protective Grate Bracket (Eight Required)

PART NUMBERS AND SCHEMATICS

Figure 15: Pneumatic Ball Vibrators



Item #	Part #	Description
Fig. 15		
1	1012323	1/4-20 Zinc Lock Nut with Nylon Insert (<i>Four Required</i>)
2	10103258	Pneumatic Ball Vibrator (<i>Two Required</i>)
3	20PFHA24SB0402	1/4" x 1/8" Reducing Bushing
4	1012905	1/8" Breather Muffler (<i>Two Required</i>)
5	10103322	1/4" I.D. Black Urethane Tubing (<i>Per Foot</i>)
6	20PFBA31095614	1/4" Tube x 1/4" NPT 90° Fitting
7	10103609	Vibrator Shield (<i>Two Required</i>)
8	10103261	1/4" Male Push-to-connect Tee

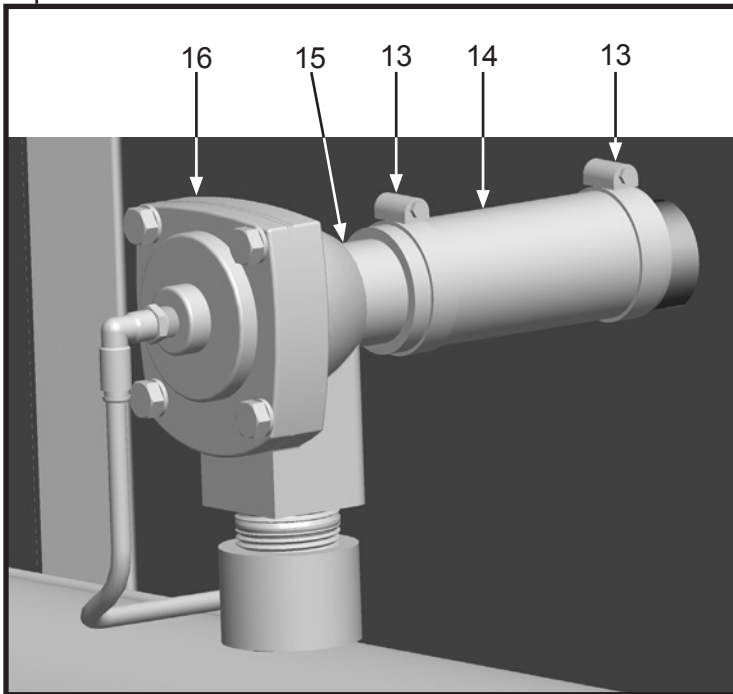
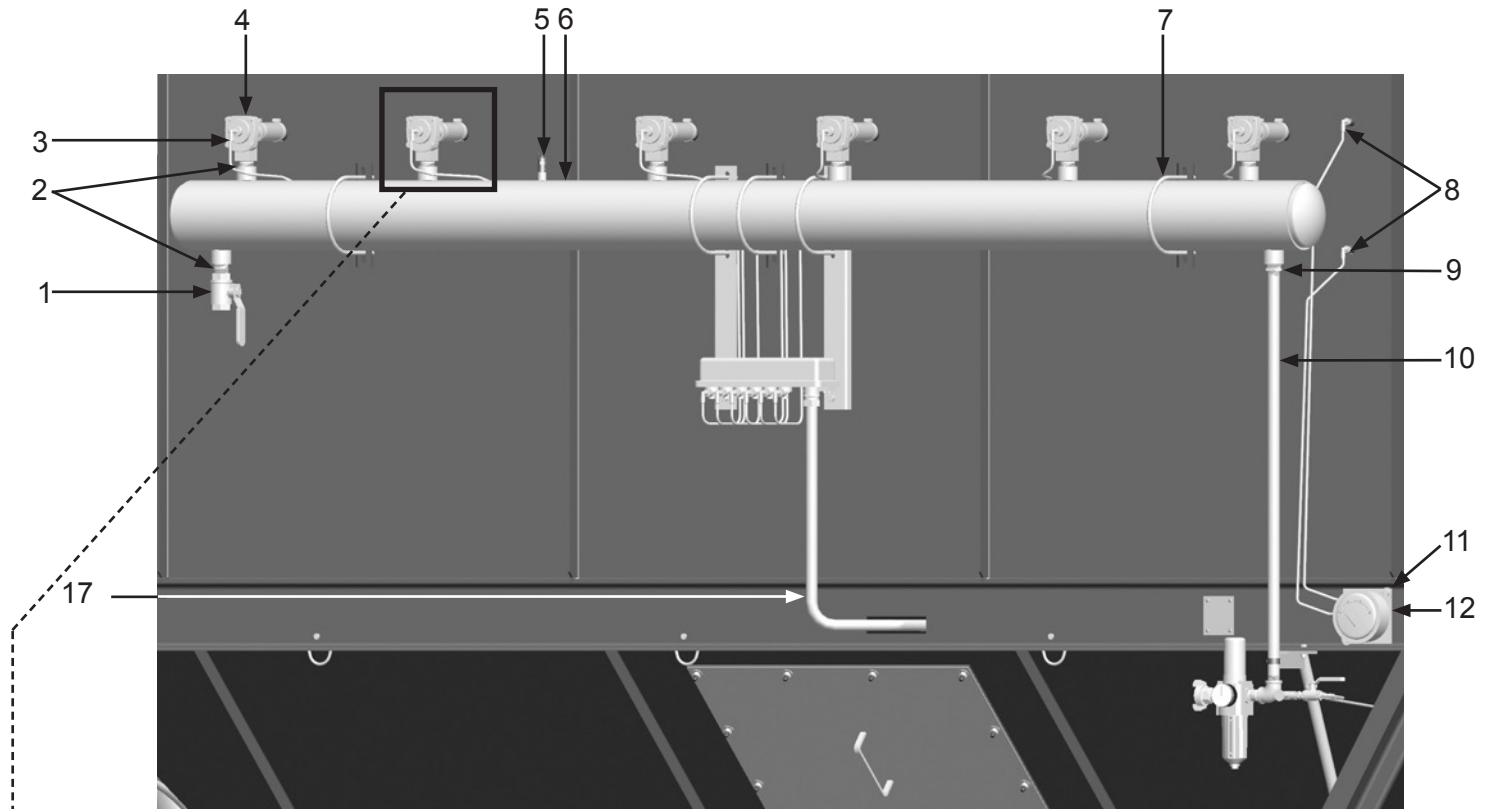
PART NUMBERS AND SCHEMATICS

Pulser System Assembly

Item #	Part #	Description
Fig. 16		
1	1011601	1" Full Port Ball Valve
2	10103318	1" x 2" Pipe Nipple (<i>Seven Required</i>)
3	10103322	1/4" O.D. Black Urethane Tubing (<i>Per Foot</i>)
4	20100579	1/4" O.D. Tube x 1/8" NPT Swivel (<i>Six Required</i>)
5	1028607	1/4" NPT Pressure Relief Valve – 125 PSI
6	10102948	6" Pipe Header
7	10103394	3/8-16 x 6" U-Bolt Assembly (<i>Five Required</i>)
8	20PFBA31095614	1/4" Tube x 1/4" NPT 90° Fitting (<i>Two Required</i>)
9	20PFHA24SB1612	1" x 3/4" Reducing Bushing
10	10103315	3/4" x 36" Pipe Nipple
11	10103608	Magnehelic Differential Pressure Gauge Mounting Bracket
12	10103259	Magnehelic Differential Pressure Gauge Assembly <i>Includes Mounting Hardware</i>
13	10104136	T-Bolt Clamp 1-9/16" X 1-11/16" OD
14	10103654	1-1/4" I.D. Marine Hose – 100 PSI (<i>Per Foot</i>)
15	10105207	1" x 3" Toe Nipple (<i>Six Required</i>)
16	10103255	1" Diaphragm Valve
17	10103304	3/4" I.D. Flexible Conduit
—	10103954	1" Diaphragm Valve Service Kit (<i>Not Shown</i>)

