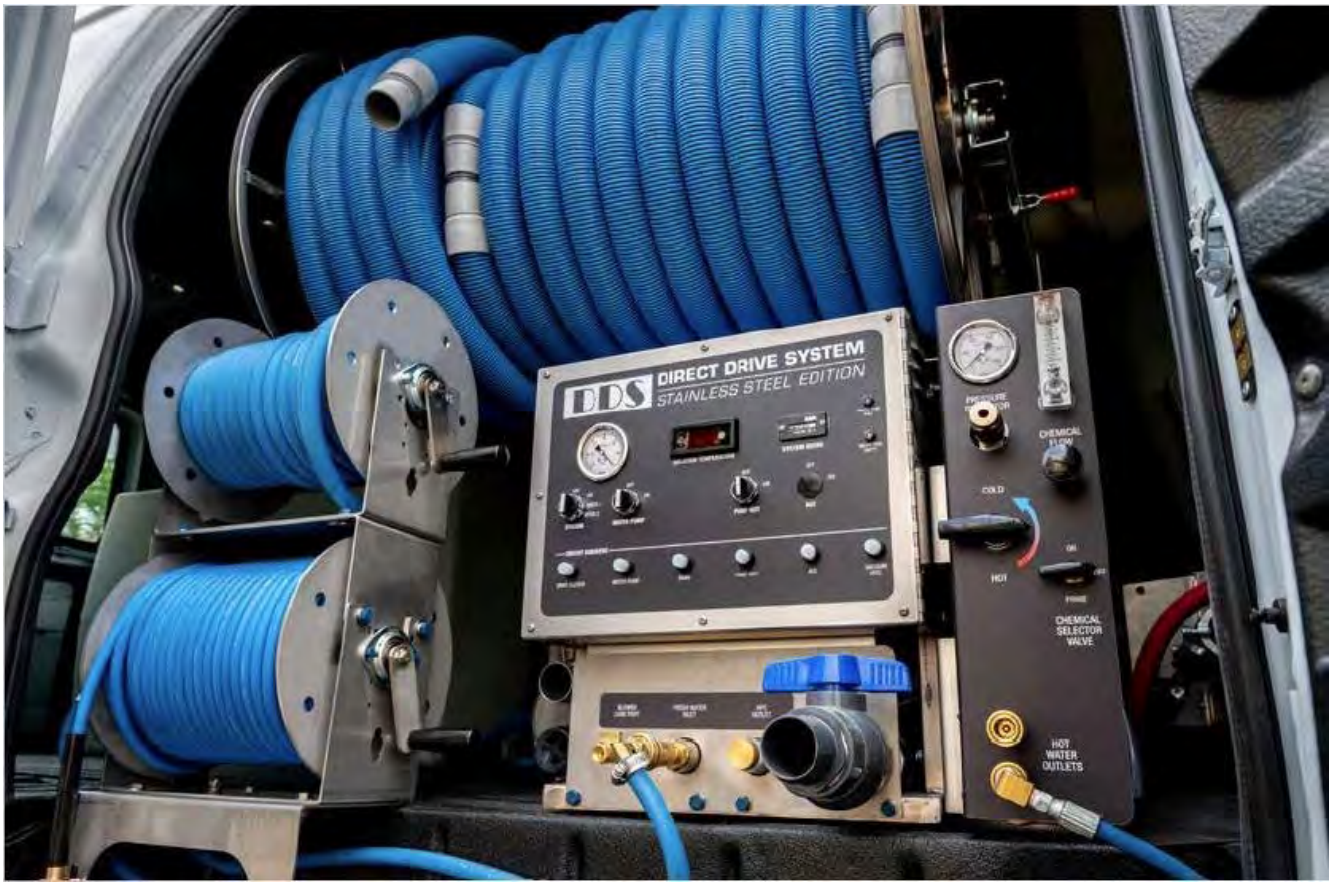
DDS DIRECT DRIVE SYSTEM
STAINLESS STEEL EDITION

SERIAL NUMBERS: 05200107 - 01210171



Manufactured by Aero Tech Manufacturing

REV: June, 2026

SYSTEM SPECIFICATION

Vehicle Engine Rpm's	Idle	700 Rpm
	Speed 1	1300 Rpm
	Speed 2	1500 Rpm
Waste Water Tank	Capacity At (Shutoff)	100 (94) US Gal
Vacuum Hose Reel	Capacity w/ 2" Hose	250 FT
Solution Hose Reel	Capacity w/ 1/4" hose	250 FT
Vacuum Blower	Gardner Denver	408 HeliFlow
	CFM	443 CFM @ 14" HG (MAX) 458 CRM @ 12" HG (Speed 2)
	Vacuum Relief Setting	12" HG
Water Pump	General Pump	Emperor PEHT2010S
	Maximum PSI	1200 Psi
	Maximum Volume	4 GPM
Heat Exchangers	Stainless Steel Tube & Shell (6 pass design)	Engine Coolant Blower Exhaust
APO Pump (If Equipped)	Diaphragm	Up To 5 GPM
Fresh Water Tank	Optional Over the wheel well	110 US Gal

DDS Stainless Steel Edition Serial # _____

Vacuum Blower Serial # _____

Water Pump Serial # _____

Hose Reel Motor Serial # _____

Fresh Water Tank Serial # _____

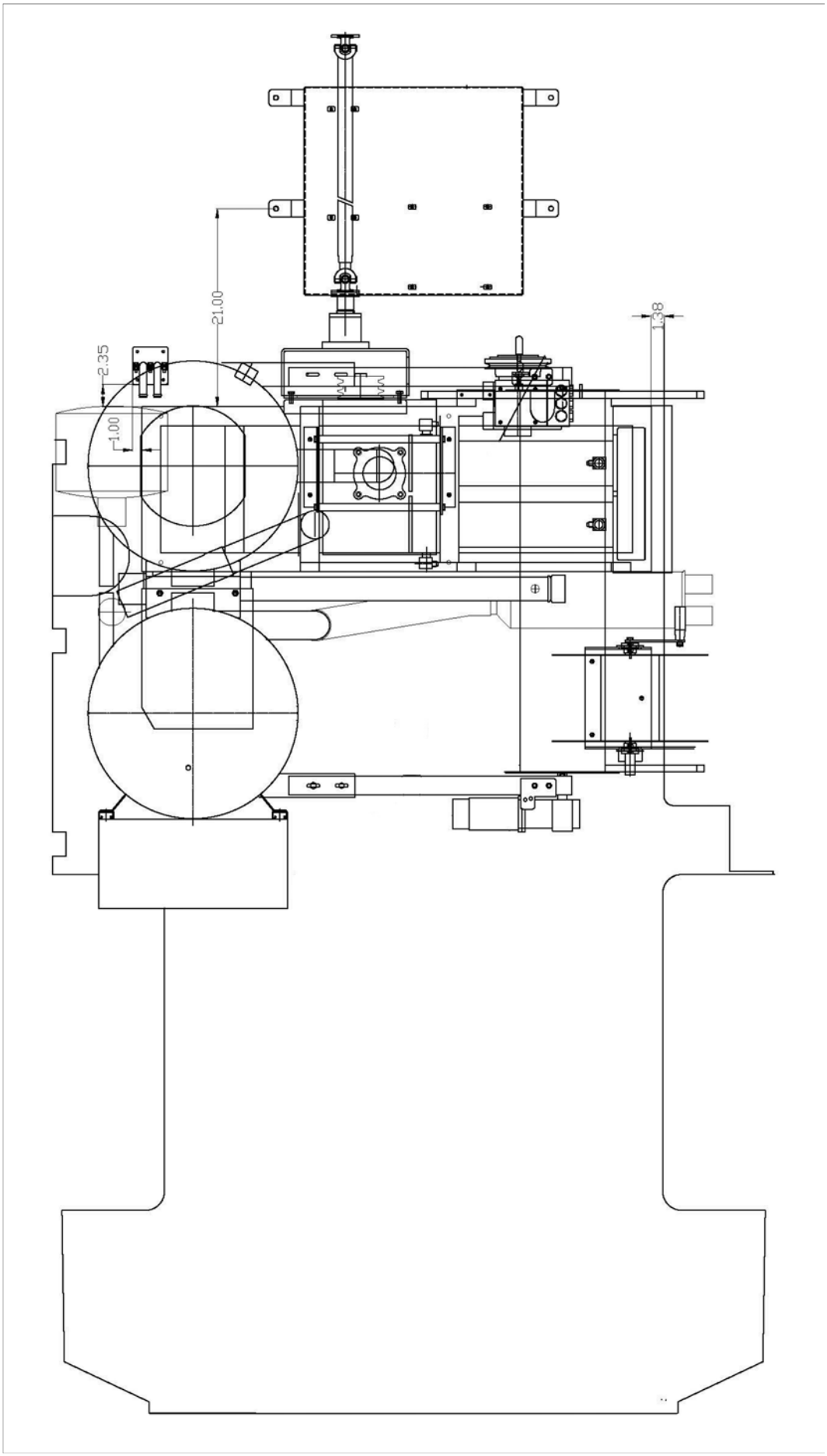
APO Pump (If Equipped) Serial # _____

APO Motor (If Equipped) Serial # _____

LUBRICANTS, FLUIDS, & BELTS

Blower (internal rotor) Lube	Mobil XHP462
Blower Oil	AeonPD / AeonXD
Water Pump Oil	General Pump Series 100 Oil
Bearing & Driveline Grease	Mobil XHP462
Engine Coolant	Dexcool
Engine Serpentine Belt, 4.3L, V6, Engine	Gates #K061119RPM
Engine Serpentine Belt, 6.0L, V8 Engine	Gates #K061187RPM
Engine Serpentine Belt, 6.6L, V8 Engine	Gates #K061119RPM
Blower Belt	Gates, Predator #3/3VP530 (Banded)
Water Pump Belt	Gates #A55, VBelt

INSTALLATION DIMENSIONS



This instruction manual has been designed as a guide for operating and servicing your DDSStainless Edition System. Read this manual completely before operating the DDSStainless Edition Cleaning System.

The heading: **CAUTION, WARNING or NOTICE** is used to warn you that steps must be taken to prevent damage to the truck and / or personal injury including a fatality. Make certain that you read all instructions entirely before proceeding with the operation of the truck.

DISCLAIMER OF WARRANTY

Aero Tech has made every effort to ensure that the information in this document, which may include information supplied by others, is accurate and complete. Not withstanding its efforts, **Aero Tech** assumes no liability for errors or omissions and disclaims all warranties, expressed or implied. Neither is any consequential liability assumed for any damages that result from the use of this document or the equipment that it accompanies. The information in this document is subject to change without notice.

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Aero Tech

Limited Warranty

Aero Tech warrants each new machine and new accessories against defects in material or workmanship under normal use and service.

Warranty is offered and handled through Jon Don.

Aero Tech's obligation under this warranty shall be to furnish parts and labor for the repair or replacement of the product found to be defective in material or workmanship during the warranty period. Warranty coverage shall begin on the date of installation, The warranty registration card must be completed and returned within 30 days of purchase. In the event that a card is not returned, a copy of the sales order will suffice to show date of the purchase. The warranty coverage period is as follows:

Component	Parts	Labor
Frame	5 Years	5 Years
Covers	5 Years	5 Years
Waste Tank	5 Years	5 Years
Heat Exchangers	3 Years	3 Years
Hose Reels	5 Years	5 Years
Hose Reel Drive System	3 Years	3 Years
Gauges & Switches	2 Years	2 Years
Shelving	5 Years	5 Years
General Water Pump**	2 Years	2 Years
Vacuum Blower**	2 Year	2 Year
Serpentine Clutch**	1 Year	1 Year
Chemical Pump System	1 Year	1 Year
Accessories *	1 Year	1 Year

Notes:

*Accessories consist of, water pressure regulator, water pump clutch, wetted fittings, drive shaft and bearings. **As provided by the original manufacturer

The warranty does not cover normal wear items. The warranty shall not apply to repairs resulting from equipment modification, improperly installed or used, damaged by the use of harsh chemicals, damaged due to hard water scaling or exposure to freezing temperature conditions.

All warranty repairs must be authorized by a Aero Tech warranty representative prior to any repair work. Aero Tech will replace the item and request that the defective part is returned to Aero Tech for inspection and final warranty determination. Parts that are not returned will not be covered under warranty. Any product that is returned to Aero Tech shall be packaged in a manner sufficient to prevent damage in shipment.

The above warranties are in lieu of all other warranties, expressed or implied, oral or written, statutory or otherwise, including any implied warranty of merchantability or fitness for a particular purpose.

Aero Tech shall not be responsible for the specific application to which the machine is applied, including but not limited to compatibility with other equipment.

All statements, technical information and recommendations relating to any product furnished by Aero Tech is believed to be reliable but does not constitute a guarantee or warranty.

Aero Tech shall not be liable to buyer or any other party for lost profits, diminution of goodwill or any other special or consequential damages whatsoever with respect to any claim.

No Waiver, alteration, addition, or modification of the foregoing warranties shall be valid.

Aero Tech reserves the right to change its warranty policy without notice.

Items not covered by warranty; disposable filters, belts, hoses and lubricant oil.

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SECTION 1 – GENERAL INFORMATION

SAFETY

WARNING **For Your Safety!**

The following **WARNING LABELS** are found on your DDSSTAINLESS STEEL EDITION Cleaning system. These labels point out important **Warnings** and **Cautions** which must be followed at all times. Failure to follow warnings and cautions could result in a fatality, personal injury to yourself and / or others and / or property damage. Follow these instructions carefully! **DO NOT** remove these labels.

WARNING

ENGINE PRODUCES TOXIC EXHAUST GAS, DO NOT operate in a confined area. Always ensure unit is positioned so exhaust gasses will be directed away from job site.

DO NOT operate equipment where exhaust may enter a building through open doors, windows, or other air intake.

ROTATING SHAFTS CAN CAUSE SEVERE INJURY Keep arms, legs, hair and loose clothing away. Keep machine guards in place.

DO NOT work on rotating shafts with engine running, severe injury or fatality may result.

BURN HAZARD, HOT SURFACES, DO NOT TOUCH.

⚠WARNING

Read the operator's service manual before starting the DDSStainless Steel Edition Cleaning System. Failure to adhere to instructions can result in severe personal injury or could be fatal.

⚠WARNING

Operate the DDSStainless Steel Edition Cleaning System only in a wellventilated area. Exhaust fumes contain carbon monoxide which is an odorless and deadly poison that can cause severe injury or a fatality. DO NOT run this unit in an enclosed area. DO NOT operate this unit where the exhaust may enter any building doorway, window, vent or opening of any type.

⚠WARNING

DO NOT place hands, feet, hair, or clothing near rotating or moving parts. Avoid any contact with moving parts. Rotating machinery can cause injury or a fatality.

⚠WARNING

Never operate the DDSStainless Steel Edition Cleaning System without belt guards properly installed. The high speed moving parts, such as belts and pulleys, must be avoided while the System is running. Severe injury or a fatality may result.

⚠WARNING

DO NOT service the DDSStainless Steel Edition Cleaning System while it is running. The highspeed mechanical parts, high pressure and high temperature components may cause severe injury or fatality.

⚠WARNING

Never touch electrical wires or components while the System is running. They can be sources of electrical shock and may result in severe injury or a fatality.

⚠WARNING

The DDSStainless Steel Edition Cleaning System components get extremely hot during operation. To prevent severe burns, DO NOT touch these areas while the system is running – or until the system has cooled down. Before servicing the DDSStainless Steel Edition system, allow it to "cool down". This will prevent burns from occurring.

⚠WARNING

Water is under high pressure at high temperature and can cause burns, severe personal injury or a fatality. Shut down the DDSStainless Steel Edition Cleaning System, allow it to cool down and relieve system pressure before removing valves, caps, plugs, fittings, filters and misc. equipment.

WARNING

Do not exceed vehicle weight limit.
GVW allowable
8,600 lb for 2500 135” wheelbase
9,600 lb for 3500 155” wheelbase

Payload allowable
3,221 lb for 2500 135” wheelbase
3,940 lb for 3500 155” wheelbase

WARNING

All high pressure hoses must be rated for 3000 psi at 250°F. Do not use hoses with a lower rating. Severe burns and injury may result if the hoses do not meet these requirements.

WARNING

The DDSSTAINLESS STEEL EDITION Cleaning System produces high pressures, high temperatures and high vacuum. Improper or irresponsible use may result in serious injury or a fatality.

WARNING

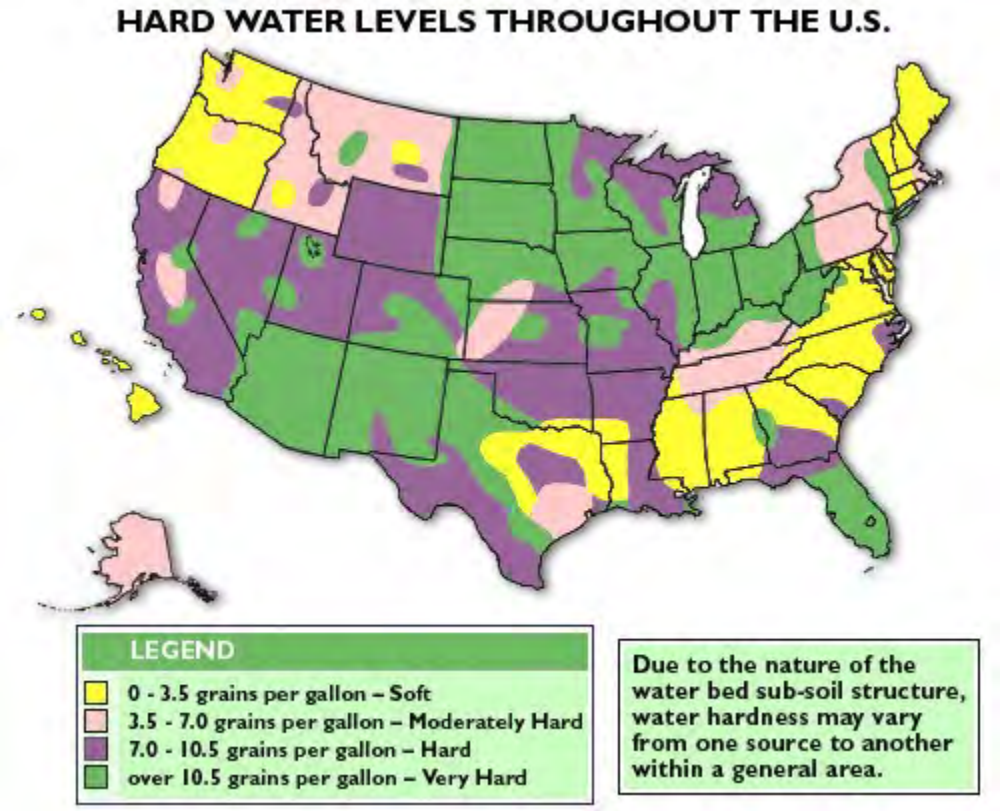
Do not modify the DDSStainless Steel Edition Cleaning System in any manner. Improper modification can cause severe personal injury or a fatality and void any warranty.

Make certain that you receive complete training before using the DDSStainless Steel Edition Cleaning System.

WATER REQUIREMENTS

Hard water deposits will adversely affect the plumbing and heat exchange system on the DDSStainless Steel Edition Cleaning System.

The map below will give you an idea of where areas of hard water hardness may occur. Water supply obtained from a well is almost always hard water. In all cases, using softened water will protect the equipment and help ensure maximum performance and service life.



BATTERY CONNECTION

WARNING

Explosive gases. Dangerous gases!
The Battery contains sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. The battery also produce explosive hydrogen gases while charging. To prevent fire or explosion, charge the battery only in well ventilated area. Keep sparks, open flames, as well as any other sources of ignition away from batteries at all times. Remove all jewelry prior to servicing batteries. Keep the battery out of the reach of children.

Refer to truck owners' manual for specific instruction on the maintenance, removal or replacement of the truck battery.

Before disconnecting the battery, ensure that all the system cleaning unit switches are in the OFF position (a spark could occur at the ground connection terminal, which could cause an explosion if hydrogen gas, or other explosive vapors are present.

FIRE EXINGUISHER

Aero Tech, recommends that a fire extinguished rated for A,B and C type fires be installed into any commercial trucks.

RESPONSIBILITES

Installation Responsibilities

- Ensure proper payload capacity. It is the distributor's responsibility to verify that the equipment package does not exceed the vehicle capacity.

- Ensure proper placement of the DDSStainless Steel Edition Cleaning System, Hose Reels, fresh water tanks, and accessories in the vehicle, and check that they are secured with bolts and back up plates. The distributor should verify that the owner is in agreement with the layout.
- Ensure proper installation of the electrical wiring and the connections to the vehicle's battery.
- Check the Vacuum Blower, water pump and engine fluid levels prior to starting the unit.
- Start and run the unit and check that all systems function properly.
- Test all hoses, wands and other accessories for correct operation.
- Ensure timely return of the document package.

Training

- Review the Operation and Service Manual with the purchaser.
- Instruction in and familiarization with:
    - How to correctly start up and shut down the unit.
    - How to correctly clean with the unit.
    - Where and how often to check and change component oil levels.
    - How the unit's systems work, how to troubleshoot the unit.
    - How to do basic repairs.
    - Safety precautions and their importance.
    - How to avoid freeze damage.
    - How to avoid hard water damage.
- A thorough review of the unit warranty and warranty procedures.
- A thorough review of hard water precautions and warnings
- How to determine hard water areas.
- Use of water softening systems.

Purchaser's Responsibility

If you are the purchaser, it is the your responsibility to read the Owner's Manual and to familiarize yourself with the information contained herein, paying special attention to all Warnings and Cautions.

SECTION 2 – SYSTEMS

WATER PUMPING SYSTEM

See SYSTEM FLOW DIAGRAM on page 16.

Maximum operating water level in the fresh water tank is 28” (if equipped), minimum water level is 5” from tank bottom.

Water flows through the inlet water strainer into the water pump where it is pressurized. This pressurized water is pumped to the pressure regulator, which provides and maintains the desired pressure setting.

The pump discharge manifold is also equipped with a pulse hose which helps reduce pressure fluctuations.

Water from the pressure regulator flows through the temperature adjusting valve (hot/cold valve).

1- In the **COLD** position, the water flows directly to the outlet water manifold which contains the quick connect outlets. This will give you the coldest solution temperature.

2- In the **HOT** position the water flows through the tubes of the coolant heat exchanger, then through the shell within the blower exhaust heat exchanger and finally to the outlet water manifold which contains the quick connect outlets. This will give you the hottest solution temperature.

3– In between the COLD/HOT position a portion of the water flows though the heat exchangers and portion flows directly to the outlet water manifold. In this operation it is mixing the cold and hot water together to give you your desired solution temperature.

CHEMICAL SYSTEM

See CHEMICAL FLOW DIAGRAM on page 16.

The chemical is drawn in from the chemical concentrate container, through a strainer then through the flow meter located on the control panel. The chemical flows through the chemical pump, which pressurizes it and injects into the three way chemical selector valve, located on the control panel. The valve is used to direct the chemical flow in the **OFF**, **PRIME** or **ON** position.

OFF position, stops chemical from flowing through the system.

PRIME position, purges air from the chemical system. Every time chemical is added to the chemical concentrate container, air must be purged from the system utilizing the PRIME position.

ON position, chemical flows from the three way selector valve through the chemical FLOW valve, then to the solution hot water outlets. The FLOW valve controls the rate of chemical introduced into the high pressure water stream. The rate of chemical flow is indicated in the chemical flow meter, located on the panel on the right side of the machine.

WATER HEATING SYSTEM

See WATER HEATING DIAGRAM on page 15.

Temperature is adjusted using the temperature adjusting valve (cold/hot valve) on the main water manifold. This control valve will mix cold water from the fresh water tank in with the heated water at the manifold to reduce the output temperature. Water is heated by means of a two stage heat exchange system which utilizes the engines radiator fluid for the first stage and the vacuum blower exhaust heat for the final stage.

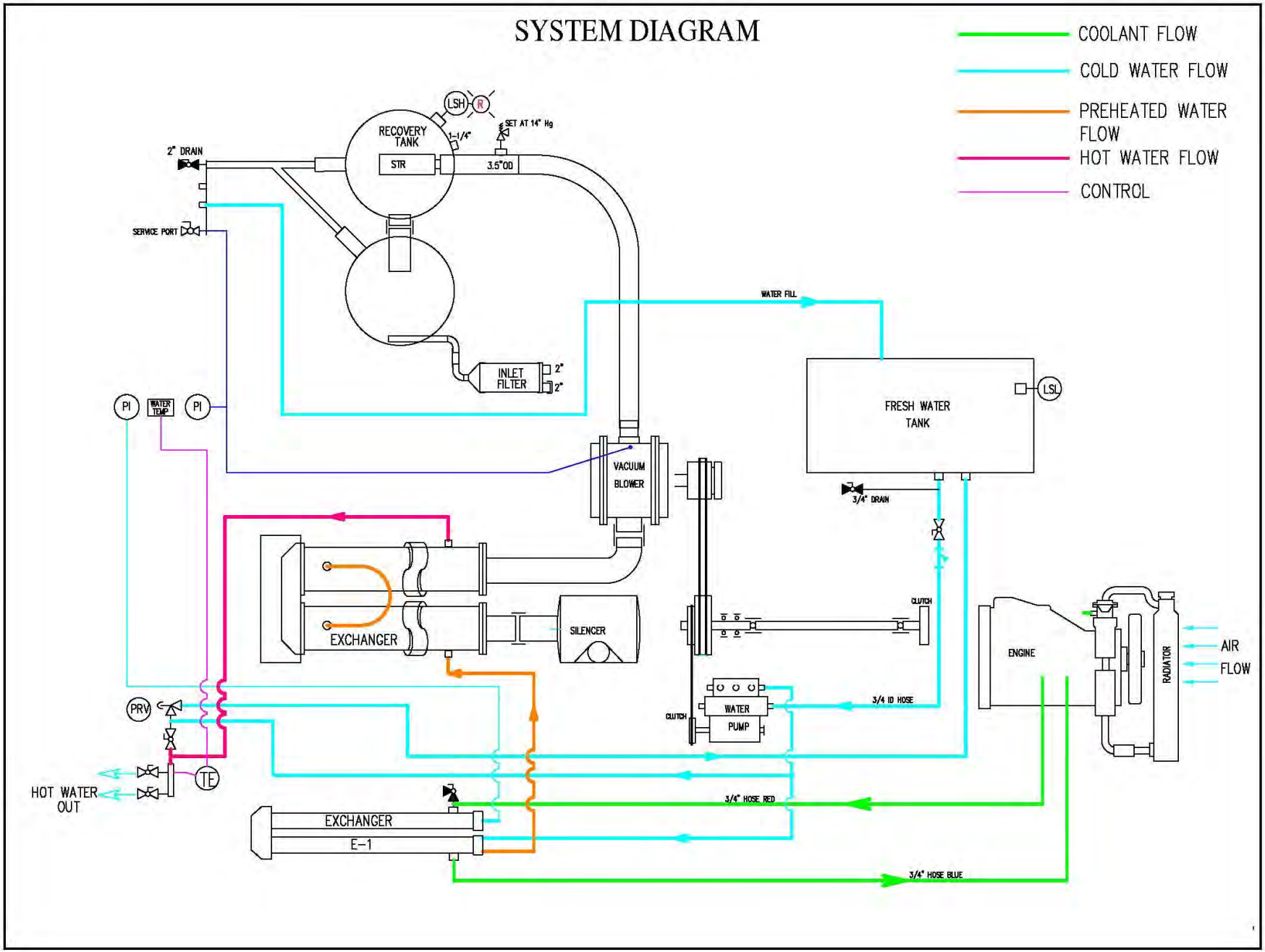
Stage one heating

The hot coolant fluid from the engine passes through the coolant heat exchanger. Hot engine coolant fluid is regulated at 195°F (90.5°C) by the engine thermostat.

Stage two heating.

In this stage, the pressurized and preheated water coming from the engine coolant exchanger flows through the blower exhaust heat exchangers.

SYSTEM DIAGRAM



VACUUM SYSTEM

Vacuum flow begins at the cleaning tool, with air, water and some chemicals being drawn into the vacuum inlets.
The mixture then flows through a stainless steel basket strainer prior to entering the water waster tanks. Beyond the stainless steel inlet basket strainer, one additional 100 mesh stainless steel vacuum strainer, located inside the waste tank and a relief valve have been provided for maximum vacuum blower protection.

The air then flows into the vacuum blower, which is driven by the truck engine through a clutch and driveline system that is tied into the engines serpentine belt.

The air discharged from the vacuum blower exits through the silencer directly into the atmosphere. A high water level sensor switch located near the top of the water waste tank will shut down the system when the water waste tank reaches its full capacity. This protects the vacuum blower from damage.

The high water level sensor switch must be maintained properly to protect the vacuum blower. Water entering the blower can destroy the blower.

SECTION 3 – OPERATION

This chapter of the operation manual explains how to prepare, startup, shutdown and provide the DDSStainless Steel Edition Cleaning System with daily maintenance. Safe and proper operation of the DDSDDSStainless Steel Edition Cleaning System is critical. In order to provide for safe and proper operation of the unit, it is imperative that you read the following instructions carefully and fully understand the interaction of the various components.

⚠WARNING

Operate the DDSStainless Steel Edition Cleaning System only in a wellventilated area. Exhaust fumes contain carbon monoxide which is an odorless and deadly poison that can cause severe injury or a fatality. DO NOT operate this DDSStainless Steel Edition Cleaning System where the exhaust may enter any building doorway, window, vent or opening of any type.

CHECK FOR ADEQUATE FUEL

Check the fuel tank to be certain there is adequate fuel to complete the job. The truck engine will burn approximately 1.5 - 2.0 US gallons of fuel per hour depending on the speed setting.

CHECK VEHICLE SETTINGS

Place automatic transmission in Park and set the emergency brake. **Make sure the heat and AC on the van are set to the OFF position**.

VEHICLE WILL BE RUNNING

The vehicle must remain running and the accelerator and brake cannot be tampered with. If the vehicle is to be left unattended, the doors should be locked and the hoses run through a security access door.

CHECK BLOWER AND WATER PUMP OIL LEVEL

Check pump oil levels daily prior to starting the system. Oil level should be in the center of the level gauge. If the oil level is below the level gauge center line, add oil and check for leaks. Avoid overfilling or damage may occur to the pump. Only use oil that is specified by the manufacturer.

CHECK STRAINER IN RECOVERY TANK

Check vacuum strainer daily. Clean and replace as required.

CHECK TRUCK ENGINE RADIATOR ANTIFREEZE LEVEL

Check antifreeze level at the beginning of each day. Check for any leaks. Add if necessary.

FILL FRESH WATER TANK WITH CLEAN, SOFT WATER

If you are operating in an area where the water hardness exceeds 31/2 grains, Aero Tech highly recommends the use of soft water.

SYSTEM STARTUP PROCEDURES

CARPET, UPHOLSTERY, & HARD SURFACE CLEANING

1. Place the chassis gear select lever in the PARK position
2. Set the emergency brake
3. Place wheel chocks in front and behind the rear tires
4. Connect the water supply hose to the water inlet
5. Connect the pump out discharge hose and route it to the appropriate waste site (if equipped)
6. Connect the solution hose
7. Turn the SYSTEM switch to ON. This will engage the drive clutch
8. Turn the WATER PUMP switch to ON, this will start the water pump
9. Turn the PUMP OUT switch to ON (if equipped)
10. Turn the SYSTEM switch to SPEED 1 or SPEED 2 for the desired cleaning job
11. Set the water pressure and solution temperature to the desired level
12. Turn the chemical selector valve to the PRIME position. Once continuous chemical flow without air bubbles has been achieved, turn the chemical selector valve from PRIME to ON. With the cleaning tool valve open, observe the flow meter and adjust the chemical metering valve until the desired flow rate of chemical is obtained
13. Connect the vacuum hoses
14. Connect the desired cleaning tool

WATER EXTRACTION

1. Place the gear select lever in the PARK position
2. Set the emergency brake
3. Place wheel chocks in front and behind the rear tires
4. Connect the pump out discharge hose and route it to the appropriate waste site
5. Turn the SYSTEM switch to ON. This will engage the drive clutch
6. Turn the PUMP OUT switch to ON
7. Turn the SYSTEM switch to SPEED 2
8. Connect the vacuum hoses
9. Connect the desired extraction tool

⚠WARNING

Water under high pressure and high temperature can cause burns, severe personal injury or could be fatal. Shut down the DDSSTAINLESS STEEL EDITION Cleaning System, allow it to cool down and release system of all pressure before attempting any work.

