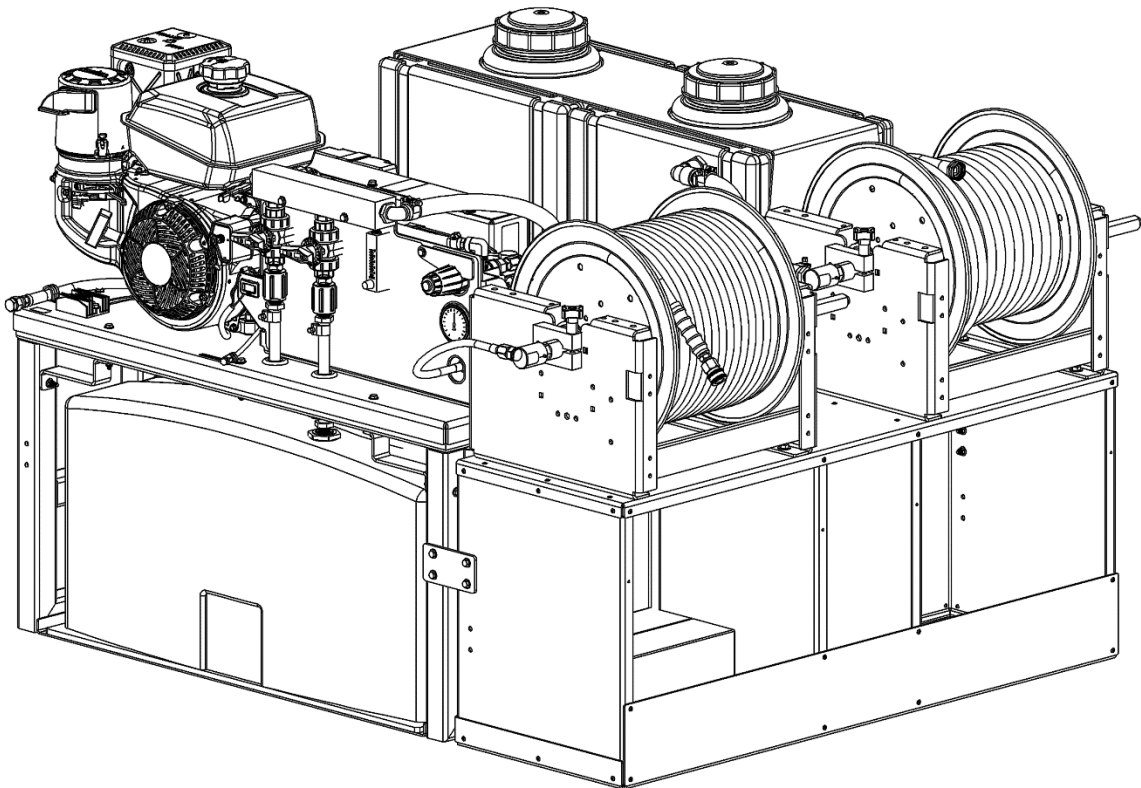




# XCS 500

Operation and Service Manual



Manual P/N 125682  
Revision 02, July 2021



## UNIT DATA LABEL

Model:	_____
Date of Purchase:	_____
Serial Number:	_____
Dealer:	_____
Address:	_____
Phone Number:	_____
Sales Representative:	_____

**Congratulations** on the purchase of your **RoofTec XCS 500**, manufactured by Legend Brands. This instruction manual is a guide for operating and servicing your equipment. **Read this manual completely before installing or operating this unit.**

Proper operation and service are necessary to ensure the outstanding performance of this unit. When properly maintained, your exterior cleaning machine will have a long and trouble-free life.

The service methods outlined in this manual are detailed in a manner that operation and servicing may be performed properly and safely. Because service levels vary due to the skill of the mechanic, tools and parts availability, ensure that prior to attempting any maintenance or repair, you are familiar with the equipment and have all the proper tools to complete the task. Please call a **Legend Brands** service or customer care representative at 866-445-3030 for help with maintenance, repair, warranty and parts related questions.

**THIS UNIT MUST BE INSTALLED BY THE DEALER THAT YOU PURCHASED IT FROM IN ACCORDANCE WITH THE PRESCRIBED INSTALLATION PROCEDURES.**

Information in this document is subject to change without notice and does not represent a commitment on the part of Legend Brands.

## WARRANTY REGISTRATION

Thank you for purchasing a Legend Brands product. Warranty registration is quick and easy. Your registration will allow us to serve you better over the lifetime of the product.

**To register your product go to:**

**<https://www.legendbrandscleaning.com/Warranty>**

For customer assistance:

**866-445-3030**

# LEGEND BRANDS LIMITED WARRANTY

## Legend Brands Model XCS 500

### What Does This Warranty Cover?

This warranty covers the Legend Brands Model XCS 500 and is provided to the original purchaser only.

### How Long Does This Warranty Last?

This warranty runs for:

Two (2) years from the date of installation on parts and labor (Excluding normal maintenance items.) Factory installed original belts are covered for 500 hours. The frame is covered for five years. All other components including seals, o-rings and electrical components are covered for the entire two-year warranty period.

### What Legend Brands Will Do:

If a defect in materials or workmanship occurs within the warranty period, Legend Brands at its election will repair or replace the defective part at no charge.

### What This Warranty Does Not Cover:

This warranty does not cover or apply to defects due directly or indirectly to misuse, abuse, disassembly, alteration, corrosive chemicals, improper voltage, improper fuel, fire, flood, negligence, accident, improperly or incorrectly performed maintenance or repair, or failure to perform necessary or recommended maintenance or repair (See your Owner's Manual) or if the use of this product is not in compliance with the instructions and specifications for its use. This warranty does not cover normal maintenance items such as air and oil filters, lubricants and tune up parts. The frame is covered for five years. All other components including seals, o-rings and electrical components are covered for the entire two-year warranty period. We limit all implied warranties to: Two (2) years from the installation date on parts and labor. It is strongly recommended that this unit be used with, and only with, Legend Brands recommended chemicals and as directed by label instructions on chemical bottles.

OTHER THAN THE WARRANTIES PROVIDED HEREIN, LEGEND BRANDS MAKES NO EXPRESS OR IMPLIED, ORAL OR WRITTEN WARRANTIES WITH RESPECT TO THIS PRODUCT OR WORKMANSHIP AND ALL WARRANTIES IMPLIED BY LAW INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THIS WARRANTY.

**Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. WE SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY OR FOR INCIDENTAL, CONTINGENT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING FROM USE OF OUR PRODUCTS. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.**

### How Do I Get Service?

In order to be eligible for service under this warranty you MUST do the following: (a) fill out the warranty registration card on-line within thirty (30) days of the installation of our product; (b) write or call a service representative at Legend Brands for a return material authorization (RMA); and (c) have the serial number available. Proof of proper maintenance may be required before warranty is granted.

#### Contact us at:

Legend Brands

2604 Liberator, Prescott, AZ 86301

Phone: 928-445-3030 / 866-445-3030

If Legend Brands uncovers a defect we will repair or replace the product, at our election. Ground shipping and transportation costs will be covered by the manufacturer. Returning defective parts to the manufacturer, if required, shall be the responsibility of the purchaser. Warranty may be denied if defective parts are not returned within 90 days. If it is determined that there is no defect in the product, or that the defect resulted from causes not within the scope of our warranty, then the product will be repaired or replaced only at your request and at your expense and you must bear all shipping costs.

### How Does State Law Apply?

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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# HOW TO USE THIS MANUAL

This manual contains the following sections:

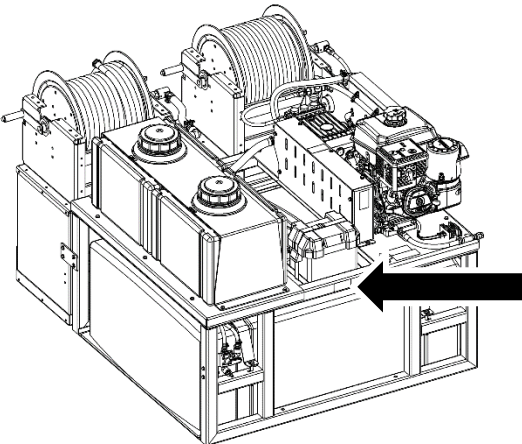
- How to Use This Manual
- Safety
- Installation
- Operation
- Maintenance & Service
- Parts Listing & Diagrams

The **HOW TO USE THIS MANUAL** section will tell you how to find important information for ordering correct repair parts.

Parts may be ordered from authorized dealers. When placing an order for parts, the machine model and machine serial number are important. Refer to the MACHINE DATA box which is filled out during the installation of your machine. The MACHINE DATA box is located on the inside of the front cover of this manual.

Model:	_____
Date of Purchase:	_____
Serial Number:	_____
Dealer:	_____
Address:	_____
Phone Number:	_____
Sales Representative:	_____

The model and serial number of your unit is located on the front left side of the frame as shown here:



The **SAFETY** section contains important information regarding hazardous or unsafe practices for this machine. Levels of hazards are identified that could result in product damage, personal injury, or severe injury resulting in death.

The **INSTALLATION** section contains information on how to properly install the unit in your vehicle.

The **OPERATION** section is to familiarize the operator with the operation and function of the machine.

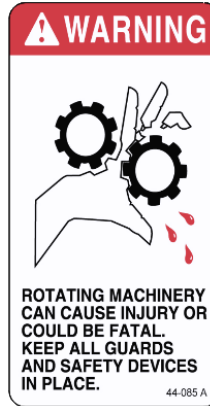
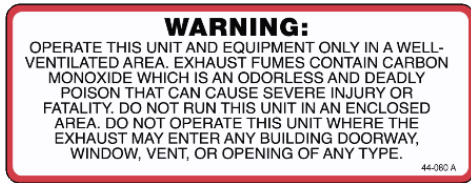
The **MAINTENANCE** section contains preventive maintenance to keep the machine and its components in good working condition.

The **PARTS LISTING & DIAGRAMS** section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

**NOTE:** *If a service or option kit is installed on your machine, be sure to keep the KIT INSTRUCTIONS which came with the kit. It contains replacement parts numbers needed for ordering future parts.*

## SAFETY

The following warning labels are on your mobile cleaning unit. These labels point out important **WARNINGS** and **CAUTIONS**, which must be followed at **ALL** times. Failure to follow these warnings could result in injury or fatality to yourself and/or others or property damage. Please follow these instructions carefully! **DO NOT remove these decals.**



### **WARNING**

This WARNING symbol is used throughout the manual to warn of the possibility of physical injury or fatality. Please read all warnings carefully before operating the equipment.

### **CAUTION**

This CAUTION symbol is used throughout the manual to warn of the possibility of damage to equipment or personal property.

 **WARNING**

**Read the operator's manual before starting this unit.**

Failure to adhere to instructions could result in severe personal injury or could be fatal.

**Operate your vehicle and equipment in a well-ventilated area.**

Exhaust fumes contain carbon monoxide, which is an odorless and deadly poison that can cause severe injury or death. DO NOT run the vehicle in an enclosed area. DO NOT operate this unit where the vehicle exhaust may enter a building doorway, window, vent or other opening.

**Gasoline is extremely flammable and its vapors can explode if ignited.** Store gasoline only in approved containers, in well-ventilated, unoccupied buildings and away from sparks or flames. Never carry gasoline or any flammable materials inside the vehicle. Fumes could accumulate inside of the vehicle and ignite, causing an explosion.

**DO NOT** operate unit if gasoline is spilled. Do not turn ignition switch until the gasoline has been cleaned up. Never use gasoline for cleaning purposes.

**DO NOT** place hands, feet, hair, clothing or any body parts near rotating or moving parts. Rotating machinery can cause severe injury or death.

**NEVER** operate this unit without the belt guard. High speed moving parts, such as belts and pulleys should be avoided while the unit is running. Severe injury, fatality and/or damage may result.

**NEVER** service a unit while it is running. High speed mechanical parts as well as high temperature components and fluids may result in severe injury or fatality.

Engine and pump components, hoses and fittings will be extremely hot from operation. To prevent severe burns, **DO NOT** touch these areas while the unit is running, or shortly after the unit is shut off.

**Water under pressure can cause severe personal injury or fatality.** Shut down unit and relieve system of all pressure before removing caps, valves, plugs, fittings, filters or hardware.

**NEVER** leave the vehicle engine running while the unit is in operation.

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

**Before disconnecting** the negative (-) ground cable, ensure that all switches are in the off position. If on, a spark could occur at the ground connection terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. ALWAYS disconnect the negative (-) terminal first



## SECTION ONE: GENERAL INFORMATION

**DO NOT** smoke around the vehicle. Gas fumes could accumulate and ignite. Battery gasses are extremely flammable. This will prevent possible explosions.

High-pressure hoses must be rated at 3000 PSI. Severe injuries may result from improper hoses.

The Occupational and Health Administration (OSHA) recommends the use of hearing protection when a technician is exposed to an average of 85 decibels (this is an average of exposure over an 8 hour period). This equipment can produce 85 decibels at a distance of 10 feet. Please check with your local state agencies to see if OSHA standards apply to your application.

California Proposition 65 Warning: Engine exhaust from this product contains chemicals known by the State of California to cause cancer, birth defects, or other reproductive harm.



**The minimum recommended payload capacity for the RoofTec XCS 500 is 2500 lbs.**

**DO NOT** exceed the vehicle's payload capacity. This will prevent unsafe or hazardous driving conditions. Before installing the unit into the vehicle, check with the vehicle manufacturer for the Gross Vehicle Weight Rating (GVWR). GVWR is the maximum allowable combined weight of the vehicle, including all passengers, fuel, fluids, tools and cargo.

**Example:** If the GVWR for a vehicle is 9600 lbs. and the vehicle has a base curb weight of 6406 lbs., this leaves a payload capacity of 3194 lbs. (GVWR - Curb Weight = Payload Capacity).

Ensure that you have received proper training and are familiar with the start-up and shut-down procedures prior to operation.

**DO NOT** alter or modify your unit in any way. Use only replacement parts authorized by Legend Brands. Modifications or use of unapproved parts could create a hazard and will void your warranty. This includes the use of any open-ended hoses.