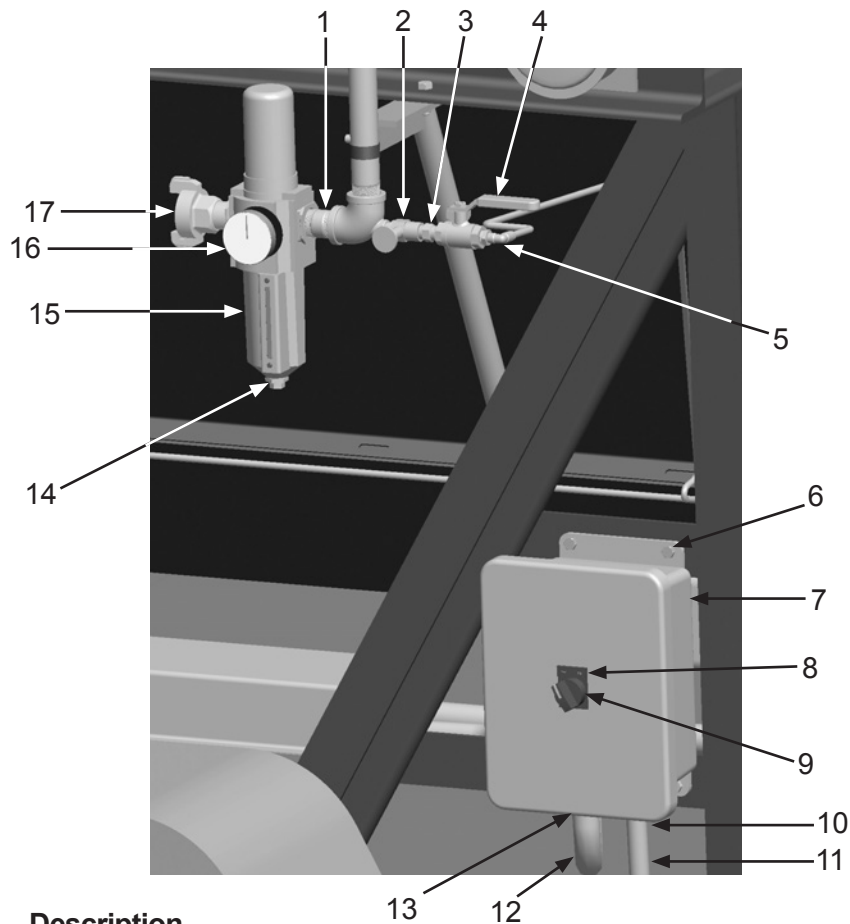
PART NUMBERS AND SCHEMATICS

Figure 16: Pulsar System Assembly



PART NUMBERS AND SCHEMATICS

Figure 17: Pulsar Regulator and Timer Assembly



Item # Part #

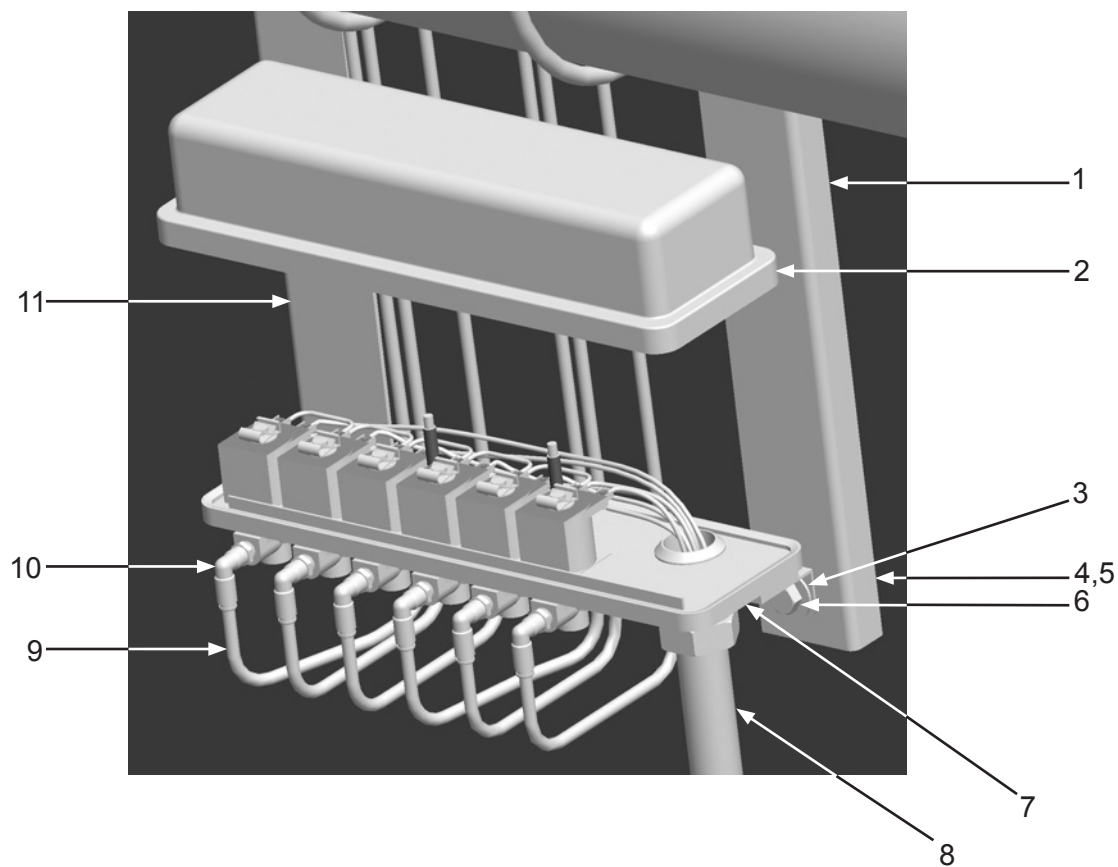
Description

Fig. 17

1	10103317	3/4" x 2" Pipe Nipple
2	10103292	1/4" Needle Valve
3	1017019	1/4" x 1/4" Hex Nipple
4	1080050	1/4" Ball Valve
5	20PFBA31095614	1/4" Tube x 1/4" NPT 90° Fitting (<i>Three Required</i>)
6	20100125	1/4-20 x 3/4" Zinc Hex Bolt (<i>Four Required</i>)
7	10103254	Timer Box with Timer Board
—	10103935	Timer Box Only
—	10103948	Timer Board Only
8	10103414	On/Off Name Plate
9	10103305	2-Way Selector Switch
10	20RST50	Straight Liquid Tite Connection Fitting (<i>Two Required</i>)
11	20RSEL050UL	1/2" UL/UA Seal-Tite Conduit Pipe (<i>Per Foot</i>)
12	10103304	3/4" Flexible Conduit
13	10103303	3/4" Conduit Hub
14	10103952	Filter Auto Drain
15	10103257	Excelon 74 Series Filter/Regulator
16	10103953	Sight Glass Kit
17	10ME1	3/4" Male 2-lug Coupling
—	10103950	Excelon 74 Series Filter/Regulator Service Kit
—	10103951	Filter Element (<i>Not Shown</i>)

PART NUMBERS AND SCHEMATICS

Figure 18: Pulsar Solenoid Enclosure Assembly



Item #	Part #	Description
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Fig. 18

1	10102970	Solenoid Enclosure Mount – Right
2	10103256	Solenoid Pilot Valve Enclosure
3	10101942	3/8" Galvanized Flat Washer <i>(Four Required)</i>
4	10101936	3/8" Zinc Lock Washer <i>(Two Required)</i>
5	1012318	3/8-16 Hex Nut <i>(Two Required)</i>
6	1011747	3/8-16 x 1" Bolt
7	10103303	3/4" Conduit Hub
8	10103304	3/4" Flexible Conduit
9	10103322	1/4" O.D. Black Urethane Tubing <i>(Per Foot)</i>
10	20100579	1/4" O.D. Tube x 1/8" NPT Swivel <i>(Six Required)</i>
11	10102969	Solenoid Enclosure Mount – Left
—	10103955	Solenoid Valve <i>(Six Required)</i>
—	10103956	Solenoid Coil <i>(One Required per Solenoid)</i>
—	10103957	Solenoid Service Kit <i>Includes: O-ring, Plunger, Spring, Ferrule</i>