⚠WARNING

Do not modify the DDSSTAINLESS STEEL EDITION Cleaning System without written permission from the manufacturer.

⚠WARNING

Always dispose of waste water in accordance with Local, State, and Federal laws.

SYSTEM SHUTDOWN PROCEDURES

1. Disconnect all cleaning or extraction tools from the vacuum and solution hoses
2. Turn the WATER PUMP switch to OFF
3. Turn the PUMP OUT switch to OFF
4. Turn the Chemical selector valve to the OFF position
5. Disconnect the solution hose from the solution outlet manifold
6. Disconnect the vacuum hose from the vacuum inlet strainer basket
7. Turn the SYSTEM switch to OFF. This will disengage the drive clutch
8. Drain the waste tank

PERFORM THE FOLLOWING AT THE END OF THE DAY

1. Turn the SYSTEM switch to SPEED 2
2. Block off the vacuum inlets
3. After 1 minute, spray TKX LUBRICANT for 3 seconds into the vacuum lube port
4. After 1 minute, unblock the vacuum inlets
5. After 1 minute, turn the SYSTEM switch to OFF. This will disengage the drive clutch
6. Open the drain valve and lid on the waste tank. Leave open overnight (this will help reduce the amount of moisture in the vacuum pump)

⚠WARNING

Do not turn the DDSStainless Steel Edition Cleaning System off while running high vacuum. Reduce the RPM's as described above prior to disengaging the blower.

AUTOMATIC SHUTDOWNS

There are 2 reason the unit will automatically shutdown.

1. When the waste tank is full, the machine will shut down and a red indicator light will illuminate on the instrument panel. If this happens, turn the System switch to the OFF position and empty the waste tank into an approved source to resume operation.

2. When the fresh water tank runs out of water, the water pump will shut down and a red indicator light will illuminate on the instrument panel. If this happens, turn the water pump and clutch control switch to OFF position. Add water to the fresh water tank and reengage the system.

FREEZE PROTECTION

⚠WARNING

If the DDSStainless Steel Edition Cleaning System is exposed to freezing weather conditions, the water inside of the unit may freeze, resulting in SERIOUS DAMAGE to the unit. The following is recommended to prevent this from occurring during the cold weather season.

1. When the unit is not in use, always park it in a heated building or drain and flush all water completely.
2. While in operation, avoid long shutdowns as the DDSStainless Steel Edition Cleaning System provides heat while running.

WINTERIZING PROCEDURE

Utilizing Compressed Air

1. Drain fresh water tank completely, close drain valve.
2. Remove pulse hose from the water header.
3. Connect an air fitting to pulse hose connection on water header.
4. Adjust the water pressure regulator for “0” pressure.
5. Connect an open ended quick connect to the end of one of the solution hoses. Join all of the solution hoses together.
6. Open valve on the end of the solution hose, connect solution hose to outlet water header.
7. Close the suction valve between the water pump and the fresh water tank.
8. Unwind the hose reel full of solution hose with the quick connect on stretch it out if possible.
9. Start air compressor and ensure it builds up 60 to 100 psi.
10. Connect compressor hose to connection on the water header.
11. Keep air pressure above 50psi.
12. Let air flow through the system and out the solution hose with the open ended quick connect.
13. Continue air flow until nothing but air (the mist is gone) is coming out of the solution hose. Should take about 20 minutes.
14. Drain APO hose.
15. Drain the fresh water fill hose.
16. Drain the waste tank.
17. Remove the water from softener tank and inlet header.
18. Remove drain plug from bottom of water pump strainer and drain water.
19. Disconnect hose to pressure gauge from coolant heat exchanger and drain water from the hose.

FREEZE PROTECTION CON'T

Utilizing Antifreeze

1. Drain fresh water tank completely, close drain valve.
2. Fill fresh water tank 25% of the way with 50/50 antifreeze mixture.
3. Connect the solution hoses and connect it to the water outlet manifold.
4. Plug in an open ended quick connect into the solution hose and route it to the top of the fresh water tank and place through the opening.
5. Turn the system ON.
6. Turn the solution pump switch ON.
5. Let the 50/50 antifreeze mixture flow through the system and out the solution hose with the open ended quick connect.
6. Continue flowing the 50/50 antifreeze mixture until there is a consistent stream of the mixture.
7. Disconnect the open ended quick connect and attach the cleaning tool. Spray the 50/50 antifreeze mixture into the fresh water tank until there is a consistent stream of the mixture. Repeat this step with each cleaning tool.
8. Turn the water pump and system switch off.
9. Drain APO hose.
10. Drain the fresh water fill hose.
11. Drain the waste tank.
12. Remove the water inlet header.
13. The following day drain all of the antifreeze mixture from the fresh water tank into an approved disposal site.
14. Fill the fresh water tank with fresh water.
15. Flush all of the cleaning tools with fresh water. Ensure all of the antifreeze solution is flushed out of the system.
16. Connect the solution hoses and connect it to the water outlet manifold.
17. Plug in an open ended quick connect into the solution hose and route it to the approved disposal site.
18. Turn the system ON.
19. Turn the solution pump switch ON.
20. Let the 50/50 antifreeze mixture flow through the system and out the solution hose with the open ended quick connect.
21. Continue flowing the fresh water until there is a consistent stream.
22. Disconnect the open ended quick connect and attach the cleaning tool. Spray the fresh water through the tool until there is a consistent stream.
22. Repeat this step with each cleaning tool.
23. Turn the water pump and system switch off.

SECTION 4 – MAINTENANCE

This chapter of the operator's manual contains the maintenance information for the DDSStainless Steel Edition Cleaning System.

Initiation of the planned PREVENTATIVE MAINTENANCE PROGRAM will help ensure that your DDSStainless Steel Edition Cleaning System provides you with optimal performance, a long operating life, and a minimal amount of "down" time.

WARNING

ENGINE PRODUCES TOXIC EXHAUST GAS, DO NOT operate in a confined area. Always ensure unit is positioned so exhaust gasses will be directed away from job site. DO NOT operate equipment where exhaust may enter a building through open doors, windows, or other air intake.

ROTATING SHAFTS CAN CAUSE SEVERE INJURY Keep arms, legs, hair and loose clothing away. Keep machine guards in place. DO NOT work on rotating shafts with engine running, severe injury or fatality may result.

BURN HAZARD, HOT SURFACES, DO NOT TOUCH.

WARNING

DO NOT service this DDSStainless Steel Edition Cleaning System while it is running or if it is hot. The high speed mechanical parts as well as high temperatures of the components may result in fatality, severe personal injury to yourself and / or others or property damage.

MAINTENANCE SCHEDULE

Starting at the driver's door, walk around the entire truck making a thorough visual inspection of the truck and equipment. Check under the truck for any fluid leakage on the ground.

Frequency	Item	Operation
Daily	Engine Coolant	Check Level
Daily	Engine Oil	Check Level
Daily	Blower Oil	Check Level
Daily	Pump Oil	Check Level
Daily	Blower Lube Port	Lubricate – TKX
Daily	Waste Tank	Rinse & Clean
Daily	Blower Inlet Filter	Rinse & Clean
Daily	Waste Tank Inlet Basket	Rinse & Clean
Daily	Pump Out	Rinse & Clean
Daily	Solution Pump Inlet Filter	Rinse & Clean
	CHEMICAL SYSTEM	
250 Hours	Chemical selector and metering valve	Adjust packing to prevent leaks
500 Hours	Check valves, diaphragm and disk	Replace
1,000 Hours	Differential check valve	Replace
Weekly	Driveline	Inspect Ujoints & Fasteners
Weekly	Engine, Blower, Pump & Alternator Belts	Inspect for Wear
Weekly	Engine Coolant Heat Exchanger's	Inspect for Leaks
Weekly	Vacuum Relief Valve	Lubricate W/ TKX
Weekly	Hoses	Inspect for Leaks & Wear
Weekly	Electrical	Inspect for Wear
100 Hours	Pressure Regulator	Lubricate Seals
500 Hours	Driveline	Lubricate Ujoints & Slip Joint
1,000 Hours	Blower	Change Oil
1,000 Hours	Water Pump	Change Oil
1,500 Hours	Engine Coolant System	Flush & Change Fluid
1,500 Hours	Transmission Fluid	Change Fluid

Read OWNERS MANUAL for complete safety, operation and maintenance instructions before operating System. All covers and belt Guards must be in place to operate the unit.

TRUCK ENGINE, TRANSMISSION

Refer to the truck owner's manual for specific instructions.

When operating the DDSStainless Steel Edition Cleaning System, your truck engine will normally operate at 1300-1500 RPM's. Running of the unit should be calculated into the engine oil life. Aero Tech strongly recommends you factor these hours into the recommendations provided for you in your Chevrolet owner's manual.

- Check the engine, transmission and coolant fluid levels **daily**, when in use. MAKE CERTAIN THAT PROPER OIL LEVEL IS MAINTAINED. **NEVER** overfill.
- Engine oil & filter changed at 3,000 miles (combined miles with system hours) or sooner (recommended full synthetic oil).
- Transmission oil & filter changed at 1,500 hours or sooner.
- Engine coolant & thermostat changed at 1,500 hours or sooner.

VACUUM BLOWER

Refer to the Vacuum Blower section in the manual for specific instructions.

- Check oil level every day (on a level surface) to ensure the proper level. The PROPER LEVEL cannot be overemphasized. Too little oil will cause overheating and ruin bearings and gears. Too much oil will cause overheating and oil leaks.

- To help prevent rust from building up inside the vacuum blower, the DDSStainless Steel Edition Cleaning System is supplied with a lubrication port on the front of the control panel. First, Turn the SYSTEM switch to SPEED 2
  1. Block off the vacuum inlets
  2. After 1 minute, spray TKX LUBRICANT for 3 seconds into the vacuum lube port
  3. After 1 minute, unblock the vacuum inlets
  4. After 1 minute, turn the SYSTEM switch to OFF. This will disengage the drive clutch
  5. Open the drain valve and lid on the waste tank. Leave open overnight (this will help reduce the amount of moisture in the vacuum pump)

  Do this at the end of each working day.

NOTICE

Due to design parameters of this system, it is recommended that only AEON PDXD is used.

WATER PUMP

Refer to the Water Pump Operation and Service Manual for specific instructions.

- Check the crankcase oil level (on level ground) daily to ensure the proper level. If the level has dropped, check for the source of the leak and repair.

- Refill the oil to the proper level, if required, with General Pump SERIES 100 Oil.
- Change the crankcase oil with General Pump SERIES 100 Oil after the first 50 hours of operation. Drain and refill oil every 1,000 hour intervals thereafter.

VACUUM STRAINER

Inspect the vacuum strainers inside the waste water recovery tank. If there is any lint or debris, remove and clean strainer. Reinstall the strainer.

The vacuum strainer in the waste tank should be removed and cleaned daily. Failure to do so will shorten the life of the strainer.

NOTICE

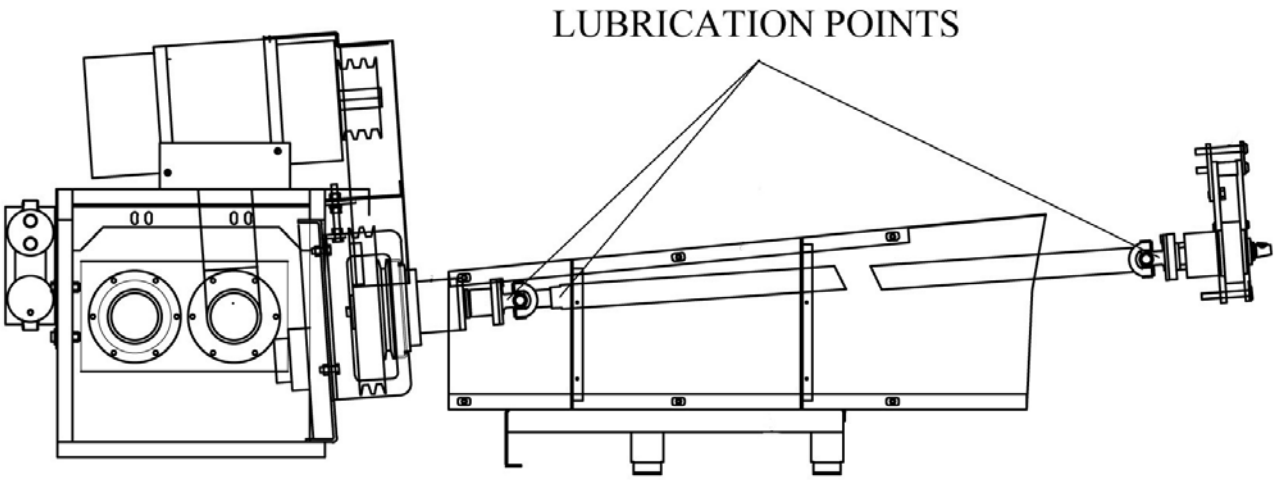
When removing the vacuum strainer, grip the plastic hexagonal section of the strain-er. Grasping the screen may collapse and ruin the strainer.

Replace this vacuum strainer if damaged or as needed. When replacing the vacuum strain-er, use an all stainless steel element with 100mesh screen. Replace every 6 months or sooner if required.

⚠WARNING

Do not run unit without vacuum strainer in place. Running unit without vacuum strainer can result in a catastrophic blower failure.

DRIVE SHAFT, BELTS, SHEAVES, & BUSHINGS



- Check for sheave groove wear, clean the belts and sheave grooves, check for worn belts, proper belt tension, and sheave alignment after the first 25 hours and then again at 100 hours.
- Check for belt ride in the groove. In multiple groove drives, belt ride should be uniform, not more than 1/16” above or below top of sheave groove.
- Check groove wear area for wear. Sidewall of groove should be straight, not dished out. Bottom of groove should show no signs of belt contact.
- Inspect belts for contaminates, such as oil or grease. Wipe belts clean with detergent and water. Inspect sheaves for buildup of such material and remove, if necessary.
- Check wear surface of belt for excessive wear. If it has a slick, glazed look, belts are slipping. Check belt tension. Never replace only one belt. Replace entire set if replacement is necessary.

For belt alignment or tension adjustment, see page 31 & 32 of the operation & service manual.

INLET WATER PUMP STRAINER

The strainer is located on the outside of the fresh water tank. Flush screen regularly with water and reinstall into body. Check Oring or gasket for cuts or wear and replace if necessary to insure proper seal.

WASTE TANK INLET BASKET STRAINER

The basket strainer is located outside of the waste tank. The basket strainer should be removed and cleaned on an as needed basis.

NOTICE

Do not operate the DDSStainless Steel Edition Cleaning System without the basket strainer in place. This will clog the VACUUM STRAINERS inside of the water recovery tank

VACUUM HOSES

To ensure maximum hose life, Aero Tech recommends that the vacuum hoses are washed out with clean water at the end of each working day.

HIGH PRESSURE HOSES

Visually inspect high pressure water hoses for wear after the **first 100 hours** of use. Inspect **every 25 hours thereafter**. Check for evidence of cracks, crushed areas, blisters, bulging, cuts, leaks, and chafing. If a hose shows any sign of damage or impending rupture, replace the hose.

! CAUTION

DO NOT attempt to repair high pressure hoses. Repairing high pressure hoses may result in severe burns and serious injury!
All high pressure hoses must be rated for 3000psi at 250°F or higher. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.

RADIATOR HOSES

Inspect all radiator hoses for leaks after the **first 25 hours** of use. Inspect **every 100 hours thereafter**. If hoses show any signs of damage or impending rupture, replace the hose.

QUICK DISCONNECTS

Quick disconnects allow for easy connection of hoses, wand assemblies, and nozzles. The female portion of the quick disconnect is called a coupler. The male portion of the assembly is called the plug.
The coupler has an outer race, which moves forward and back. This race must be pulled back to allow the plug to be removed from or inserted into the coupler and then pushed forward to lock the plug into the coupler.
Separate the assembly to inspect the mating surfaces and the oring seal in the coupler. If the assembly cannot be easily separated by hand, replace it.
Inspect the ridge on the male plug that contacts the stainless steel balls held in body of the coupler. If the ridge has been deformed by the stainless steel balls, replace the male plug. Also check the end of the plug that engages the Oring held in the section of the coupler. If defects are observed, replace.
Inspect the interior of the body for cracks or abrasions. Check the Oring in the interior of the female coupler for signs of wear. The Oring can be removed with an Oring removal tool. Replace if required.

⚠WARNING

When changing nozzles using quick disconnect, check to see that the ring has snapped into the lock position. If the ring has not properly locked into position, the nozzle will be ejected out of the lance as soon as the trigger is depressed, possibly causing property damage and / or bodily injury.

SECTION 5 - GENERAL SERVICE

⚠WARNING

DO NOT service this DDSSTAINLESS STEEL EDITION Cleaning System while it is running. The highspeed mechanical parts as well as high temperature components may result in a fatality, personal injury to yourself and / or others or property damage.

NOTICE

DO NOT run engine above 1500 RPM with system clutch engaged Permanent damage may occur.

VACUUM BLOWER / LOWER SHEAVE ALIGNMENT (see page 33)

The alignment and angle of the blower and the lower sheave is very important to the life of the drive belts. The alignment and angle should be checked every time the belts are changed.

Alignment

- Remove belt guard from system.
- Position a straight edge on the left side of the blower sheave and also on the left side of the lower sheave. The straight edge should be flush on both sheaves the full length of each sheave. Follow the same procedure on the right side of the blower sheave and the right side of the lower sheave.
- It may be necessary to loosen the bolts on the blower and move it forward, back or twist the blower in order to achieve the proper alignment. (do not move the sheave on the blower outward).
- After proper alignment, tighten the blower bolts. Recheck the alignment then Torque blower bolts to 23 FT LBS

Angle

The blower and lower drive sheaves are set at a 4° angle. The maximum difference between the two is 0.3° degrees.

- Using a Husky digital level (or similar) place the level on the lower sheave plate. Reset the level so it is at 0° degrees.
- Now that the level is zeroed out at 0° on the lower sheave plate, place the level on the blower sheave. It should read between 0° - 0.3°. If it is greater than 0.3° the blower will need to be adjusted.
- To adjust the blower angle, start by loosening the 4 screws holding the blower to the legs. The rear of the blower can be raised or lowered using a pry bar between the frame and the blower.

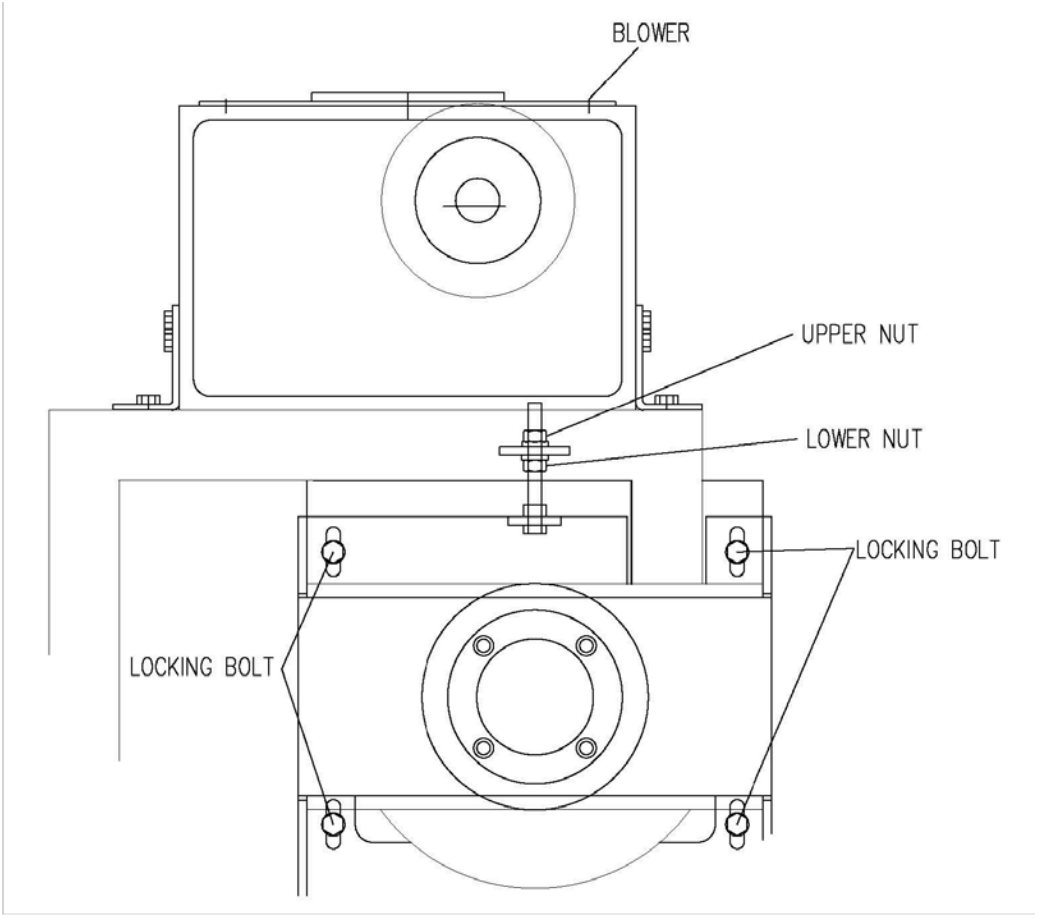
Belt Adjustment

- Loosen the (4) locking bolts on the drive sheave bracket.
- To tighten belts, loosen the upper nut, turn the lower nut counterclockwise. This will push the drive sheave bracket down. Once the belts are to the correct tension, tighten the upper nut back down to the plate so it acts as a jam nut.
- To loosen belts, loosen the Lower nut, turn the upper nut clockwise. This will raise the drive sheave bracket up. Once the belts are to the correct tension, tighten the lower nut to the plate so it acts as a jam nut.
- Tighten all (4) locking bolts on the drive sheave bracket to 23 FT LBS.

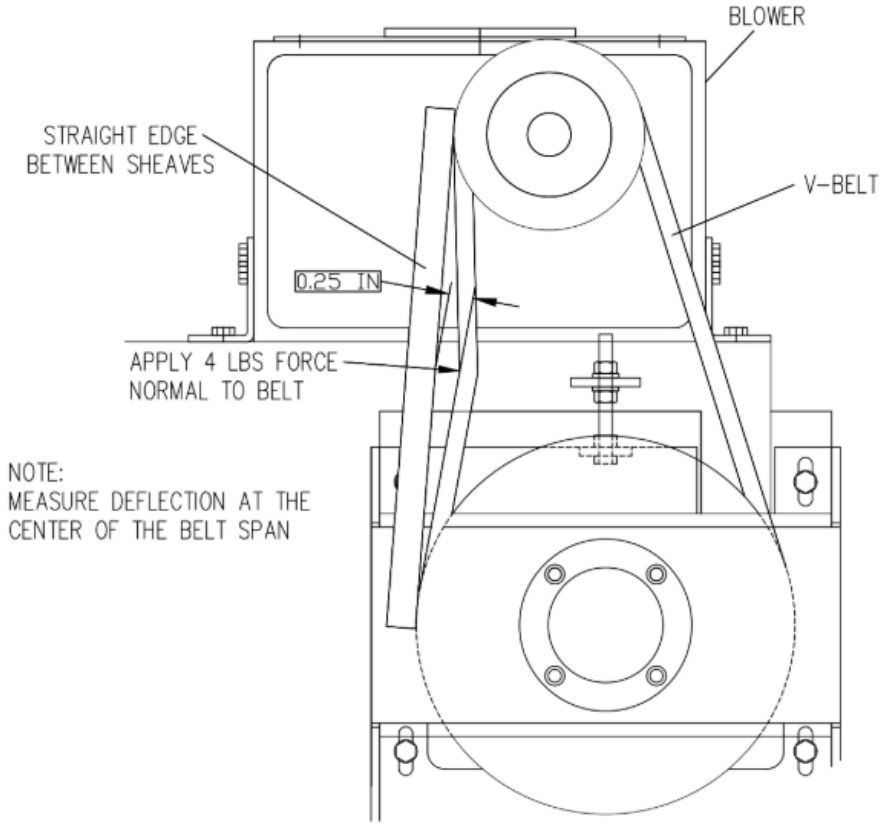
Do not over tension the belts

Tension Spec:

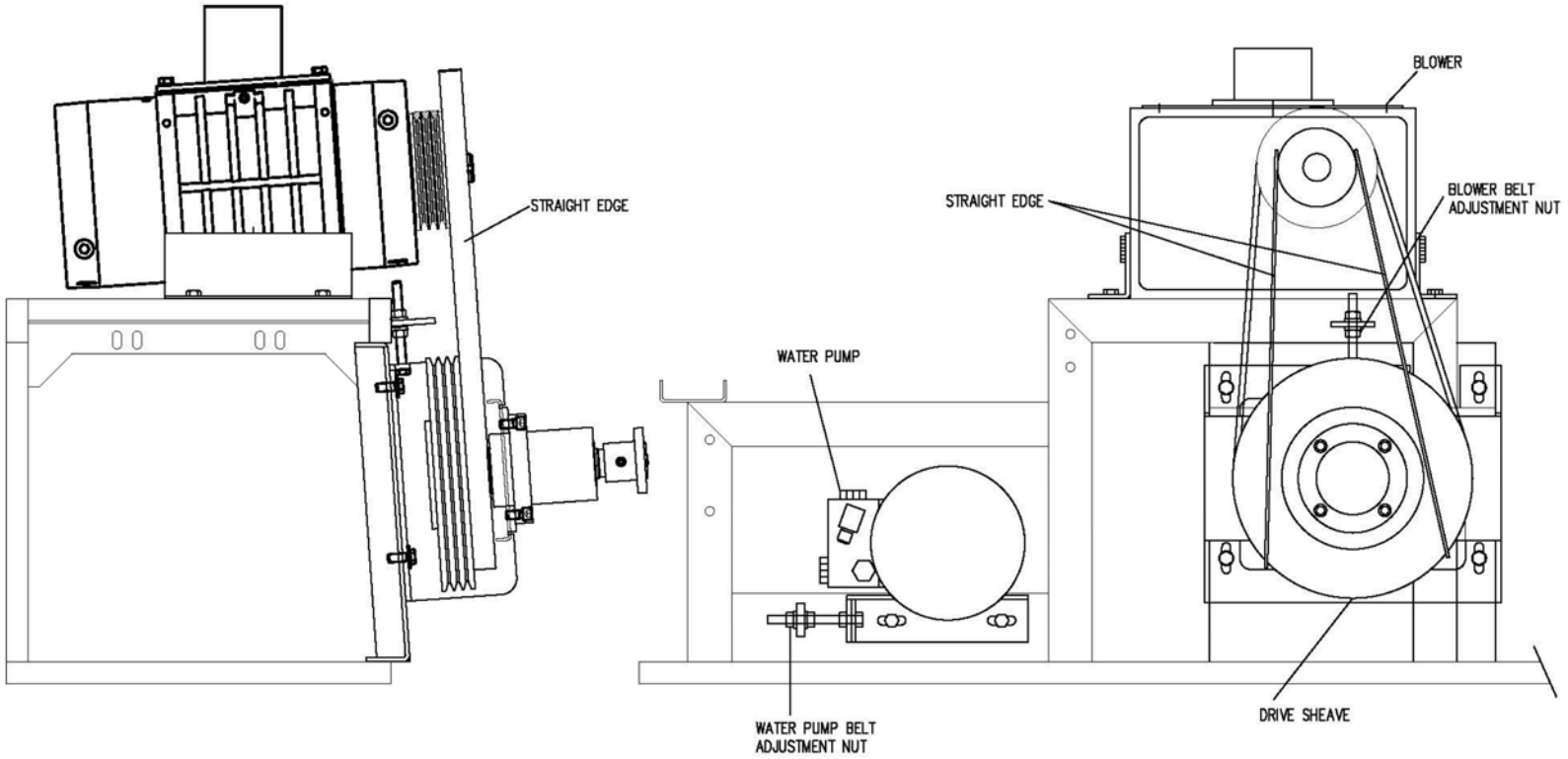
	New Belt	Used Belt
Rib / Stand Deflection Distance	0.21 in	0.21 in
Rib / Strand Deflection Force	4.3 to 4.6 lbf	3.7 to 4.0 lbf



Belt Adjustment—Continued



SHEAVES ALIGNMENT



WATER PUMP DRIVE BELT

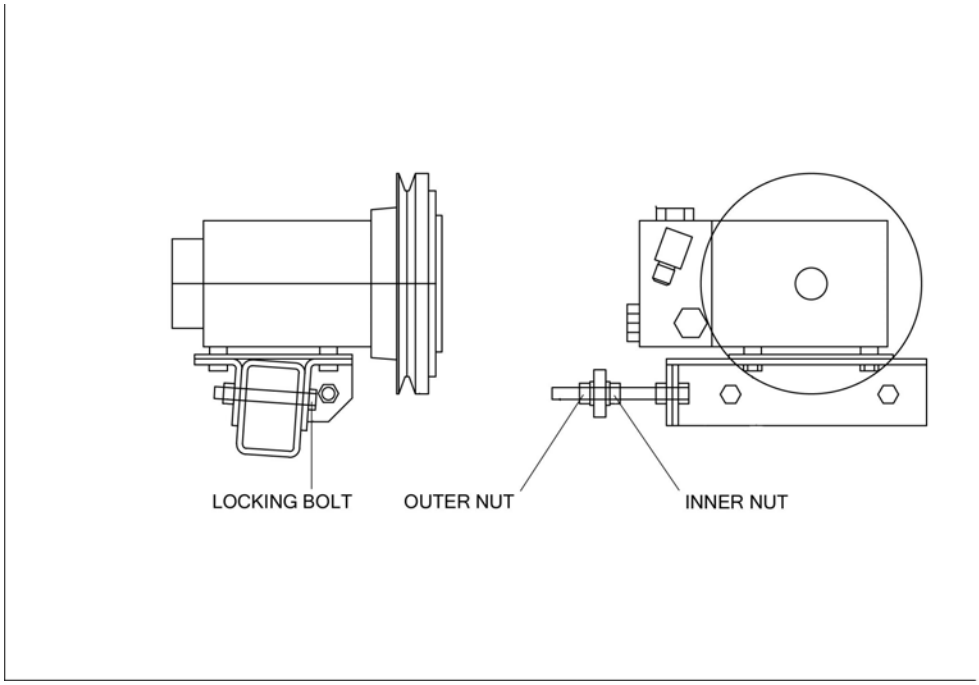
To tighten the water pump belt:

- Remove the belt guard.
- Loosen (2) frame locking bolts holding the water pump frame to the console frame.
- Loosen the inner nut, turn the outer nut clockwise until the proper belt tension is achieved.
- Tighten the inner nut to the plate so it acts as a jam nut.
- Tighten (2) frame locking bolts.
- Reinstall belt guard.

Do not over tension the belt

Tension Spec:
Using Gates Sonic Tensioning Meter, use the following parameters:
M = 168, W = 1.0, S = 507.99.