Failure to apply preventative measures towards freezing can result in system failure and loss of warranty on affected parts. Water freezes at 32° F and 0° C.

# READ AND SAVE THESE INSTRUCTIONS

**SPECIFICATIONS**

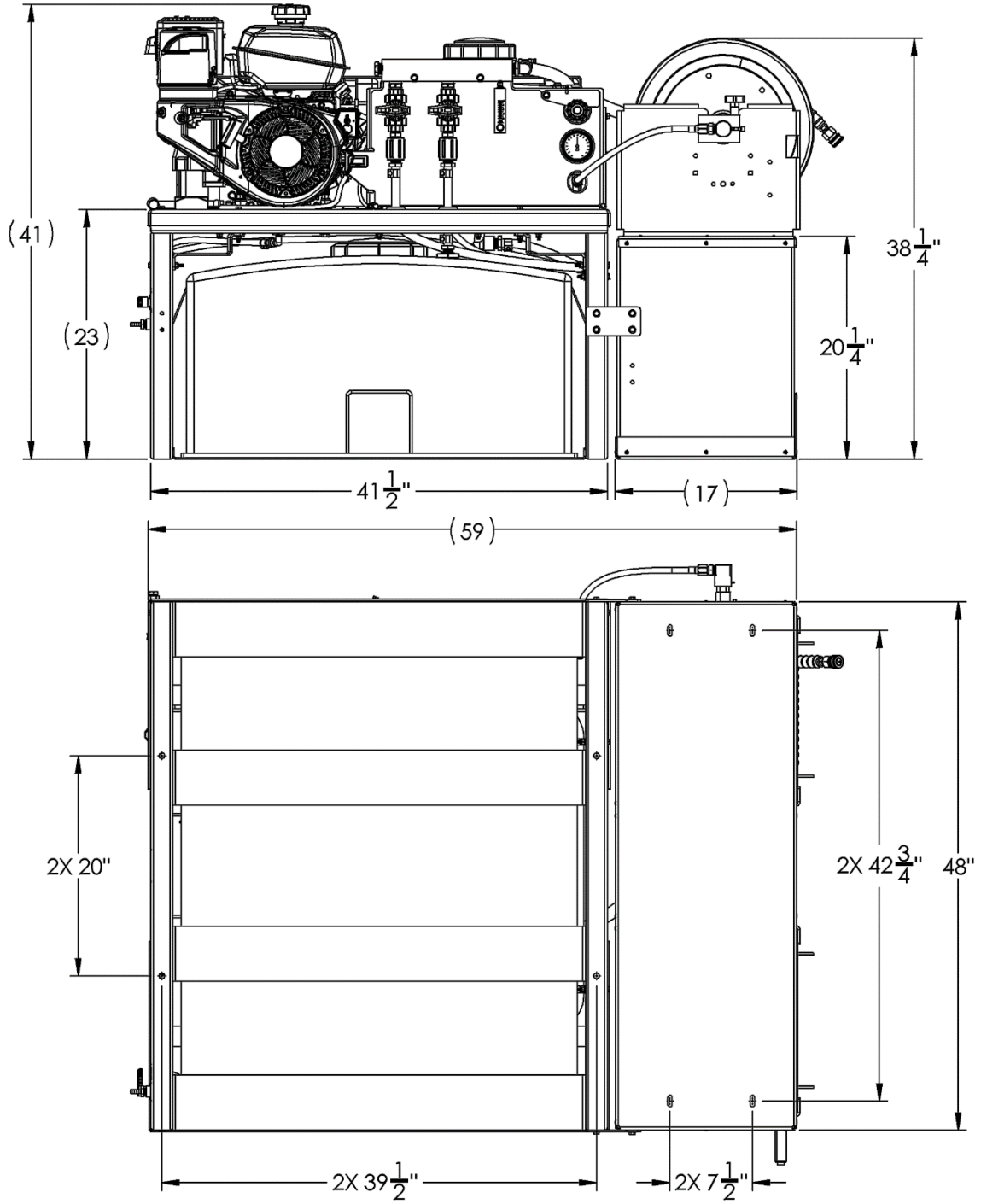
Engine Speed	2500 RPM (Max) 900 RPM (Idle)
Water Pump RPM	1785 RPM (Max)
Water Pump Flow Rate	5.5 GPM (Max)
Bleach Tank Capacity	110 gallons
Utility Tanks Capacity	12 gallons (ea)
Console Weight	640 lbs. (dry)
Max Operating Weight	1840 lbs. (full tanks)

\*Weights are approximate and do not include accessory items, tools, extra chemical containers, or vehicle passengers.

**TORQUE VALUES**

Engine Crankshaft / Blower Pulley	120 in-lbs
Engine Front / Water Pump Pulley	120 in-lbs

OVERALL AND MOUNTING POINT DIMENSIONS



## FUEL REQUIREMENTS

Use **unleaded fuel ONLY**. Use only fresh, clean unleaded gasoline with a minimum octane rating of 87. **Do Not** use high octane gasoline. Gasoline with up to, not exceeding, 10% ethanol is acceptable.

**NOTE:** Using other gasoline/alcohol blends including E20 and E85 will cause damage to engine components and will void warranty.

## ENGINE REQUIREMENTS

Use high-quality oil of at least API (American Petroleum Institute) service class SG or higher. **Do not use additives.** High quality 10W-30 oil is recommended. It is never recommended to extend oil change intervals past 200 hours

Engine Oil Capacity	1.1 L 1.16 US qt.
---------------------	----------------------

**NOTE:** Using lower service class oil or extending oil change intervals longer than recommended can cause engine damage.

## CHEMICAL REQUIREMENTS

Using chemicals from alternate sources can cause damage to the internal components of your unit and will affect operation. RoofTec chemicals are specifically engineered as the highest quality solution for long-life unit operation. RoofTec highly recommends using only RoofTec branded chemicals. Below is a list of chemicals for use with RoofTec Systems equipment. Each case contains four 1-gallon bottles.

Part No.	Name	Description
125182	WashTec	Use with chlorine bleach to remove organic stains caused by algae, moss, bacteria, mold and mildew for superior cleaning performance.
125185	NeutraTec	Use to neutralize chlorine bleach on sensitive surfaces or to flush out equipment to extend component life.
125184	ConTec	Use to remove grease, oil and grime from concrete and bricks for superior cleaning performance.
125180	DirtTec	Use with chlorine bleach to remove particulate soil such as dirt, clay, minerals and grease on most surfaces.
125183	WoodTec	Use with chlorine bleach to remove organic staining on wood caused by algae, moss, bacteria, mold, mildew, dirt and grime for superior cleaning performance.
125181	OxiTec	Use to restore siding, awnings and gutters after oxidation or sunlight damage - even gutter tiger stripes.

See the Maintenance section of this manual for more information about maintenance and service requirements.

## RECEIVING YOUR XCS 500 UNIT

### ACCEPTANCE OF SHIPMENT

Your unit was thoroughly tested, checked and inspected in its entirety prior to leaving our manufacturing facility. When receiving your unit, please make the following acceptance check:

1. The unit should not show any signs of damage. If there is damage, notify the deliverer immediately.
2. Carefully check your equipment against the packing slip to make sure everything you ordered has arrived.

### STANDARD EQUIPMENT LISTING

- XCS 500 unit
- Hose reel mounting box
- 2X 12 inch hose reels
- 200 ft. 3/8-in high pressure hose
- 100 ft. 1/2-in water supply hose
- 2 ft Accessory hose and clamp
- Stainless steel spray gun
- Four 1/4-in Meg nozzles
- Quick Disconnect nozzle holder
- Installation mounting plates and hardware
- Operation and Service Manual

## SECTION TWO: INSTALLATION

### **WARNING!!!**

**This unit must be installed in the bed of a pickup truck or open trailer and run only in a well-ventilated environment.**

Prior to beginning the installation, read the **ENTIRE** Installation section of this manual.

### VEHICLE REQUIREMENTS

#### **CAUTION!**

**DO NOT** exceed the vehicle's payload capacity. This will prevent unsafe or hazardous driving conditions. Before installing any components into the vehicle, check with the vehicle manufacturer for the Gross Vehicle Weight Rating (GVWR). GVWR is the maximum allowable combined weight of the vehicle, including all passengers, fuel, fluids, tools and cargo.

### LIFTING THE UNIT INTO THE VEHICLE

Because of the weight of the unit, a forklift is necessary to place the unit into the vehicle. Fork guides are provided on two sides of the unit and labeled for clarity. Only use these fork pockets and ensure that forks are inserted deep enough that the unit will not slide before lifting. Carefully move the unit into the desired position. **Do not lift the unit with the hose reel box attached.**

### POSITIONING THE UNIT INTO THE VEHICLE

1. Ensure that enough space is provided to install the hose reel box after the unit has been positioned. The hose reels are intended to be installed against the tailgate. Install the hose reel box spacing plates after the unit is positioned, but prior to fastening down the unit and hose reel box.
2. Consider the required space for any peripheral accessories including hose and electrical routing to those accessories prior to positioning the unit.
3. Operating weight of the complete installation (which includes solution weights) with ALL accessories **MUST NOT** exceed the vehicle's axle weight limit. Please refer to SPECIFICATIONS in Section One for standard unit operating weight.

**NOTE:** Please refer to the dimensional data illustrations provided in Section One of this manual for overall and mounting hole dimensions.

## FASTENING DOWN THE UNIT



### CAUTION

Prior to drilling any holes in the vehicle floor, ensure that while drilling, you will not damage the fuel tank, fuel lines, or any other vital components which could affect the safety or operation of the vehicle.


A. Secure the hose reel box to the unit using the provided 1/4-20 hardware and spacing brackets. The unit and hose reel box mounting holes will serve as a template. Drill four (4) 13/32-inch diameter holes for the unit frame and two (2) 13/32-inch diameter holes for the hose reel.

B. Using the provided mounting hardware kit:

Insert 3/8-16 × 4-inch hex head cap screws with flat washers through the unit frame and hose reel box mounting holes. Bolts that lie over or near a fuel tank or any other sensitive areas must be installed from the underbody with the threads facing up into the vehicle interior.

Install the provided mounting plates underneath the vehicle floor. Use the larger plates where space is available. The smaller plates can be used on the hose reel box.

Screw the provided 3/8-16 hex head lock nuts on to the mounting bolts and tighten until the unit and hose reel box are firmly attached to the vehicle floor.

 **WARNING!** Do not alter or modify your unit in any way. Use only replacement parts authorized by **Legend Brands**. Modifications or use of unapproved parts could create a hazard and will void your warranty. Contact your authorized Legend Brands dealer for assistance.

## BATTERY CONNECTION



### WARNING!

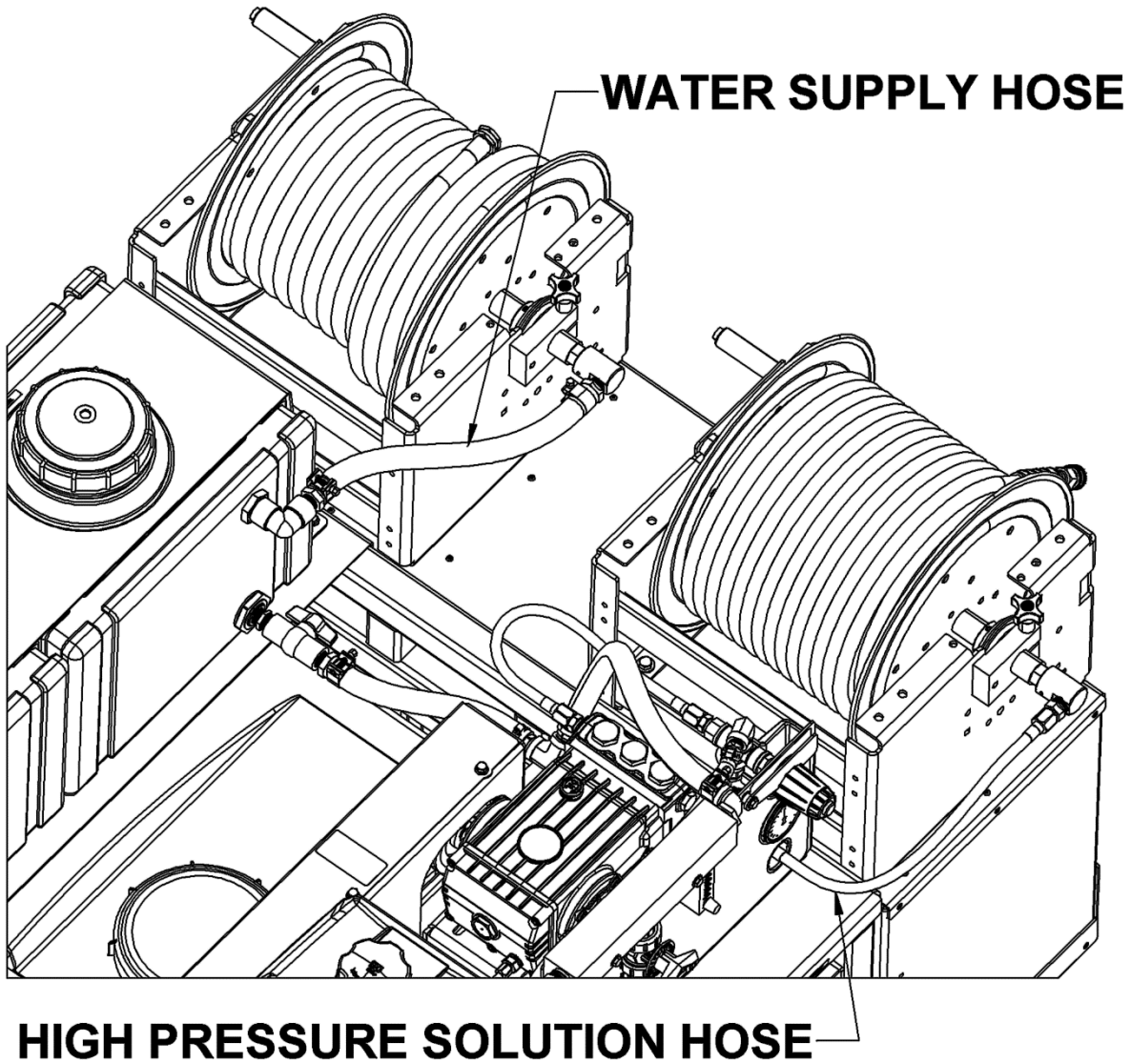
#### Explosive gases, Dangerous gases!

Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries also produce explosive hydrogen gases while charging. To prevent fire or explosion, charge batteries in a well-ventilated area only. 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 batteries out of the reach of children.

- Before disconnecting the negative (–) ground cable, ensure that all switches are in the OFF position. If ON a spark could occur at the ground connection terminal, which could cause an explosion if hydrogen gas or gasoline vapors are present. ALWAYS disconnect the negative (–) terminal first.
- Attach the red positive (+) battery cable from the starter solenoid on the console to the positive (+) terminal on the battery and tighten down the nut.
- Attach the black negative (–) battery cable from the ground on the console to the negative (–) terminal on the battery and tighten down the nut

## HOSE REEL CONNECTION

Connect the 3/4" hose and clamps between the water supply hose reel and the water box. Connect the 20" high pressure hose between the high pressure hose reel and the solution outlet on the control system.



## FIRE EXTINGUISHER

Legend Brands, and many government agencies, recommend that a fire extinguisher rated for A, B, and C type fires be installed into any commercial vehicle.




## SECTION THREE: OPERATION

**NOTE: Read and understand this section of the manual entirely before proceeding.**

### PREPARATION AND OPERATION

This section of the operator's manual explains how to prepare, start, operate, shut down and maintain your mobile cleaning unit. This unit is easy to operate, however only trained operators should proceed.

 **WARNING** Operate this unit and equipment only in a well-ventilated area. Exhaust fumes contain carbon monoxide, which is an odorless and deadly poison that can cause severe injury or death. DO NOT run this unit in an enclosed area. DO NOT operate this unit where the exhaust may enter a building doorway, window, vent or any other opening.

### PREPARATION

#### CHECK ENGINE AND PUMP OIL LEVELS

Check the engine oil dipstick and pump sight glass to ensure that the oil levels are full. Add oil if needed. Do not overfill.

#### ENSURE THERE IS ADEQUATE FUEL

Check the fuel tank to ensure there is adequate fuel to complete the job and transport the vehicle. This unit consumes approximately 0.3 US gallons of fuel per hour, during normal operation. A full 1.925 gallon fuel tank should last approximately 6 hours.

#### WATER SUPPLY CONNECTION

Prior to connecting your water inlet hose to any supply faucet, flush out the faucet until the water is free of any debris.

1. Connect the hose to the water supply faucet.
2. Turn the water supply faucet on.
3. Make sure the water box is filling and let it fill past the bypass port before starting the unit.

#### CHECK YOUR CHEMICAL LEVELS

Check your tanks to make sure you have enough chemicals to finish the job. See the OPERATION section for information on chemical concentrations for different jobs.

#### CHECK FOR DEBRIS

Check the engine air intake areas, on top of and around the equipment and remove all debris or foreign objects that may cause damage or restrict operation.

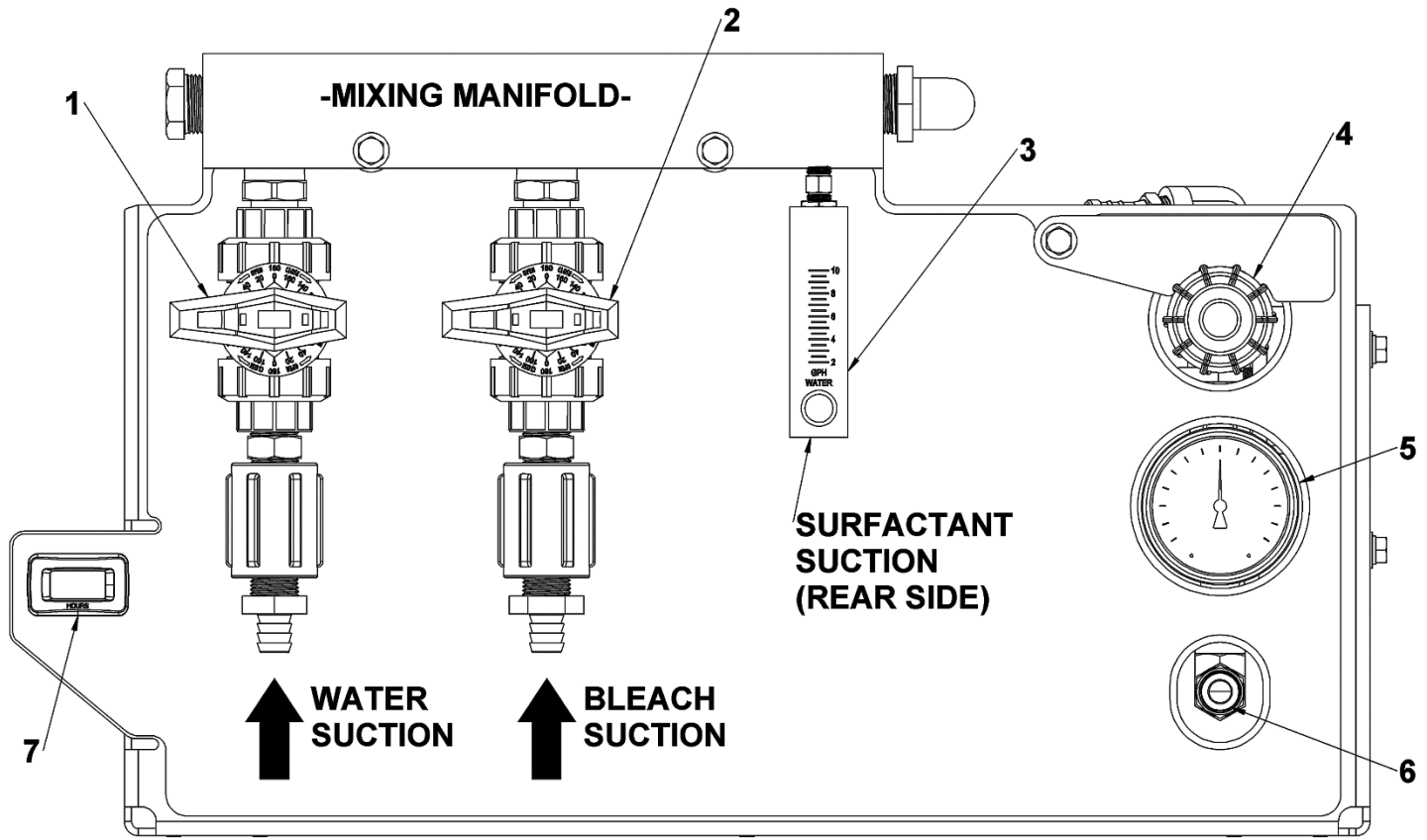
#### ENSURE GUARDS ARE IN PLACE

Check that all engine guards, air cleaner components and belt guard components are in place and securely fastened before starting the unit.

#### CONNECT TOOL TO THE PRESSURE HOSE

The quick-disconnect fitting on the pressure hose is wide-open. A spray tool with a shut-off, such as the one supplied with the unit, must be connected to the end of the hose before the unit is turned on.

## CONTROL INTERFACE

**1. WATER METERING VALVE**

This valve controls how much water is injected into the mixing manifold.

**2. BLEACH METERING VALVE**

This valve controls how much sodium hypochlorite is injected into the mixing manifold.

**3. FLOWMETER AND SURFACTANT METERING VALVE**

This valve and meter controls and shows how much surfactant is injected into the mixing manifold. It reads from 2 - 10 gallons per hour (GPH).

**4. PRESSURE REGULATOR**

This controls the pressure level of the solution. Use the latch to prevent creep by vibration.

**5. PRESSURE GAUGE**

This gauge registers the amount of pressure in the system.

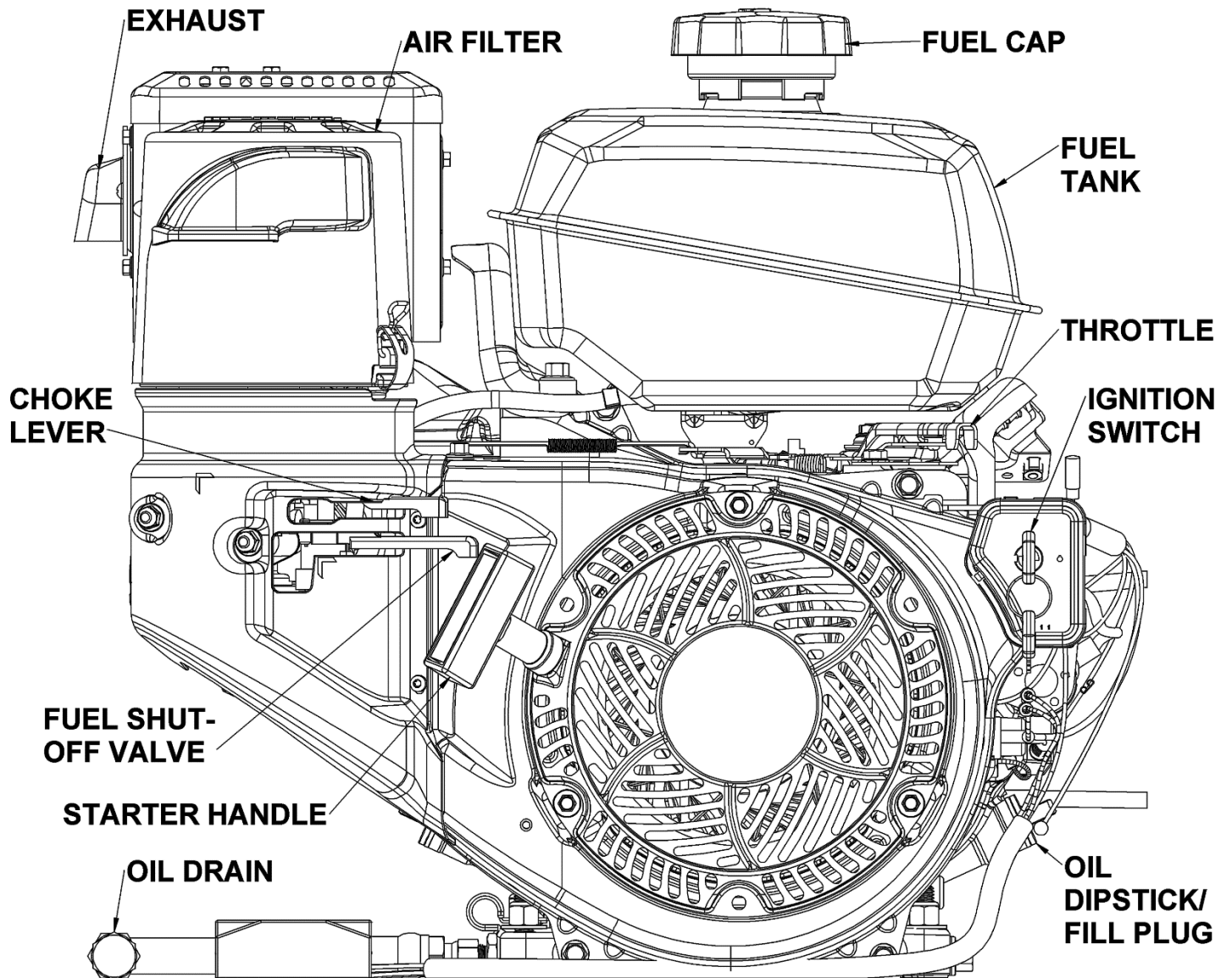
**6. SOLUTION OUTLET PORT**

The solution outlet is connected to the high pressure hose for 100-2500 PSI operation.

**7. HOUR METER**

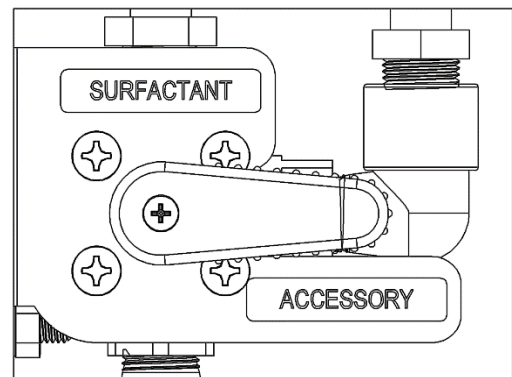
The hour meter tracks the hours of engine use.

## ENGINE INTERFACE



## ACCESSORY TANK

If you wish to install an accessory tank to use in lieu of the surfactant tank, a 24-inch hose has been supplied. Install the hose between the open fitting on the accessory valve and the accessory tank. There is no need to disconnect the surfactant tank. Turn the valve handle to ACCESSORY to switch to the accessory tank, and to SURFACTANT when switching back.