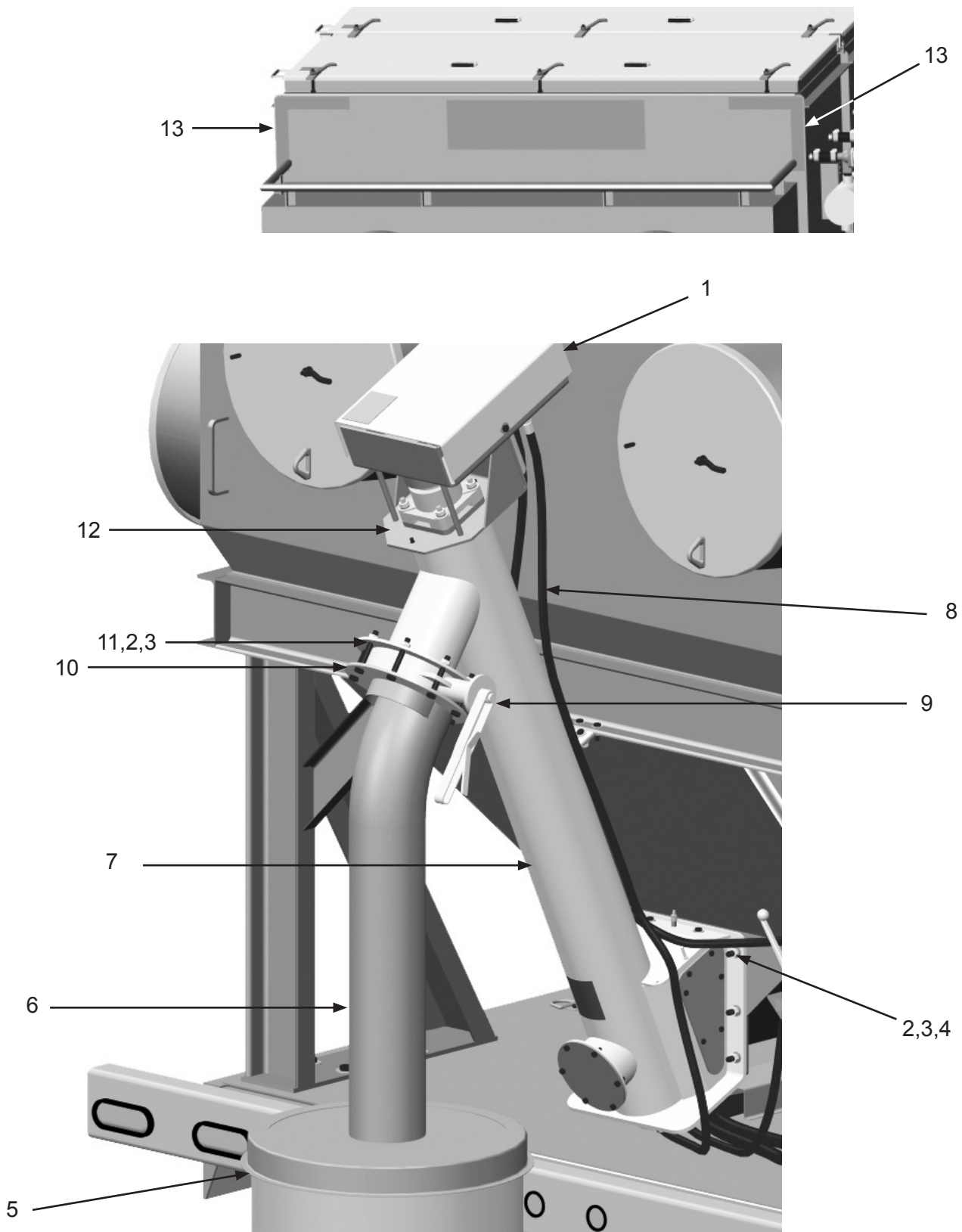
PART NUMBERS AND SCHEMATICS

Discharge Auger Assembly

Item #	Part #	Description
Fig. 19		
1	10103363	Discharge Chain Cover
2	10101941	1/2-13 Hex Nut (<i>14 Required</i>)
3	10100674	1/2" Flat Washer (<i>22 Required</i>)
4	10100675	1/2" Lock Washer (<i>14 Required</i>)
5	10103650	Discharge Collection Drum Cover (<i>Optional</i>)
6	10103777	6" Flexible Discharge Hose (<i>Per Foot</i>)
7	—	Discharge Auger (<i>See Fig. 20</i>)
8	10103411	1/2" I.D. x 4' Hydraulic Hose with Fittings
9	10103302	6" Series Wafer Butterfly Valve
10	10102471	Discharge Hose Connector
11	10102703	1/2-13 x 3-1/2" Grade 5 Bolt (<i>Eight Required</i>)
12	10103359	Discharge Auger Motor Mounting Bracket
13	10103880	White Conspicuity Tape (<i>Per Inch</i>)
—	10103881	Red Conspicuity Tape (<i>Per Inch</i>)