	New Belt	Used Belt
Rib / Stand Deflection Distance	0.29 in	0.29 in
Rib / Strand Deflection Force	2.4 to 2.6 lbf	2.1 to 2.3 lbf
Belt Frequency	44 to 45 Hz	40 to 42 Hz



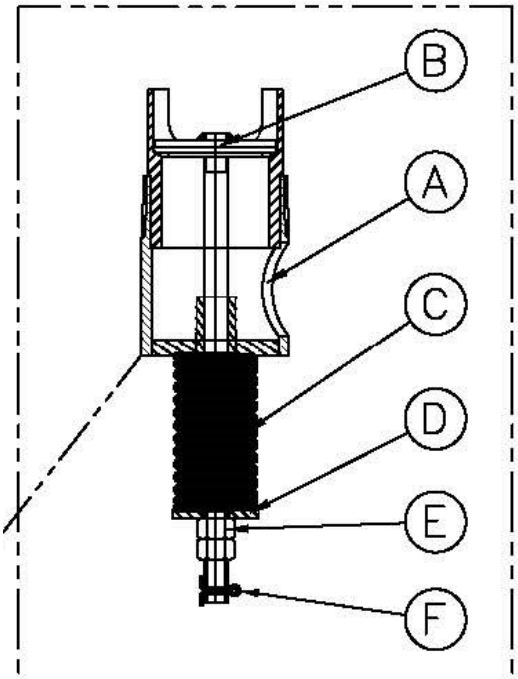
VACUUM RELIEF VALVE

The vacuum relief valve is located on the recovery tank vacuum blower suction line. The purpose of the relief valve is to control the amount of vacuum (measured in inches Hg). This valve is set to open at 12" @ full RPM from the factory. Too much (more than 14" Hg) vacuum can over torque the drive clutch and could cause it to prematurely fail. This will also overheat the blower and could cause it to prematurely fail as well. Too little vacuum will not provide enough lift to fully extract water from the textile surface being cleaning and could leave it too wet.

Weekly Maintenance – Push up on the rod. It should push up and spring down freely. Spray **ONLY TKX** into the spring area to prevent rust build up and or seizure. If the rod does not move freely, or doesn't move at all, fully disassemble the valve, clean and lubricate, reinstall.

Checking Relief Setting / Adjustment:

- Run the unit at speed 2.
- Block the air flow at the vacuum inlet connections and read the vacuum gauge. It should read 12" Hg
    - If adjustment is required, shut the unit down and adjust the vacuum relief valve locking nut tension. Clockwise will increase the Hg", counterclockwise will decrease the Hg". Start your unit and read the vacuum gauge. Repeat this process until the relief valve opens at 12" Hg.



VACUUM RELIEF VALVE (INDIVIDUAL PARTS)

PRESSURE REGULATOR

The pressure regulator serves to maintain water pressure at a preset point and to bypass this water back to the fresh water tank. Adjust as follows:

To Adjust:

- With the system running, close the cleaning tool valve. Check the pressure gauge. Open the cleaning tool valve. Set the pressure regulator so that the pressure gauge reads 0—1,200 psi with tool valve closed. When the tool valve is open, there should be an approximate drop of 100 PSI in pressure (one wand with flow approximately 1.0—1.5GPM).
- To adjust, turn the adjustment knob (while observing the pressure gauge on the control panel) until the desired pressure is obtained. Turn the regulator adjustment knob valve clockwise to increase the pressure and counter clockwise to decrease the pressure.

Maintenance

Lubricate the orings in the pressure regulator every 100 hours. Use only oring lubricant.

ADDING / DRAINING ENGINE COOLANT

Refer to the Chevrolets owner's manual for frequency and type of coolant to be used in the cooling system.

NOTICE

Aero Tech recommends you replace the engine coolant and thermostat every 1,500 hours. Refer to the Chevrolets owner's manual for further information.

- To drain the coolant, remove the radiator cap and open vent valve on the coolant heat exchanger.
- Remove the plug from the vent valve on the coolant heat exchanger and open vent valve slowly.
- Open radiator drain cock.
- Drain into a suitable container and dispose of properly.
- Close radiator drain cock.
- Add coolant to vent valve on the coolant heat exchanger until coolant flows from radiator cap.
- Start the engine and run for approximately 5 minutes with vent valve open and radiator cap off. Air trapped inside the system will escape through the vent valve and open radiator.
- Shut down engine.
- Add more coolant to the coolant heat exchanger through vent valve. Start engine and run for 5 more minutes. Close vent valve and install plug..
- Add more coolant to the radiator. Install radiator cap.
- Add coolant to the engine overflow bottle. Fill halfway between the minimum and maximum marks on the bottle.
- Repeat the steps above until all of the air is purged from the system.

SECTION 6 - TROUBLESHOOTING

This chapter of the operation and service manual explains how to look for and fix malfunctions which may occur.
Intelligent, accurate troubleshooting is based on a complete and thorough understanding of the WATER, VACUUM, HEAT TRANSFER, SAFETY and WIRING systems of the truck. If there is a malfunction occurring in a system that you do not fully understand, turn to the "OPERATION" **section 3 of this manual and REVIEW "SYSTEMS**".

CLUTCH DRIVE SYSTEM

PROBLEM	POSSIBLE CAUSES	ACTION
CLUTCH WILL NOT ENGAGE OR SYSTEM WILL NOT TURN ON	1. System switch is not turned on. Control Panel gauge lights OFF	1.Turn system switch to on
	2. Main breaker or Clutch breaker in off position	2. Turn breaker to on position
	3. Loose or corroded connection on battery terminal	3.Clean and tighten terminals
	4. 30 amp resettable breaker inside engine bay defective	4. Check, replace if necessary
	5. Clutch wire loose, broken or corroded	5. Check, replace if necessary
	6. Defective system / speed switch	6. Check, replace if necessary
	7. Waste tank is full	7. Check water level inside of waste tank, drain as necessary
	8. Waste tank float switch is stuck in the up position	8. Check position of float switch inside waste tank, clean float. Float should drop down to proper position.
	9. Waste tank level switch is defective	9. Check, replace if necessary
	10. Truck is not in PARK	11. Move shift selector to PARK

PRESSURE PUMP CLUTCH

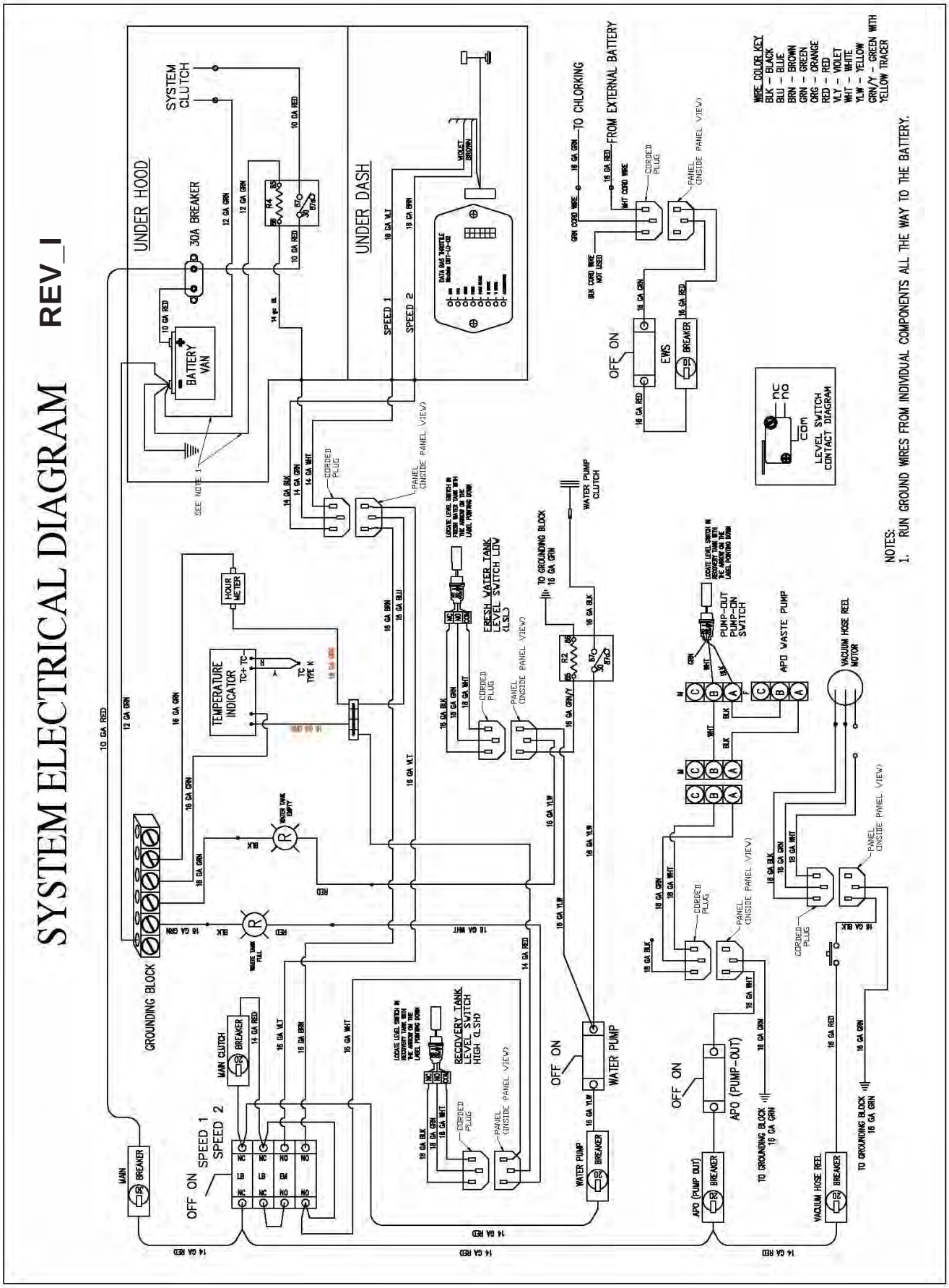
PROBLEM	POSSIBLE CAUSES	ACTION
PUMP CLUTCH WILL NOT ENGAGE OR SYSTEM WILL NOT TURN ON	1. System switch is not turned on. Control Panel gauge lights OFF	1.Turn system switch to on
	2. Main breaker or Clutch breaker in off position	2. Turn breaker to on position
	3. Loose or corroded connection on battery terminal	3.Clean and tighten terminals
	4. 30 amp resettable breaker inside engine bay defective	4. Check, replace if necessary
	5. Clutch wire loose, broken or corroded	5. Check, replace if necessary
	6. Defective system / pump clutch switch	6. Check, replace if necessary
	7. Waste tank float switch is stuck in the up position	7. Check position of float switch inside waste tank, clean float. Float should drop down to proper position.
	8. Fresh water tank is out of water	8. Fill fresh water tank with water
	9. Fresh water tank float switch is stuck in the down position	9. Clean float, float should rise to the up position
	10. Fresh water tank float switch is defective	10. Replace float switch
	11. Waste tank level switch is defective	11. Check, replace if necessary
	12. Truck is not in PARK	12. Move shift selector to PARK

ELECTRIC VACUUM HOSE REEL

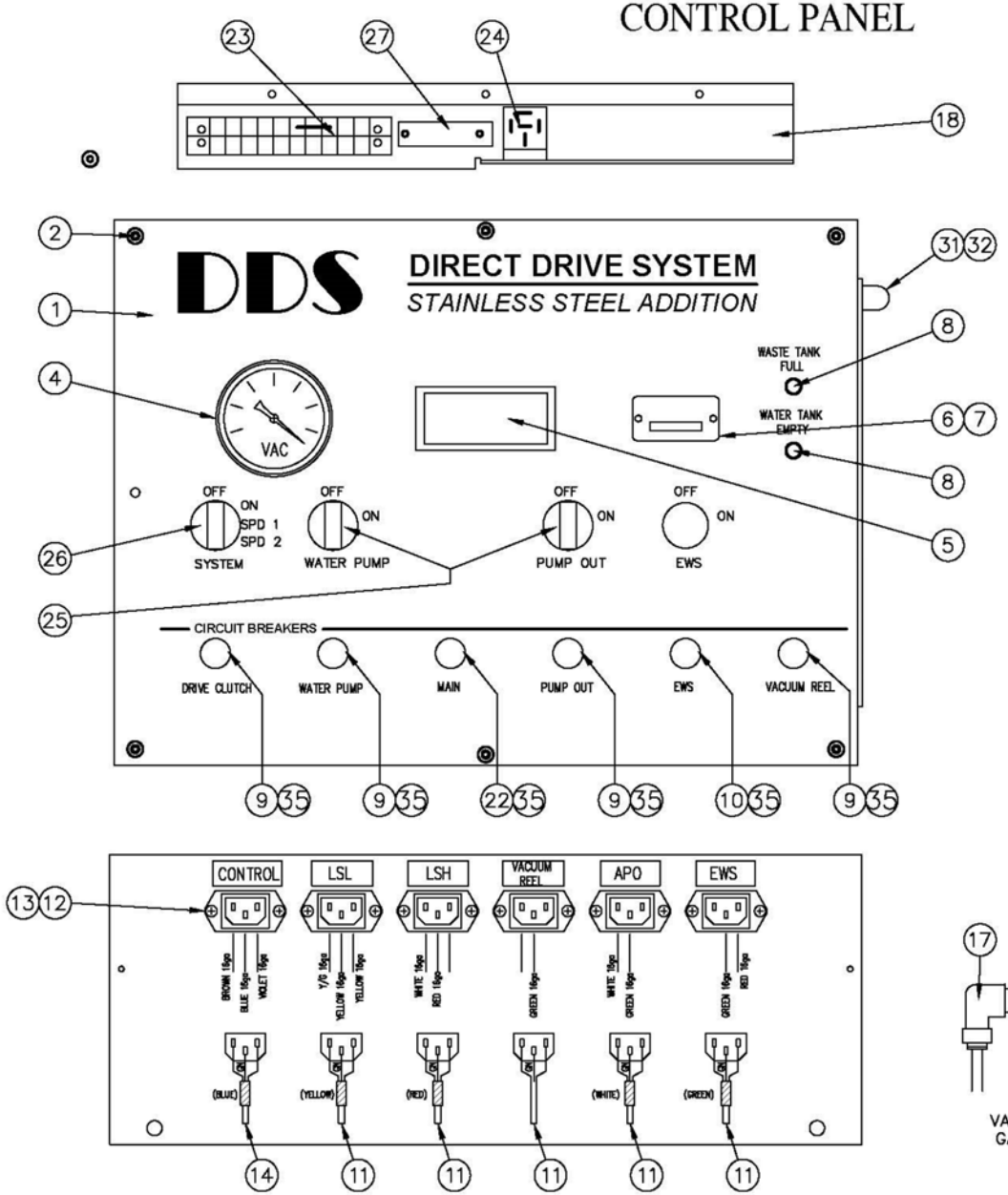
PROBLEM	POSSIBLE CAUSES	ACTION
Hose reel not spinning	1. Brake has not been released	1. Release brake
	2. Circuit breaker is tripped	2a. Push circuit breaker in to reset it 2b. Determine why circuit breaker as tripped
	3. Defective circuit breaker	3. Check, replace if necessary
	4. Defective switch	4. Check, replace if necessary
	5. Defective motor	5. Remove gear attachment from motor, put power to motor and see if it will spin. If it spins, motor is functioning, gear attachment is most likely bad. If it does not spin, replace motor
	6. Defective gear attachment	6. In step #5, if motor spins, replace gear attachment

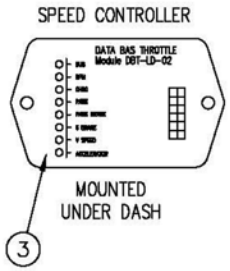
CHEMICAL PUMP

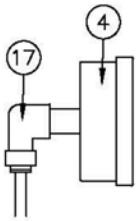
PROBLEM	POSSIBLE CAUSES	ACTION
No Chemical Flow	1. Chemical jug empty	1. Fill as required
	2. Clogged hose to chemical pump	2. Remove, clean and reinstall, replace if necessary
	3. Water pump note engaged	3. Turn on system and engage water pump
	4. System not properly primed	4. Prime chemical system per owners manual
	5. Chemical selector valve not turned to “On” position	5. Turn valve from “Prime” position to “On” position.
	6. Chemical flow valve not adjusted correctly.	6. Connect solution hose with tool, pull trigger to flow water and adjust chemical flow valve to desired GPH
Chemical Flowing Without Pulling Trigger	1. Hole in rubber diaphragm	1. Remove diaphragm from chemical pump (refer to page 77), inspect, replace if necessary
	2. Differential check valve sticking	2. Remove, inspect, clean or replace if necessary


SYSTEM ELECTRICAL DIAGRAM REV_I
UNDER HOOD
UNDER DASH
SYSTEM CLUTCH
30A BREAKER
BATTERY VAN
SEE NOTE 1
SPEED 1
SPEED 2
TEMPERATURE INDICATOR
HOUR METER
TC+ TC-
TC TYPE K
GROUNDING BLOCK
MAIN BREAKER
MAIN CLUTCH BREAKER
OFF ON
SPEED 1
SPEED 2
WATER TANK EMPTY
WASTE TANK FULL
RECOVERY TANK LEVEL SWITCH HIGH (LSH)
FRESH WATER TANK LEVEL SWITCH (LSL)
WATER PUMP CLUTCH
WATER PUMP BREAKER
WATER PUMP
APD (PUMP-OUT)
APD (PUMP OUT) BREAKER
APD WASTE PUMP
PUMP-OUT PUMP-ON SWITCH
VACUUM HOSE REEL MOTOR
VACUUM HOSE REEL BREAKER
TO GROUNDING BLOCK 16 GA GRN
TO CHLORKING
FROM EXTERNAL BATTERY
EMS BREAKER
LEVEL SWITCH CONTACT DIAGRAM
nc
no
com
CORDED PLUG
PANEL (INSIDE PANEL VIEW)
WIRE COLOR KEY
BLK – BLACK
BLU – BLUE
BRN – BROWN
GRN – GREEN
ORG – ORANGE
RED – RED
VLT – VIOLET
WHT – WHITE
YLW – YELLOW
GRN/Y – GREEN WITH YELLOW TRACER
NOTES:
1. RUN GROUND WIRES FROM INDIVIDUAL COMPONENTS ALL THE WAY TO THE BATTERY.

CONTROL PANEL

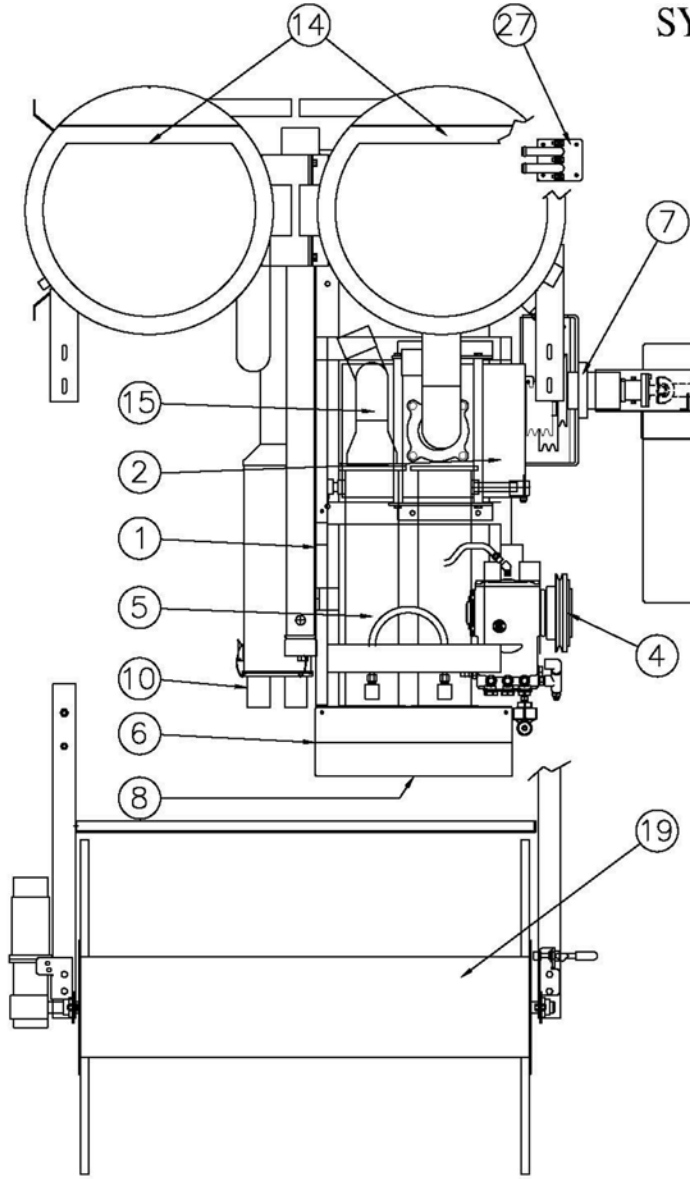


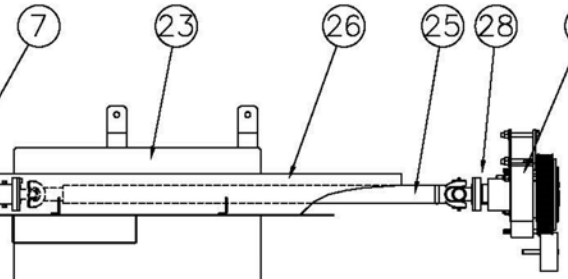


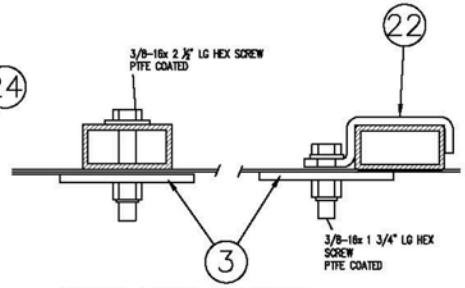


ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
35	6	CLEAR BOOT COVER FOR CIRCUIT BREAKERS	ELBT-0018
32	1	BOOT, PUSHBUTTON COVER	ELBT-0006
31	1	PUSHBUTTON, MOMENTARY CONTACT	ELSW-0597
27	1	GROUND BAR, 6 LUG	ELGL-0020
26	1	4 POSITION SWITCH	ELSW-0867
25	2	2 POSITION SELCTOR SWITCH WITH NO CONTACT	ELSW-0666
24	2	RELAY 12VDC (NOTE: INSTALL ONE RELAY IN ENGINE COMPARTMENT)	ELRL-0387
23	1	TERMINAL STRIP, 10 PLACE, WITH JUMPER	ELTL-0225
22	1	30 AMP DC CIRCUIT BREAKER	ELCB-0382
18	1	BACK PLATE, CONTROL PANEL	CRT-153
17	1	TUBE ADAPTOR 1/8" FPT FEMALE ELBOW x 1/4" OD TUBE	PLAD-0125
15	1	30 AMP AUTOMATIC RESET CIRCUIT BREAKER	ELCB-0359
14	1	CORD, AUTO-LOCK, 12 FT LONG	ELCN-0309
13	12	6-32 UNC X 3/8" PAN HEAD PHILLIPS SCREW	HWSC-0034
12	6	AUTO-LOCK SOCKET	ELCN-0297
11	5	CORD, AUTO-LOCK, 9 FT LONG	ELCN-0308
10	1	10 AMP DC CIRCUIT BREAKER	ELCB-0363
9	4	20 AMP DC CIRCUIT BREAKER	ELCB-0361
8	2	RED PANEL LIGHT	ELLT-0102
7	10	6-32 UNC X 1/2" BUTTON HEAD CAP SCREW	HWSC-0798
6	1	HOUR METER, 12VDC	ELMR-0075
5	1	TEMPERATURE DISPLAY	ELTC-0032
4	1	VACUUM GAUGE 0-30"Hg, LIQUID FILLED	HWGA-0088
3	1	ENGINE SPEED CONTROLLER	ELSC-0016
2	7	10-32 UNF X 1/2" BUTTON HEAD CAP SCREW	HWSC-0986
1	1	CONTROL PANEL CABINET	CRT-152

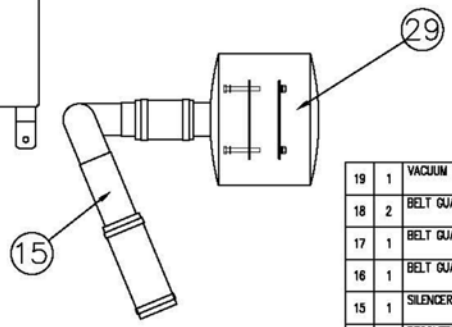
SYSTEM ASSMEBLY







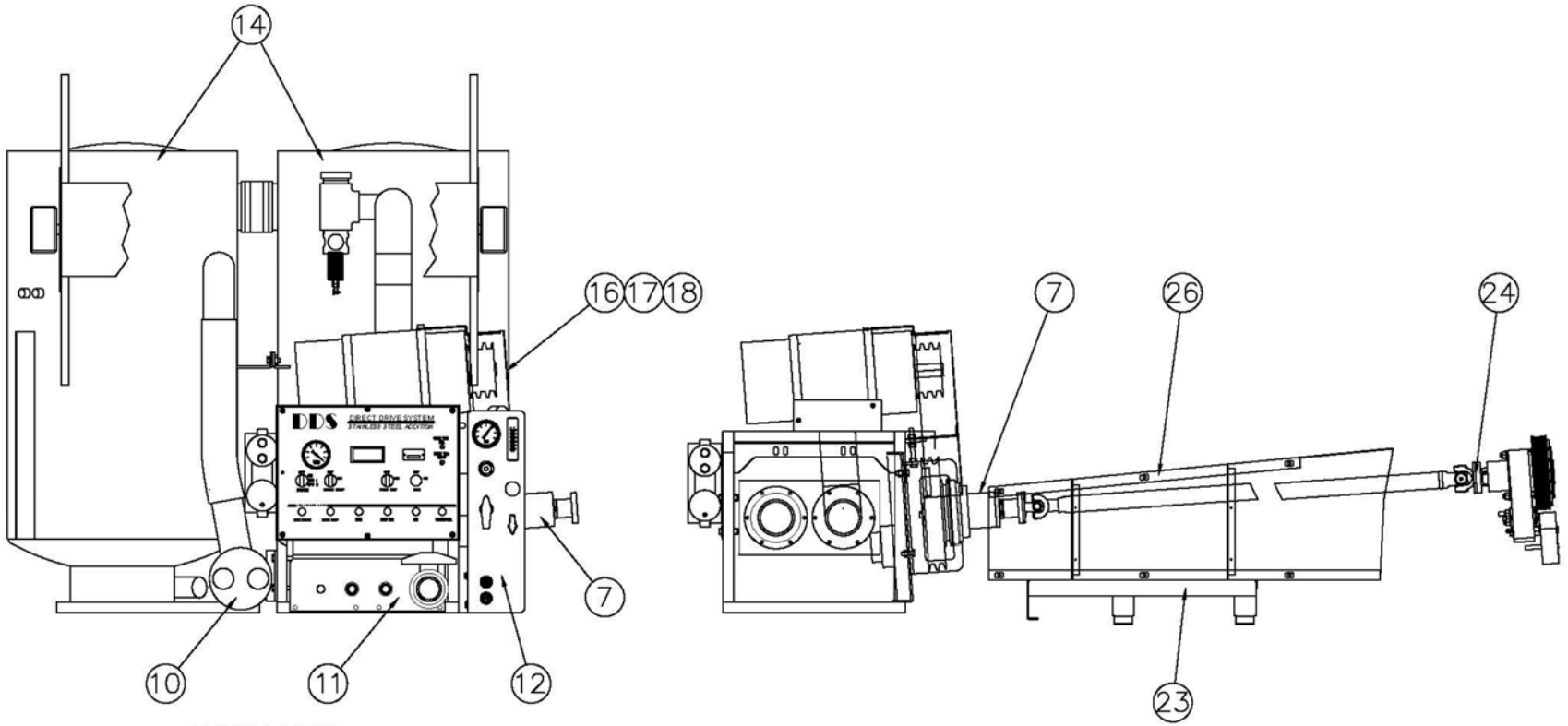
TYPICAL. FLOOR ATTACHMENT



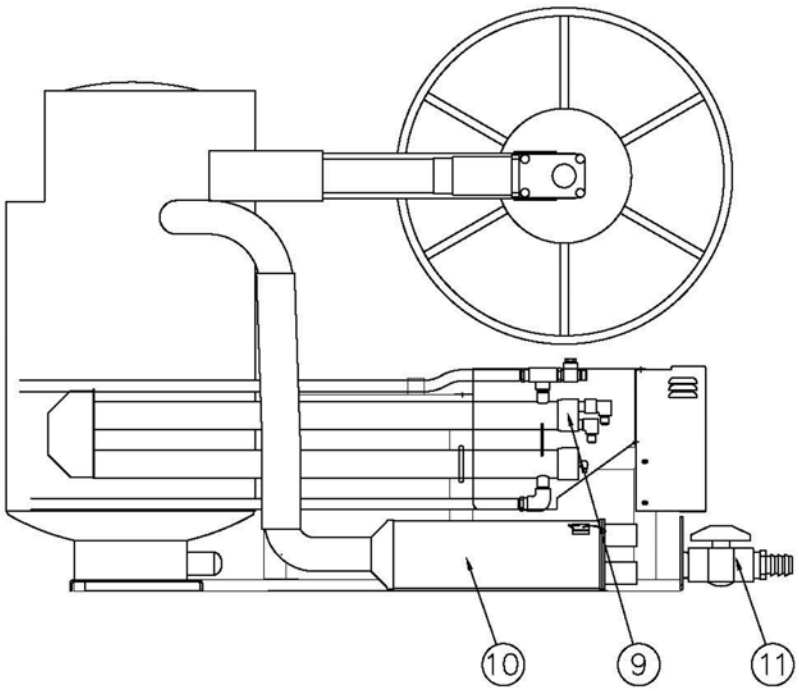
SILENCER ASSEMBLY

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
29	1	SILENCER	CRT-227
28	1	DRIVE SHAFT SAFETY SUPPORT	CRT-676
27	1	HOSE COOLANT CONNECTOR	CRT-141
26	1	SHAFT GUARD ASSEMBLY	CRT-183
25	1	UNIVERSAL DRIVE SHAFT	HWDL-0004
24	1	CLUTCH ASSEMBLY	CRT-660
23	1	FRONT BRACKET	CRT-102
22	5	LOCK BRACKET MAIN FRAME	CRT-263
21	1	SYSTEM COVER	CRT-106
20	1	ALTERNATOR ASSEMBLY	CRT-800