## STARTING THE UNIT

**NOTE:** Be sure to read and comply with the preparation section of this manual entirely before starting the unit.

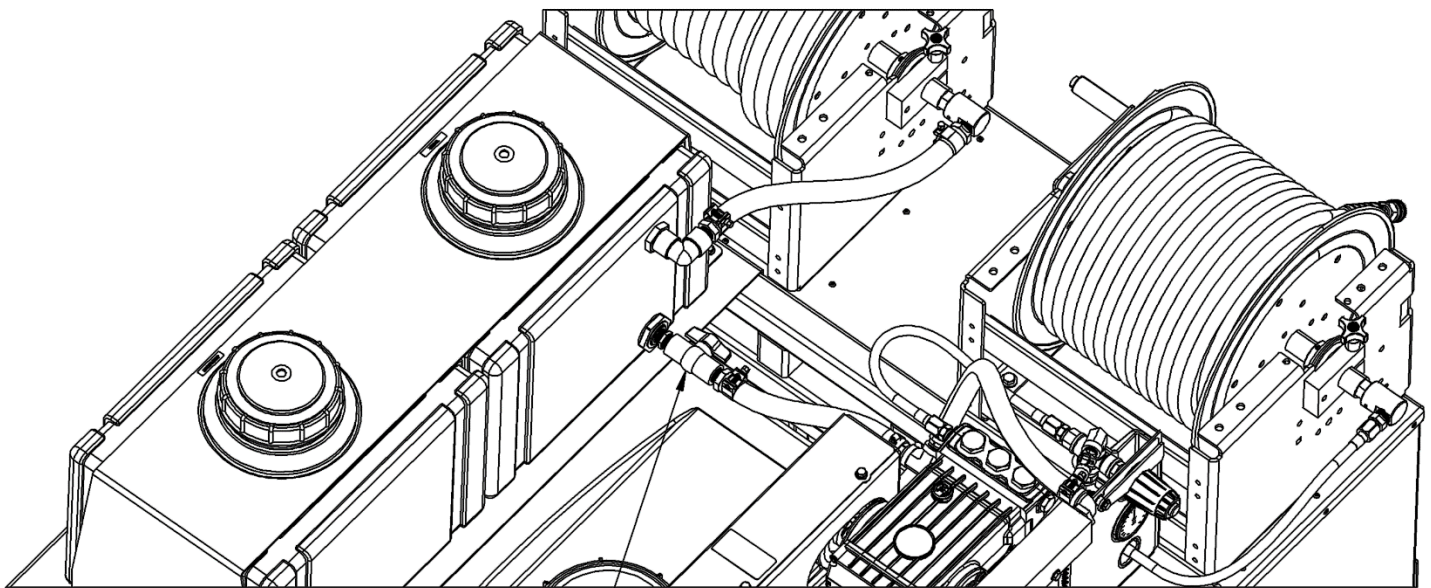
### ENGINE

1. Turn the fuel shut-off valve to the ON position.
2. Turn the ignition to the ON position.
3. Set throttle control about halfway between slow and fast.
4. For a cold engine, place the choke control to the ON position. A warm engine may not require choke on.
5. Activate ignition switch and release as soon as engine starts.
6. Return choke control to the OFF position, gradually if cold, when the engine has warmed up.
7. Set throttle to full speed to benefit from the full flow of the pressure pump. Throttle control has been adjusted at the factory for optimal pump operation.

### PRIMING THE PRESSURE PUMP

**NOTE:** The pressure pump must be primed whenever the unit is shut down and/or when there is no flow with the unit running and valves open. Do not run the unit with no flow to the pressure pump.

1. The water level in the water box must be past the bypass port.
2. Turn the valve on the bypass port ON\* (parallel with the valve body).
3. Trigger your spray tool until you see flow going to the pressure pump.
4. Turn the valve on the bypass port OFF (perpendicular to the valve body)




### WATER BYPASS VALVE

\*The bypass valve is shown in the ON position in this diagram.

## OPERATION

After you have completed the previous steps, proceed with operation.

1. Open the water metering valve fully.
2. Start the unit.
3. Prime the pressure pump.
4. Adjust your water and bleach valves to the desired levels.
5. While triggering the spray tool, adjust the surfactant to the desired level using the valve on the flowmeter.
6. Adjust pressure using the pressure regulator.

 **WARNING!** Do not change spray tools while the unit is operational. Solution will discharge at full pressure from hose without the spray tool installed. Only change nozzles while the engine is running. Exposure of sodium hypochlorite to exposed areas of the body, ingestion, and inhalation of chlorine gasses can result in injury. Contact poison control or emergency services in your area immediately if improper exposure occurs.

## CHEMICAL CONCENTRATIONS

Start with full strength (12.5%) Sodium Hypochlorite in the bleach tank. Bleach tank capacity is 110 gallons.

Typical roof cleaning applications require a 3% bleach concentration in the solution. However, the strength should be adjusted as needed, never exceeding 5%. Stronger concentrations will have a greater chance of damaging surrounding plant life and delicate substrates.

If moss is present, it should be lightly brushed to remove most of the growth and air-blown from the roof before applying cleaning solution.

- 1. SHINGLE ROOFS - ORGANIC STAINING (ALGAE, MOSS, LICHENS)**
  - a. Sodium Hypochlorite: 3% (open bleach metering valve halfway)
  - b. WashTec: 2 gallons per hour (see flowmeter gauge)
  - c. Water: open water metering valve fully
- 2. SHINGLE ROOFS - INORGANIC STAINING (DIRT, GRIME, COBWEBS)**
  - a. Sodium Hypochlorite: 3% (open bleach metering valve halfway)
  - b. DirtTec: 2 gallons per hour (see flowmeter gauge)
  - c. Water: open water metering valve fully
- 3. SIDING - ORGANIC STAINING**
  - a. Sodium Hypochlorite: 1-1.5% (open bleach metering valve 1/4 of the way)
  - b. WashTec: 2 gallons per hour (see flowmeter gauge)
  - c. Water: open water metering valve fully
- 4. WOOD SURFACES - ORGANIC STAINING**
  - a. Sodium Hypochlorite: 1-1.5% (open bleach metering valve 1/4 of the way)
  - b. WoodTec: 2 gallons per hour (see flowmeter gauge)
  - c. Water: open water metering valve fully
  - d. After cleaning, apply Neutra-Tec bleach neutralizer and rinse with fresh water

## SECTION THREE: OPERATION

### 5. CONCRETE, PAVERS, BRICK - ORGANIC STAINING

- a. Sodium Hypochlorite: 3% (open bleach metering valve halfway)
- b. WashTec: 2 gallons per hour (see flowmeter gauge)
- c. Water: open water metering valve fully

### 6. NEUTRALIZING SURFACES AND EQUIPMENT AFTER CLEANING

- a. Sodium Hypochlorite: OFF
- b. NeutraTec: 2 gallons per hour (see flowmeter gauge)
- c. Water: open water metering valve fully

If using a pump-up sprayer, mix at 8 oz. per gallon.

For flushing equipment, turn water to 90% on, sodium hypochlorite off and chemical flow meter to 2 GPH. Trigger the wand for 1-2 minutes to neutralize the cleaning solution in the system components.

### 7. CONCRETE - GREASE AND OIL

Do not use ConTec with Sodium Hypochlorite. If the surface has been previously cleaned with Sodium Hypochlorite, rinse thoroughly with fresh water first.

Apply ConTec with a pump-up sprayer at the following dilutions:

- Light cleaning: mix 1-4 oz. per gallon of hot water.
- Medium cleaning: mix 4-8 oz. per gallon of hot water.
- Heavy cleaning: mix up to 32 oz. with hot water to make 1 gallon.

Rinse with fresh water after 10 minutes of dwell time.

### 8. OXIDATION - VINYL SIDING, ALUMINUM SIDING, GUTTERS

Apply OxiTec with a pump-up sprayer at the following dilutions:

- Vinyl and metal siding: mix 1 gallon to 4 gallons water
- Gutters: mix 1 gallon to 2 gallons water
- Metal roof restoration: mix 1 gallon to 1 gallon water

Heavy oxidation may require a light brushing. Rinse thoroughly afterward.

### PRESSURE GAUGE

Solution pressure is set by adjusting the pressure regulator valve on the control panel. Normal settings are as follows:

- 150 PSI for sodium hypochlorite close range cleaning or near glass or other delicate substrates.
- 500 PSI for sodium hypochlorite longer range roof cleaning.
- UP TO 2500 PSI maximum for pressure washing.

**NOTE:** Pressure will not build while the spray tool is wide open. When adjusting the pressure, leave the tool closed until desired pressure is achieved. Momentary pressure drops are a normal part of the pressure regulator operation to avoid pressure spikes and damage to the equipment.

### SURFACTANT FLOW METER

The flow meter reads the flow rate from the surfactant tank (or accessory tank) between 2 -10 gallons per hour (GPH) while the chemical is being drawn. Use the dial on the flow meter to adjust the flow ratio.

## **SHUT DOWN AND DAILY MAINTENANCE**

1. Turn on the water bypass valve and flush out the system with fresh water to remove any chemical residue.
2. Set the engine throttle lever to the slowest position.
3. Turn the ignition switch to the OFF position to turn off the unit.
4. Turn the water supply faucet off. Loosen the water supply hose at the water supply to bleed off any pressure. Unhook the water supply hose and return it to the hose reel.
5. Trigger the spray tool. This will relieve any remaining pressure. Disconnect the spray tool and return the solution hose to the hose reel. Never disconnect the spray tool before relieving the pressure in the system.
6. At the end of the day, clean the unit, tools, hoses etc., as needed. Inspect ALL equipment and accessories for any damage, leaks, wear, etc.

## **FREEZE PROTECTION**

If the unit is exposed to freezing weather conditions, the water and chemicals 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. If possible, always store the unit in a heated building when not in use in cold weather.
2. If you must use the unit in freezing temperatures, avoid long periods of shut down as the unit generates heat while running. Keep the unit running just prior to leaving for the next job. Extended travel between jobs could freeze the unit.
3. If a heated building is not available, winterize the unit with anti-freeze and cover the unit to keep it out of the elements as much as possible.

## **WINTERIZING THE UNIT WITH ANTIFREEZE**

1. It is recommended to disconnect the water supply hose from the water tank and blow the hose and reel out with compressed air. The hose may also be removed from the hose reel and stored in a heated location. You may still have water in the hose reel.
2. Attach a spray tool to the end of the solution hose.
3. Remove the cap from the water tank and add 1 gallon of antifreeze and 1 gallon of water (if empty) to create a 50/50 antifreeze mix. Leave the cap off the water box.
4. Turn the water tank bypass valve to the ON position.
5. Turn the water metering valve all the way on.
6. Make sure the bleach and surfactant metering valves are off.
7. Start the unit in low pressure and point the spray tool into the water tank. Trigger the spray tool and run for a minute or two after the antifreeze mix is circulating back into the water tank.
8. Turn off the unit. Trigger the spray tool one last time to remove any remaining pressure in the line. You may leave the spray tool connected or remove it for storage. There will be antifreeze in the hose that may run out if you choose to disconnect the tool.
9. It is recommended to vacuum any standing chemicals remaining in the other tanks and hoses.



## REMOVING ANTI-FREEZE FROM THE UNIT

1. Connect the water supply hose to the unit and to a fresh water source, turning it on. Alternatively, fill the water tank repeatedly and follow the steps below. Do not let the water tank run empty. With a full water tank:
2. Turn the water bypass valve to the ON position.
3. Connect a spray tool to the solution hose, if there is not one already connected.
4. Open the water metering valve all the way if not already open.
5. Start the unit in low pressure and trigger the spray tool into an approved disposal location or container to flush the antifreeze out of the system.
6. After all of the anti-freeze has been removed, turn the ignition switch OFF and trigger the spray tool to remove any remaining pressure. The unit is ready for normal operation.

### **WARNING!**

**DO NOT drain used anti-freeze on the ground or into storm drains.**

**Dispose of anti-freeze only in an approved location. Observe Local, State and Federal laws when disposing of anti-freeze.**

**XCS 500 MAINTENANCE CHART****DAILY MAINTENANCE**

Engine	Check engine oil level. Fill to proper level.
Engine	Inspect air intake and cooling areas, clean if required.
Pressure Pump	Check pump oil level. Fill to proper level.
Entire System	Rinse with fresh water at the end of each day when chemicals have been used.

**WEEKLY MAINTENANCE**

Visual Inspection	Check for leaks around the unit, check wires and hoses for wear.
Truck Bed	Inspect for debris in truck bed and clean as needed.
Battery	Check fluid level and battery terminals.
Float Valve	Inspect float valve in water tank for loose parts

**MONTHLY MAINTENANCE**

Engine	Check air cleaner for damaged, dirty or loose parts.
Engine	Inspect drive belts for wear. See Service Chart for regular service intervals.
Engine	Inspect fuel filter under fuel cap. Clean as needed. Replace if broken.
Entire System	Check fastener tightness on all components. Tighten as needed.

See detailed maintenance section for further recommendations.

## XCS 500 SERVICE INTERVAL CHART

### SERVICE INTERVALS – EVERY 25 HOURS

Hoses	Inspect hoses for wear, damage, or impending rupture. Replace if damaged.
-------	---

### SERVICE INTERVALS – EVERY 100 HOURS

Pressure Regulator	Lubricate o-rings. Use only o-ring lubricant (P/N 118154)
Belts	Check belts for wear and re-tension, check pulley alignment. (1)
Battery	Clean battery terminals.
Engine	Change engine oil. (4)(5)
Engine	Clean air cleaner element. (4)
Hose Reels	Check hose reel swivels for leaks. Replace seals and add grease if needed.

### SERVICE INTERVALS – EVERY 300 HOURS

Engine	Check/adjust valve clearances.
Engine	Replace engine air cleaner element.

### SERVICE INTERVALS – EVERY 500 HOURS

Pressure Pump	Change crankcase oil (2)
Engine	Replace spark plug and set gap. Use only OEM spark plugs.
Pulleys and Hubs	Check pulleys and hubs for proper fastener torque. (3)

### SERVICE INTERVALS – EVERY 1000 HOURS

Belts	Replace belts.
-------	----------------

To maximize the operating life and performance, use only recommended oils, filters and greases.

- (1) Re-tension belts after **first 25 hours**, then every **100 hours** of operation after.
- (2) Change water pump crankcase oil after **first 50 hours** of operation, then **every 500 hours**.
- (3) Check pulley and hub set screws after **first 50 hours** of operation, and again at **100 hours** of operation.
- (4) Or **yearly**, whichever comes first.
- (5) Change engine oil after **first 5 hours** of operation, then **every 100 hours**.

## MAINTENANCE AND SERVICE ADJUSTMENTS

This section of the operator's manual contains service and maintenance information. A planned preventative maintenance program will ensure that this unit has optimum performance, long operating life, and a minimum amount of down time.

 **WARNING**

**DO NOT** attempt to service this unit while it is running. High speed parts as well as high temperature components may result in severe injury, severed limbs, or fatality.

**NOTE:** Refer to the hour meter as a guide for coordinating a maintenance schedule.

**ENGINE AND DRIVE BELTS**

- **Check engine oil daily.** Ensure that the proper oil level is maintained. Never overfill.
- Change the oil after the **first 5 hours** of operation. Thereafter, change the oil and filter **every 100 hours** of operation, or annually, whichever comes first.
- Use high-quality oil of at least API (American Petroleum Institute) service class SG or higher. **Do not use additives.** High quality 10W-30 oil is recommended. It is never recommended to extend oil change intervals past 200 hours.