PART NUMBERS AND SCHEMATICS

Figure 19: Discharge Auger Assembly



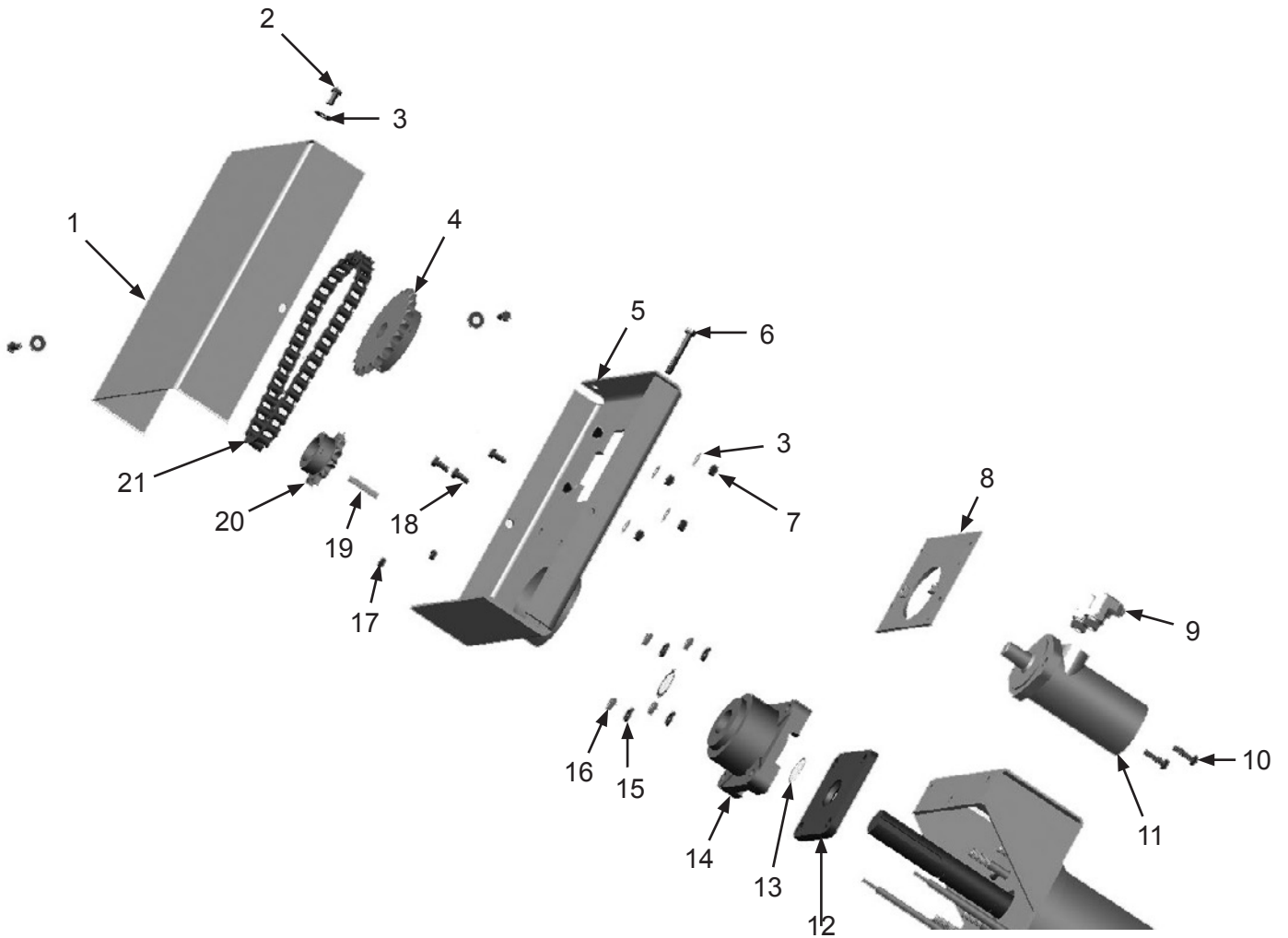
PART NUMBERS AND SCHEMATICS

Discharge Auger Drive Assembly

Item #	Part #	Description
Fig. 20		
1	10103363	Chain Cover
2	10103400	3/8-16 x 3/4" Bolt <i>(Seven Required)</i>
3	10101942	3/8" Galvanized Flat Washer <i>(Three Required)</i>
4	10104217	22-Tooth Sprocket
5	10104197	Chain Cover Base
6	10101933	3/8" - 16 X 2-1/2" Hex Bolt
7	1012318	3/8-16 Hex Nut <i>(Four Required)</i>
8	10104199	Sliding Motor Mount
9	10103308	JIC 8 x SAE 10 90° Elbow <i>(Two Required)</i>
10	10101059	3/8-16 X 1-1/4" A307 Bolt Galv <i>(Two Required)</i>
11	10102887	Hydraulic Motor
12	10102902	Seal Plate
13	10103605	Snap Ring <i>(Two Required)</i>
14	10102903	Thrust Bearing
15	10100675	1/2" Lock Washer <i>(Four Required)</i>
16	1014022	1/2-13 Hex Nut <i>(Four Required)</i>
17	1035046	5/16"- 18 Nut <i>(Two Required)</i>
18	10101346	5/16-18 X 3/4" L GR 5 Bolt <i>(Three Required)</i>
19	10103641	3/8 Key Cut
20	10102886	13-Tooth Sprocket
21	10104191	Discharge Auger Chain Kit <i>Includes 60# Connecting Chain Link, 60# Cottered Roller Chain (Quantity of Three), and 60# Offset Chain Link.</i>
—	10103392	60# Connecting Chain Link
—	10103391	60# Cottered Roller Chain <i>(Per Foot)</i>
—	10103614	60# Offset Chain Link
—	10103940	Seal Kit for Hydraulic Motor