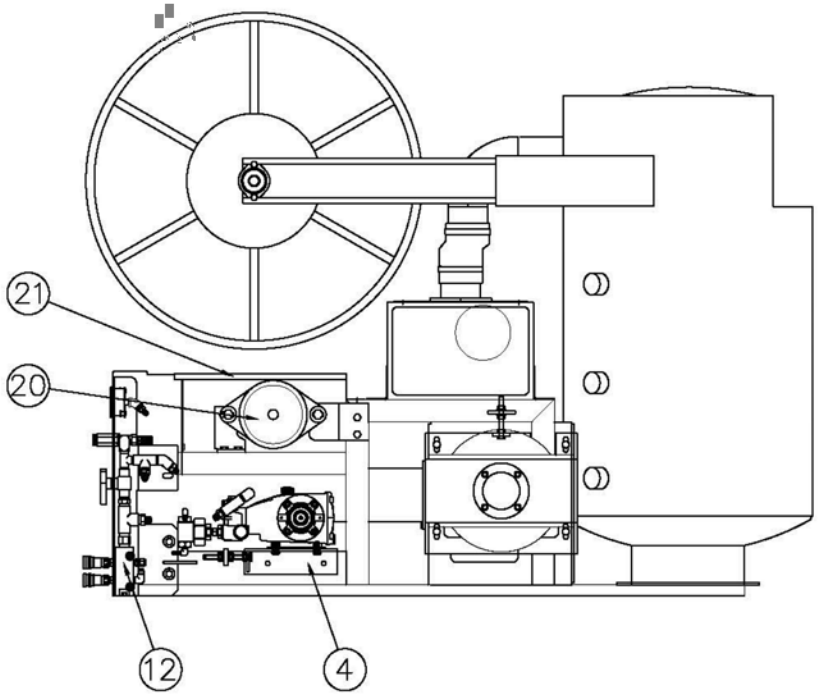
ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
19	1	VACUUM HOSE REEL	CRT-700
18	2	BELT GUARD, SUPPORT BRKT BLOWER	CRT-174
17	1	BELT GUARD, SUPPORT BRKT BLOWER	CRT-173
16	1	BELT GUARD	CRT-176
15	1	SILENCER PIPING ASSEMBLY	CRT-225
14	1	RECOVERY TANK ASSEMBLY	CRT-320
12	1	WATER HEADER ASSEMBLY	CRT-400
11	1	RECOVERY TANK DRAIN ASSEMBLY	CRT-120
10	1	VACUUM INLET ASSEMBLY	CRT-110
9	1	COOLANT SYSTEM	CRT-140
8	1	CONTROL PANEL ASSEMBLY	CRT-150
7	1	DRIVE SHAFT ASSEMBLY	CRT-500
6	1	BRACKET CONTROL PANEL	CRT-151
5	1	BLOWER EXCHANGER ASSEMBLY	CRT-240
4	1	PUMP BRACKET ASSEMBLY	CRT-460
3	5	BACKING PLATE	060196
2	1	BLOWER ASSEMBLY	CRT-200
1	1	MAIN FRAME	CRT-250



FRONT VIEW

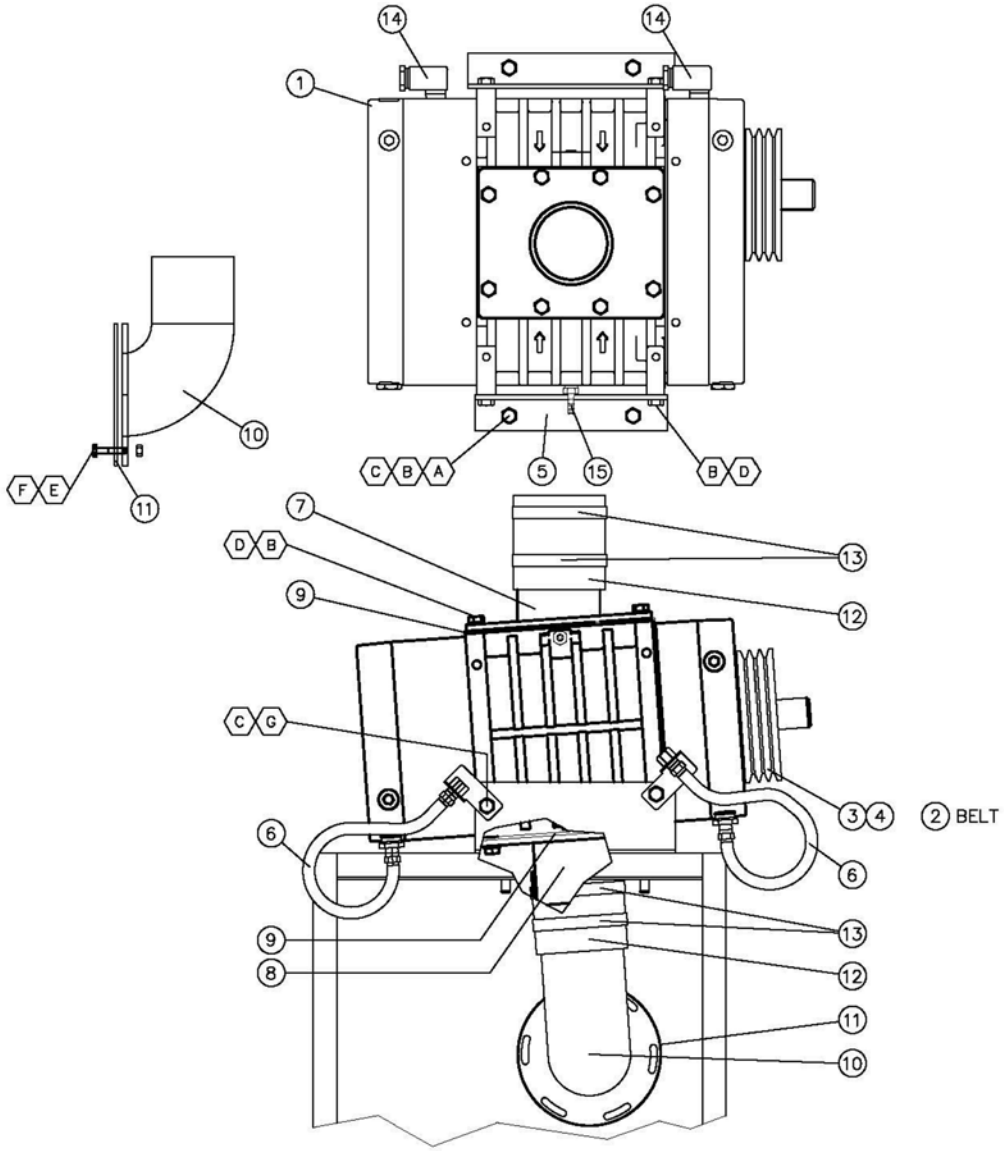


SIDE VIEW BACK



SIDE VIEW FRONT

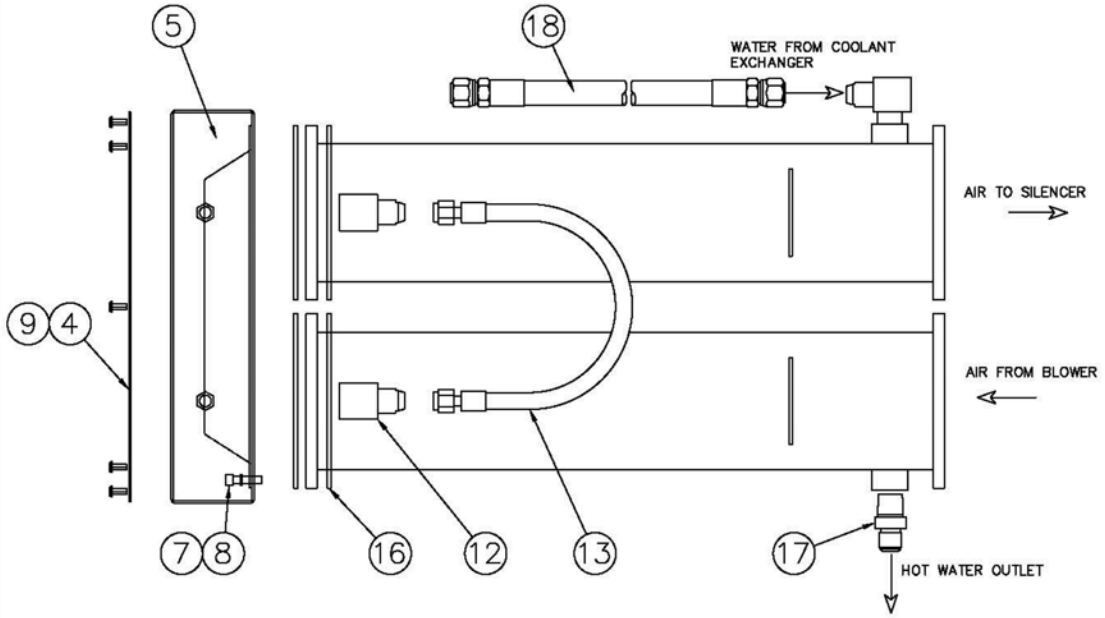
BLOWER ASEMBLY

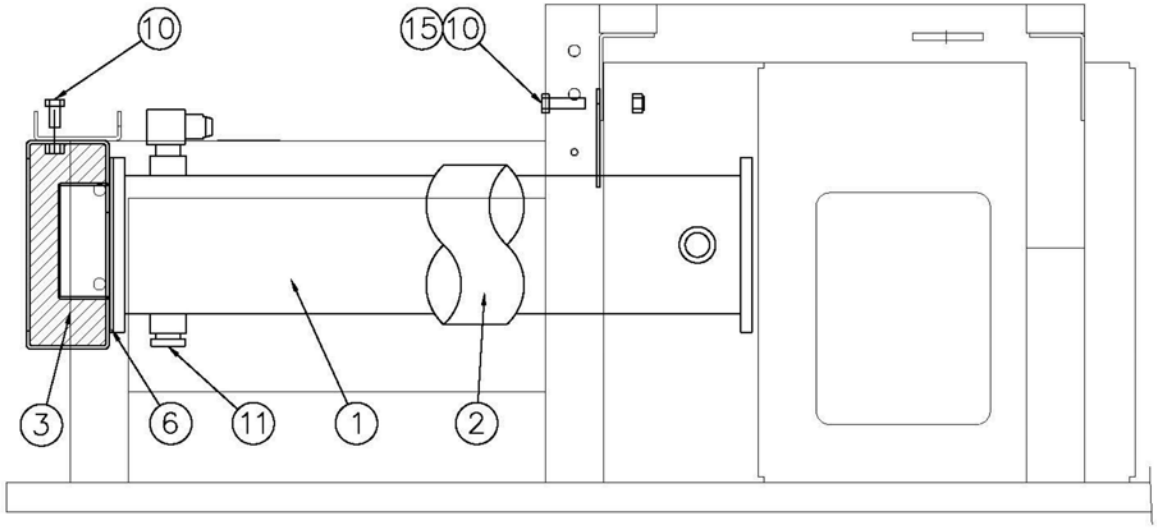


ITEM	REQ'D	FASTENER DESCRIPTION	PART No.
G	4	3/8"-16 HEX SCREW 3/4" LG PTFE COATED	HWSC-1313
F	6	1/4"-20 x 1 1/4" LG HEX HEAD PTFE COATED	HWSC-1362
E	6	1/4"-20 LOCK HEX NUT STAINLESS STEEL	HWNT-0604
D	16	3/8"-16 HEX SCREW 1" LG PTFE COATED	HWSC-1312
C	8	3/8" FLAT WASHER STAINLESS STEEL	HWWA-0056
B	20	3/8" LOCK WASHER STAINLESS STEEL	HWWA-0078
A	4	3/8"-16 HEX SCREW 1-3/4" LG PTFE COATED	HWSC-1318

ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF
15	1	1/8" MPT x 1/4" HOSE BARB FITTING BRASS	HWHB-0050
14	2	1/2" MPT x 1/2" FPT STREET ELBOW BRASS	PLEL-0004
13	4	T-BOLT HOSE CLAMP	CLMP-0049
12	2	3 1/2" ID SILICONE HOSE 5.0" LG	HWHS-0170
11	1	GASKET, BLOWER DISCHARGE PIPE	BHE-304
10	1	BLOWER DISCHARGE PIPE	CRT-206
9	2	BLOWER SUCTION PIPE / DISCHARGE PIPE ADAPTOR GASKET RED SILICONE RUBBER	CRT-208-G
8	1	BLOWER DISCHARGE PIPE ADAPTOR	CRT-208-B
7	1	BLOWER SUCTION PIPE ADAPTOR	CRT-208-A
6	2	BLOWER OIL DRAIN KIT	CRT-207
5	2	BLOWER SUPPORT MOUINTING BRACKET ONE STANDARD, ONE OPPOSITE HAND	CRT-251
4	1	MOUNTING BUSHING FOR BLOWER SHEAVE 1.25 BORE 1/4" KEY	HWBS-0088
3	1	BLOWER SHEAVE 3/3V560-SDS	HWSV-0051
2	1	BELT, GATES 3/3VP530 PREDATOR BANDED	HWBT-0088
1	1	GARDNER DENVER 408 HELIFLOW BLOWER HORIZONTAL RH CW ROTATION	HWBW-0025

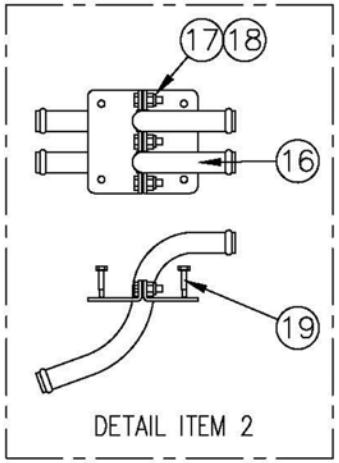
BLOWER EXCHANGER

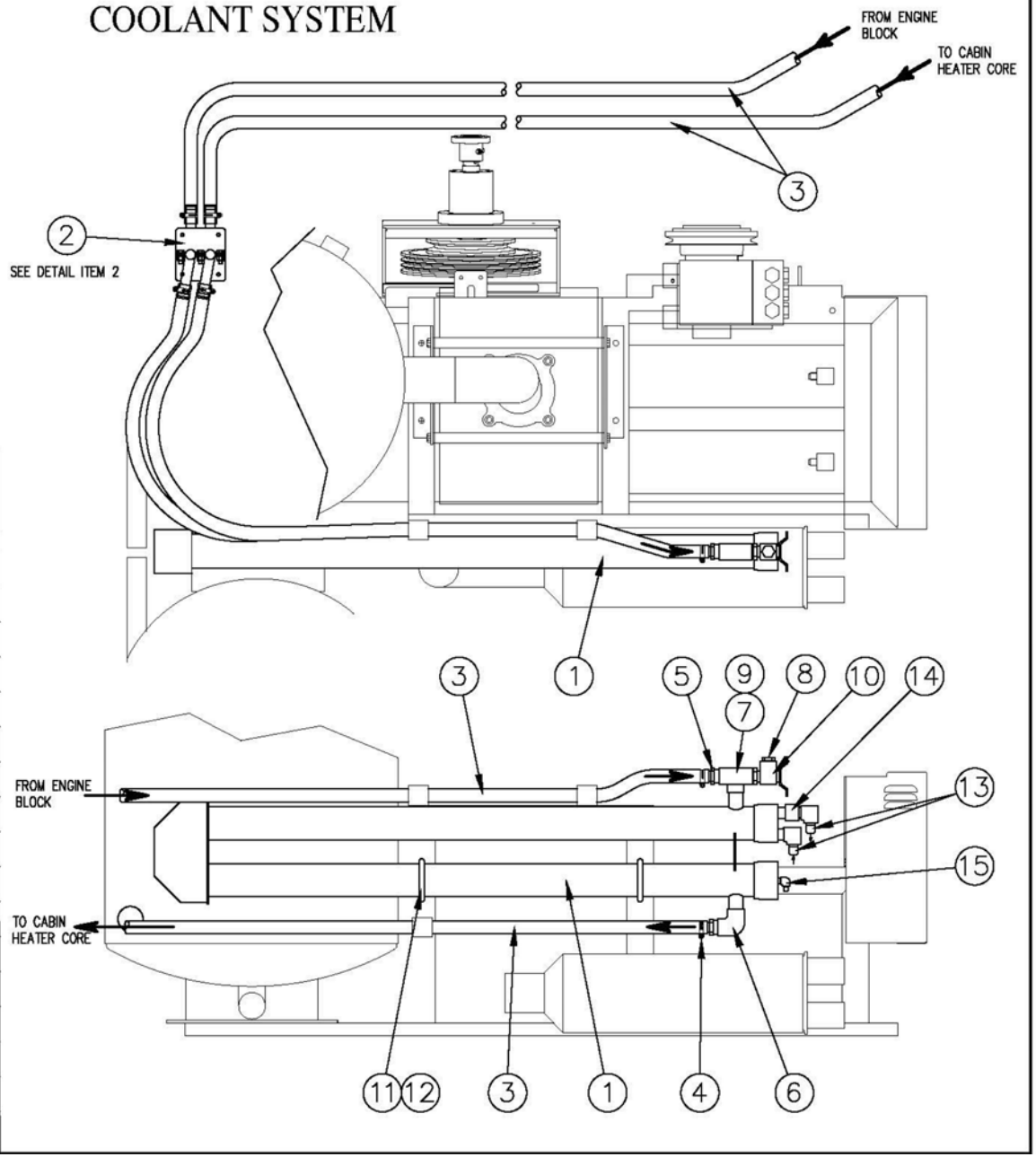




ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
18	1	3/8" ID HOSE C/W 9/16-18 SAE37° SWIVEL NUT TEFLON HOSE WITH SS FITTING AND JACKET	HTMM-4024
17	1	HOSE ADAPTER SS 9/16-18 SAE37° X 1/2" MPT	HASS-0508
16	4	BACK UP RING	CRT-234
15	2	3/8-16 HEX LOCK NUT 18-8SS	HWNT-0730
13	1	3/8" ID TEFLON HOSE C/W 9/16-18 SAE37° SS SWIVEL NUT 17" LG	HTMM-4017
12	3	HOSE ADAPTER 90° ELBOW SS 9/16-18 SAE37° X 1/2" MPT	HAES-0608
11	2	1/2 MPT 304SS PLUG	PLPL-0023
10	4	3/8-16 HEX HEAD SCREW 1.0" LG PTEF COATED	HWSC-1312
9	5	10-32 BUTTON HEAD SCREW 1/2" LG 18-8 SS	HWSC-0986
8	10	1/4 LOCK WASHER	HWWA-0024
7	10	1/4-20 HEX SCREW 1.00" LG PTEF COATED	HWSC-1362
6	2	GASKET	BHE-304
5	A/R	INSULATION	ISPD-0020
4	1	AIR RETURN CHAMBER COVER	CRT-233
3	1	RETURN CHAMBER	CRT-230
2	2	INSULATION, BLOWER HEAT EXCHANGER	BHE-305-S
1	2	BLOWER HEAT EXCHANGER	BHE-300-S

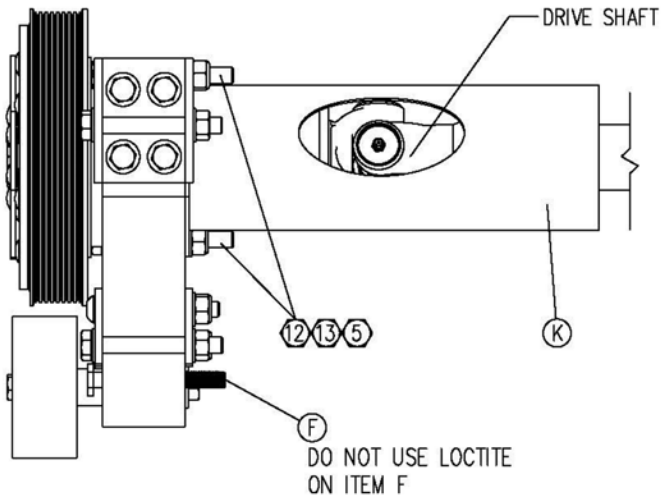
COOLANT SYSTEM

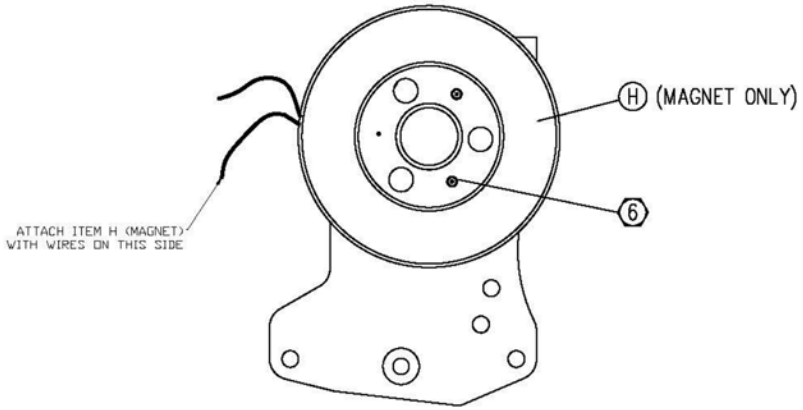


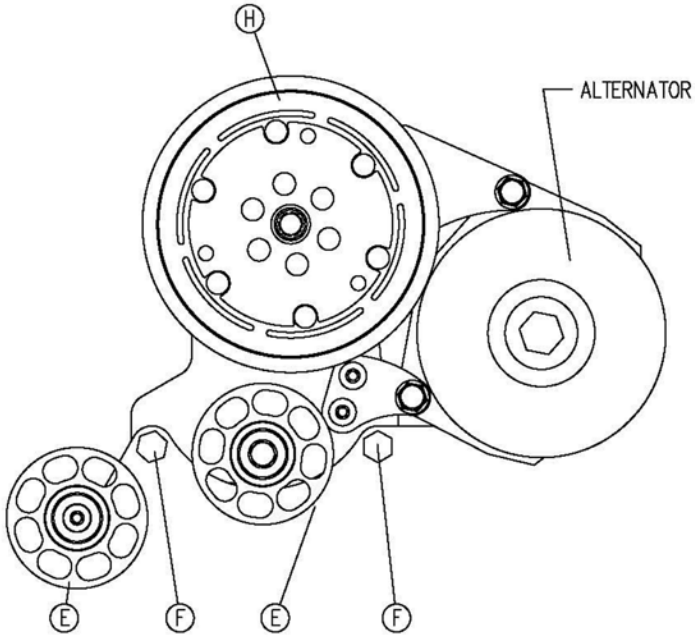


ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
19	4	10-16 x 1.0" LG CORROSION-RESISTANT DRILLING SCREW	HWSC-1363
18	3	1/4-20 HEX LOCK NUT SS	HWNT-0721
17	3	1/4-20 x 3/4" lg HEX BOLT PTEF COATED	HWSC-1338
16	2	3/4" OD x 0.049 WALL SMLS TUBING 304SS	060956-2
15	1	HOSE ADAPTER 90° ELBOW SS 7/16-18 SAE37° X 1/8" MPT	HAES-0402
14	1	1/2" MPT x 1/2" FPT ADAPTER 304SS	PLAD-0134
13	2	9/16-18 x 1/2" MPT HOSE ADAPTER 90 °ELBOW SS	HAES-0608
12	1	1/8" THK SILICONE PAD 2.0" x 2.0"	HWGS-0297
11	2	3/8-16 U-BOLT FOR 2 1/2" PIPE 304SS	HWUB-0103
10	1	1/2" ELBOW BRASS BALL VALVE	PLBV-0078
9	1	3/4" x 1/2" BRASS REDUCING BUSHING	PFBU-0009
8	1	1/2" BRASS PLUG	PLPL-0004
7	1	3/4" BRASS TEE	PFTE-0065
6	1	3/4" FPT BRASS ELBOW 90°	PPEL-0009
5	2	3/4" ID HOSE x 3/4" MPT HOSE BARB BRASS	HWHB-0040
4	8	3/4" ID HOSE CLAMP	HWHC-0012
3	2	3/4" ID COOLANT HOSE, GREEN STRIPE	HWHS-0190
2	1	HOSE COOLANT CONNECTOR	CRT-141
1	1	E-1 COOLANT EXCHANGER	060006W

CLUTCH ASSEMBLY

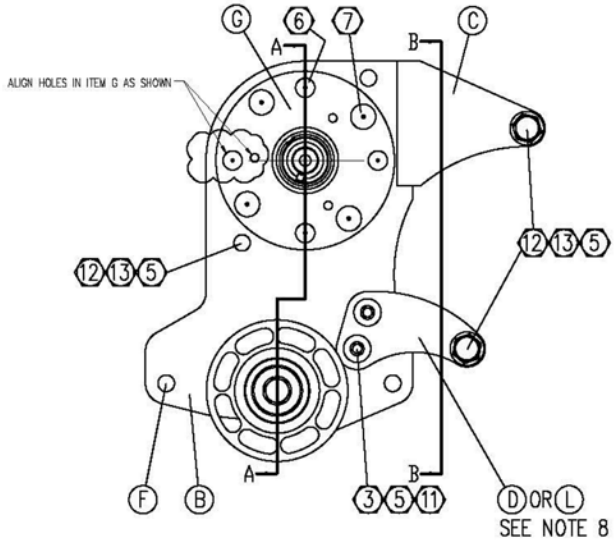


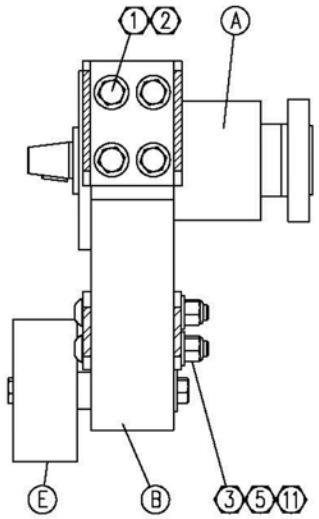




ENGINE ASSEMBLY

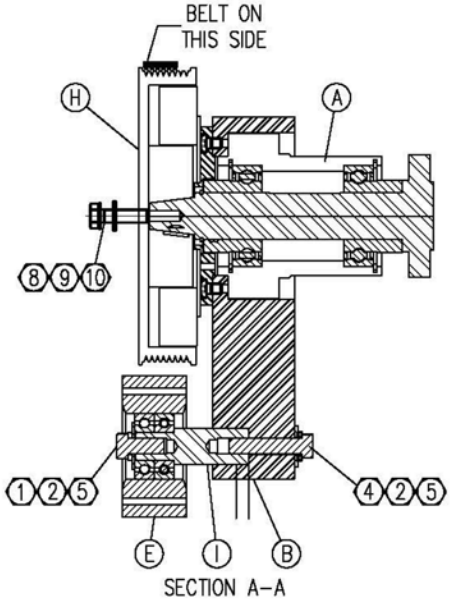
CLUTCH ASSEMBLY



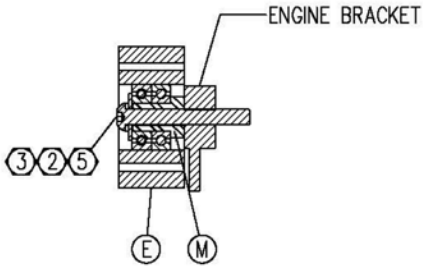


SECTION B–B

ITEM	REQ'D	FASTENER LIST	PART NUMBER
13	4	3/8–16 UNC NYLOCK HEX NUT 304 STAINLESS STEEL	HWNT–0102
12	4	3/8–16 UNC X 3" LG HEX HEAD BOLT TEFLON COATED STEEL GRADE 5	HWSC–1315
11	2	M10 NYLOCK HEX NUT ZINC PLATED STEEL	HWNT–0796
10	1	M8 STAR WASHER ZINC PLATED STEEL	HWWA–0658
9	1	5/16 –FLAT WASHER STAINLESS STEEL	HWWA–0057
8	1	M8–1.25 x 30mm HEX HEAD SCREW ZINC PLATED STEEL	HWSC–1334
7	4	5/16–18 UNC X 3/4" LG BUTTON HEAD CAP SCREW SELF LOCKING McM#92360A420 BLACK–OXIDE ALLOW	HWSC–1323
6	4	1/4–20 UNC X 3/8" LG BUTTON HEAD CAP SCREW C/W LOCK WASHER, BLACK OXIDE COATED	HWSC–1329
5	11	3/8" FLAT WASHER STAINLESS STEEL	HWWA–0056
4	1	3/8"–16 HEX HEAD SCREW 1 3/4" LG, GRADE 5 TEFLON COATED STEEL	HWSC–1318
3	3	M10 X 80mm LG BUTTON HEAD CAP SCREW ZINC PLATED STEEL	HWSC–1327
2	7	3/8" SPLIT LOCK WASHER STAINLESS STEEL	HWWA–0078
1	5	3/8"–16 HEX HEAD SCREW 3/4" LG, GRADE 5 TEFLON COATED STEEL	HWSC–1313



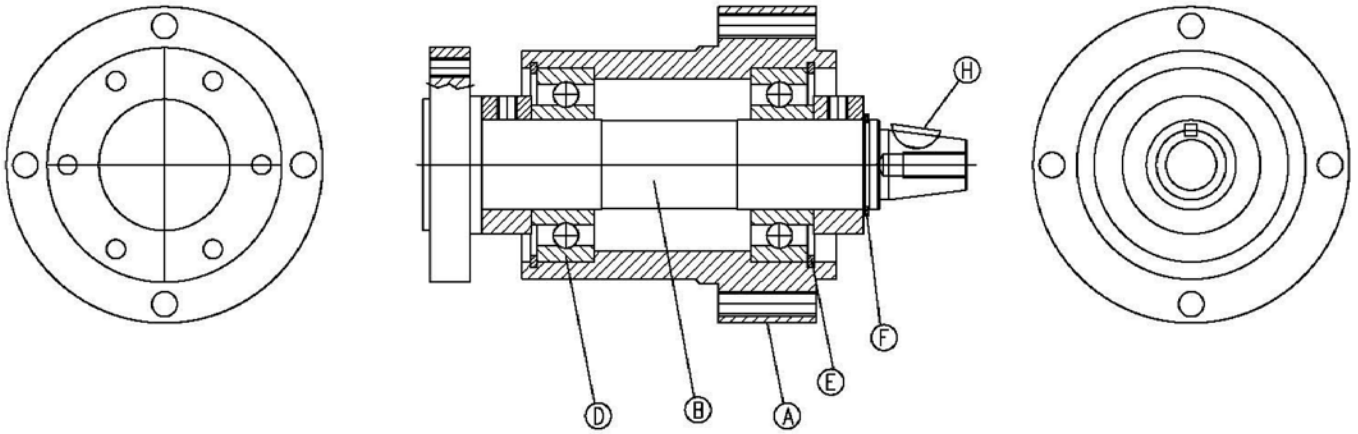
SECTION A–A



ENGINE IDLER ASSEMBLY

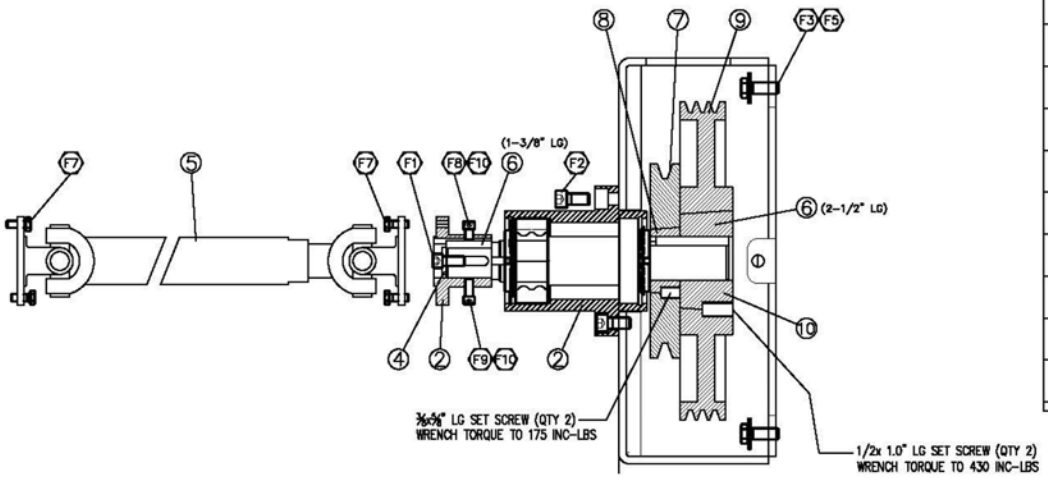
ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
M	1	IDLER PULLEY SHAFT GM ENGINE	CRT–631
L	2	CLUTCH BRACKET LARGE FRAME ALTERNATOR LOWER MOUNTING ARM	CRT–622
K	1	CLUTCH BRACKET DRIVE SHAFT SAFTEY SUPPORT	CRT–676
J	1	SERPENTINE BELT GATES # K061187RPM EFFECTIVE LENGTH 118.74"	HWBT–0092
I	1	IDLER PULLEY SHAFT CLUTCH HOUSING	CRT–623
H	1	MA–MG05–VM OGURA 12VDC CLUTCH	PLPC–0006
G	1	BRACKET, CLUTCH	CRT–630
F	2	HEX SCREW MODIFICATION	CRT–607
E	2	ø86.5mm IDLER PULLEY DAYCO #89106	HWPL–0021
D	2	CLUTCH BRACKET SMALL FRAME ALTERNATOR LOWER MOUNTING ARM	CRT–624
C	1	CLUTCH ALTERNATOR MOUNTING BRACKET UPPER ARM WELDMENT	CRT–621
B	1	CLUTCH BRACKET	CRT–661
A	1	CLUTCH SHAFT ASSEMBLY	CRT–650