Engine Oil Capacity	1.1 L 1.16 US qt.
---------------------	----------------------

**NOTE:** Using lower service class oil or extending oil change intervals longer than recommended can cause engine damage.

- Inspect the air intake and hot areas **daily** for debris and dirt build-up. Clean as needed.
- Check the engine air filter element **monthly** for dirt, debris and damage and clean or replace as needed or **every 100 hours** as part of regular service. Replace the air filter element **every 300 hours**.
- Inspect drive belts monthly. After the first 25 hours of operation, re-tension drive belts. Then **every 100 hours**, re-tension, and check pulley alignment. Check pulley fastener torque **every 500 hours**, then **every 1000 hours**, or as needed, replace the drive belts.
- Inspect the fuel filter under the fuel tank cap for dirt or damage **monthly**. Clean or replace as needed.
- Check/adjust valve clearances every 300 hours. **Valve clearance adjustment should be performed only by an authorized service center.**
- Replace the spark plug every **500 hours** of operation. Use only OEM specified spark plugs.

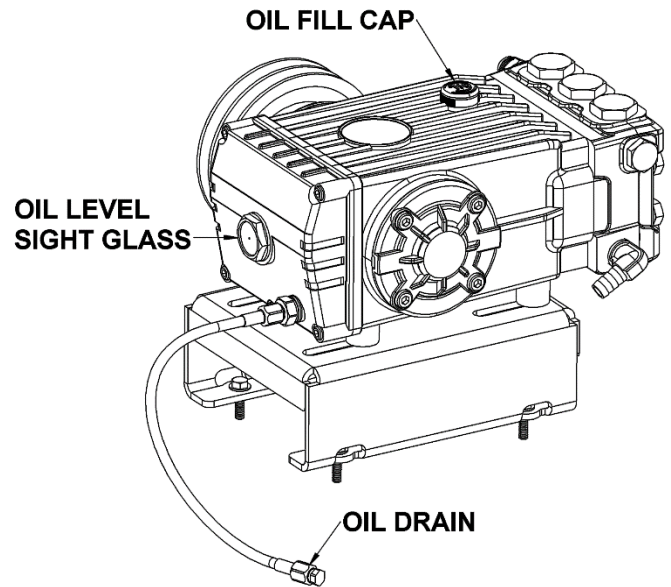
Torque Values	
Engine Crankshaft / Pump Pulley	16 lbf·ft

**NOTE:** Additional engine service information can be obtained from the manufacturer's Operation and Maintenance manual. If service or repair is required, contact an authorized service center. They will require the serial number of the engine.

## PRESSURE PUMP

- Check the crankcase oil level **daily** to ensure the proper level. If the level has dropped, check for the source of leakage and repair.
- After the **first 50 hours** of operation, change the crankcase oil using Industrial Pump Oil, (P/N 118449). Change the crankcase oil **every 500 hours** thereafter.
- Check pulley fastener torque **every 500 hours**.

Pump Oil Capacity	40.6 oz
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## HOSE REEL SWIVELS

Check the hose reel swivels **every 100 hours** or on a regular basis as part of normal unit maintenance, for leaks or bearing wear. Standard moly-lithium grease is recommended for the swivels.

Replace the o-ring and backup ring seals as needed. To replace the seals, remove the swivel from the hose reel. Use a large adjustable wrench to loosen the stem from the body and separate them. The ball bearings will come out loose when you open the body, be sure to have a rag or container to catch them. Remove the grease zerk fitting from the body and set aside. Use a pick to remove the o-ring and backup ring from the stem. Replace with new seals and insert the stem back into the body, lining up the ball bearing groove with the hole where the grease zerk inserts. Carefully insert ball bearings into the hole and turn the stem until all the ball bearings are in place. Insert the grease zerk fitting and tighten. Use a hand-held grease gun. Dispense one to two pumps of grease gently into the grease fitting until you feel resistance. Wipe off excess grease and finish threading the stem back into the body.

## DRIVE BELT REPLACEMENT

1. Disconnect the negative battery cable.
2. Remove belt guard cover.
3. Loosen the four screws under the pump mount that hold the pump in place.
4. Adjust the position of the belt tensioning adjustment bolt until the belts are loose enough to slide off.
5. Install new belts.
6. Adjust the position of the belt tensioning adjustment bolt until the proper belt tension is achieved ( $1/2''$  deflection in the center of the belt, half way between the pulleys).

**NOTE:** Do not over tighten; damage to pump may occur.

7. While checking the alignment, tighten the screws that hold the water pump to the base.
8. Replace the belt guard cover.
9. Reconnect the negative battery cable.

## ONLY USE GATES EPDM BELTS

**METERING SYSTEM**

Inspect the valves for signs of leaks once or twice a year. Ball valves do not require regular maintenance with normal operation. If a valve is leaking, a spare parts seal set can be obtained for items 8-11, George Fischer part number 161 486 410.



1. Valve body
2. Seat carrier
3. Valve end
4. Valve nut
5. Ball
6. Stem
7. Seat
8. Backing seat
9. Body seal
10. Face seal
11. Stem seal
12. Handle
13. Handle clip
14. Mounting insert
15. Indicator insert
16. Index plate

## PRESSURE REGULATOR

The pressure regulator holds water pressure at a preset point and bypasses the excess water.

### To adjust:

With the unit running, with the cleaning tool valve closed, the pressure gauge should read 0. With the tool valve open, adjust the pressure by turning the adjusting knob so that the pressure gauge reads between 0 - 2500 PSI.

### WARNING

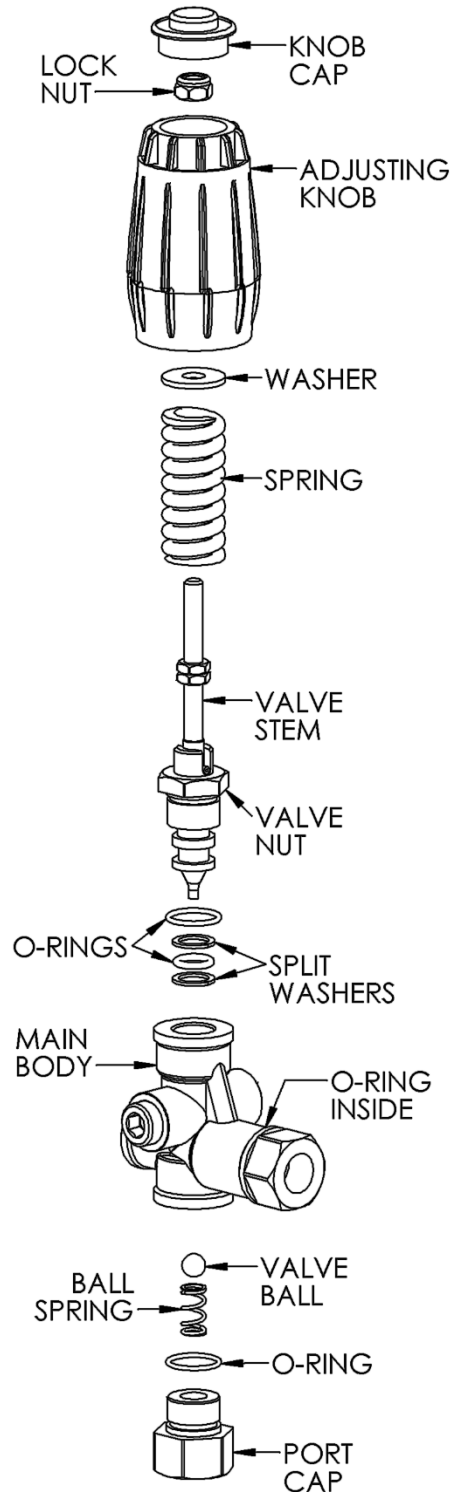
**DO NOT** loosen the adjusting body (cap) all the way (counterclockwise) or remove it while the unit is running.

Lubricate the o-rings in the pressure regulator **every 100 hours**.

Use only o-ring lubricant (Part #13-003).

If you do not, the stem may become seized due to inadequate lubrication. If this occurs:

1. Shut down the unit.
2. Relieve all pressure from the water system.
3. Loosen the valve nut and remove the valve stem with long nose pliers.
4. Clean and lubricate stem.
5. Reassemble pressure regulator.
6. Check the port cap o-rings for proper lubrication as well.





## BATTERY

Before disconnecting the negative (-) ground cable, ensure that all switches are in the OFF position. If ON a spark could occur at the ground connection terminal, which could cause an explosion if hydrogen gas or gasoline vapors are present. ALWAYS disconnect the negative (-) terminal first.

- If you do not have a maintenance free sealed battery, check the fluid level in the battery at least **once a week**. If low, fill to the recommended level ONLY with distilled water. DO NOT overfill the battery. Early failure or poor performance will result due to loss of electrolyte.
- Keep cables, terminals and external surfaces of the battery clean and dry. A buildup of corrosive acid or grime on the external surfaces could cause the battery to self-discharge.
- Battery terminals should be cleaned **every 100 hours** to prevent corrosion buildup. Wash the cables, terminals and external surfaces with a mild baking soda and water solution. Rinse thoroughly with fresh water. DO NOT allow baking soda to enter the battery cells, as this will destroy the electrolyte, resulting in battery failure.

### **WARNING!**

Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries also produce explosive hydrogen gases while charging. To prevent fire or explosion, charge batteries only in a 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.

## HIGH PRESSURE SOLUTION HOSES

Inspect your high-pressure solution hoses for wear after the **first 100 hours**. Thereafter, inspect **every 50 hours**. If the hoses show any signs of damage or impending rupture, replace the hoses.

### **WARNING!**

**NEVER attempt to repair high-pressure solution hoses. Repairing high-pressure solution hoses may result in severe burns and serious injury.**

**All high-pressure solution hoses must be rated for 3000 PSI at 250 deg. F. Thermoplastic hoses do not meet this requirement and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.**

## TROUBLESHOOTING

### WARNING!

**DO NOT attempt to service this unit while it is running. High-speed parts as well as high temperature components may result in severe injury, severed limbs or fatality.**

This section of the operator's manual describes how to look for and repair malfunctions, which may occur. Accurate troubleshooting is based on a thorough and complete understanding of the systems featured in this unit. If there are malfunctions occurring on this unit which you do not understand, contact customer service, or see an authorized technician for help.

## ENGINE TROUBLESHOOTING

### ENGINE WILL NOT START

PROBABLE CAUSE	SOLUTION
Fuel is shut off.	Slide the fuel shut-off lever to the on position.
No fuel.	Add fuel to the fuel tank.
Dirt in the fuel line.	Clean/replace fuel line.
Loose or corroded battery connections.	Clean, tighten or replace the battery terminals.
Dead battery.	Recharge or replace battery
Defective wiring.	Check power from battery to engine. If battery has power but there is no power to the starter, replace wiring.
Defective ignition switch.	Test ignition switch for power going into the switch. If there is power going in, but none coming out, replace the switch.
Defective starter motor.	Test the starter motor. Replace if necessary.
Incorrect oil level.	Correct oil level.
Dirty air cleaner.	Check, clean/replace air cleaner element.
Faulty spark plug.	Replace spark plug.

### ENGINE PERFORMANCE/SOUNDS ABNORMAL OR STOPS SUDDENLY

PROBABLE CAUSE	SOLUTION
Improper fuel or low fuel.	Remove improper fuel or fill fuel tank.
Dirt in fuel line.	Clean/replace fuel line.
Blocked air intake.	Clean air intake areas.
Incorrect oil level.	Correct oil level.
Dirty air cleaner.	Clean/replace air cleaner element.
Faulty spark plug.	Replace spark plug.
Angle of operation too steep.	Maximum angle of operation is 25 degrees.
Engine malfunctioning.	Refer to manufacturer's operation and service manuals.

## PRESSURE PUMP TROUBLESHOOTING

### LOSS OF SOLUTION PRESSURE (TOOL OPEN, GAUGE READS LOW)

PROBABLE CAUSE	SOLUTION
Water pump supply lines plugged or drawing air.	Examine all lines and filters along the supply paths and through the console. Remove debris and replace if required. Check for leaks and loose clamps or fittings. Tighten any loose fittings or clamps. Replace any ruptured hoses.

## SECTION FOUR – SERVICE AND MAINTENANCE

Improper pressure pump speed.	Using a tachometer, check the pump speed. With full throttle on the engine, pressure pump speed is 1750 RPM.
Pressure regulator o-rings are dry and/or worn. See instructions on regulator.	Check o-rings. Lubricate and/or replace as needed, using o-ring lubricant.
Pressure regulator is dirty, stuck open, or improperly adjusted. See instructions on regulator.	Clean or repair regulator. Adjust to working pressure. Lubricate o-rings, using o-ring lubricant.
Low pressure pump volume.	Examine the check valves, plunger cups, and cylinder head on the pressure pump. Repair, whenever required (refer to the pressure pump service manual).
Defective pressure gauge.	Replace gauge.
Nozzle being used with the tool is worn, defective or wrong size.	Replace nozzle or change nozzle size.
Debris clogging lines.	Clean or replace as needed.
Belts loose or broken.	Re-tension or replace as needed.
Loss of pressure pump prime.	Check for water in water tank, open bypass valve and re-prime pressure pump.

### LOSS OF SOLUTION VOLUME AT TOOL (GAUGE READS NORMAL)

PROBABLE CAUSE	SOLUTION
Plugged nozzle in the tool.	Unplug or replace nozzle.
Fitting or hose between the gauge and tool is clogged, damaged or kinked.	Inspect the line to the hose reel and the pressure hose, clean or replace as needed.
Defective quick-connect on the pressure hose.	Replace defective quick-connect on pressure hoses.
Cleaning tool valve is malfunctioning.	Repair or replace valve.