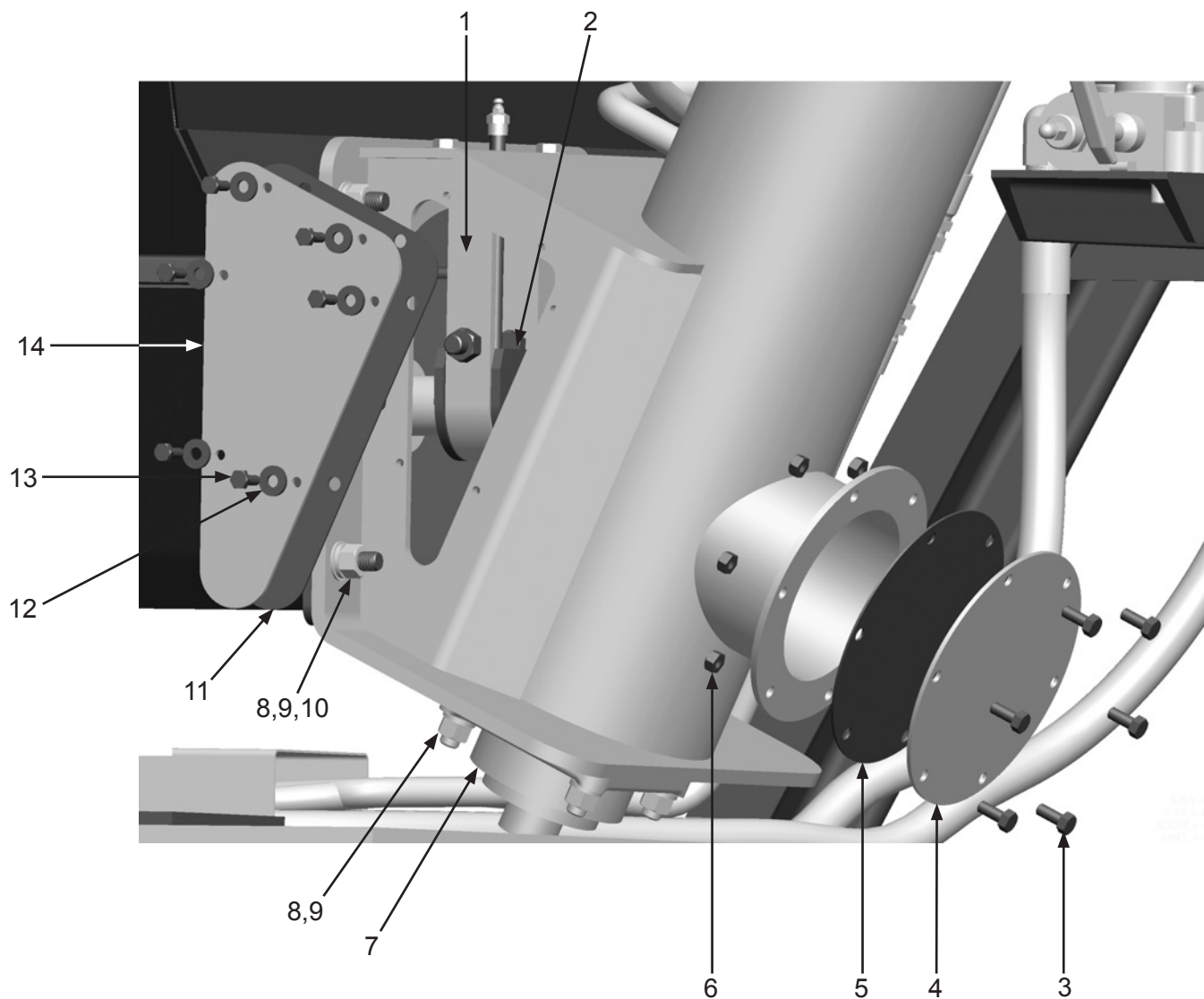
PART NUMBERS AND SCHEMATICS

Figure 20: Discharge Auger Drive Assembly



PART NUMBERS AND SCHEMATICS

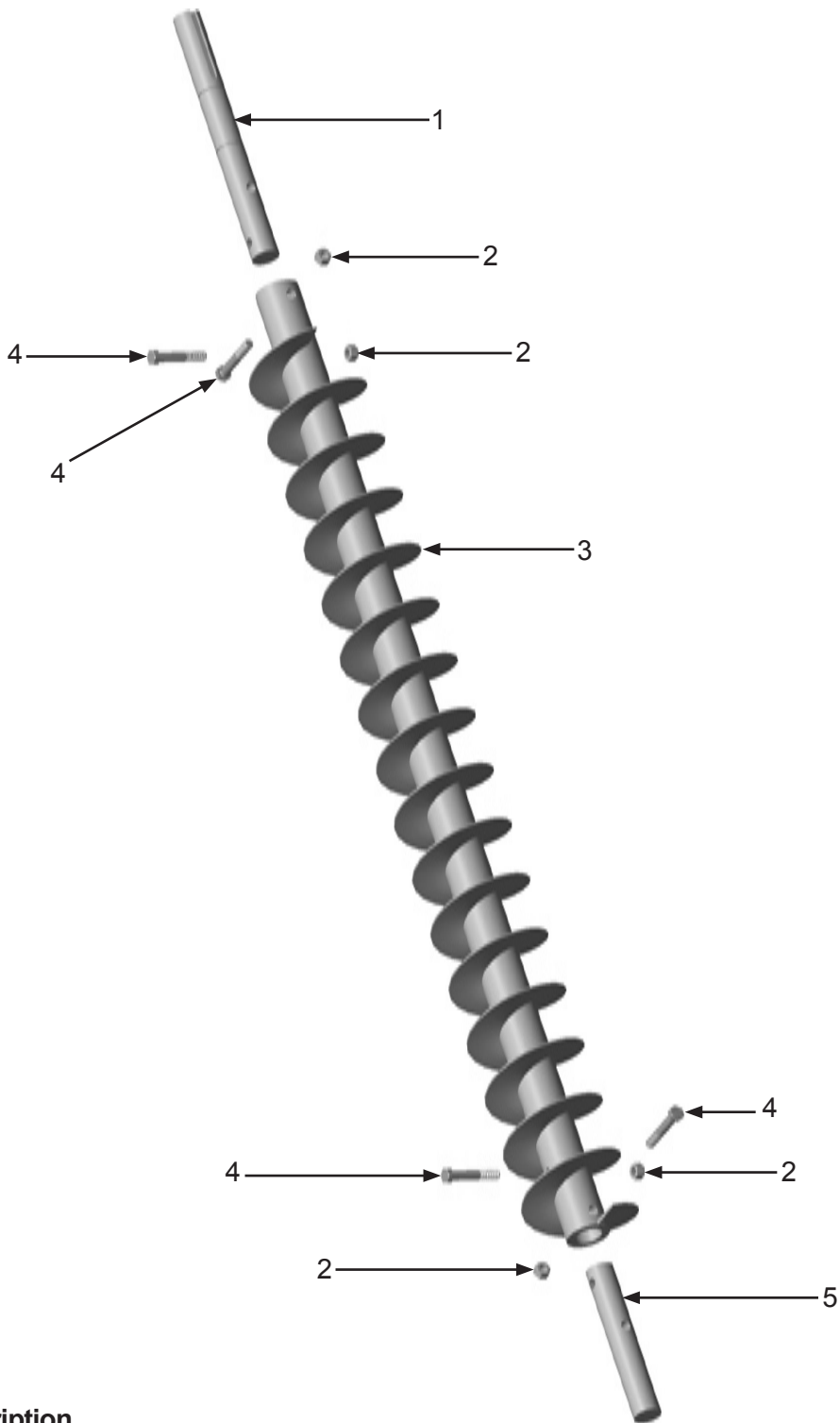
Figure 21: Discharge Auger Clean-out Assembly



Item #	Part #	Description
Fig. 21		
1	10102896	Bearing Hanger
2	10103413	Bearing
3	10101346	5/16-18 x 3/4" Bolt (Six Required)
4	10103235	Auger Clean-out Cover
5	10103716	Neoprene Auger Clean-out Gasket
6	1035046	5/16-18 Nut (Six Required)
7	10102880	Discharge Auger Lower Bearing Assembly
8	10101941	1/2-13 Galvanized Hext Nut (10 Required)
9	10100675	1/2" Lock Washer (10 Required)
10	10100674	1/2" Flat Washer (6 Required)
11	10103717	Discharge Auger Side Gasket (Two Required)
12	10101940	1/4" Galvanized Flat Washer (12 Required)
13	20100125	1/4-20 x 3/4" Zinc Hex Bolt (12 Required)
14	10103236	Discharge Auger Side Cover (Two Required)

PART NUMBERS AND SCHEMATICS

Figure 22: Discharge Auger Assembly



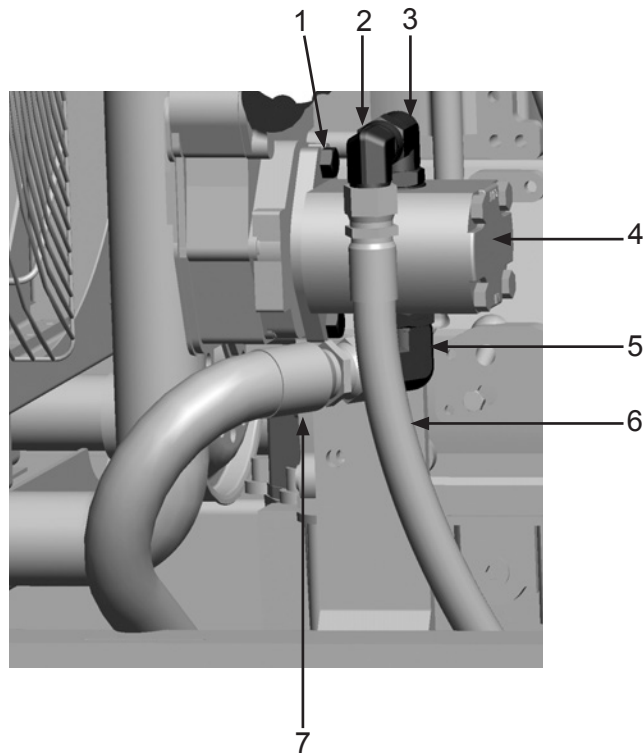
Item #	Part #	Description
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Fig. 22

1	10103306	Drive Shaft
2	10101941	1/2-13 Galvanized Hex Nut (<i>Four Required</i>)
3	10102883	58" x 6" Half Pitch Auger
4	10103401	1/2-13 x 3" Galvanized Bolt (<i>Four Required</i>)
5	10102910	Auger Shaft End