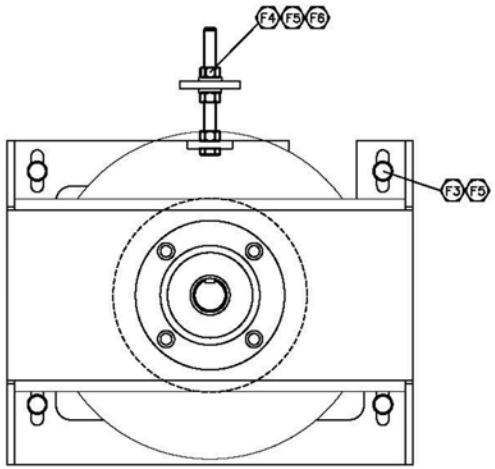
CLUTCH SHAFT ASSEMBLY



ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
H	1	4 x16 x 6.5 mm WOODRRUFF KEY	HWKY-0009
F	1	EXTERNAL RETAINING RING FOR 1 1/8" DIA SHAFT	HWRR-0059
E	2	INTERNAL RETAINING RING FOR 2 7/16"BORE	HWRR-0058
D	2	BEARING HIGH TEMPERATURE SEAL AND GREASE	HWBR-0160
B	1	SHAFT	CRT-652
A	1	MAIN BEARING HOUSING	CRT-651

DRIVE SHAFT ASSEMBLY

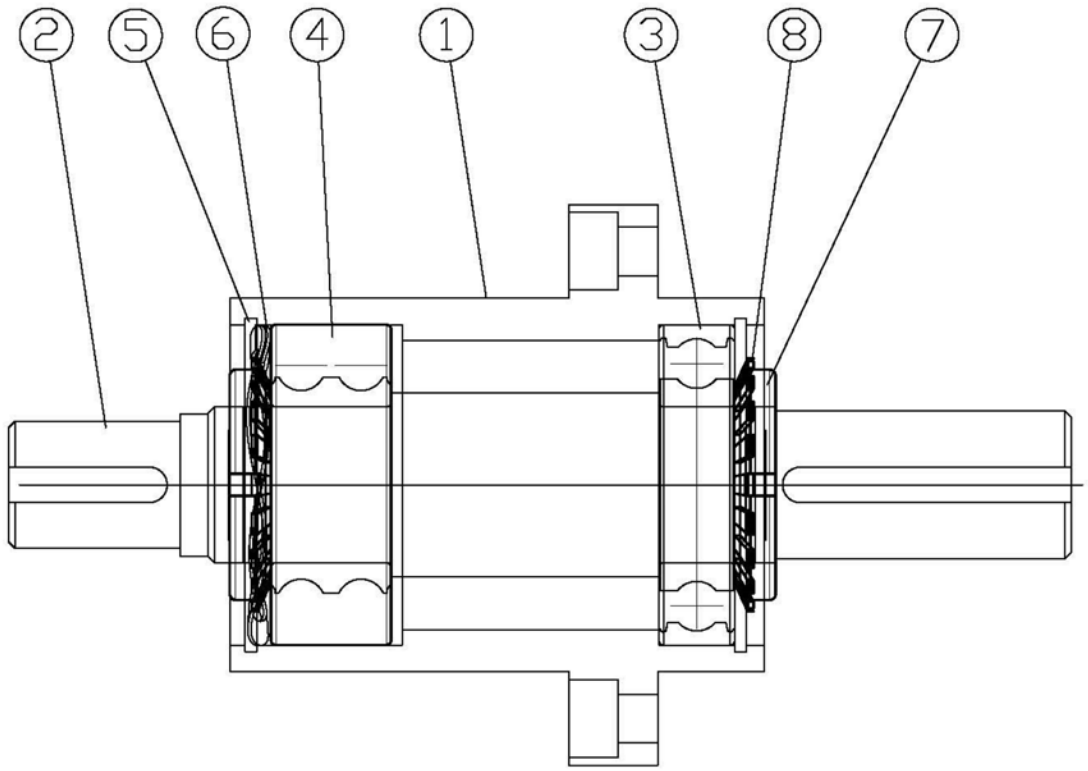




ITEM	REQ'D	FASTENER DESCRIPTION	PART No.
F10	1	.032 DIA WIRE 304 STAINLESS STEEL	WRSS-0009
F9	1	1/4-20 X 5/8" SOCKET HEAD CAP SCREW, WIRE LOCKABLE GRADE 8 ALLOY STEEL	HWSC-1395
F8	1	1/4-20 X 3/8" SOCKET HEAD CAP SCREW, WIRE LOCKABLE 18-8 STAINLESS STEEL	HWSC-1353
F7	12	M6 X 15MM HEX HEAD SCREW ZINC PLATED WITH THREAD LOCKING	HWSC-1358
F6	3	3/8-16 HEX NUT 18-8 STAINLESS STEEL	HWNT-0054
F5	6	3/8 FLAT WASHER PLATED STEEL	HWWA-0056
F4	1	3/8 -16 HEX SCREW 4" LG FULL THREAD PTFE COATED	HWSC-1364
F3	4	3/8-16 x 1.0" LG HEX HEAD SCREW C/W FLAT AND LOCK WASHER PLATED	HWSC-1321
F2	4	3/8-16 x 3/4" LG SOCKET HEAD SCREW BLACK OXIDE WITH THREAD LOCKING	HWSC-1347
F1	1	5/16-18 x 3/4" LG SOCKET HEAD SCREW BLACK OXIDE WITH THREAD LOCKING	HWSC-1322

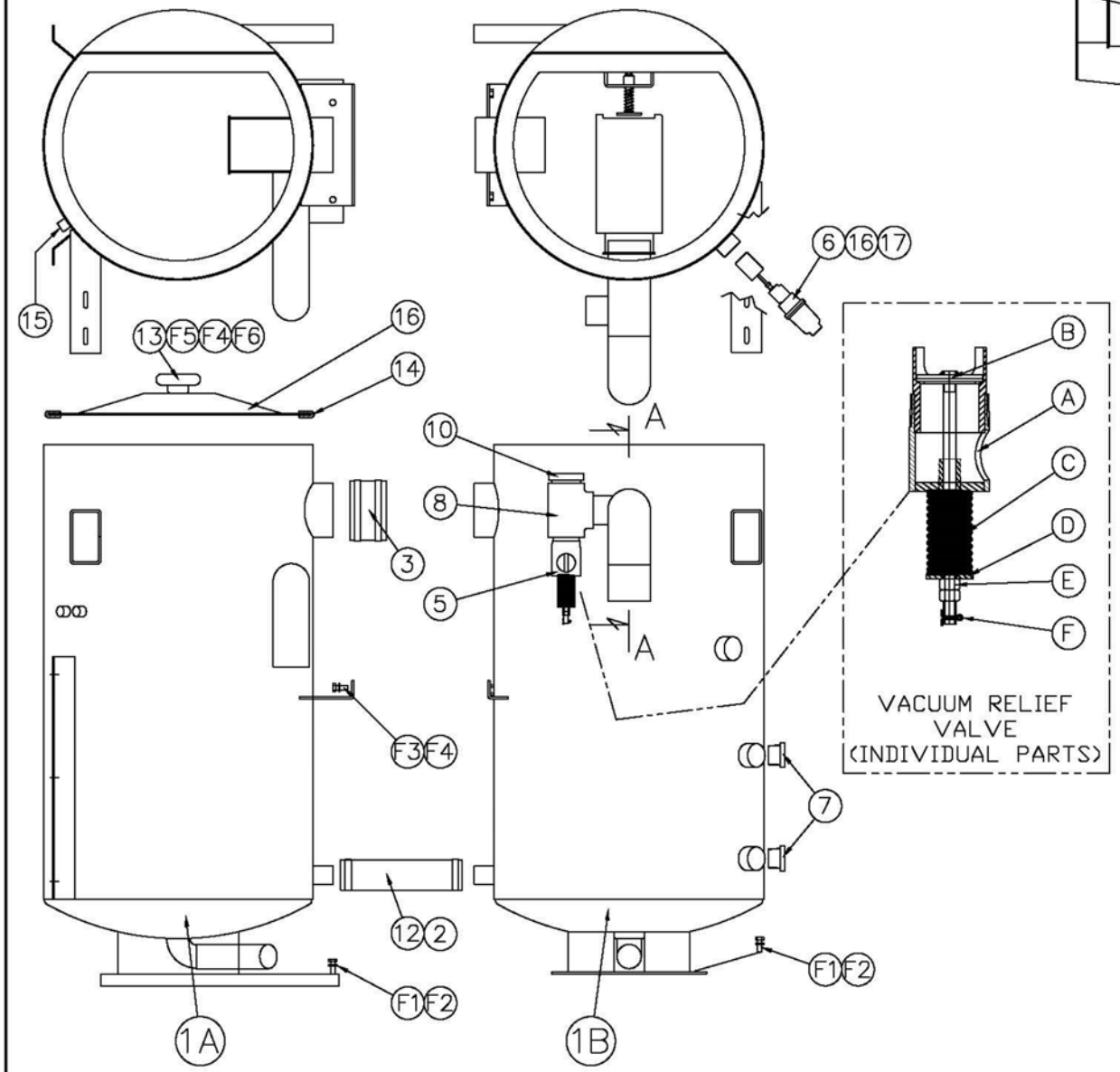
ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF
10	1	TAPER LOCK BUSHING, 1-5/16" BORE, 2517 FOR ITEM 9	HWBS-0095
9	1	SHEAVE, TRIPLE GROOVE, 3/3V	HWSV-0041
8	1	TAPER LOCK BUSHING, 1-5/16" BORE, 1610 FOR ITEM 7	HWBS-0096
7	1	SHEAVE , SINGLE GROOVE, A/B	HWSV-0043
6	1	5/16" x 5/16" KEY STOCK (STAINLESS STEEL)	BSKS-0015
5	1	UNIVERSAL DRIVE SHAFT	HWDL-0004
4	1	WASHER	CRT-506
3	1	DRIVE HUB	CRT-504
2	1	BEARING SHAFT ASSEMBLY	CRT-526
1	1	DRIVE SHAFT BRACKET	CRT-501

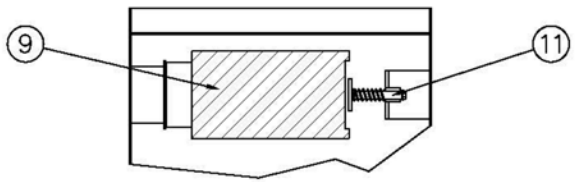
DRIVE SHAFT ASSEMBLY



ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF
8	2	35MM LOCK WASHER	HWWA-0341
7	2	35MM LOCK NUT	HWNT-0803
6	1	WAVE SPRING	HWSP-0129
5	2	METRIC INTERNAL RETAINING RING	HWRR-0062
4	1	DOUBLE ROW ANGULAR BALL BEARING	HWBR-0167
3	1	RADIAL BALL BEARING	HWBR-0166
2	1	DDS DRIVE SHAFT BEARING SHAFT	CRT-524
1	1	DDS DRIVE SHAFT BEARING HOUSING	CRT-522

RECOVERY TANKS ASSEMBLY



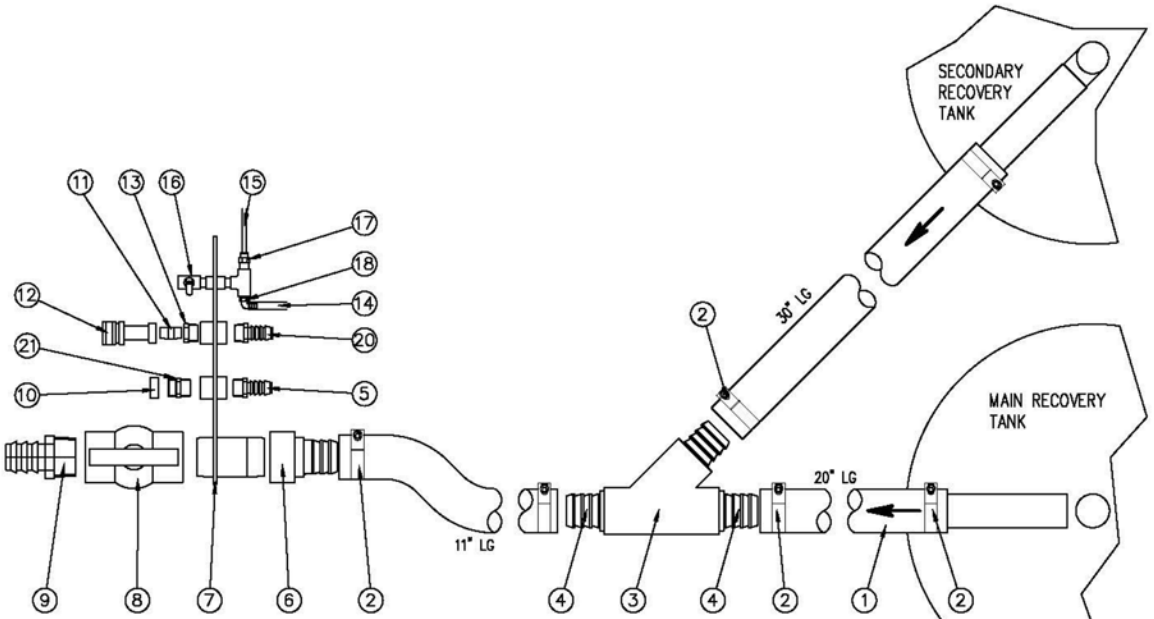


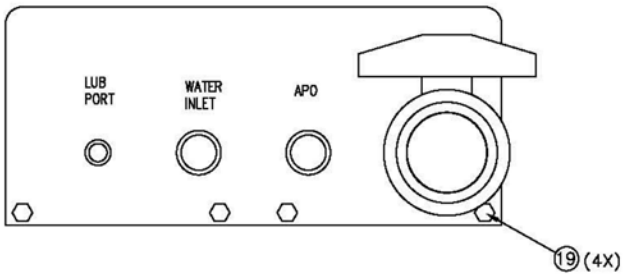
SECTION A-A

ITEM	REQ'D	FASTENER DESCRIPTION	PART No.
F6	1	1/2- UHMW FLAT WASHER	HWWA-0065
F5	1	1/2 -13 HEX LOCK NUT SS	HWNT-0128
F4	4	1/2 FLAT WASHER SS	HWWA-0056
F3	2	1/2-13 HEX HEAD SCREW 1.0" LG PTEF COATED	HWBL-0730
F2	8	3/8 FLAT WASHER SS	HWWA-0058
F1	8	3/8-16 HEX HEAD SCREW TEFLON COATED 1" LG	HWSC-1312

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
F	1	COTTER PIN, ø3/32" X 3/4" LONG	HWPN-0055
E	2	NUT, 3/8-16 UNC Z/PL	HWNT-0151
D	1	WASHER	060305
C	1	SPRING	HWSP-0060
B	1	VACUUM RELIEF DISK	060303-S
A	1	VACUUM RELIEF BODY	060304-S
17	1	CORD GRIP CONNECTOR	ELCN-0278
16	1	WIRE HARNESS	CRT-155-3
15	2	3/8" MPT PIPE PLUG SS	PLPL-0023
14	1	LID GASKET	CRT-305-G
13	1	THERMOPLASTIC KNOB 2.48" dia with 1/2-13 EXTERNAL THRD	HWKB-00
12	2	WORM DRIVE HOSE CLAMP	CLMP-0047
11	1	FILTER LOCK ASSEMBLY	CRT-310
10	1	2" PVC PLUG	PLPL-0035
9	1	STRAINER	CRT-307
8	1	2" -150# THRD TEE 304SS	PFTE-0075
7	2	1 1/4" PVC PLUG	PLPL-0045
6	1	LEVEL SWITCH	ELSW-0596
5	1	VACUUM RELIEF VALVE	060301A
4	2	COVER, RECOVERY TANK	CRT-305
3	1	4" x 4" LOW PRESSURE SS CPLG	HWCP-0123
2	1	1 1/2" ID SUCTION WATER HOSE HOSE 10 " LG	HWHS-0168
1B	1	OUTLET RECOVERY TANK WELDMENT	CRT-300-1
1A	1	INLET RECOVERY TANK WELDMENT	CRT-300-2

RECOVERY DRAIN & INLET CONNECTIONS

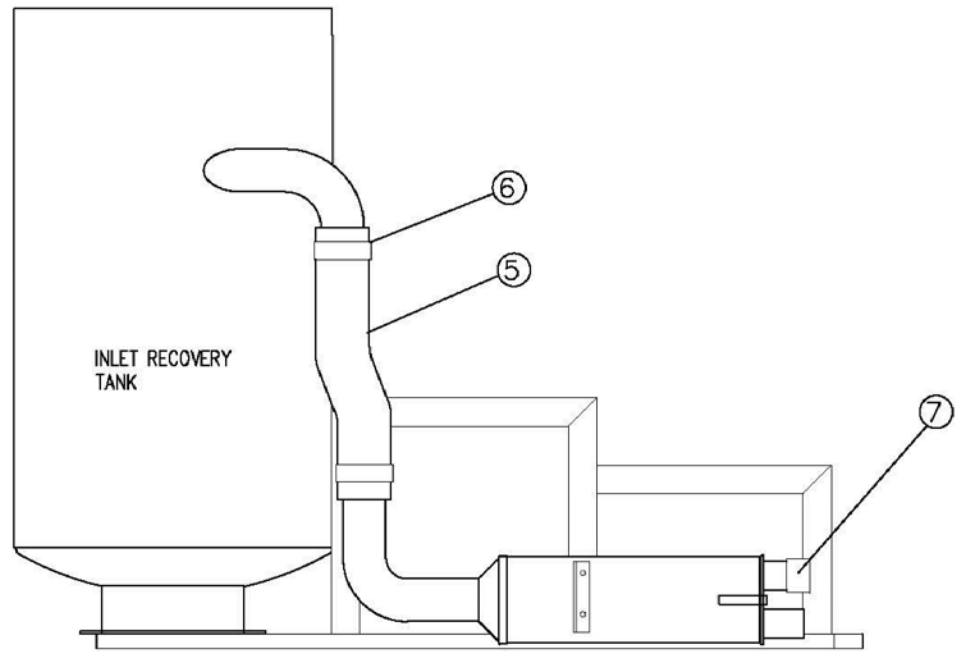


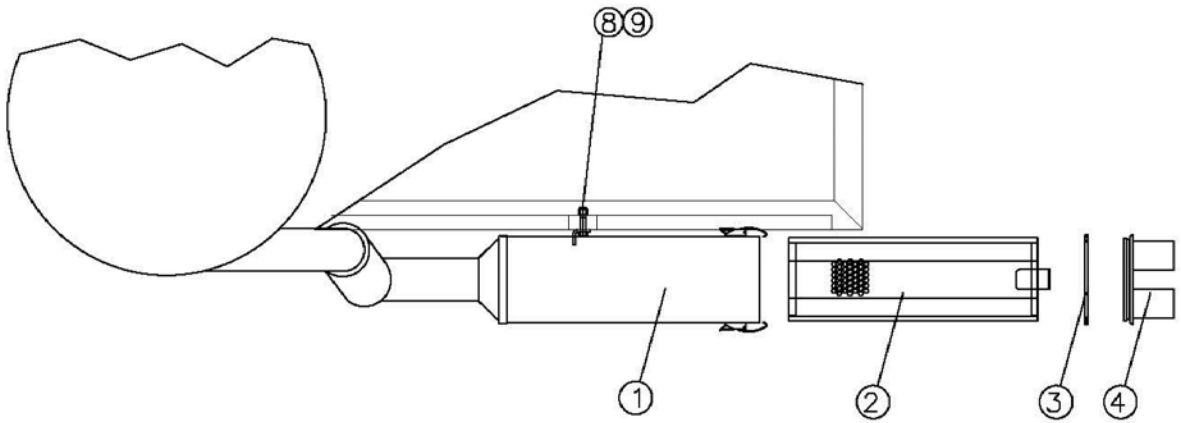


FRONT PANEL VIEW

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
22		1/4" FPT x 1/4 MPT x 1/4" FPT BRASS TEE	PLTE-0163
21		3/4" MPT x 3/4 GHT HOSE ADDAPTOR	PLAD-0096
20		3/4" MPT x 5/8" HOSE BARB PVC ADDAPTOR	HWHB-0103
19		3/8"-16 HEX HEAD SCREW 3/4" LG PTF COATED	HWSC-1313
18		HOSE ADAPTER 1/4" MPT x 1/4" ID HOSE 90° ELBOW	HWHB-0104
17		TUBE ADAPTOR 1/4" MPT x 1/4" OD TUBE	TFAD-0011
16		1/4"MPT x 1/4" FPT BRASS BALL VALVE	PLBV-0081
15		1/4" OD TUBING	
14		HOSE, 1/4 ID HOSE	HWHS-0050
13		3/4" x 3/8" REDUCING BUSHING 304SS	PFBU-0023
12		PARKER 3/8" QUICK CONNECT 304SS	PLQC-0026
11		3/8"-SCH 80 CLOSE NIPPLE 304SS	PLNP-0222
10		3/4"FGH GARDEN HOSE CAP PVC	PLCP-0045
9		2" MPT x 2" HOSE PVC BARB FITTING	PLAD-0126
8		2" FPT PVC BALL VALVE	PLBV-0076
7		DRAIN APO CONNECTOR	CRT-121
6		2" ID HOSE x 2" FPT THREAD PVC ADAPTOR	PLAD-0124
5		3/4" MPT x 3/4" HOSE PVC BARB FITTING	HWHB-0092
4		2" ID HOSE x 2" INSERT ADAPTER	PLAD-0123
3		2" SCH 80 WYE PVC	PWYE-0001
2		HOSE CLAMP	CLMP-0056
1	1	2" ID REINFORCED SUCTION HOSE (BLACK)	HWHS-0187

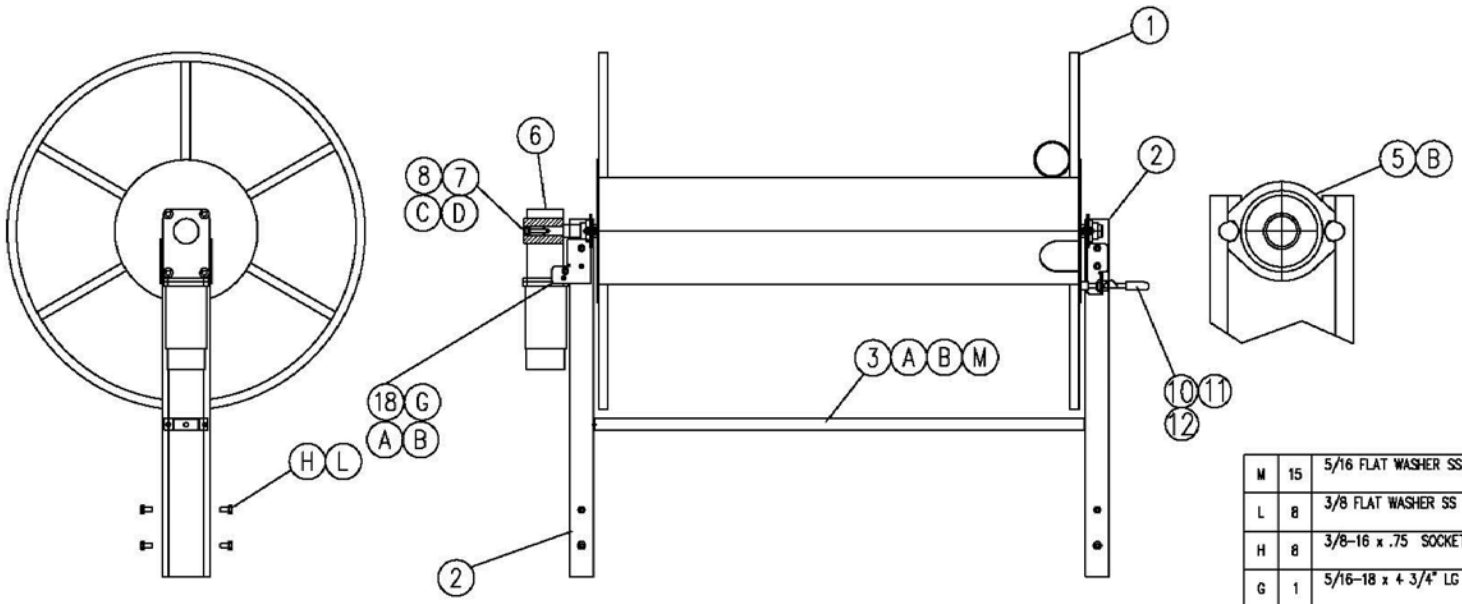
VACUUM INLET ASSEMBLY

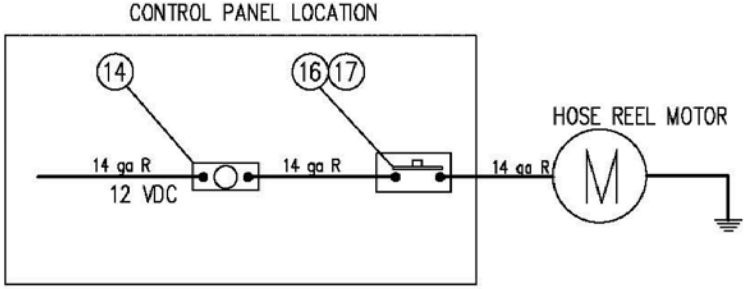




ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
9	2	3/8 FLAT WASHER SS	HWWA-0006
8	2	3/8-16 LOCK HEX NUT SS	HWNT-0102
7	1	CAP RUBBER WITH SS CLAMP	PFCP-1022
6	2	STAINLESS STEEL BARREL CLAW FOR 3.5" OD HOSE	CLMP-0052
5	1	3.0" ID CLEAR VACUUM HOSE 3.5" OD	HWHS-0172
4	1	INLET FILTER TOP COVER	CRT-352
3	1	GASKET	HWGS-0260
2	1	STRAINER BASKET	FLT-200W
1	1	FILTER SHELL ASSEMBLY	CRT-351

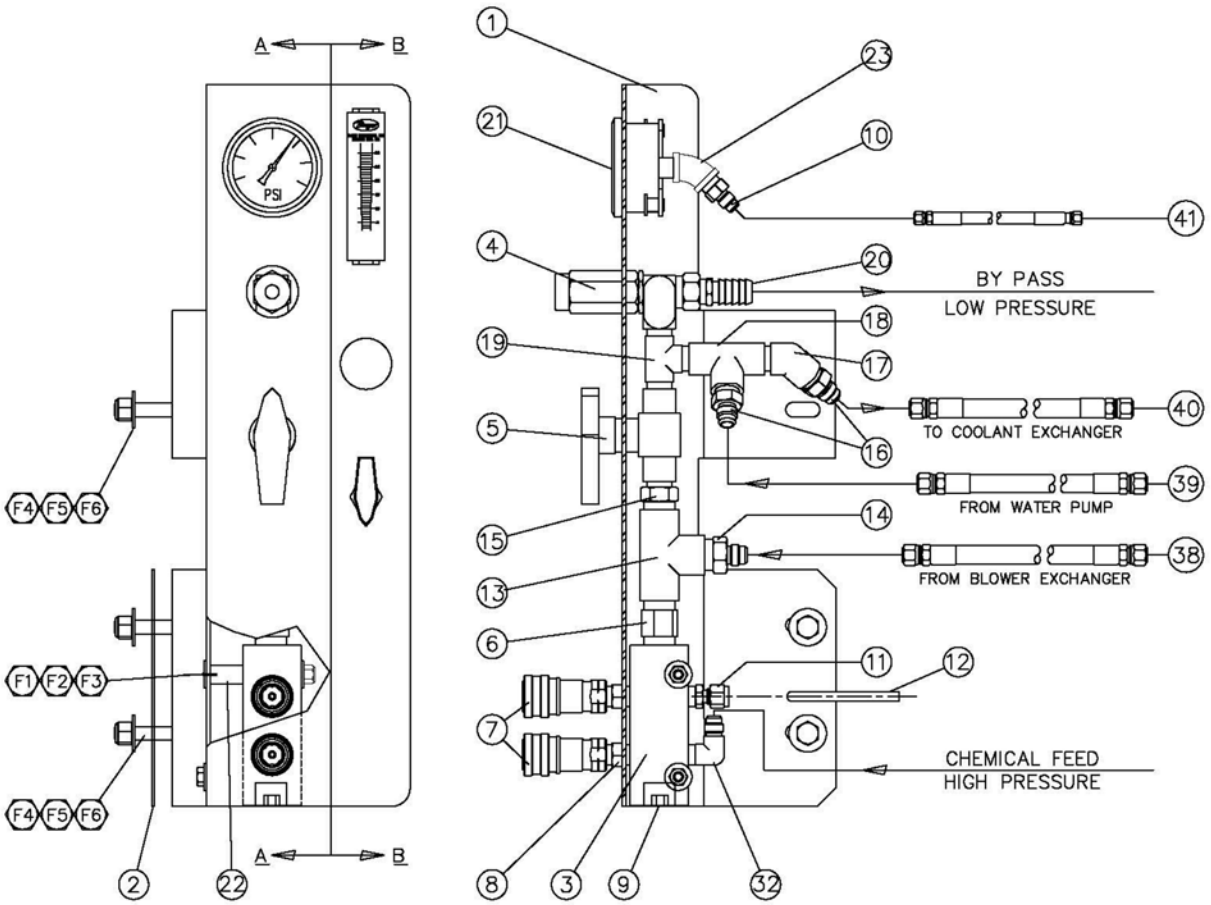
VACCUM REEL





ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
M	15	5/16 FLAT WASHER SS	HWWA-0057
L	8	3/8 FLAT WASHER SS	HWWA-0056
H	8	3/8-16 x .75 SOCKET HEAD SCREW, PTFE COATED	HWSC-1350
G	1	5/16-18 x 4 3/4" LG HEX HEAD SCREW 18-8SS	HWSC-1314
D	1	5/16 x 11/16" OD x 1/8" THK FINISH FLAT WASHER 18-8 SS	HWWA-0244
C	1	5/16-18 x 1.75 SOCKET HEAD SCREW, SS	HWSC-1046
B	14	5/16-18 LOCK NUT SS	HWNT-0205
A	10	BOLT, 5/16-18 X .75 LONG HEX HEAD GRADE 5 ZINC PLATED	HWBL-0069
18	1	GEAR TORQUE ARM	VHR-213
12	1	POLYURATHANE STOPER	060547
11	1	CLAMP, PUSH/PULL BRAUER MODEL #P100	CLMP-0031
10	1	LOCK ARM	CRT-728
8	1	3/16 x 3/16 KEY STOCK 2.5" LG	HWKY-0003
7	1	INTERNAL RETAINING RING FOR 3/4" BORE	HWRR-0020
6	1	GEAR MOTOR 1/8 HP 12VDC GEAR RATIO 50:1	ELMT-0044
5	2	BEARING, STAMPED STEEL FLANGE MOUNT 1" BORE	HWBR-0106
3	1	CROSS BAR	CRT-725
2	2	HOSE REEL FRAME LEG WELDMENT	CRT-710
1	1	WELD DETAIL, REEL	CRT-720

WATER HEADER ASSEMBLY

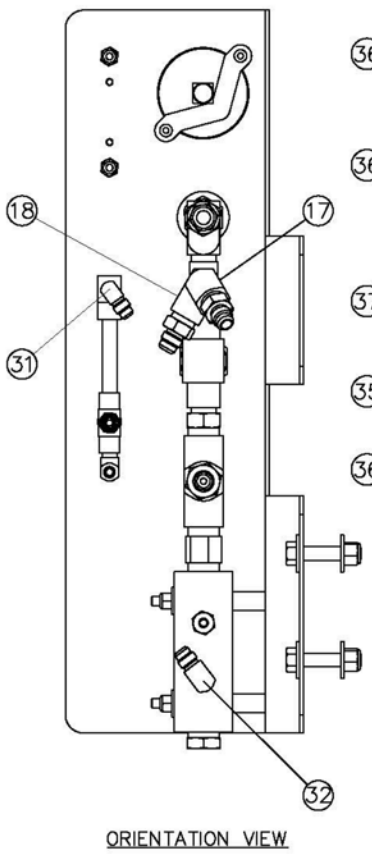


SECTION VIEW
A–A

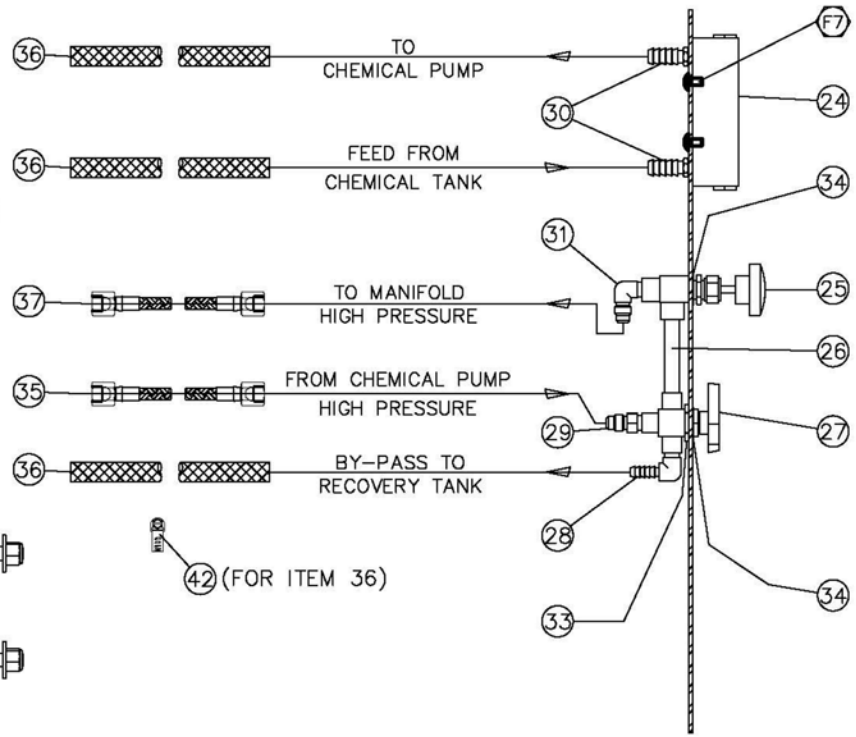
ITEM	REQ'D	FASTENER LIST	PART NUMBER
F6	6	3/8 FLAT WASHER STAINLESS STEEL	HWWA-0056
F5	3	3/8-16 UNC NYLOCK HEX NUT STAINLESS STEEL	HWNT-0102
F4	3	3/8-16 UNC HEX HEAD SCREW X 1.75 INCH STAINLESS STEEL	HWSC-1318
F3	4	1/4 FLAT WASHER STAINLESS STEEL	HWWA-0023
F2	2	1/4-20 UNC NYLOCK HEX NUT STAINLESS STEEL	HWNT-0604
F1	2	1/4-20UNC HEX HEAD SCREW X 3.25 INCH STAINLESS STEEL	HWSC-0621

ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF
41	1	3/16" ID HOSE C/W 7/16-120 SAE37° SWIVEL NUT TEFLON HOSE WITH SS FITTING AND JACKET	HTKK-2028
40	1	3/8" ID TEFLON HOSE, 34" LONG	HTMM-4034
39	1	3/8" ID TEFLON HOSE, 17" LONG	HTMM-4017
38	1	3/8" ID TEFLON HOSE, 28" LONG	HTMM-4028
23	1	45° ELBOW MPT BRASS	PLEL-0253
22	2	SPACER, 1/2" X 1/4" X .875 LONG STAINLESS STEEL	HWSP-0126
21	1	PRESSURE GAUGE (ASHCROFT PLUS PERFORMANCE) 0-1500 PSI	HWGA-0090
20	1	3/8" MPT x 1/2" ID HOSE BARB BRASS	HWHB-0111
19	1	TEE, MALE PIPE 3/8" MPT BRASS, SSP PN IBT8MT	PLTE-0166
18	1	TEE, FEMALE PIPE 3/8" FPT BRASS, SSP PN IBT8PT	PLTE-0167
17	1	45° STREET ELBOW X 3/8" NPT BRASS	PLEL-0254
16	2	STRAIGHT HOSE ADAPTER SAE-06 37° 9/16-18 X 3/8" MPT STAINLESS STEEL	HASS-0606
15	1	HEX NIPPLE 1/2 MNPT TO 3/8 FNPT, SSP BRASS	PLNP-0910
14	1	STRAIGHT HOSE ADAPTER SAE-04 37° 9/16-18 X 1/2" MNPT STAINLESS STEEL	HASS-0608
13	1	TEE, FEMALE PIPE 1/2" FPT BRASS, SSP PN IBT8PT	PLTE-0165
12	1	1/4" OD x 3" LG T- COUPLE PYROMATION PN K48UM004-0016-P7-192"-0	ELWR-0232
11	1	1/4" MPT x 1/4" OD TUBE MALE CONNECTOR STAINLESS STEEL	ELTF-0002
10	1	STRAIGHT HOSE ADAPTER SAE-04 37° 7/16-20 X 1/4" MPT BRASS	HASB-0404
9	1	1/2" MPT COUNTERSUNK HEX PLUG BRASS	PLPL-0160
8	2	1/4" MPT HEX CLOSE NIPPLE BRASS	PLNP-0328
7	2	FEMALE QUICK CONNECT 1/4" FPT BRASS	PLQC-0005
6	1	CHECK VALVE, 1/2" MPT, 10 PSI CRACK PRESSURE, SSP BRASS	PLVA-0088
5	1	BALL VALVE, 3/8" FPT , SSP BRASS	PLBV-0084
4	1	SMC #555 BALANCED PRESSURE REGULATOR BRASS	PLRG-0016
3	1	HEADER STAINLESS STEEL, MISUMI	PFMN-0002
2	1	SHIM, WATER HEADER 304 STAINLESS STEEL	CRT-411
1	1	BRACKET, HOT WATER/CHEMICAL HEADER 304 STAINLESS STEEL	CRT-410

WATER HEADER ASSEMBLY



ORIENTATION VIEW

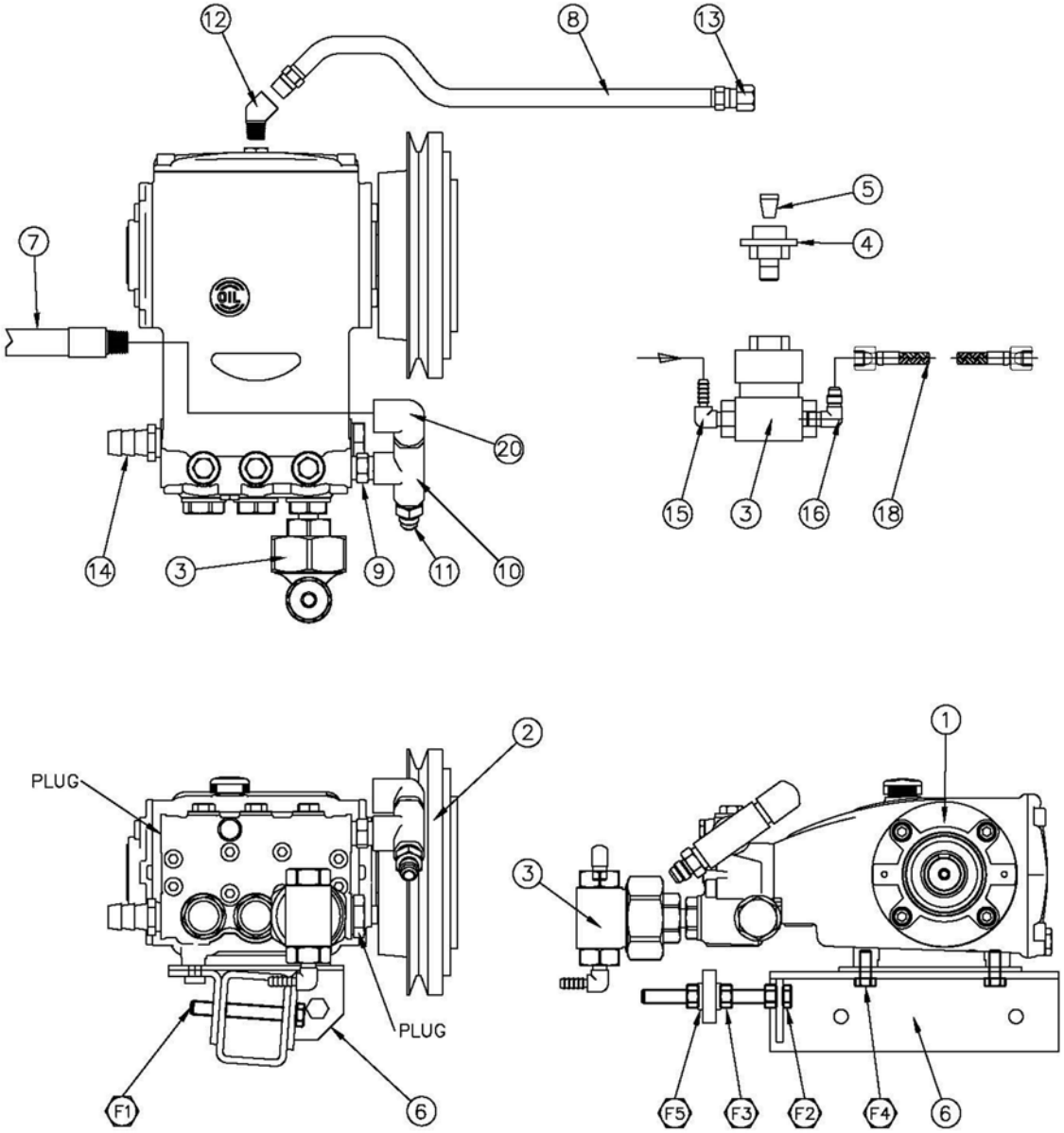


SECTION VIEW
B-B

F7	2	SCREW 10-32 UNF X 3/8" LONG SOCKET HEAD STAINLESS STEEL	HWSC-0543
ITEM	REQ'D	FASTENER LIST	PART NUMBER

42		HOSE CLAMP STAINLESS STEEL	HWHC-0029
37	1	CHEMICAL HOSE 3/16 BRAIDED X 12" LONG	HTKK-2009
36	1	HOSE, CLEAR, 5/16 BRAID REINFORCED VINYL	HWHS-0093
35	1	CHEMICAL HOSE 3/16 BRAIDED X 12" LONG	HTKK-2012
34	2	WASHER NYLON, BLACK	HWWA-1119
33	1	SHIM - THREE WAY VALVE 304 STAINLESS STEEL	CRT-412
32	1	90° ELBOW HOSE ADAPTER SAE-04 37° 7/16-20 X 1/4" MPT BRASS	HAEB-0404
31	1	90° ELBOW HOSE ADAPTER SAE-04 37° 7/16-20 X 1/8" MPT BRASS	HAEB-0402
30	2	HOSE BARB 5/16" ID HOSE X 1/8 M NPT BRASS	HWHB-0055
29	1	STRAIGHT HOSE ADAPTER SAE-04 37° 7/16-20 X 1/8" MPT BRASS	HASB-0402
28	1	90° ELBOW HOSE BARB, 5/16 ID TUBE X 1/8 MPT BRASS	HWHB-0112
27	1	3-WAY VALVE BRASS, SWAGELOCK PN B-42XF2	PLBV-0050
26	1	1/8 NPT NIPPLE X 3" LENGTH BRASS	PLNP-0400
25	1	NEEDLE METERING VALVE BRASS, SWAGELOCK PN B-1RF2-A	PLBV-0051
24	1	FLOW METER ACRYLIC, DWYER PN VFA-42	PNFM-0008
ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF

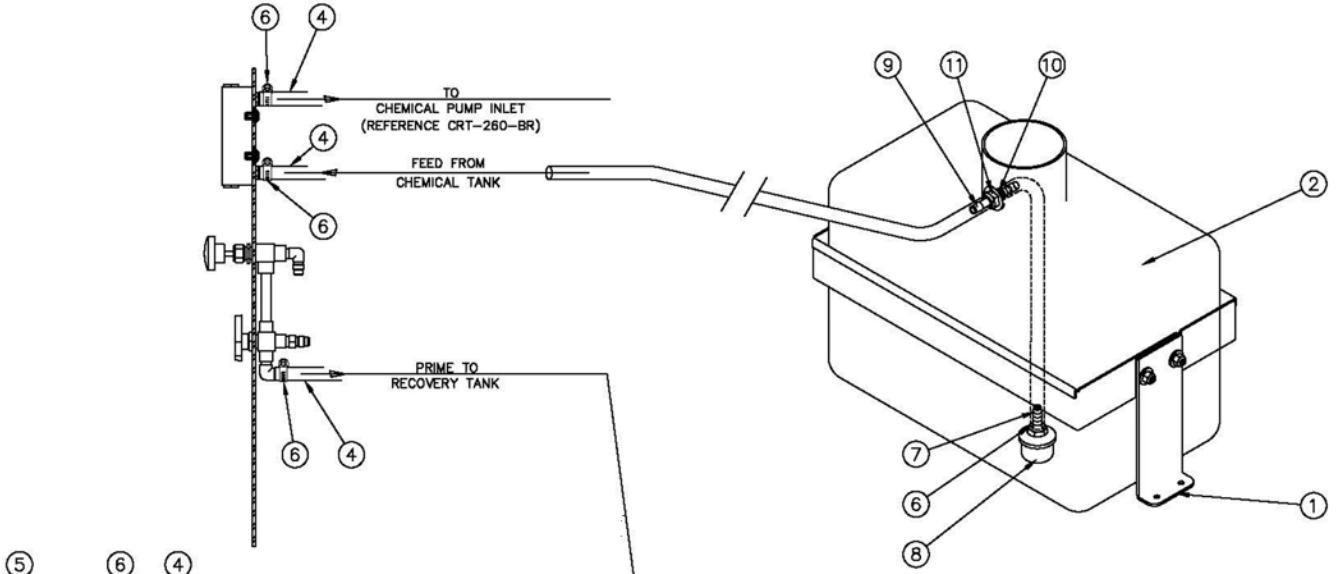
WATER AND CHEMICAL PUMPS

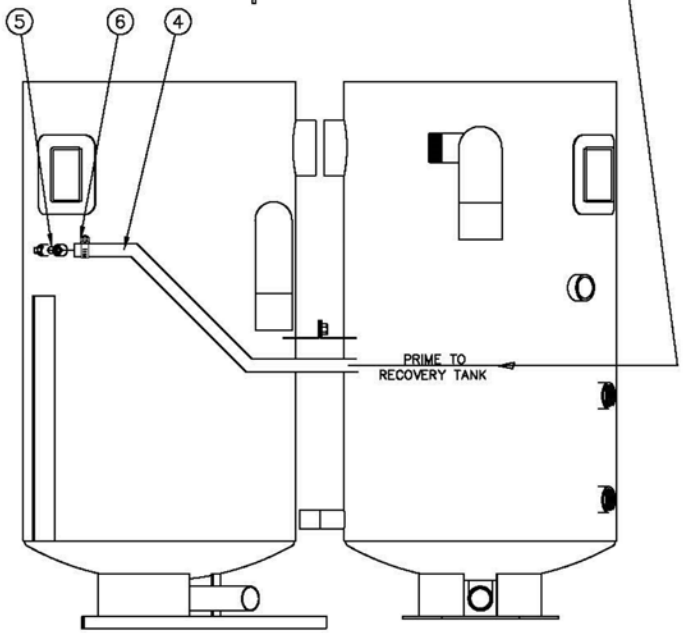


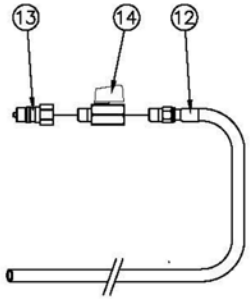
ITEM	REQ'D	PART DESCRIPTION	PART No. OR DWG REF
20	1	3/8" NPT STREET ELBOW BRASS	PLEL-
19	1	GATES V BELT, #A55	HWBT-0057
18	1	CHEMICAL HOSE 3/16 BRAIDED X 12" LONG	HTKK-2012
16	1	90° ELBOW HOSE ADAPTER SAE-04 37° 7/16-20 X 1/8" MPT BRASS	HAEB-0402
15	1	90° ELBOW HOSE BARB, 5/16 ID TUBE X 1/8 MPT BRASS	HWHB-0112
14	1	1/2" MPT x 3/4" HOSE BARB FITTING BRASS	HWHB-0087
13	1	1/4" FNPT BRASS CAP BRASS	PLCP-0042
12	1	1/4" MNPT x 1/4" FNPT 45° STREET ELBOW BRASS	PLEL-0007
11	2	STRAIGHT HOSE ADAPTER SAE-06 37° 9/16-18 X 3/8" MPT BRASS	HASB-0606
10	1	TEE, FEMALE PIPE 3/8" FPT BRASS, SSP PN IBTBPT	PLTE-0167
9	1	3/8" MPT HEX CLOSE NIPPLE BRASS	PLNP-0401
8	1	3/8" ID HOSE 300PSI 12" LG C/W 1/4" MNPT FITTINGS EVCO #4L0L8-4MP-4MP-1FT	HWHS-0155
7	1	PULSE HOSE 29" LG, 3/8" MNPT AHO-1699	HWHS-0173
6	1	PUMP BRACKET 304 STAINLESS STEEL	CRT-261
5	1	CHEMICAL PUMP ADAPTOR VALVE GENERAL PUMP PN 103036	PLPP-0096
4	1	CHEMICAL PUMP ADAPTOR STAINLESS STEEL, GENERAL PUMP PN 520197	PLPP-0097
3	1	CHEMICAL PUMP STAINLESS STEEL, GENERAL PUMP PN 100906	PLPP-0078
2	1	CLUTCH ASSEMBLY OGURA MA-7A-GP 141204 12VDC	PLPC-0007
1	1	WATER PUMP GENERAL PUMP MODEL PEHT2010S	PLPP-0095

ITEM	REQ'D	FASTENER LIST	PART NUMBER
F5	2	3/8 SHAFT THRUST BEARING 1/8" THK BRONZE	HWBR-0158
F4	4	M8 x 1.25 x 20 MM LG HEX HEAD SCREW STEEL / GRADE 8.8 / PLATED	HWSC-1368
F3	3	3/8-16 HEX NUT 18-8 SS	HWNT-0054
F2	1	3/8-16 HEX SCREW 4" LG, FULL THREADES PTFE COATED	HWSC-1364
F1	2	3/8-16 X 3.0" LG HEX BOLT PTFE COATED	HWSC-1315

CHEMICAL TANK



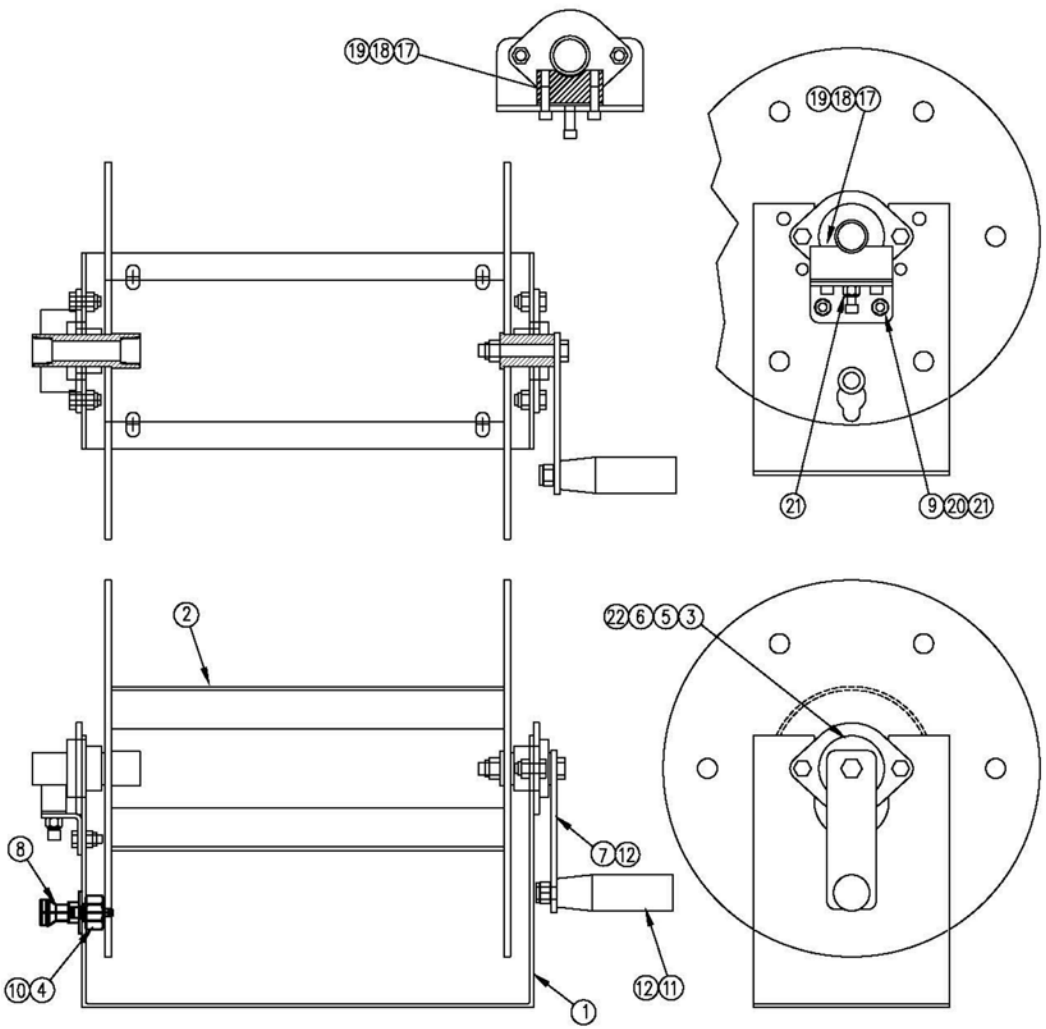


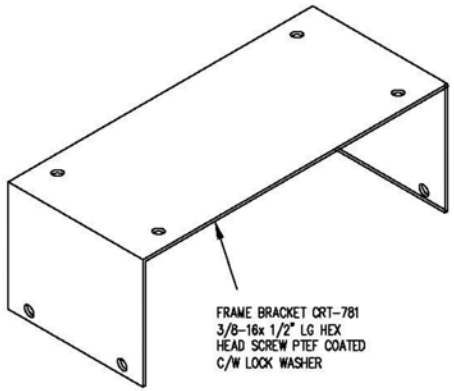


CHEMICAL TANK
FILL HOSE

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
14	1	BALL VALVE, 1/4" FPT x 1/4"MPT BRASS, CHROME PLATED	PLBV-0086
13	1	1/4" QUICK COUPLING NIPPLE, FPT BRASS	PLQC-0006
12	1	1/4" ID HOSE C/W 1/4" MPT (ONE END)	HSBB-30048
11	1	NUT, BULKHEAD NYLON	HWNT-0804
10	1	SEALING WASHER EDPM RUBBER	HWWA-1120
9	1	BULKHEAD BARB FITTING FOR 5/16 ID TUBE NYLON	PLBH-0038
8	1	CHEMICAL FILTER, 50 MESH, STAINLESS STEEL 3/8 FPT CONNECTION	PLST-0033
7	1	HOSE BARB 3/8" MPT X 5/16" HOSE ID BRASS	HWHB-0065
6	7	HOSE CLAMP STAINLESS STEEL	HWHC-0029
5	1	HOSE BARB ELBOW, 3/8 MPT X 5/16 ID HOSE BRASS	HWHB-0064
4	16 FT	HOSE, CLEAR, 5/16 BRAID REINFORCED VINYL	HWHS-0093
3	1	CAP, CHEMICAL TANK NYLON, BLACK	TKPL-0021-CAP
2	1	5 GALLON RECTANGULAR TANK HDPE	TKPL-0021
1	1	CHEMICAL TANK MOUNT 304 STAINLESS STEEL	CRT-481

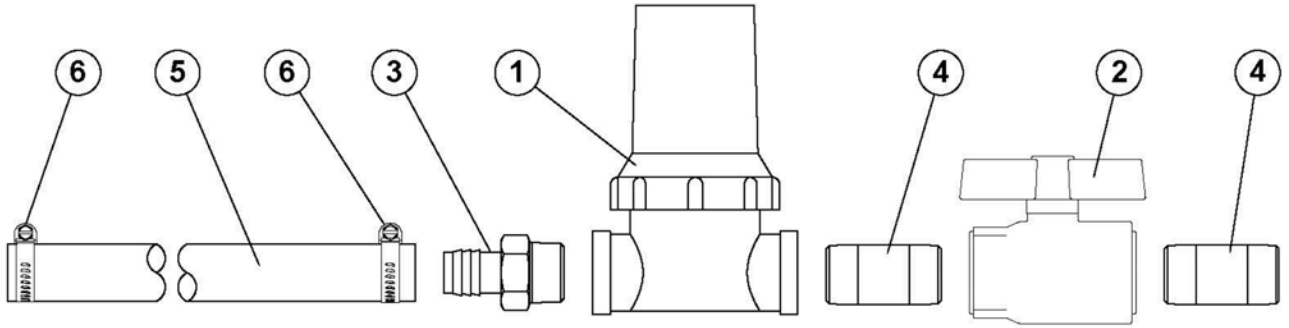
WATER REEL





ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
22	4	5/16"-18 UNC X 3/4" LG HEX HEAD SCREW	HWSC-1365
21	3	1/4"-20 UNC LOCK NUT	HWNT-0721
20	2	1/4"-20 UNC X 3/4" LG HEX HEAD SCREW	HWSC-1338
19	3	1/4"-20 UNC X 3/4" LG SOCKET HEAD SCREW	HWSC-0174
18	1	PLATE BRAKE, WATER HOSE REEL	WHR-031
17	1	BRAKE, WATER HOSE REEL	WHR-033
12	2	3/8"-16 UNC LOCK NUT	HWNT-0102
11	1	PHENOLIC HANDLE	HWHD-0042
10	1	NYLON SPACER	HWSP-0127
9	1	ANGLE BRACKET	WHR-032
8	1	REEL LOCKING PIN	HWPR-0009
7	1	HANDLE	CRT-768
6	4	5/16"-18 UNC LOCK NUT	HWNT-0205
5	4	5/16" FLAT WASHER	HWWA-0057
4	1	1/2"-13 UNC HEX NUT	HWNT-0175
3	2	BEARING, FLANGE MOUNT 1" BORE	HWBR-0106
2	1	SHAFT DRUM WELDMENT	CRT-765
1	1	FRAME	CRT-766

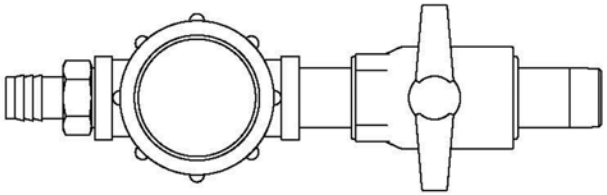
WATER PUMP INLET FILTER



CONNECT TO THE
WATER PUMP INLET

SIDE VIEW
EXPLODED VIEW

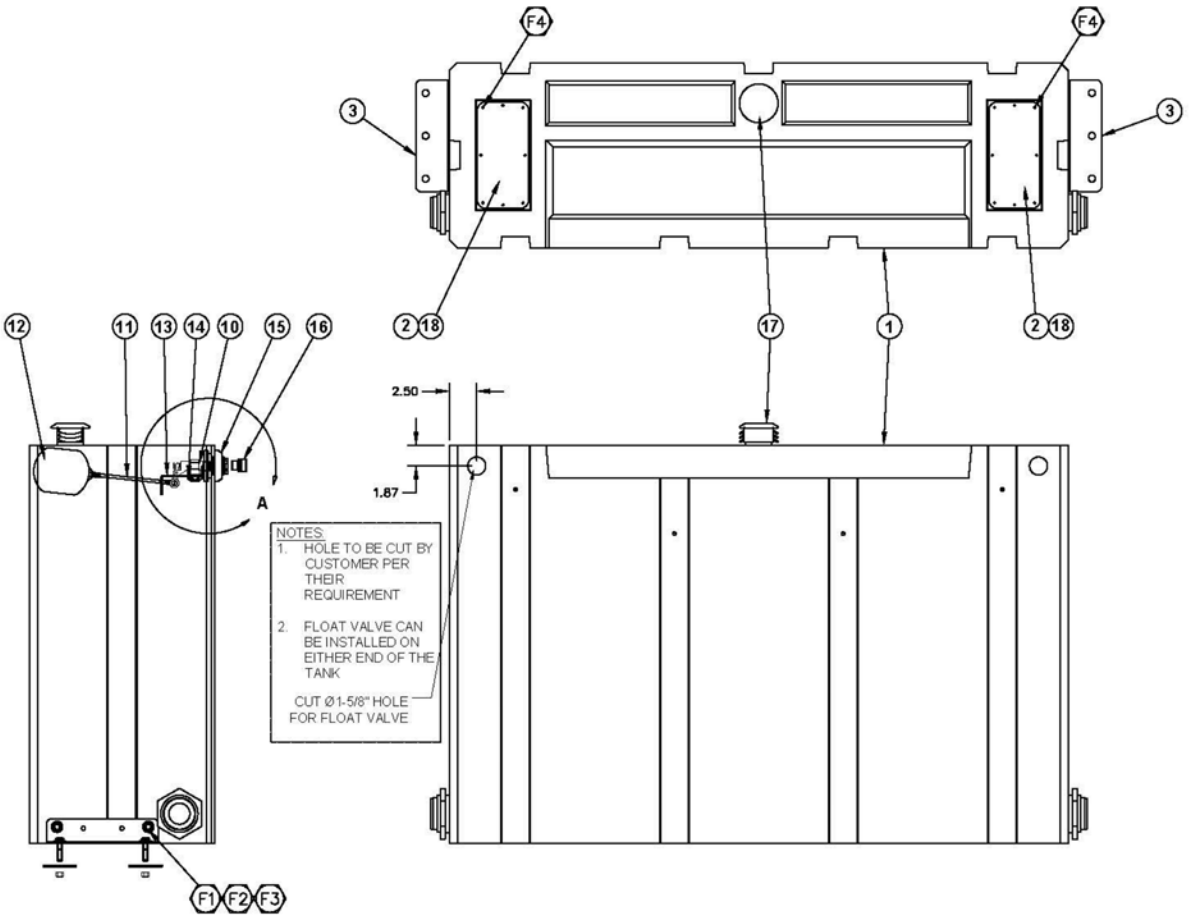
CONNECT TO FRESH
WATER SOURCE

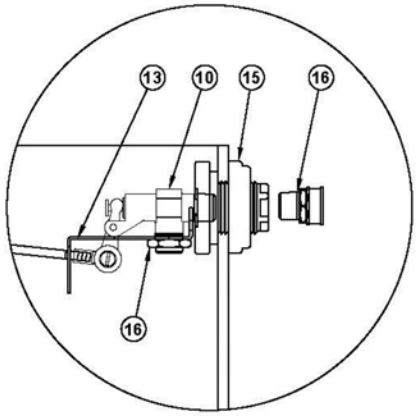


TOP VIEW
ASSEMBLED

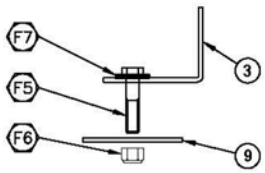
ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
6	2	WORM DRIVE HOSE CLAMP FOR 1/2" AND 3/4" ID HOSES STAINLESS STEEL	HWHC-0012
5	7FT	3/4" ID HOSE COLOR BLUE	HWHS-0171
4	2	3/4" NPT X 2" SCH 80 NIPPLE PVC	PLNP-0104
3	1	3/4" HOSE x 3/4" MPT BARB FITTING ACETAL	HWHB-0092
2	1	BALL VALVE, 3/4" NPT PVC	PLBV-0088
1	1	7105.5 CAT INLET STRAINER 3/4" FPT NYLON	PLST-0031