PART NUMBERS AND SCHEMATICS

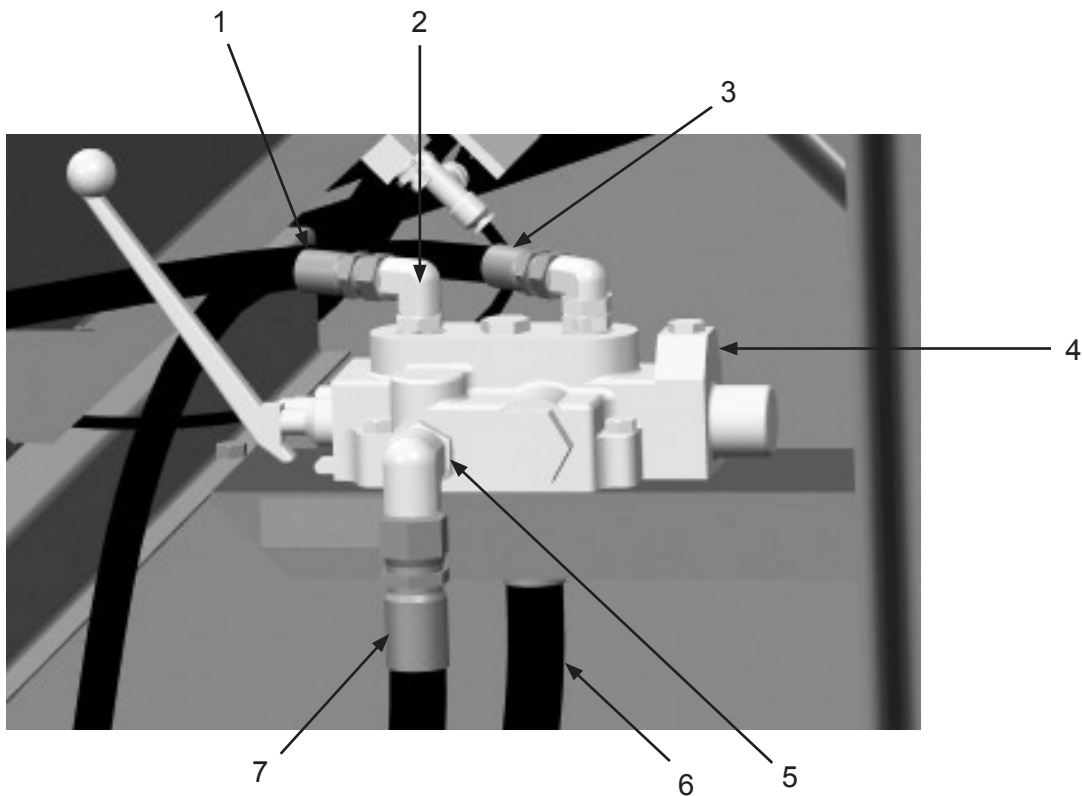
Figure 23: Hydraulic Pump



Item #	Part #	Description
Fig. 23		
1	10103615	M10 x 25 mm Zinc Bolt (<i>Two Required</i>)
2	10103610	JIC 12 x JIC 12 90° Elbow
3	10103310	JIC 12 x SAE 12 90° Elbow
4	10103269	2B Series 2.08 CI/REV Gear Pump
5	10103311	JIC 6 x SAE 16 90° Elbow
6	10103406	3/4" I.D. x 21' Hydraulic Hose with Fittings
7	10103405	1-1/4" I.D. x 9-1/2" Hydraulic Hose with Fittings
—	10105869	Flange Gasket

PART NUMBERS AND SCHEMATICS

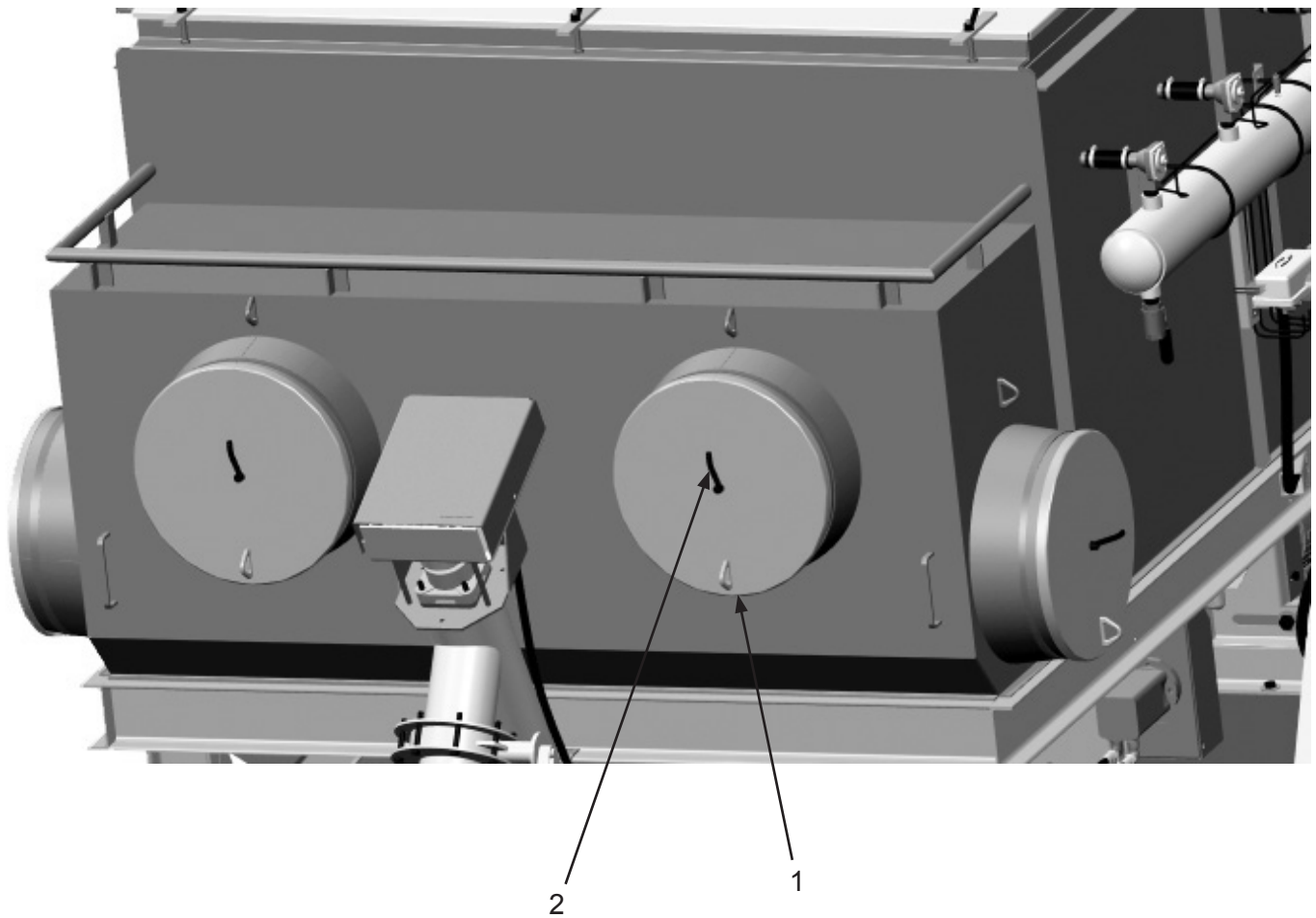
Figure 24: Hydraulic Control Assembly



Item #	Part #	Description
Fig. 24		
1	10103408	1/2" X 12'6" Hydraulic Hose with Fittings
2	10103309	JIC 8 x SAE 8 90° Elbow (<i>Two Required</i>)
3	10103409	1/2" X 7'1" Hydraulic Hose with Fittings
4	10103267	Cross Hydraulic Control Valve with Handle
5	10103310	JIC 12 x SAE 12 90° Elbow (<i>Two Required. One not shown</i>)
6	10103707	3/4" I.D. x 17.7' Hydraulic Hose with Fittings
7	10103710	3/4" I.D. x 13' Hydraulic Hose with Fittings