FRESH WATER SUPPLY TANK

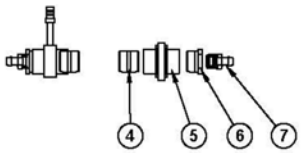




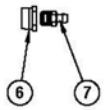
DETAIL A



FLOOR BOLT DETAIL



DRAIN VALVE DETAIL



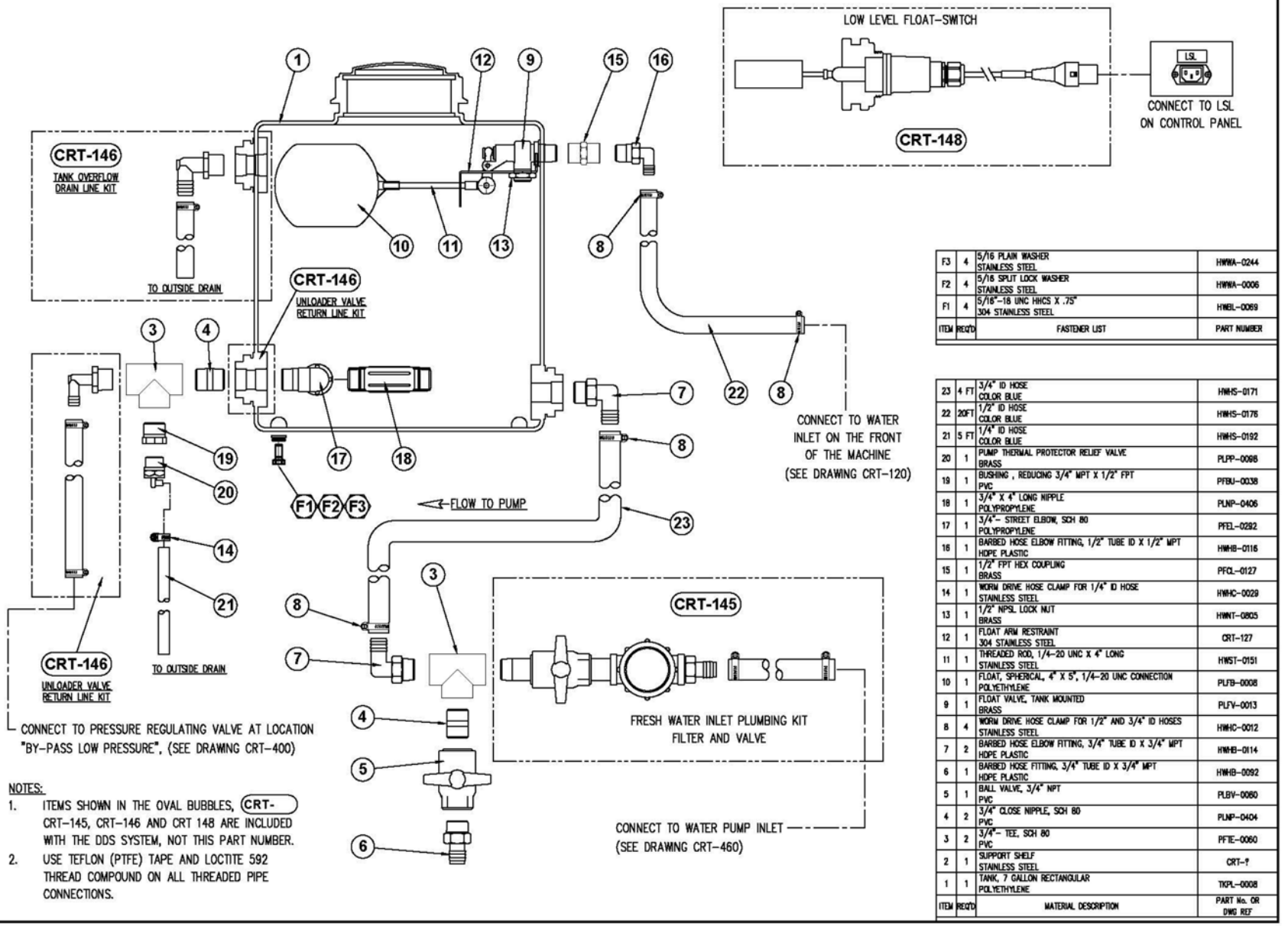
PUMP FEED DETAIL

PLUG DETAIL

ITEM	REQ'D	FASTENER LIST	PART NUMBER
F6	8	3/8-16 HEX NYLOCK HEX NUT PLATED STEEL	HWNT-0102
F5	8	3/8-16 X 1 3/4" LG HEX HEAD SCREW PTFE COATED STEEL	HWSC-1318
F4	16	SCREW #8 X 3/4" WIDE HEAD STAINLESS STEEL	HWSC-0582
F3	4	3/8 LOCK WASHER STAINLESS STEEL	HWWA-0078
F2	20	3/8 PLAIN WASHER STAINLESS STEEL	HWWA-0056
F1	4	3/8-16 UNC X 3/4" LONG HEX HEAD SCREW STAINLESS STEEL	HWSC-1313

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
18	2	GASKET, COVER, ATMI FRESH WATER TANK (TKPL-0020) NEOPRENE FOAM	CRT-143-G
17	1	VENT CAP, 2" MPT GLASS REINFORCED POLYPROPYLENE	PLVT-0003
16	1	SWIVEL HOSE CONNECTION, 3/4" FGH X 1/2" MPT BRASS	PLAD-0140
15	1	1/2" NPT BULKHEAD POLYPROPYLENE	PLBH-0033
14	1	1/2" NPSL LOCK NUT BRASS	HWNT-0805
13	1	FLOAT ARM RESTRAINT 304 STAINLESS STEEL	CRT-127
12	1	FLOAT, SPHERICAL, 4" X 5", 1/4-20 CONNECTION POLYETHYLENE	PLFB-0008
11	1	FLOAT VALVE STEM, 7" LONG, 1/4-20 CONNECTIONS STAINLESS STEEL	HWST-0102
10	1	FLOAT VALVE, 1/2" MPT BRASS BODY	PLVA-0104
9	8	BACKING PLATE STAINLESS STEEL	060196
8	1	1-1/2" NPT PLUG GLASS REINFORCED POLYPROPYLENE	PLPL-0181
7	2	BARBED HOSE FITTING, 3/4" TUBE ID X 3/4" MPT ACETAL PLASTIC	HWHB-0092
6	2	REDUCING BUSHING 1-1/2" MPT X 3/4" FPT, SCH 80 POLYPROPYLENE	PLBS-0036
5	1	GATE VALVE, 1-1/2" FPT X FPT ABS PLASTIC, BLACK	PLGV-0003
4	1	1-1/2" CLOSE NIPPLE PVC	PLNP-0911
3	2	FLOOR CONNECTION BRACKET, ATMI FRESH WATER TANK 304 STAINLESS STEEL	CRT-142
1	2	COVER, ATMI FRESH WATER TANK (TKPL-0020)	CRT-143
1	1	ATMI 100 GAL FRESH WATER TANK, (OVER WHEEL WELL) LDPE, NATURAL COLOR	TKPL-0020

WATER BOX



NOTES:

1. ITEMS SHOWN IN THE OVAL BUBBLES, (CRT-) CRT-145, CRT-146 AND CRT 148 ARE INCLUDED WITH THE DDS SYSTEM, NOT THIS PART NUMBER.
2. USE TEFLON (PTFE) TAPE AND LOCTITE 592 THREAD COMPOUND ON ALL THREADED PIPE CONNECTIONS.

ITEM	REQ'D	MATERIAL DESCRIPTION	PART No. OR DWG REF
F3	4	5/16 PLAIN WASHER STAINLESS STEEL	HWWA-0244
F2	4	5/16 SPLIT LOCK WASHER STAINLESS STEEL	HWWA-0006
F1	4	5/16"-18 UNC HHCS X .75" 304 STAINLESS STEEL	HWBL-0069
ITEM	REQ'D	FASTENER LIST	PART NUMBER
23	4 FT	3/4" ID HOSE COLOR BLUE	HWHS-0171
22	20FT	1/2" ID HOSE COLOR BLUE	HWHS-0176
21	5 FT	1/4" ID HOSE COLOR BLUE	HWHS-0192
20	1	PUMP THERMAL PROTECTOR RELIEF VALVE BRASS	PLPP-0098
19	1	BUSHING , REDUCING 3/4" MPT X 1/2" FPT PVC	PFBU-0038
18	1	3/4" X 4" LONG NIPPLE POLYPROPYLENE	PLNP-0406
17	1	3/4"- STREET ELBOW, SCH 80 POLYPROPYLENE	PFEL-0292
16	1	BARBED HOSE ELBOW FITTING, 1/2" TUBE ID X 1/2" MPT HDPE PLASTIC	HWHB-0116
15	1	1/2" FPT HEX COUPLING BRASS	PFCL-0127
14	1	WORM DRIVE HOSE CLAMP FOR 1/4" ID HOSE STAINLESS STEEL	HWHC-0029
13	1	1/2" NPSL LOCK NUT BRASS	HWNT-0805
12	1	FLOAT ARM RESTRAINT 304 STAINLESS STEEL	CRT-127
11	1	THREADED ROD, 1/4-20 UNC X 4" LONG STAINLESS STEEL	HWST-0151
10	1	FLOAT, SPHERICAL, 4" X 5", 1/4-20 UNC CONNECTION POLYETHYLENE	PLFB-0008
9	1	FLOAT VALVE, TANK MOUNTED BRASS	PLFV-0013
8	4	WORM DRIVE HOSE CLAMP FOR 1/2" AND 3/4" ID HOSES STAINLESS STEEL	HWHC-0012
7	2	BARBED HOSE ELBOW FITTING, 3/4" TUBE ID X 3/4" MPT HDPE PLASTIC	HWHB-0114
6	1	BARBED HOSE FITTING, 3/4" TUBE ID X 3/4" MPT HDPE PLASTIC	HWHB-0092
5	1	BALL VALVE, 3/4" NPT PVC	PLBV-0060
4	2	3/4" CLOSE NIPPLE, SCH 80 PVC	PLNP-0404
3	2	3/4"- TEE, SCH 80 PVC	PFTE-0060
2	1	SUPPORT SHELF STAINLESS STEEL	CRT-?
1	1	TANK, 7 GALLON RECTANGULAR POLYETHYLENE	TKPL-0008

Gardner Denver

POSITIVE DISPLACEMENT BLOWERS & VACUUM PUMPS

HeliFlow®
Industrial Series

Gardner Denver

WARRANTY
GARDNER DENVER® BLOWER
TRIFLOW INDUSTRIAL SERIES

GENERAL PROVISIONS AND LIMITATIONS

Gardner Denver (the "Company") warrants to each original retail purchaser ("Purchaser") of its new products from the Company or its authorized distributor that such products are, at the time of delivery to the Purchaser, made with good material and workmanship. No warranty is made with respect to:

1. Any product which has been repaired or altered in such a way, in the Company's judgment, as to affect the product adversely.
2. Any product which has, in the Company's judgment been subject to negligence, accident, improper storage, or improper installation or application.
3. Any product which has not been operated or maintained in accordance with normal practice and with the recommendations of the Company.
4. Components or accessories manufactured, warranted and serviced by others.
5. Any reconditioned or prior owned product.

Claims for items described in (4) above should be submitted

WARRANTY PERIOD

The Company's obligation under this warranty is limited to repairing or, at its option, replacing, during normal business hours at an authorized service facility of the Company, any part which in its judgment proved not to be as warranted with the applicable Warranty Period as follows,

BARE BLOWERS

Basic bare blowers, consisting of all parts within, are warranted for 12 months from date of initial use or 18 months from date of shipment to the first purchaser, whichever occurs first.

Any disassembly or partial disassembly of the blower, or failure to return the "unopened" blower per Company instructions, will be cause for denial of warranty.

OTHER COMPONENTS

All other components are warranted for 12 months from date of initial use or 18 months from date of shipment to first purchaser, whichever comes first.

All costs of transportation of product, labor or parts claimed not to e as warranted and, of repaired or replacement parts to or from such service facilities shall be borne by the Purchaser. The Company may require the return of any part claimed not to be as warranted to on of its facilities as designated by Company, transportation prepaid by Purchaser, to establish a claim under this warranty.

LABOR TRANSPORTATION AND INSPECTION

The Company will provide labor, by Company representative or authorized service personnel,
for repair or replacement of any product or part thereof which in the Company's judgment is proved not to be as warranted. Labor shall be limited to the amount specified in the Company's labor rate schedule.
Labor costs in excess of the Company's rate schedule amounts or labor provided by unauthorized service personnel is not provided for by this warranty.

Replacement parts provided under the terms of the warranty are warranted for the reminder of the Warranty Period of the product upon which installed to the same extent as if such parts were original components thereof.

DISCLAIMER

THE FOREGOING WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY AGREED THAT, EXCEPT AS TO TITLE, THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABLILITY.

THE REMEDY PROVIDED UNDER THIS WARRANTY SHALL BE THE SOLE, EXCLUSIVE AND ONLY REMEDY AVAILABLE TO PURCHASER AND IN NO CASE SHALL THE COMPANY BE SUBJJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES UNDER NO CIRCUMSTANCES HSALL THE COMPANY BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOSSES OR DELAYS HOWSOEVER CAUSED.

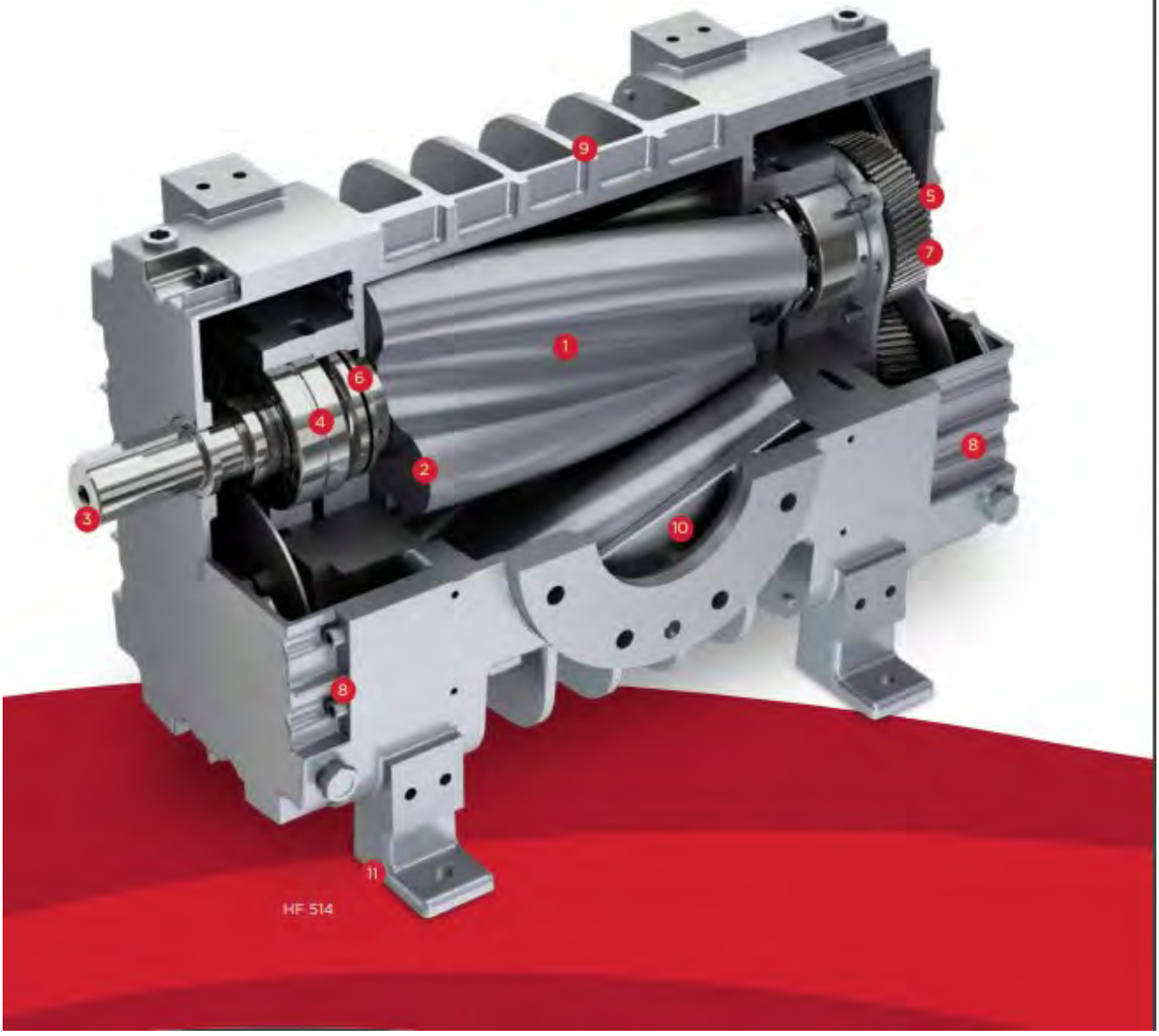
No statement, representation, agreement, or understanding, oral or written, made by any agent, distributor, representative, or employee of the Company which is not contained in this Warranty will be binding upon the Company unless made in writing and executed by an officer of the Company.

This warranty shall not be effective as to any claim which is not presented with 30 days after the date upon which the product is claimed not to have been as warranted. Any action for breach of this warranty must be commenced within one year after the date upon which cause of action occurred.

Any adjustment made pursuant to this warranty shall not be construed as an admission by the Company that any product was not as warranted.

It's all about...

an Innovative Design



HeliFlow Design Advantages

1. Innovative, proprietary, smooth-running, helical rotor profile significantly reduces pulsations and discharge noise levels for quieter operation

2. Solid rotor design eliminates the potential for vibration caused when hollow rotors become unbalanced due to build-up of ingested material inside the rotor cavities
   - Rotors and shafts are machined from high-strength ductile iron and are dynamically balanced to ISO Grade 6.3 as standard
3. Large diameter shafts provide superior overhung load capacity compared to competitive models
4. Oversized spherical roller bearings for superior reliability
   - Precision fit bearings mounted on large diameter shafts provide longer blower service life

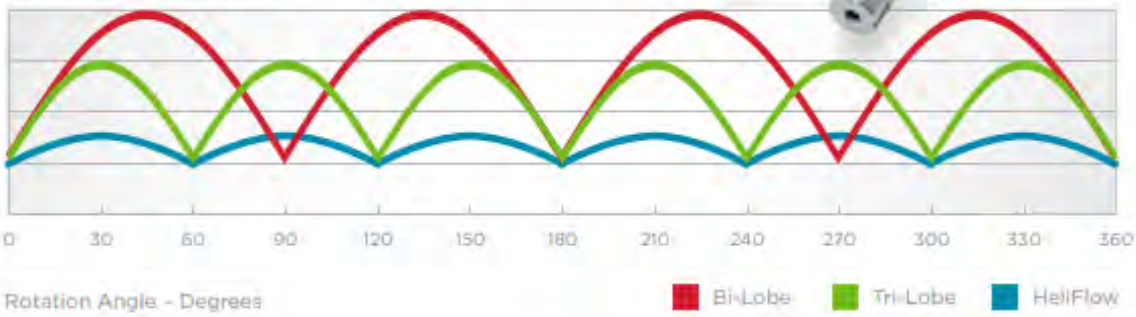
5. Refined timing and gear locking device
   - Grip rings expand against the bore of the gear and compress on the shaft for a secure, mechanical shrink fit
   - 8" model uses tapered press fit gears

6. Advanced piston ring oil and air seals provide leak-free operation
   - 1 air and 2 oil seals
   - 2 air and 2 oil seals (8" model)

7. Helical alloy steel timing gears provide quiet and smooth mechanical operation at all speeds

8. Dual splash lubrication for reduced maintenance intervals and superior durability
9. The single piece cylinder incorporates large external fins for heat dissipation and structural integrity
10. The unique triangular tuned ports and extra cylinder mass provides greater strength and noise attenuation
11. Flexible design allows mounting feet to be attached inward or outward based on installation requirements (not available on 8" model)
    - Offers the ability to connect units in a variety of configurations

CHANGE IN PRESSURE PULSE



The HeliFlow Series

REDUCED PULSE = LOWER NOISE = QUIETER OPERATION

Lower Noise

Discharge pulsation is the chief contributor to high noise levels. HeliFlow provides the lowest pressure pulse in the lobe blower market. This reduces noise levels by 4–7 dBA over similar sized, straight-lobe blowers.

Reduced Pulsations

HeliFlow provides more consistent flow variation, reducing the potential for damage to downstream valves and instrumentation.

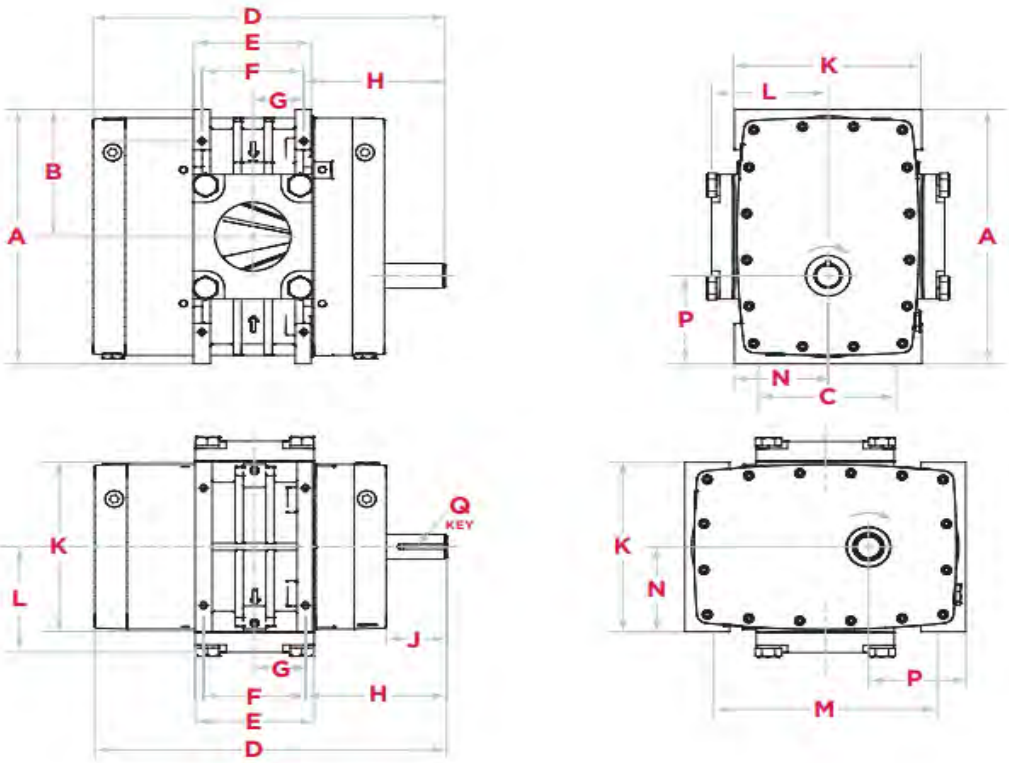
Higher Reliability

Discharge pressure pulsation causes axial thrust and higher variations in torque resulting in reduced bearing life. The HeliFlow smooth pulse operation extends the life of the blower.

406 & 408 Dimensional Data

MODEL	WEIGHT	SHAFT DIAM.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
HF 406	173	1.25	13.0	6.5	6.0	16.27	5.5	4.71	2.36	6.53	2.8	8.66	5.39	9.76	4.33	4.5	0.25 × 0.25 × 2.0
HF 408	201	1.25	13.0	6.5	6.0	18.77	7.94	7.21	3.61	6.53	2.8	8.66	6.36	9.76	4.33	4.5	0.25 × 0.25 × 2.0

Dimensions shown in inches. Weights are in pounds and approximate (packaging materials included). Dimensions for installation purposes provided upon request.
406 = 3" NPT, 408 = 4" NPT & 412 = 6" Flange; Mounting holes 3/8-16 UNC



406 & 408 Performance Data

PRESSURE

MODEL	RPM	5 PSI		7 PSI		10 PSI		12 PSI		15 PSI	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 406	1760	147	4.7	136	6.4	120	9.0	111	10.8		
	2190	198	6.0	187	8.2	171	11.5	161	13.8		
	2620	248	7.6	236	10.3	220	14.3	211	17.0	198	21.0
	3600	357	12.0	345	15.7	328	21.3	318	25.1	305	30.7
	4000	399	14.2	387	18.3	370	24.5	360	28.7	346	35.0
HF 408	1760	223	7.1	211	9.7	193	13.4	182	15.7	170	20.1
	2190	297	9.2	284	12.5	265	17.2	253	20.2	240	25.6
	2620	369	11.5	356	15.4	336	21.1	324	24.8	307	31.4
	3600	529	16.8	515	22.3	493	30.3	479	35.5	458	45.1
	4000	592	19.2	577	25.3	555	34.2	541	40.0	516	50.5

VACUUM

MODEL	RPM	10 inHG		12 inHG		14 inHG		16 inHG	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 406	1760	135	4.2	125	5.0	113	5.8		
	2190	187	5.5	176	6.5	164	7.5	152	8.5
	2620	236	7.0	226	8.2	214	9.4	201	10.6
	3600	345	11.0	333	12.7	321	14.4	308	16.1
	4000	387	13.0	375	14.8	362	16.7	349	18.6
HF 408	1760	217	6.3	204	7.6	189	8.9		
	2190	292	8.1	278	9.6	264	11.1	247	12.8
	2620	364	10.1	351	11.8	337	13.6	321	15.4
	3600	523	15.3	511	17.5	497	19.8	482	22.1
	4000	584	17.7	573	20.1	560	22.6	545	25.1

Performance based on inlet air at standard temperature of 68° F, an ambient pressure of 14.7 psia and 36% relative humidity.
For performance at non-standard conditions, contact your authorized Gardner Denver representative.

Gardner Denver

Specifications subject to change without notice.

For additional information, contact your local representative or
Gardner Denver Compressor Division
1800 Gardner Expressway, Quincy, Illinois 62301
Phone: (800) 682-9868 • Fax (217) 221-8780
E-mail: pd.hqwms@gardnerdenver.com
Visit our web site: www.gardnerdenver.com

Sales and Service in all major cities

ISO 9001 CERTIFIED

GENERAL PUMP *A member of the Interpump Group*

PLATINUM SERIES

EMPEROR

EMPEROR

FEATURES

- Features patented "high tech" packings:
  -dynamic low-pressure seal retainer
  -superior low-pressure seal
  -innovative intermediate ring
  -superior high-pressure seal
- Ceramic plungers
- Patent-pending inlet/outlet valve cage
- Forged Stainless Steel manifold (AISI420B), nickel-plated
- Nickel-plated crankcase
- Heavy-duty tapered roller bearings
- Specifically designed to handle rigorous duty cycles, high temperatures and chemicals
- Ideal for use in car wash and other high pressure cleaning applications

Emperor
Pumps That Rule Any Environment

SPECIFICATIONS

Pump Model	PEHT2010S		PEHT2012S			PEHT2213S		PEHT2214S
Maximum Volume	4.00 GPM	3.43 GPM	4.76 GPM	3.96 GPM	2.64 GPM	5.55 GPM	3.43 GPM	4.00 GPM
Maximum Pressure	3,000 PSI							
Maximum RPM	1750 RPM	1450 RPM	1750 RPM	1450 RPM	950 RPM	1450 RPM	950 RPM	950 RPM
Horsepower	8.2 EBHP	7.0 EBHP	9.8 EBHP	8.1 EBHP	5.4 EBHP	11.4 EBHP	7.0 EBHP	8.2 EBHP
Maximum Inlet Pressure	125 PSI							
Minimum Inlet Pressure	3 ft. water (2.6 in. Hg)							
Maximum Fluid Temperature	185°F							
Bore (in / mm)	.787 in./20 mm		.787 in./20 mm			.866 in./22 mm		.866 in./22 mm
Stroke (in / mm)	.394 in./10 mm		.472 in./12 mm			.512 in/13 mm		.551 in./14 mm
Oil Capacity	22 oz.							
Inlet Port Thread	1/2" - 14 BSP-F							
Discharge Port Thread	3/8" - 19 BSP-F							
Shaft Diameter	.945 in./24 mm							
Weight	21.0 lbs.							
Dimensions - Nominal	10.4" x 8.8" x 5.4"							

General Pump is a Member of The Interpump Group

DNV·GL

Ref 310065 Rev. D
01-20

GENERAL PUMP

Instructions and Recommendations for the Installation of
PEHT Series Pumps

The high-temperature pumps of the HT series have been designed for use in applications where the water must be pre-heated, such as in carwash, food and pharmaceutical industries.

Maximum temperature of the water through the pump is 185°F (85°C).

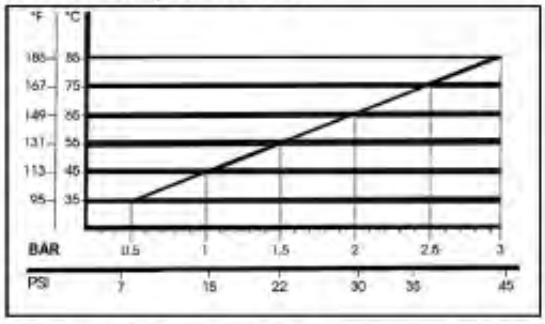
In order to obtain maximum performance in terms of duration of seals and valves, it is necessary to respect a few simple rules, as follows:

1) **In order to avoid damage caused by cavitation, the pump must be pressure fed.**

   The higher the inlet pressure, the longer the life of the wet end of the pump.

   When working at 185°F (85°C), the minimum feed pressure - measured directly in the inlet port of the pump when it is working - is 45 psi (3 bar).

   The minimum feed pressure according to the different temperatures are:



Naturally, if the application allows for feeding the pump with 45 psi (3 bar) even at low temperatures (for example: 115°F/45°C the life of the wet end of the pump will be even longer.

2) **The plumbing which feeds the pump must be of a diameter at least equal to the inlet port.** Also, follow the suggestions below:

   a) Make the plumbing as short and straight as possible, preferably in an upward direction to facilitate the expulsion of eventual air bubbles naturally if compatible with the requirements of the system.

   b) It is always useful to put a filter at the inlet with capacity of 4 to 5 times the flow of the pump, for example for a 4 gpm (15 l/min) pump, put a filter from 16 to 20 gpm (60-75 l/mi). The mesh size suitable for this application is 0.016" (.4 mm).

   c) It is extremely important to put a pressure switch on the suction port of the pump, and in any case downstream from the filter, so that it can stop the pump should the feed pressure drop by 20% due to the filter clogging or failure of the feed pump, etc.

3) **Change of oil**

   We recommend the ***first oil change after the first 50 hours***, with the ***pump stopped*** and the ***oil still warm***.