PART NUMBERS AND SCHEMATICS

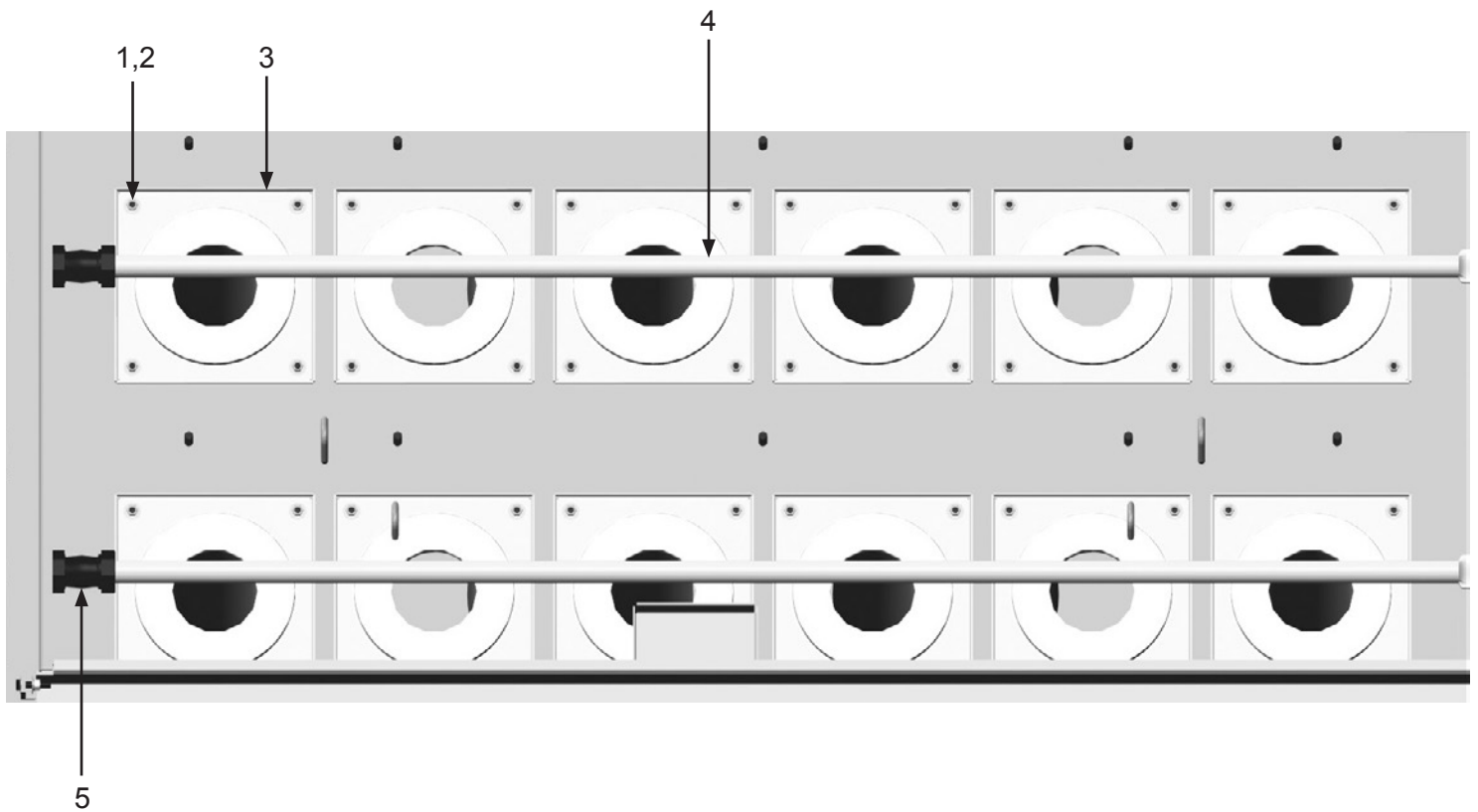
Figure 25: Inlet Door Assembly



Item #	Part #	Description
Fig. 25		
1	10105945	20" Inlet Cover <i>(Four Required)</i>
2	10105960	3/8-16 Handle Zinc <i>(Four Required)</i>

PART NUMBERS AND SCHEMATICS

Figure 26: Dust Collector Filter Cartridge Pulsers

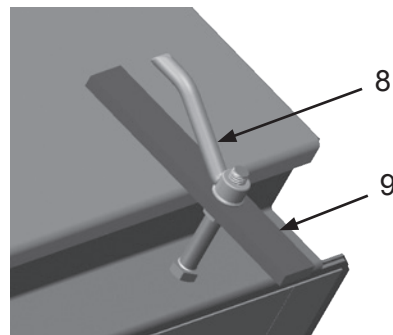
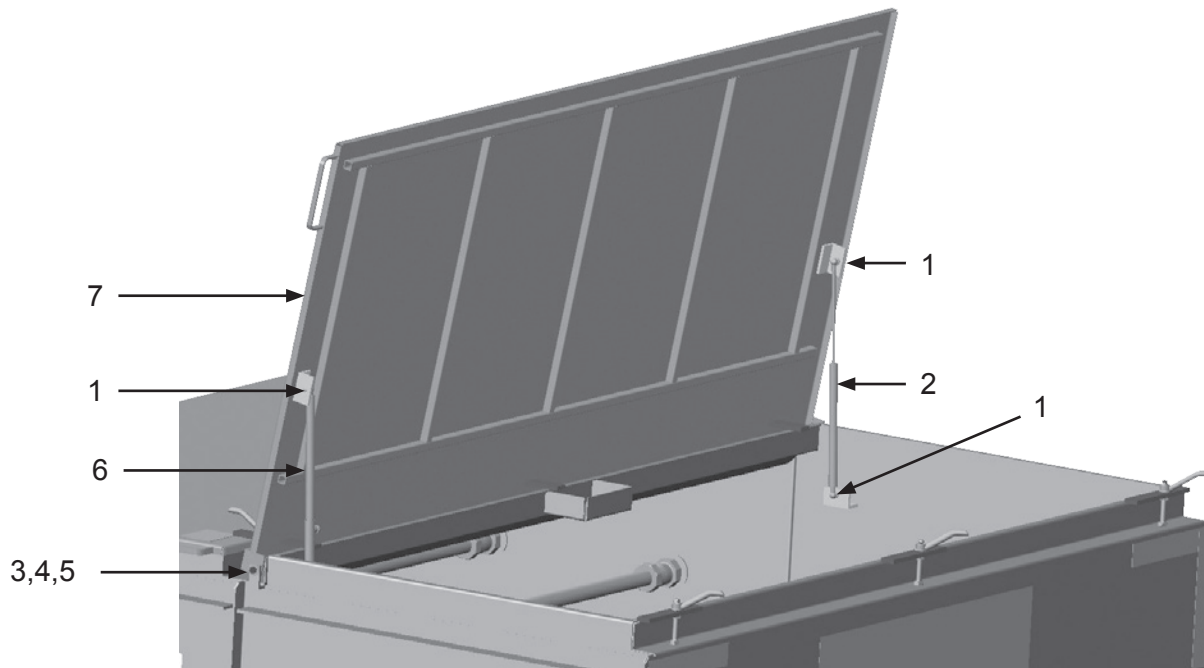


Item #	Part #	Description
1	10101942	3/8" Flat Washer (48 Required)
2	1012318	3/8" Hex Nut (48 Required)
3	10105939	Filter Bolt-Down (12 Required)
4	10105942	Small Filter Blowpipe (Two Required)
5	10102599	Compression Coupling Assembly (Two Required)

Quantities specified are per hatch opening

PART NUMBERS AND SCHEMATICS

Figure 27: Dust Collector Filter Cartridge Hatch Door



Item #	Part #	Description
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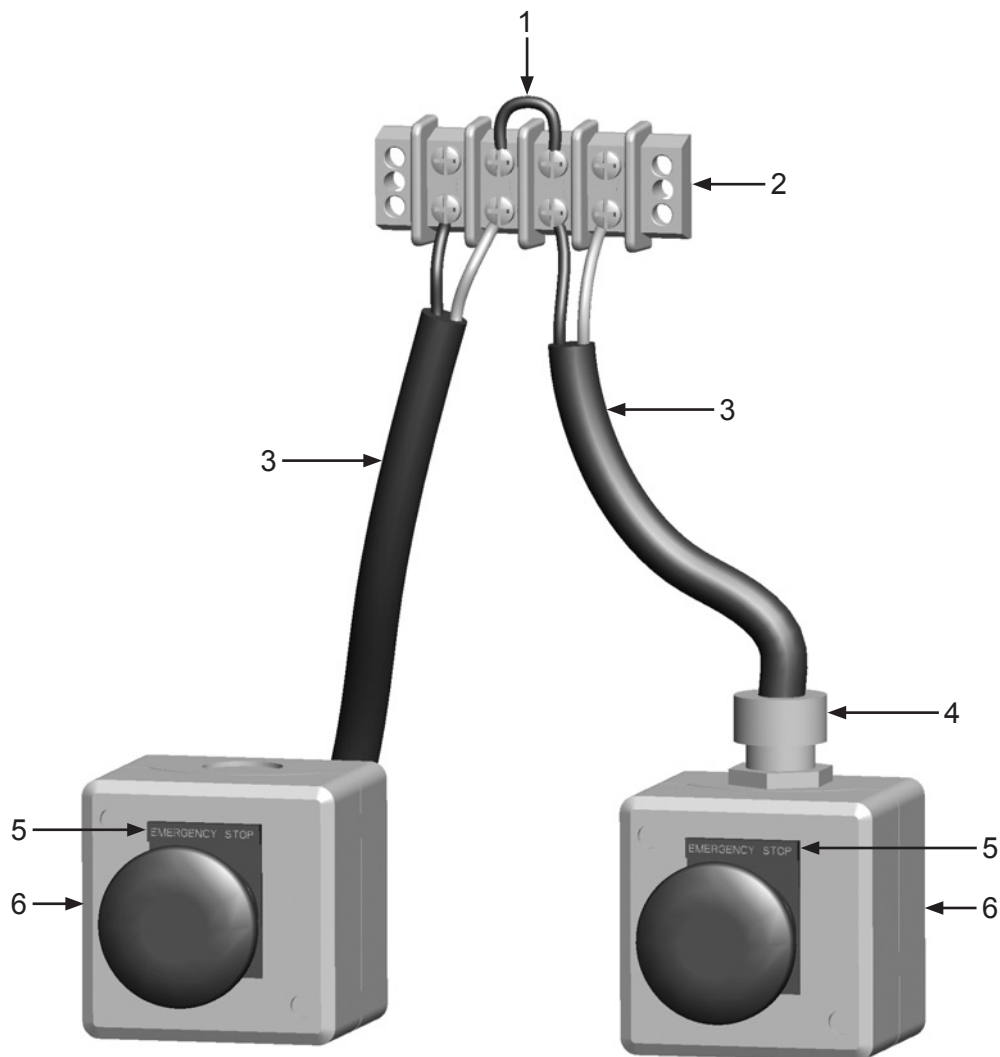
Fig. 27