   This change is not recommended because the oil has lost its properties, but rather to eliminate the impurities that have gotten into the oil during the running-in phase. If these impurities are not removed, but are allowed to remain in the oil, they *may cause premature wear* to the moving parts and the oil seals. **After this initial change, the oil can then be changed every three months or 300 hours of operation thereafter.**

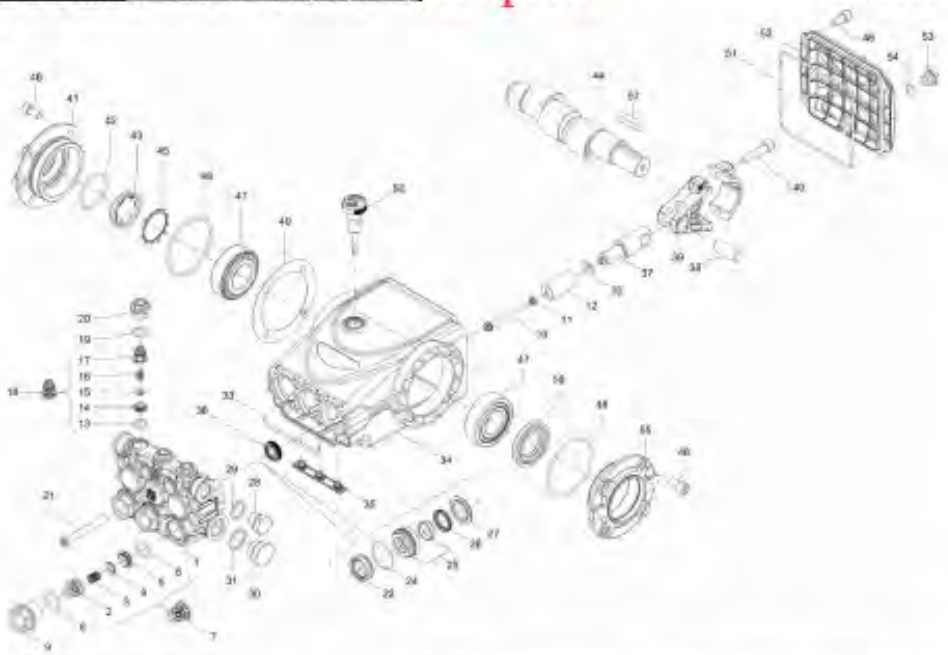
   Please note: If the pump works in conditions with high humidity and with sharp temperature changes, it is possible that condensation will appear inside the crankcase, which mixing with the oil can change its properties. This is easy to see because the oil changes to a white, milky color.

   If the pump does not have excessive water leaking from the packings, and the oil becomes milky, the oil has to be changed more frequently. The percentage of water in the oil must not exceed 20%.

   Use oil per the following chart:

BRAND	TYPE
BP	ENERGOL HLP 220
MOBIL	DTE OIL BB
TOTAL	CORTIS 220

GENERAL PUMP *A member of the Interpump Group* Emperor **PEHT Series**



PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1.	59122036	Manifold, Ø 20	1	24.	90361200	O-ring, 31.47x1.78	3		59020335	Crankshaft, (PEHT2010S)	1
	59122136	Manifold, Ø 22	1	25.*	59211170	Support Ring, Ø 20	3				
2.	36202551	Valve Cage	3		59211870	Support Ring, Ø 22	3		59020035	Crankshaft, (PEHT2214S)	1
3.	94737600	Spring, Ø 9.4x14.8	3	26.	90230000	Packing, Ø 22x28, LP	3				
4.	36711501	Valve, Spherical	3		90225000	Packing, Ø 20x16.5, LP	3	45.	90075600	Retaining Clip	2
5.	36200366	Valve Seat, Inlet	3	27.	59211270	Packing, Ø 20, HT	3	46.	99303900	Screw, M8x16	12
6.	701115	O-ring, Ø17.13v2.62	3		59211970	Packing, Ø 22, HT	3	47.	640047	Tapered Roller Bearing	2
7.	36711501	Valve Assembly	3	28.	98209900	Plug, 3/8"x13	1	48.	701147	O-ring, Ø 67.95x2.62	2
8.	701002	O-ring, Ø20.24x2.62	3	29.	96738000	Gasket, 17.5x23x1.5	1	49.	97568000	Shim, 0.3 mm	1
9.	98222500	Valve Cap, M24x1.5x16.7	3	30.	98217900	Plug, 1/2" BSPx10	1		97597800	Shim, 0.1 mm	1
10.	99169000	Plunger Bolt, M5x55	3	31.	96751400	Gasket, Ø 21.5x27x1.5	1	50.	98210500	Oil Dipstick	1
11.	96690500	Washer, Ø 5x11.5x0.4	3	32.	96699000	Washer, Ø 7.5x23x0.5	3	51.	90392200	O-ring, Ø133.02x2.62	1
12.	59040009	Plunger, Ø 20x42	3	33.	59211082	Gasket, Ø 3x103	1	52.	59160122	Rear Cover	1
	59040109	Plunger, Ø 22x42	3	34.	59010122	Crankcase	1	53.	98204250	Plug, 3/8"x9	1
13.	701014	O-ring, Ø 12.42x1.78	3	35.	58210451	Drip Cover	1	54.	701013	O-ring, Ø 10.82x1.78	1
14.	36211366	Outlet Valve Seat	3	36.	90156550	Oil Seal, Ø 15x24x5.7	3	56.	59150122	Side Cover	1
15.	36211276	Outlet Valve Poppet	3	37.	59050066	Piston Guide	3	56.	90164800	Oil Seal, Ø 30x55x7	1
16.	94733300	Spring, Ø 6.2x10.4	3	38.	97739900	Piston Pin, Ø 14x34	3	57.	91489200	Key	1
17.	36211151	Outlet Valve Cage Guide	3	39.	59030001	Connecting Rod	3	58.	59607201		
18.	36719301	Complete Outlet Valve	3	40.	99309900	Connecting Rod Screw	6				
19.	701016	O-ring, Ø 15.6x1.78	3	41.	59150222	Crankcase Cover, Side	1	*	Items come pressed together		
20.	98213750	Plug, M18x1.5x10	3	42.	90387700	O-ring, Ø 39.34x2.62	1				
21.	99317500	Screw, M8x60	8	43.	70211801	Sight Glass	1				
22.	90226000	Packing, Ø20x30x10, H.P.	3	44.	59020135	Crankshaft (PEHT2213S)	1				
	90231200	Packing, Ø22x30x10, H.P.	3		59020235	Crankshaft (PEHT2012S)	1				

REPAIR KITS

KIT NO.	K269	K292	K271	20 mm		22 mm	
				K350	K350C	K352	K352C
ITEM NO'S INCLUDED IN KIT	2, 3, 4, 5, 6, 14, 15, 16, 17 (7) (18)	8, 9, 19, 20	36	22, 24, 26	22, 24, 25, 26, 27	22, 24, 26	22, 23, 24, 25, 26, 27
NUMBER OF PIECES IN KIT	3 + 3	3 + 3	3	3	1	3	1

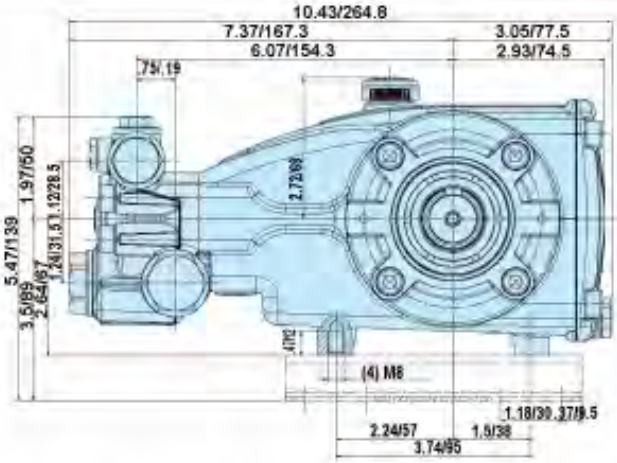
TORQUE SPECS*

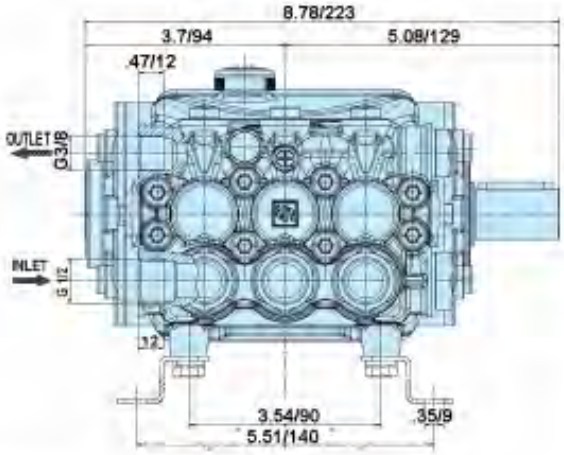
Position	Ft.-Lbs.	Nm.
9	95.88	130
10	4.43	6
20	44.25	60
21	14.75	20
28	29.5**	40
30	29.5	40
40	14.75	20
46	14.75	20
53	14.75	20

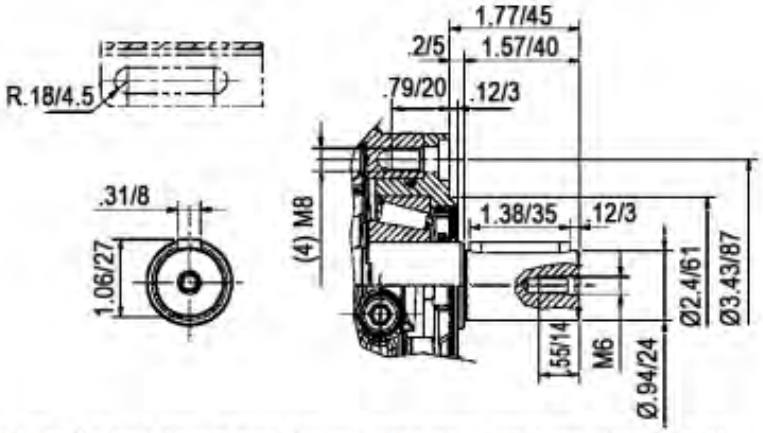
*Decrease torque by 20% if threads are lubricated.

**Use Loctite 542.

DIMENSIONS







GENERAL PUMP 1174 Northland Drive • Mendota Heights, MN 55120
Phone: 651.686.2199 • Fax: 800.535.1745 • e-mail: sales@gpcompanies.com • www.generalpump.com

Ref 310065 Rev. D
02-20

TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Pulsation	Valve stuck open.	Check all valves, remove foreign matter.
	Faulty pulsation damper.	Check precharge; if low, rechargeit or install a new one.
Low pressure	Worn nozzle.	Replace nozzle, of proper size.
	Belt slippage.	Tighten or replace; use correct belt.
	Air leak in inlet plumbing.	Disassemble, reseal and reassemble.
	Relief valve stuck; partially plugged or improperly adjusted valve seat worn.	Clean, adjust relief valve; check for worn and dirty valve seats. Kit available.
	Inlet suction strainer clogged or improperly sized.	Clean. Use adequate size. Check more frequently.
	Worn packing. Abrasives in pumped fluid or severe cavitation. Inadequate water.	Install proper filter. Suction at inlet manifold must be limited to lifting less than 20 feet of water or -8.5 PSI vacuum.
	Fouled or dirty inlet or discharge valves.	Clean inlet and discharge valve assemblies.
	Worn inlet, discharge valve blocked or dirty.	Replace worn valve seats and/or discharge hose
	Leaky discharge hose.	
Pump runs extremely rough, pressure very low.	Restricted inlet or air entering the inlet plumbing.	Proper size inlet plumbing; check for air tight seal
	Inlet restrictions and/or air leaks. Stuck inlet or discharge valve.	Replace worn cup or cups, clean out foreign material, replace worn valves.
Water leakage from under manifold. Slight leakage.	Worn packing.	Install new packing.
	Cracked plunger.	Replace plunger(s).
Oil leak between crankcase and pumping section.	Worn crankcase piston rod seals. O-rings on plunger retainer worn.	Replace crankcase piston rod seals. Replace o-rings.
Oil leaking in the area of crankshaft.	Worn crankshaft seal or inproperly installed oil seal o-ring.	Remove oil seal retainer and replace damaged o-ring and/or seals.
	Bad bearing.	Replace bearing and any spacer or cover damaged by heat.
Excessive play in the end of the crankshaft pulley.	Worn main bearing from excessive tension on drive belt.	Replace crankcase bearing and/ or tension drive belt.
Water in crankcase.	May be caused by humid air condensing i nto water inside the crankcase	Change oil intervals. Use General Pump SAE 30 non-detergent oil.
	Worn packing and/or piston rod sleeve, o-rings on plunger retainer worn.	Replace packing. Replace o-rings.
	Cracked plunger	Replace plunger(s).
Oil leaking from underside of crankcase.	Worn crankcase piston rod seals.	Replace seals.
	Scored piston rod.	Replace piston rod.
Oil leaking at the rear portion of the crankcase.	Damaged crankcase, rear cover o-ring, drain plug o-ring, or sight glass o-ring.	Replace cover or-ring, drain plug o-ring, or sight glass o-ring.
Loud knocking noise in pump.	Pulley loose on crankshaft.	Check key and tighten screw.
	Broken or worn bearing on rod(s).	Replace bearing or rod(s).
	Valve stuck open or shut, or not opening enough.	Replace bad valve.
Frequent or premature failure of the packing.	Scored, damaged or worn plunger.	Replace plungers.
	Overpressure to inlet manifold.	Reduce inlet pressure.
	Abrasive material in the fluid being pumped.	Install proper filtration on pump inlet plumbing.
	Excessive pressure and/or temperature of fluid being pumped.	Check pressures and fluid inlet temperature; be sure they are within specified range.
	Overpressure of pump.	Reduce pressure.
	Running pump dry.	Do not run pump without water.
	Upstream chemical injection.	Use downstream chemical injection.

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Ref 300685 Rev. B
02-12

Mobile Clutch

For 24mm Solid Shaft Pump

GENERAL PUMP *A member of the Interpump Group*

Fig. 1

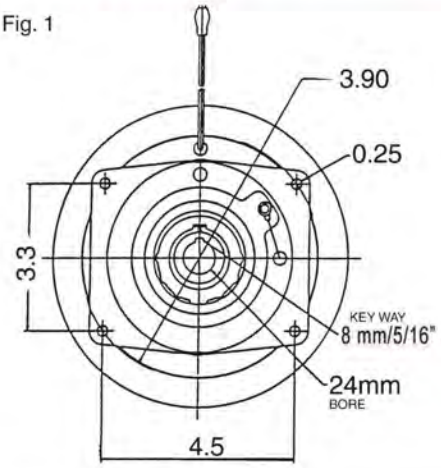


Fig. 2

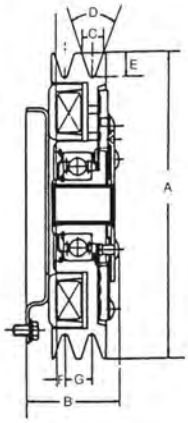
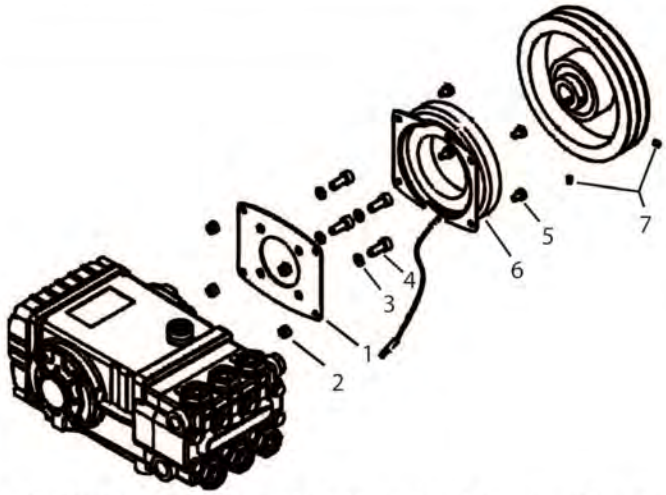


Fig. 2 Dimensions	
A	7"
B	2.08"
C	0.5"
D	36 Deg.
E	0.56"
F	0.19"
G	0.62"



No.	Part No.	Description	Qty.
1	540047 540048	Adapter Plate, 47 Series Adapter Plate, 44, 50, 63 Series	1
2	203201	Nut, Nylon	4
3	96701400	Washer	4
4	200046	Socket, Capscrew (47 Series Only)	4
5	201004	Socket, Capscrew	4
6	103053 103054 103048	Clutch, 2-groove, 12V Clutch, 2-groove, 24V Clutch, 1-groove, 12V	1
7	200051	Set Screw, Knurled Cup Point, M5 x .8 x 6mm	2

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Mobile Clutch

For 24mm Solid Shaft Pump

Typical Mobile Clutch - Water Pump Applications In typical water pump applications, the clutch is mounted on the input shaft of the water pump. Since the clutch has an integral pulley, a belt is used as the input to the clutch. This belt is normally driven directly from an electric motor or a gas/diesel engine. When there is no power to the clutch, the water pump does not not engage; however when power is activated, the clutch drives the water pump to initiate water flow. In this application, the GP clutch is mounted directly to a General Pump by using an adapter plate.

Used in Carpet Cleaning, Texture Spray Machines, High Pressure Pump applications.

SPECIFICATIONS

Pulley Size & Type		7" - A Groove, 24mm Shaft
Width		2.25"
Torque After Burnishing		75 - 95 lbs.
Power Requirement:	12V	47 Watts
	24V	45.6 Watts
Weight		8 lbs.

Part Number		Description
100687	Clutch w/Mounting Plate	47, 66 and 59(ES) Series, 12V, Dual Groove
100688	Clutch w/Mounting Plate	44, 50, 63 and 58(EP) Series, 12V, Dual Groove
100719	Clutch w/Mounting Plate	47, 66 and 59(ES) Series, 24V, Dual Groove
100720	Clutch w/Mounting Plate	44, 50, 63 and 58(EP) Series, 24V, Dual Groove
100717	Clutch w/Mounting Plate	47, 66 and 59(ES) Series, 12V, Single Groove
100718	Clutch w/Mounting Plate	44, 50, 63 and 58(EP) Series, 12V, Single Groove

Reasons for using an Electromagnetic Clutch

- Reduced horsepower consumption from the engine
- Extended pump life
- Less Cost
- Simple installation
- Operator convenience
- Cold weather starting

General Pump Mobile Clutch Design Advantages

- **Solid forged rotor.** A one-piece solid forged rotor means no chance of internal parts separation. They have an even wall thickness around the coil which gives optimum flux distribution, maximizing torque.
- **Different coil voltages available.** 12 volt is the most common; 24 volt clutches are also available.
- **High temperature, longer-life grease.** Our special long-life grease has shown a significant inprovement in life over other standard high temp greases.
- **E-coating.** Where possible, all parts in the clutch are e-coated to give maximum corrosion protection.
- **High-temperature epoxy coil.** To help prevent failure from vibration and outside contaminants, all coils are sealed in the coil shell with a high-temperature epoxy coating.
- **Forged machined pulley.** All GP models use a heavy-duty machined pulley. A stronger pulley resists damage due to abusive environments.

- **Clutches are also available mounted on a General Pump. Please contact your sales representative.**

DRIVE COMPONENTS

ACCESSORIES

ACCESSORIES

GENERAL PUMP *A member of the Interpump Group*

GP Pulse Pump

Pulse-Actuated Chemical Pump

SPECIFICATIONS

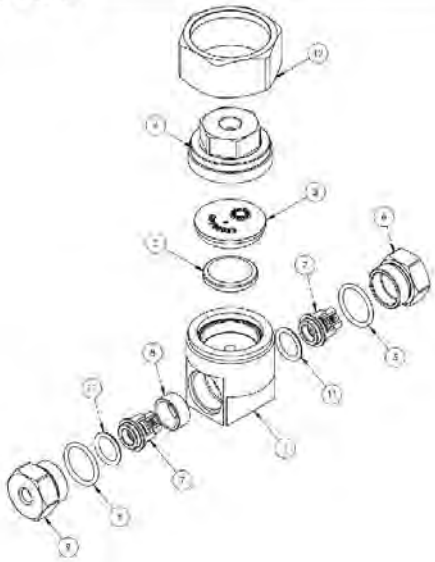
Part Number		100906 (RevE)
Maximum Pressure		1500 PSI
Maximum Flow		0.75 GPM
Ports Sizes:	**Inlet**	1/8"-27 NPT-F
	Outlet	1/8"-27 NPT-F
	Pulse Port	1/4" NPT-F
Dimensions		2.8" x 2.6" x 2.4"
Weight		2.0 lbs.
Materials		303 Stainless Steel

*Flow will vary according to flow and pressure of the drive pump. For optimum performance, inlet pressure to the drive pump should be zero or negative but not to exceed drive pump specifications.

FEATURES

- **303 Stainless Steel body**
- **EPDM diaphragm offers resilience and chemical compatibility**
- **Mounts to one of the drive pump inlet valve ports by using a special valve adapter**
- **Draws cleaning solution with each stroke of the drive pump**
- **Permits cleaning solution application at system pressure up to 1500 PSI**
- **New union style allows replacement of diaphragm without removing plumbing**

PARTS LIST



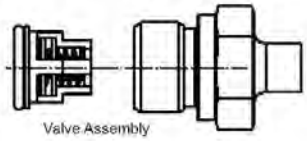
No.	Part Number	Description	Qty.
1.	520193	Body, Pulse Pump	1
2.	660180	Plastic Disc	1
3.	700033	Rubber Diaphragm	1
4.	520192	Top Cover Inlet, Pulse Pump	1
5.	701004	O-ring, .70 DURO, Buna-N	2
6.	520195	Valve Cap, 303 SST	1
7.	103162	Assy., Valve Kit, Chem Pulse Pump	2
8.	520194	Spacer Ring, 303 SST	1
9.	520196	Valve Cap, 303 SST	1
11.	701114	O-ring, 70 Duro, Buna-N	2
12.	520338	Nut, Pulse Pump, 303 SS	1

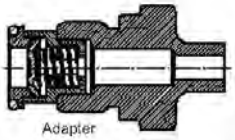
VALVES & ADAPTERS

PUMP SERIES	ADAPTER FITTING	VALVE ASSEMBLY
60 (TC)	520222	103036
44 (EZ)	520197	103036
63 (TX)	520197	103036
47(HTS)	520190	103035
66 (TSF)	520223	103090
310/3CP/5CP2)Cat)	520279	N/A
5CP3/5CP5 (Cat)	520341	N/A
5CP6 (Cat)	520342	N/A

INSTALLATION INSTRUCTIONS

From the drive pump remove one of the standard inlet valve plugs and it's valve assembly and install the special valve assembly with a through hole in the plastic cage and install the special adapter with a 1/4"-18 NPT Male threads that is appropriate for the drive pump and tighten to proper torque. Thread the pulse pump pulse port 1/4"-18 NPT Female onto the special adapter 1/4"-18 NPT Male and tighten until the pulse pump inlet and outlet ports are at desired position. Install pulse pump inlet and outlet according to diagram.


Valve Assembly


Adapter

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GENERAL PUMP

100906 GP Pulse Pump

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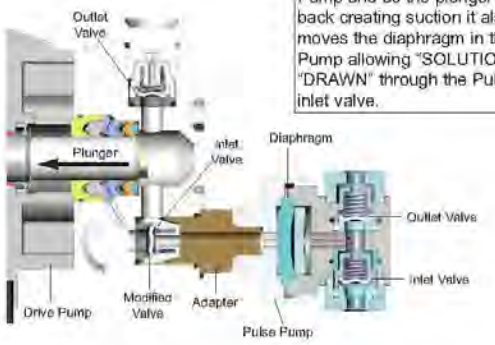
CUTAWAYS & OPERATION

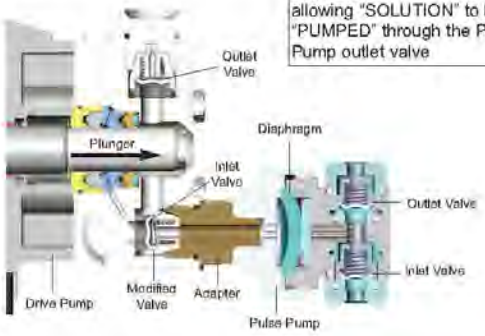
SUCTION

The Pulse Pump attaches to one of the inlet valves of a Plunger Pump and as the plunger moves back creating suction it also moves the diaphragm in the Pulse Pump allowing "SOLUTION" to be "DRAWN" through the Pulse Pump inlet valve.

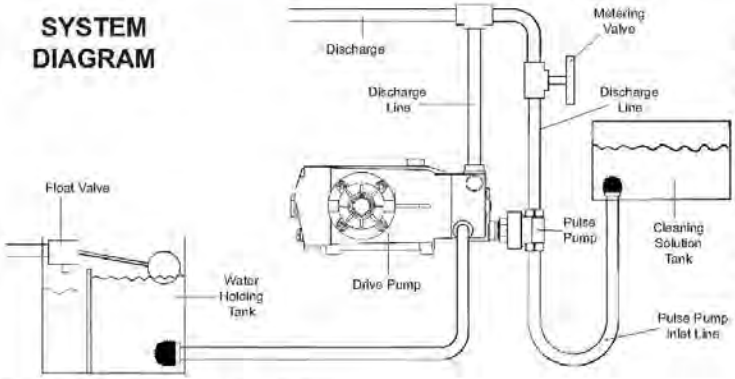


DISCHARGE

When the Pump Plunger moves Forward it also moves the Diaphragm in the Pulse Pump allowing "SOLUTION" to be "PUMPED" through the Pulse Pump outlet valve



SYSTEM DIAGRAM



Pulse Pump will not draw cleaning solution with a pressurized inlet to the drive pump. For optimum performance inlet pressure to the drive pump should be zero or negative but not to exceed drive pump specifications.

To adjust the amount of cleaning solution drawn into the system, install a metering valve in the discharge line of the pulse pump.

The pressure limit of 1500 PSI is due to the diaphragm.

START-UP INSTRUCTIONS

With the drive pump open and pulse pump metering valve open (no back pressure), start drive pump. After water starts to flow from system check to be sure the pulse pump is primed and pumping. Then install nozzle and set drive pump pressure to desired discharge pressure. After the unit is operating, adjust metering valve to obtain desired water/cleaning solution ratio.

Mixing ratio varies with output of drive pump.

TROUBLESHOOTING

No cleaning solution supply from Pulse Pump:	• System not primed Airlock between drive pump and pulse pump diaphragm Airlock in pulse pump inlet line • Failure of diaphragm • Foreign material in Pulse Pump inlet and outlet valve
Limited cleaning solution supply from Pulse Pump:	• Restriction between drive pump and pulse pump • Restriction in metering valve • Worn inlet and outlet valves

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GENERAL PUMP

SMC Model 555
Balanced Pressure Regulator

FEATURES:

Simple construction. Minimum number of parts to wear. Seals, piston, and seat assembly easily replaced. Ideal for self service car wash installations, particularly those with trigger gun and weep systems also carpet cleaning machine and RO application. Can be used on multi-outlet systems with varying size nozzles. Working pressure is maintained in the system regardless of what percent of the liquid is bypassed. Off the line mounting - No pressure loss from valve restriction - Capacity to 10 G.P.M. In line mounting – Capacity to 7 G.P.M. Does not pulse or surge. Smooth gentle discharge Model 555 also is available in partial or all stainless steel.

INSTRUCTIONS:

Mount **off-line** unit in a tee, off the discharge line or manifold, see Fig. #1. Mount **in line** unit, in-line - see Fig. #2.

Ideal for use in car wash or pressure wash application where a weep fun is used or bypass can be returned to a supply tank. When used on a pressure wash system where bypass is piped back to inlet and standard shut off gun is used it is advisable to install a thermal relief valve to insure that heat build up in the pump and short loop does not exceed a fixed temperature (160°-180°). Note: This can done only if pump is pressure fed or has net positive suction head from gravity feed.

To increase pressure, turn adjusting cap clockwise. To reduce pressure turn adjusting cap counter-clockwise.

The SMC regulator is not preset for pressure. Start the pump with the spring in a relaxed position (7 threads showing). With the discharge gun open check gauge pressure as you turn the adjusting cap clockwise to increase the pressure to the desired operating range (2000 PSI max.). There may be some by-pass if the nozzle is undersize. Do not adjust above the working pressure as this will unnecessarily increase pressure when the gun is shut-off.

If used in a system that is equipped with more than one outlet gun set the valve pressure with one outlet gun open and again with all outlet guns open to verify proper setting.

If there is extreme pulsating in the system (single or two cylinder pump or a pump with mechanical valves) there may be a light trickle at the bypass. The addition of a pulsation damper you can set the valve slightly higher than normal to stop the trickle (there will be a slightly higher pressure rise than normal with all outlet guns shut-off.

NOTE: Do not use Teflon Tape on threads. Please use a thread locker for best results. Teflon Tape ends up in piston bore causing regulator to be ineffective.

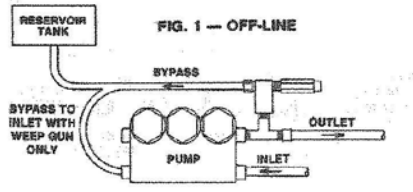


FIG. 1 — OFF-LINE

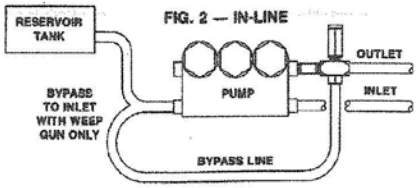


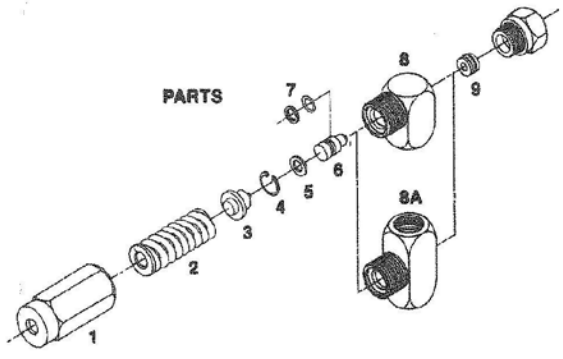
FIG. 2 — IN-LINE

PARTS LIST:

1.	5550040	CAP
2.	5550120	Standard Spring, 200-2000 PSI
	5550130	Medium Spring, 100-900 PSI
	5550140	Low Spring, 50-500 PSI
3.	5550390	Thrust Plate
4.	8200260	Ring Retainer
5.	5550370	Brass Washer, Piston Retainer
6.	5550230	Piston 316SS
7.	5550490	Seal Kit – Buna-N w/Teflon
	5551690	Seal Kit – Ethylene Propylene w/Teflon
	5551990	Seal Kit – Fluroelastomer w/Teflon
8.	5550330	Off Line Body Assembly
8A.	5550350	In Line Body Assembly
9.	5550590	Kit Seat w/Buna-N O-Ring
	5552090	Kit Seat w/Ethylene Propylene O-Ring
	5552190	Kit Seal w/Fluroelastomer O-Ring

SPECIFICATIONS:

- All Body Parts — Brass
- Piston and Seat — Hardened Stainless Steel
- O-Rings — Buna-N, Ethylene Propylene, or Viton
- Piston Seal — Buna-N, Ethylene Propylene, or Viton
- Seal Backup — Filled Teflon
- Adjusting Spring — Chrome Vanadium
- Porting — 3/8 F. N. P. T. Inlet (All Ports)
- Temperature Range — to 180° F
- Volume Range —
  Off line Mount to 10 GPM
  In Line Mount to 7 GPM
- Pressure Range —
  Standard Spring, 200-2000 PSI
  Medium Spring, 100-900 PSI
  Low Spring, 50-500 PSI
- Weight — 12 oz.



Part No. 5550160-2