1	1035046	5/16-18 Hex Nut <i>(Four Required)</i>
2	10103454	Non-Locking Gas Spring
3	1028617	3/8-16 X 1-3/4" Shoulder Bolt <i>(Two Required)</i>
4	10101942	3/8" Flat Washer <i>(Four Required)</i>
5	1012318	3/8"-16 Hex Nut <i>(Two Required)</i>
6	10103455	Locking Gas Spring
7	10102916	Hopper Lid
8	10103395	1/2-13 Zinc Plated Handle <i>(Three Required)</i>
9	10104377	Latch Bar <i>(Three Required)</i>

Quantities specified are per hatch opening

PART NUMBERS AND SCHEMATICS

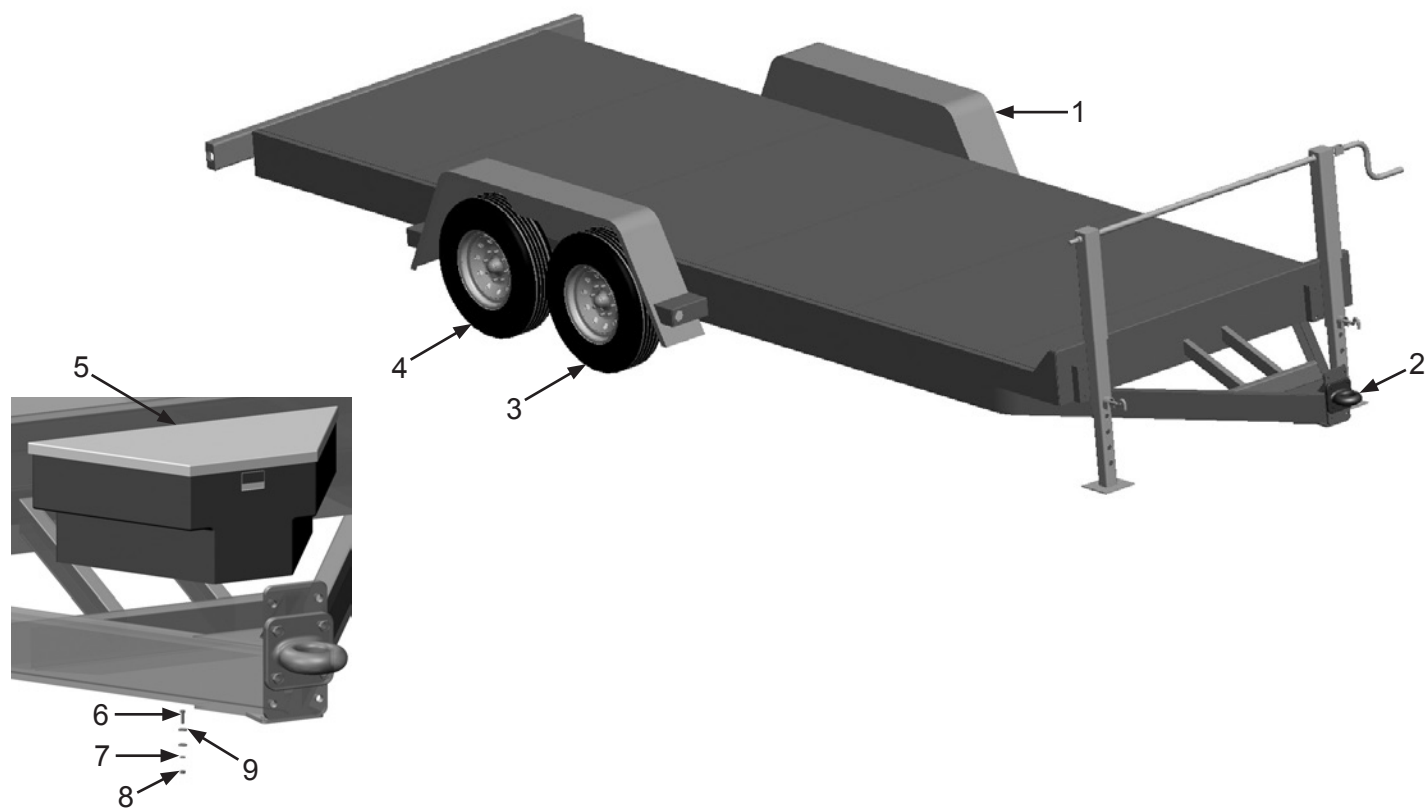
Figure 28: Emergency-Stop Stations



Item #	Part #	Description
Fig. 28		
1	20R12AWGBLACK	Stranded Wire - 12 AWG - Black
2	10104066	Terminal Strip - 4-Circuit - 30 amp
3	1015570	Electric Cord - 12/2 SO (Per Foot)
4	20RCG5050	Cord Grip - 1/2" NPT
5	10104063	Legend Plate - Emergency-Stop Station
6	10104071	Emergency-Stop Control Station (2 Required)
—	1015009	Screw - 8-32 x 1" - Pan Head Phillips (Four Required)
—	20000021	Nut - 8-32 - Zinc (Four Required)
—	20000018	Lock Washer - #8 - Zinc (Four Required)
—	20000019	Flat Washer - #8 - Zinc (Four Required)

PART NUMBERS AND SCHEMATICS

Figure 29: Trailer



Item #	Part #	Description
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Fig. 29

1	10104090	Left and Right Fenders (<i>Pair</i>)
2	10104079	Pintle Hitch with Flat Plate
3	10104089	16"- 8 Hole Pattern Rim with Tire (<i>Four Required</i>)
4	10104096	Tire - ST235/80R/16 - 10-ply
5	10103797	Tool Box (<i>optional</i>)
6	1012154	1/4-20 X 1" Bolt (<i>Five Required</i>) (<i>optional</i>)
7	1012153	1/4" Lock Washer (<i>Five Required</i>) (<i>optional</i>)
8	10101347	1/4-20 Hex Nut (<i>Five Required</i>) (<i>optional</i>)
9	10101940	1/4" Washer (<i>Ten Required</i>) (<i>optional</i>)
—	10104081	Breakaway Kit
—	10104082	Wire Harness
—	10104077	7000# Axle with Electric Brakes, Hubs, and Springs - 93" x 78" (<i>Two Required</i>)
—	10104078	Axle Beam/Tube
—	10104080	3/8" x 35" Chain with Hook
—	10104084	Red LED Oval Tail Light (<i>Four Required</i>)
—	10104085	Rubber Oval Grommet (<i>Four Required</i>)
—	10104086	2" Round Red LED Clearance Light (<i>Five Required</i>)
—	10104087	2" Round Amber LED Clearance Light (<i>Four Required</i>)
—	10104088	2" Round Rubber Grommet (<i>Nine Required</i>)

ADDITIONAL TECHNICAL DATA

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

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

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

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