## CONTROL/MIXING SYSTEM TROUBLESHOOTING

### FLOW METER INDICATES FLOW WITH TOOL VALVE CLOSED

PROBABLE CAUSE	SOLUTION
External leak in chemical piping.	Tighten or replace fittings. Re-apply thread sealant where required.
Check valve is full of debris or damaged, not allowing it to close properly.	Close the chemical valve on the instrument panel. If the flow meter does not indicate flow, remove debris or replace check valve, if necessary.

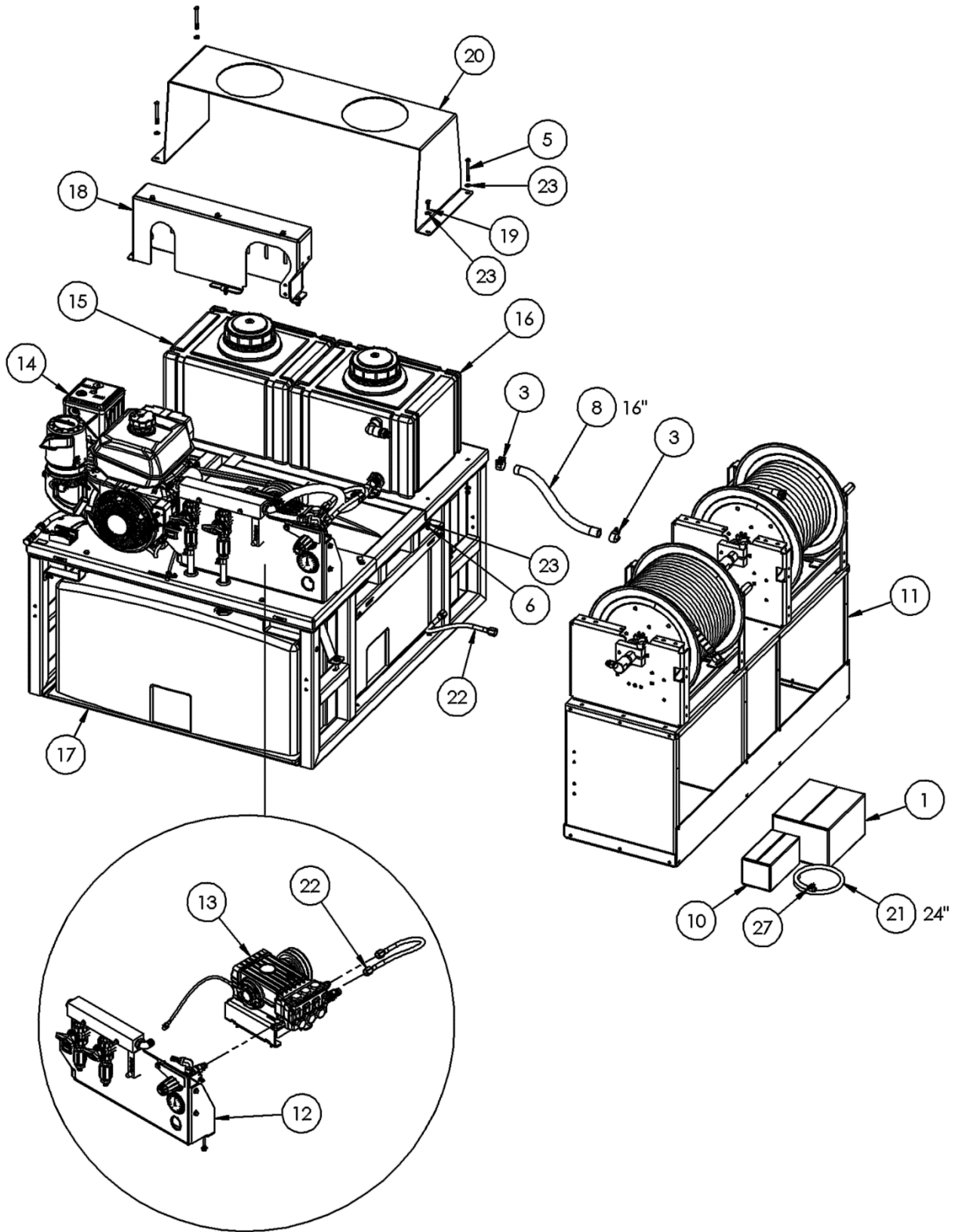
### LOSS OF FLOW FROM CHEMICAL TANKS

PROBABLE CAUSE	SOLUTION
One or more of the tanks is empty or low.	Check volume levels in tanks. Fill as needed.
Loss of prime in pressure pump.	Check for water in water tank, open bypass valve and re-prime pressure pump.
Accessory valve in wrong position.	Turn accessory valve to the required position.
Suction leak/clog in one of the inlet lines.	Inspect inlet lines and fittings for flow, leaks or damage.
Valve clogged or leaking.	Inspect metering valves for clogging, or damaged seals. Clean, repair or replace as needed.
Defective cylinder in the pressure pump.	Measure the pump volume. If the pump volume is less than normal, refer to Pressure Pump Troubleshooting in this section.

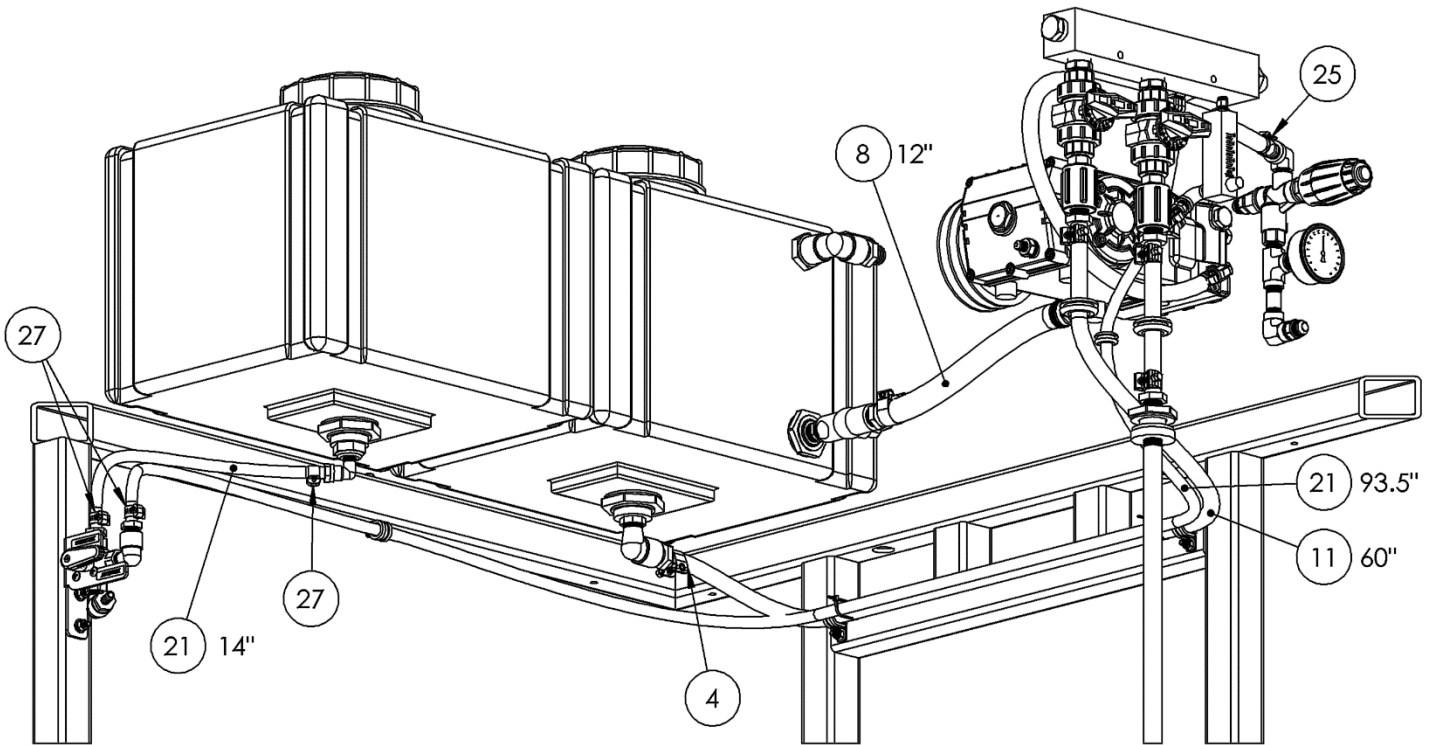
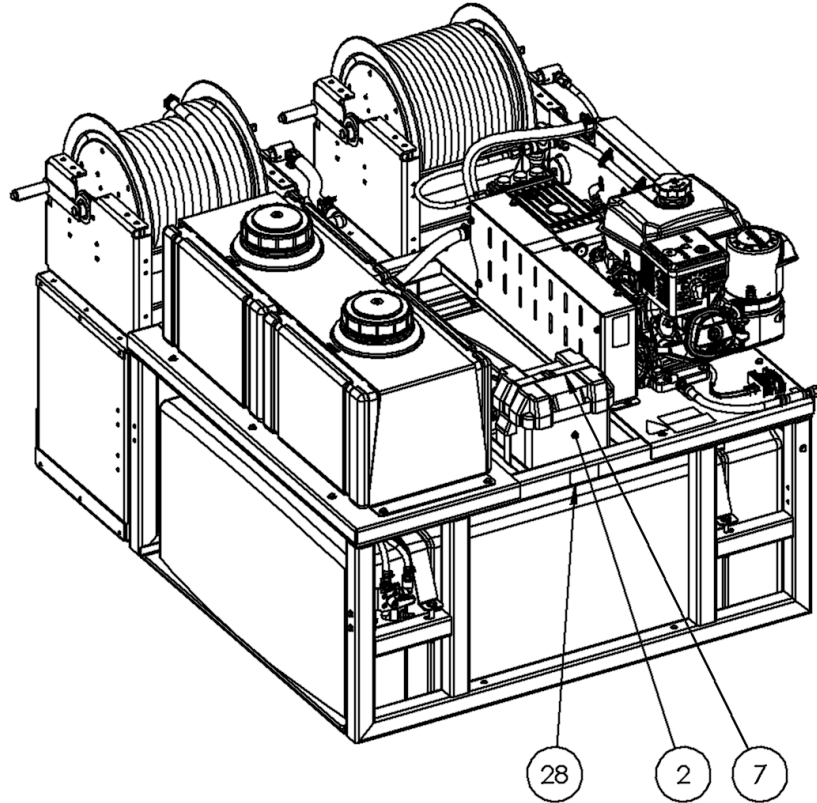
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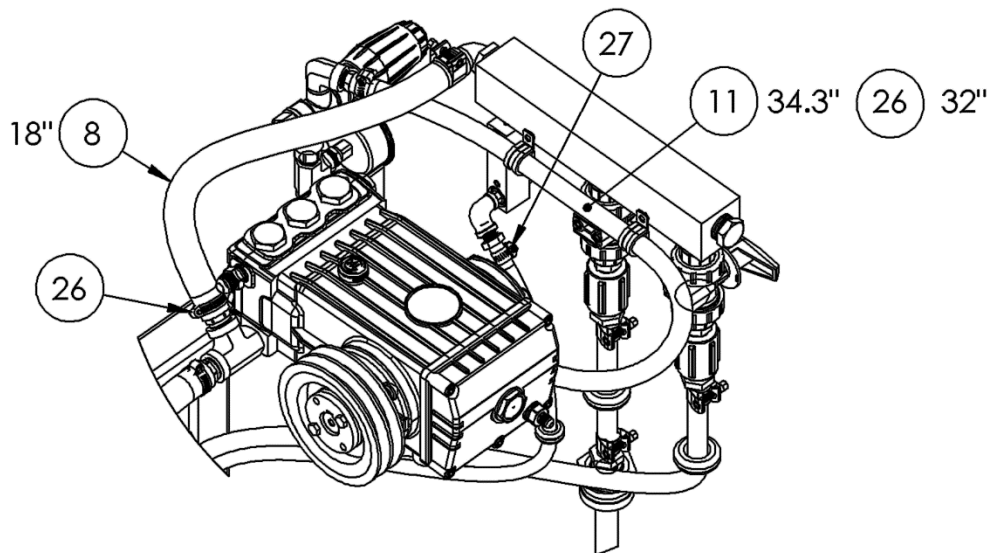
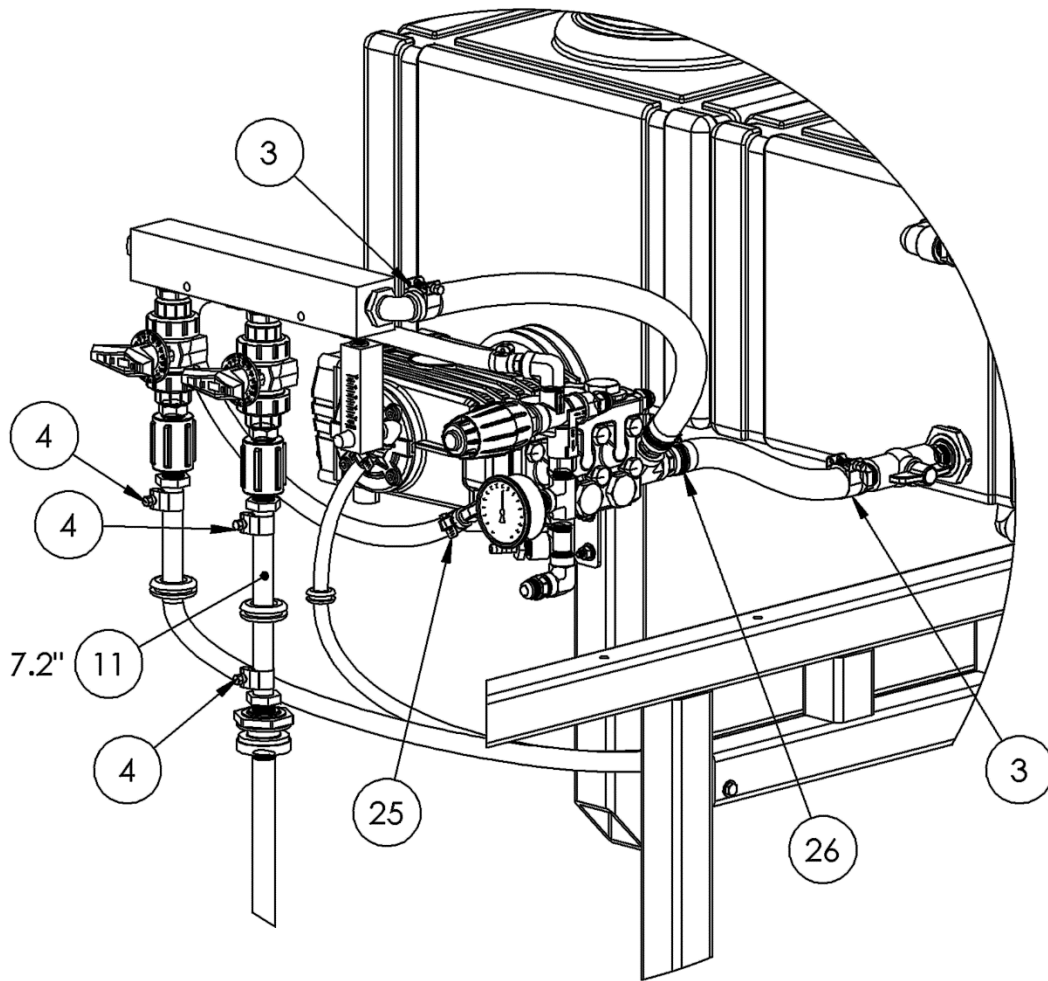
SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125224 XCS 500 TOP LEVEL BREAKDOWN 1 OF 3



SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125224 XCS 500 TOP LEVEL BREAKDOWN 2 OF 3



125224 XCS 500 TOP LEVEL BREAKDOWN 3 OF 3

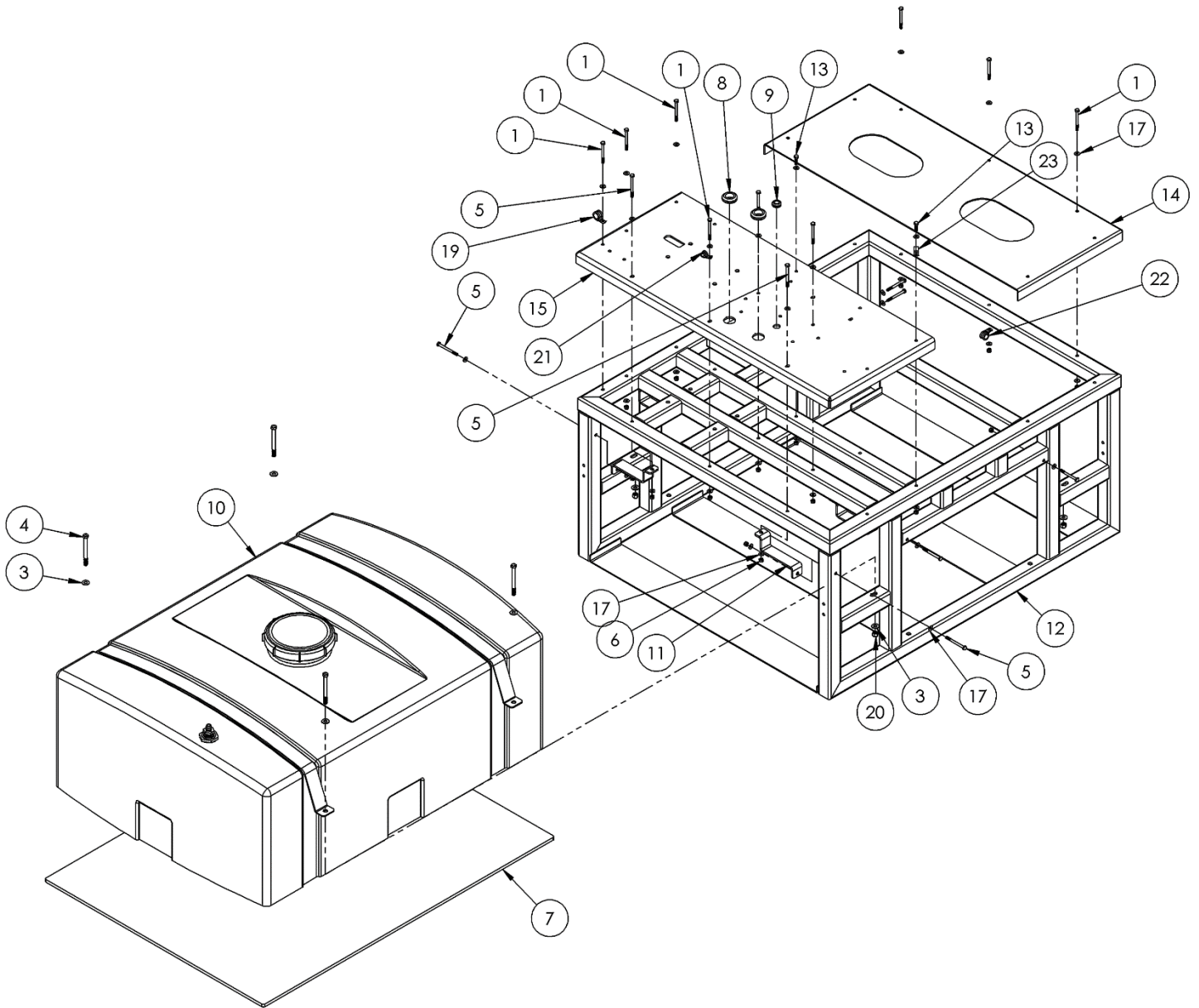


**SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS**  
**125224 XCS 500 TOP LEVEL BREAKDOWN TABLE**

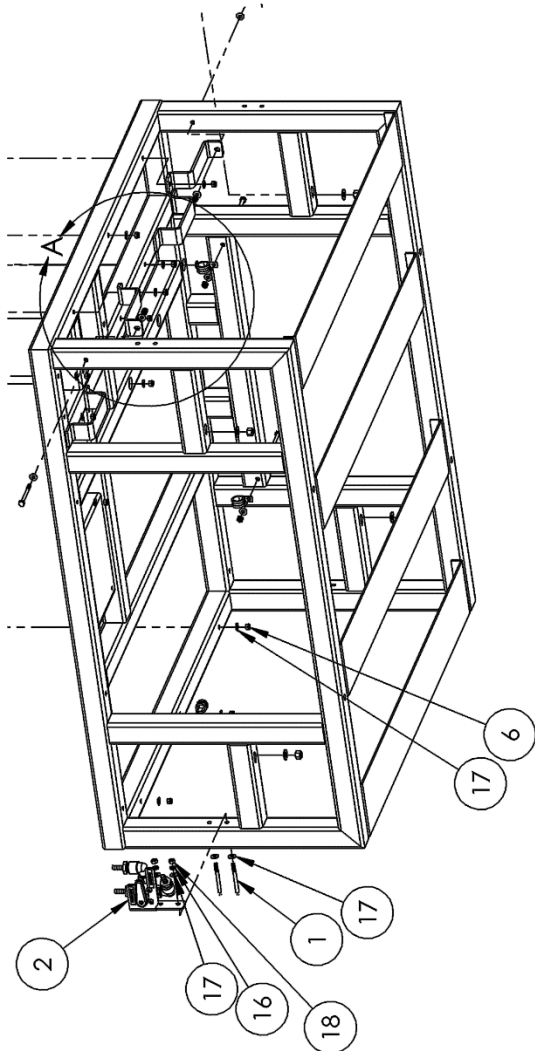
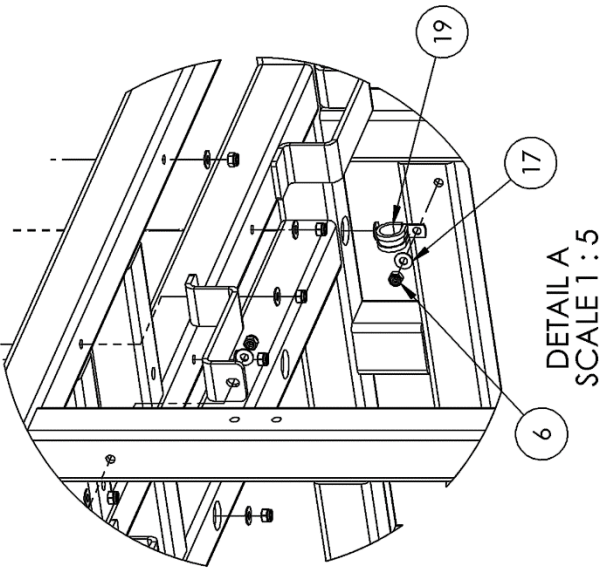
1	EA	125237	HARNESS, DEMAND PUMP
1	EA	125236	HARNESS BATTERY CABLE
QTY	U/M	PART NO.	DESCRIPTION
<b>ITEMS NOT SHOWN IN DRAWING VIEWS</b>			
1	36	125529	PALLET, 55 X 63 XCS 500
1	35	125530	PALLET BOX, 55X63X48
2	34	116049	TIE, WIRE 6 IN BLACK
1	33	103415	DECAL, ENGINE OIL DRAIN
3	32	104269	DECAL, WARNING ROTATING MACHINERY
1	31	113596	DECAL, CO DANGER TRIANGLE
1	30	103433	DECAL, WARNING CA PROP 65
1	29	114169	DECAL, WARNING, USE IN WELL VENTILATED AREA
1	28	103430	DECAL, SERIAL
5	27	103663	CLAMP, HOSE #4
2	26	110209	CLAMP, HOSE #16
2	25	110211	CLAMP, HOSE #8
32 IN	24	113135	SLEEVE, 1 ID WOVEN NYLON BLACK
8	23	116630	WASHER, FLAT 1/4 SS ANC
2	22	125702	HOSE, 1/2 ID X 08 FJIC X 20 OAL TEFLON W/304SS
11 FT	21	117497	HOSE, BRAIDED 5/16 IN 300FT CLR
1	20	124438	BAND, WATER BOX RETAINER
1	19	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
1	18	124807	ASSY, BELT GUARD
1	17	125226	ASSY, FRAME AND TANK
1	16	125228	ASSY, WATER TANK
1	15	125229	ASSY, SURFACTANT TANK
1	14	125230	ASSY, ENGINE XCS 500
1	13	125231	ASSY, PRESSURE PUMP XCS 500
1	12	125232	ASSY, CONTROL SYSTEM
1	11	125238	ASSY, HOSE REEL SYSTEM
1	10	125240	ASSY, INSTALL KIT
8.5 FT	11	125262	TUBING, 1/2 ID BRAIDED CLEAR
3.83 FT	8	125266	TUBING, 3/4 ID BRAIDED CLEAR
1	7	125268	STRAP, HOOK AND LOOP 1 X 48 IN
4	6	125495	LKNUT, 1/4-20 NYLOK SS
3	5	125496	SCREW, 1/4-20 X 3 HXHD SS
4	4	125618	CLAMP, BOLT 11/16-3/4 SS BAND
4	3	125619	CLAMP, BOLT 1-1/16-1-5/32 SS BAND
1	2	125643	BOX, GROUP U1 BATTERY HOLDER
1	1	125679	KIT, SPRAY TOOL COMPONENTS
QTY	ITEM	PART NO.	DESCRIPTION



SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125226 FRAME AND TANK ASSEMBLY VIEW 1 OF 2



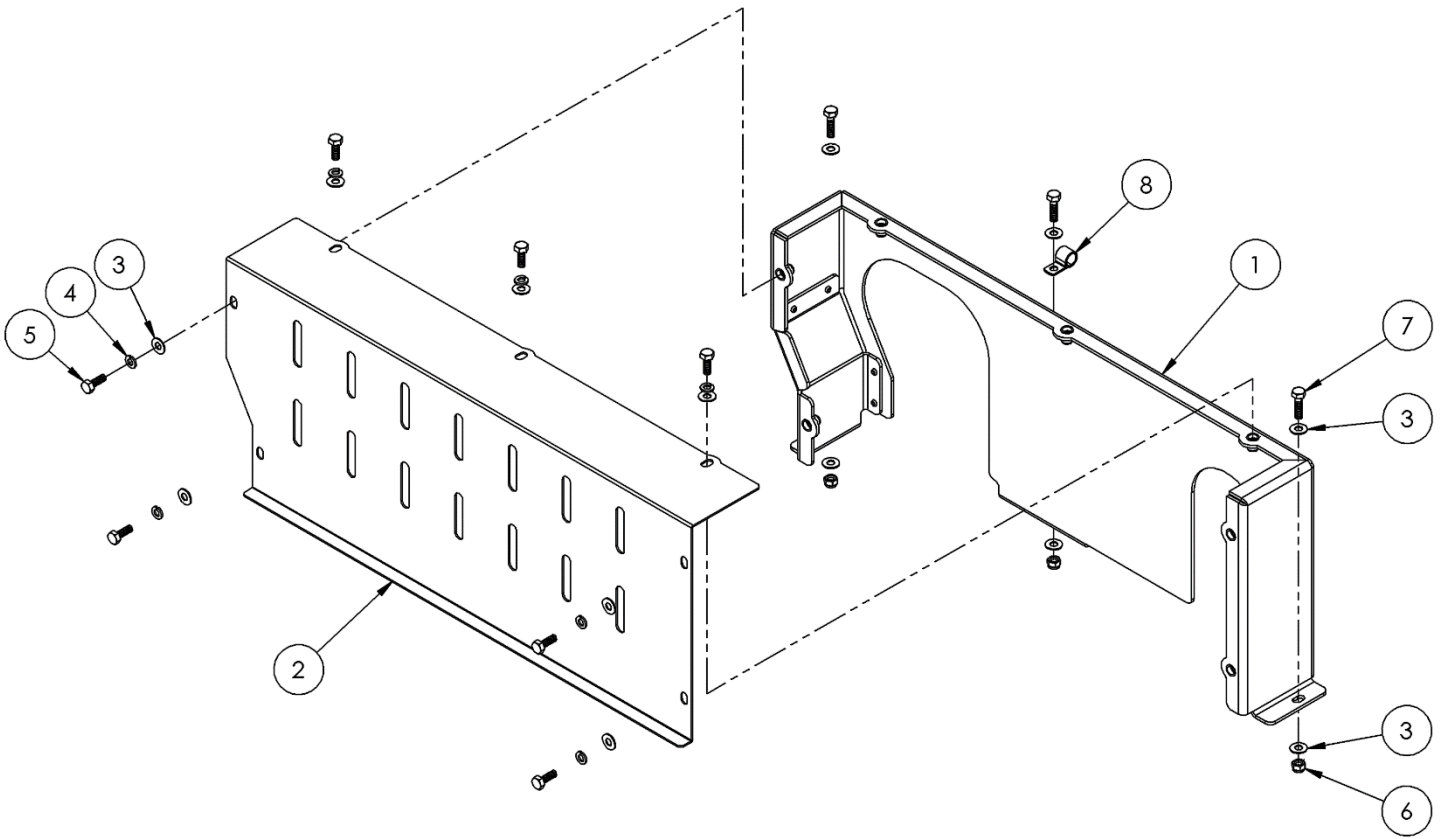
SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125226 FRAME AND TANK ASSEMBLY VIEW 2 OF 2



**SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS**  
**125226 FRAME AND TANK ASSEMBLY TABLE**

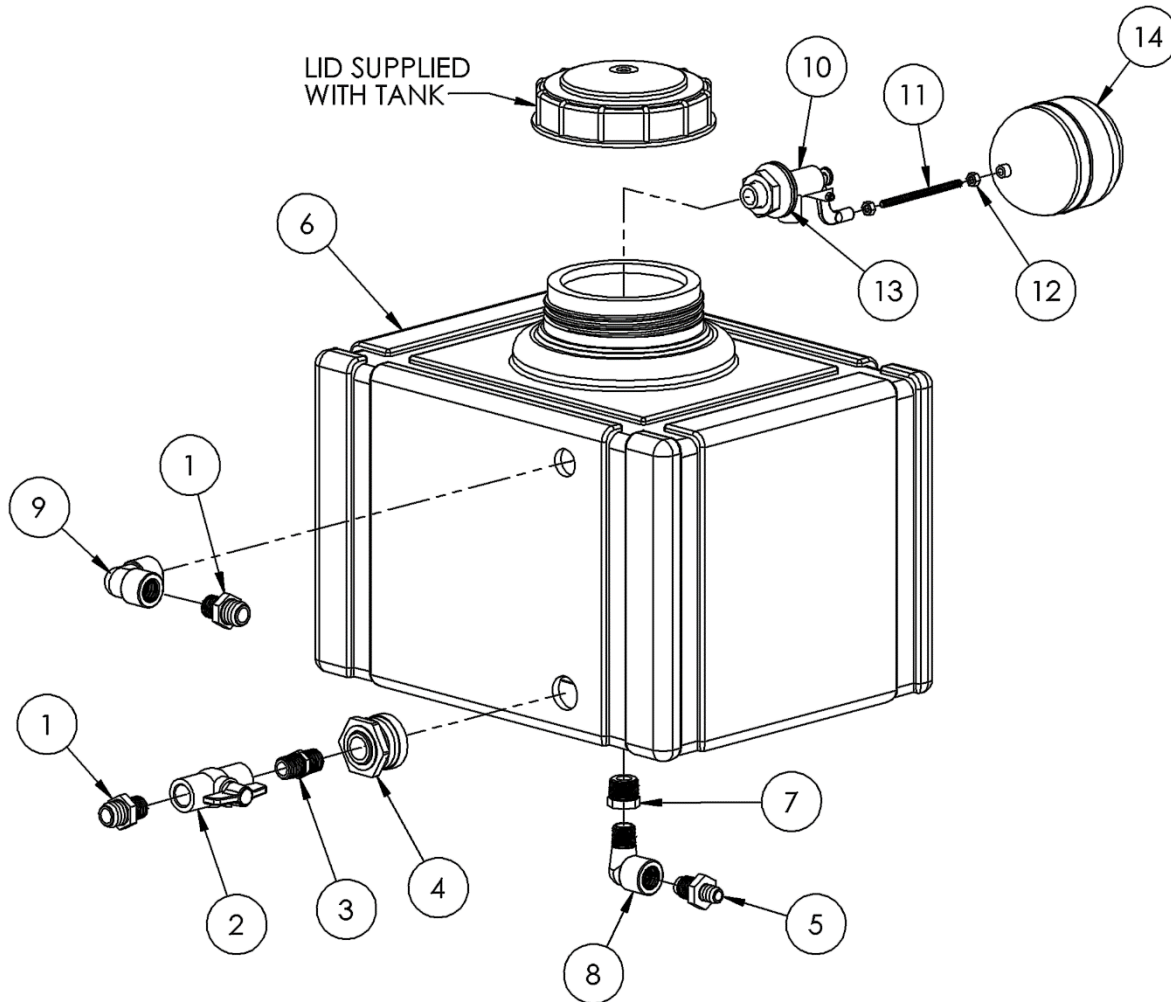
1	23	102680	CLAMP, 1/2 ID VINYL COVERED
1	22	102697	CLAMP,WIRE CUSHION 5/8 ID X 1/4 BOLT
1	21	102869	CLAMP,WIRE CUSHION 3/8 X 1/4 BOLT
4	20	109391	NUT, 3/8-16 NYLOK SS
3	19	110316	CLAMP,WIRE CUSHION 3/4 ID X 1/4 BOLT
2	18	111379	NUT, 1/4-20 SS
38	17	116630	WASHER, FLAT 1/4 SS ANC
2	16	118145	LKWSR, 1/4 IN SS
1	15	124237	PNL, ENGINE MODULE MOUNT
1	14	124436	PLT, WATER BOX MOUNT
2	13	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
1	12	124681	WMT, FRAME SOFT WASH
2	11	124698	PNL, FORK PCKT FRONT
1	10	125225	ASSY, BLEACH TANK
1	9	125269	GROMMET, .56 ID X .81 HL X .19 THK EPDM
2	8	125270	GROMMET, 1 ID X 1.38 HL X .19 THK SBR
1	7	125459	SHEET, FOAM TANK SUPPORT
17	6	125495	LKNUT, 1/4-20 NYLOK SS
4	5	125496	SCREW, 1/4-20 X 3 HXHD SS
4	4	125497	SCREW, 3/8-16 X 4 HXHD SS
8	3	125498	WASHER, FLAT 3/8 X 7/8 OD SS
1	2	125507	ASSY, ACCESSORY TANK VALVE
13	1	125579	SCREW, 1/4-20 X 2-3/4 HXHD SS
QTY	ITEM	PART NO.	DESCRIPTION

**SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS**  
**124807 BELT GUARD ASSEMBLY**



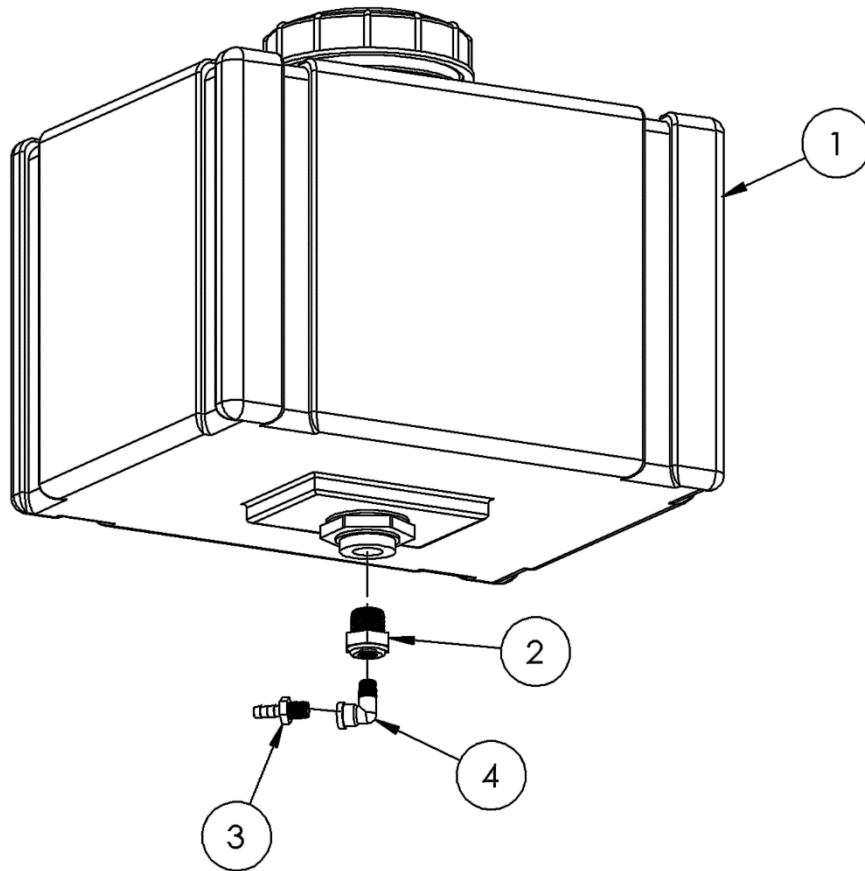
1	8	102680	CLAMP, 1/2 ID VINYL COVERED
3	7	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
3	6	125495	LKNUT, 1/4-20 NYLOK SS
7	5	125344	SCREW, MACH 1/4-20 X 3/4 HXHD SS
7	4	118145	LKWSR, 1/4 IN SS
13	3	116630	WASHER, FLAT 1/4 SS ANC
1	2	124806	PNL, BELT GUARD COVER
1	1	125227	ASSY, BELT GUARD BASE
QTY	ITEM	PART NO.	DESCRIPTION

SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
**125228 WATER TANK ASSEMBLY**



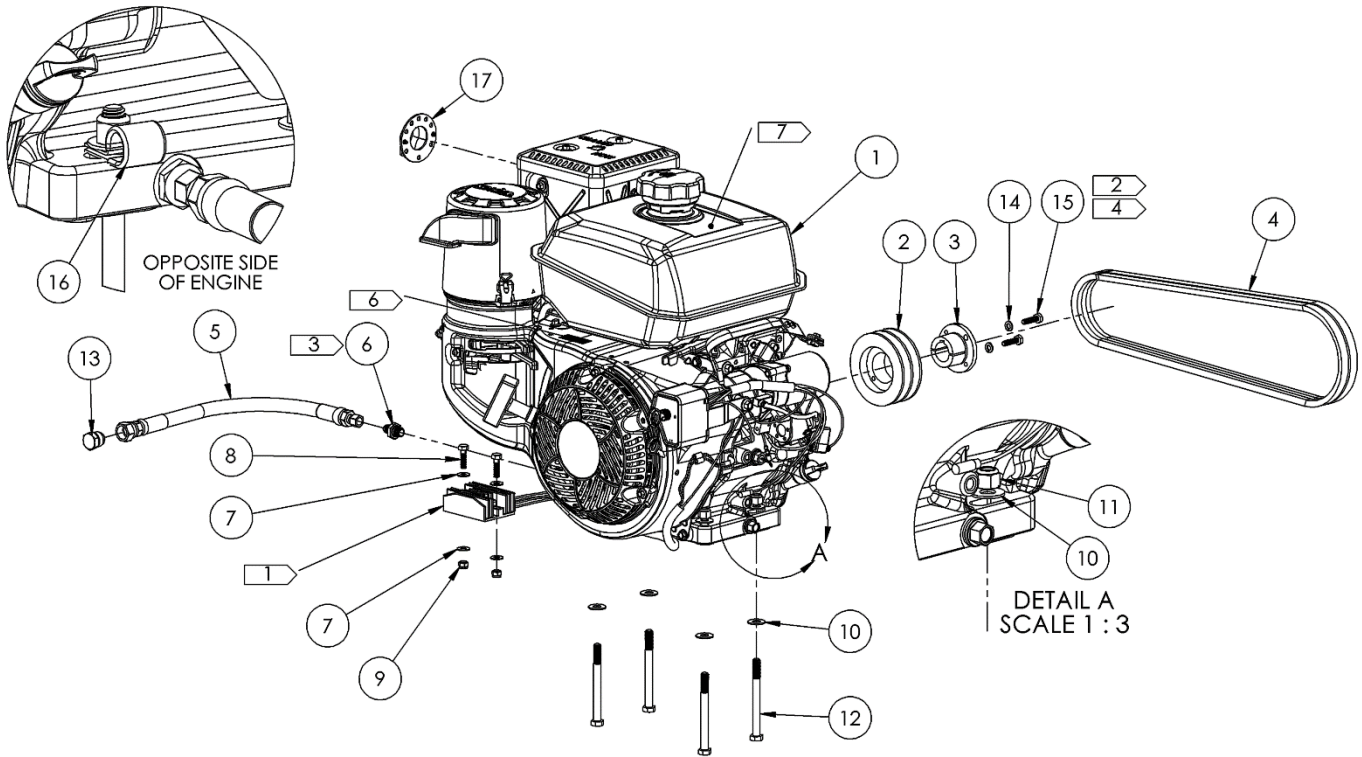
1	14	101329	BALL, FLOAT
1	13	105471	GASKET, 1.0 ID X 2.0 OD X 3MM NEOPRENE
2	12	111379	NUT, 1/4-20 SS
1	11	112031	ROD, FLOAT 1/4-20 X 4 IN LG 18-8 SS
1	10	116485	VALVE, FLOAT 1/2 NPT LEGEND
1	9	125253	ELL, 1/2 FNPT 90 DEG PP
1	8	125254	ELL, STREET 1/2 NPT PP
1	7	125273	BUSHING, 3/4 X 1/2 NPT PVC
1	6	125408	TANK, UTILITY 12 GAL W/LID
1	5	125414	FTG, BRB 1/2 MNPT X 1/2 H PP
1	4	125420	FTG, BULKHEAD 1/2 PP W-TPV GSKT
1	3	125524	NIP, HEX 1/2 NPT PP
1	2	125525	VALVE, BALL 1/2 FNPT PVC
2	1	125620	FTG, BRB 1/2 MNPT X 3/4 H PP
QTY	ITEM	PART NO.	DESCRIPTION

SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
**125229 SURFACTANT TANK ASSEMBLY**



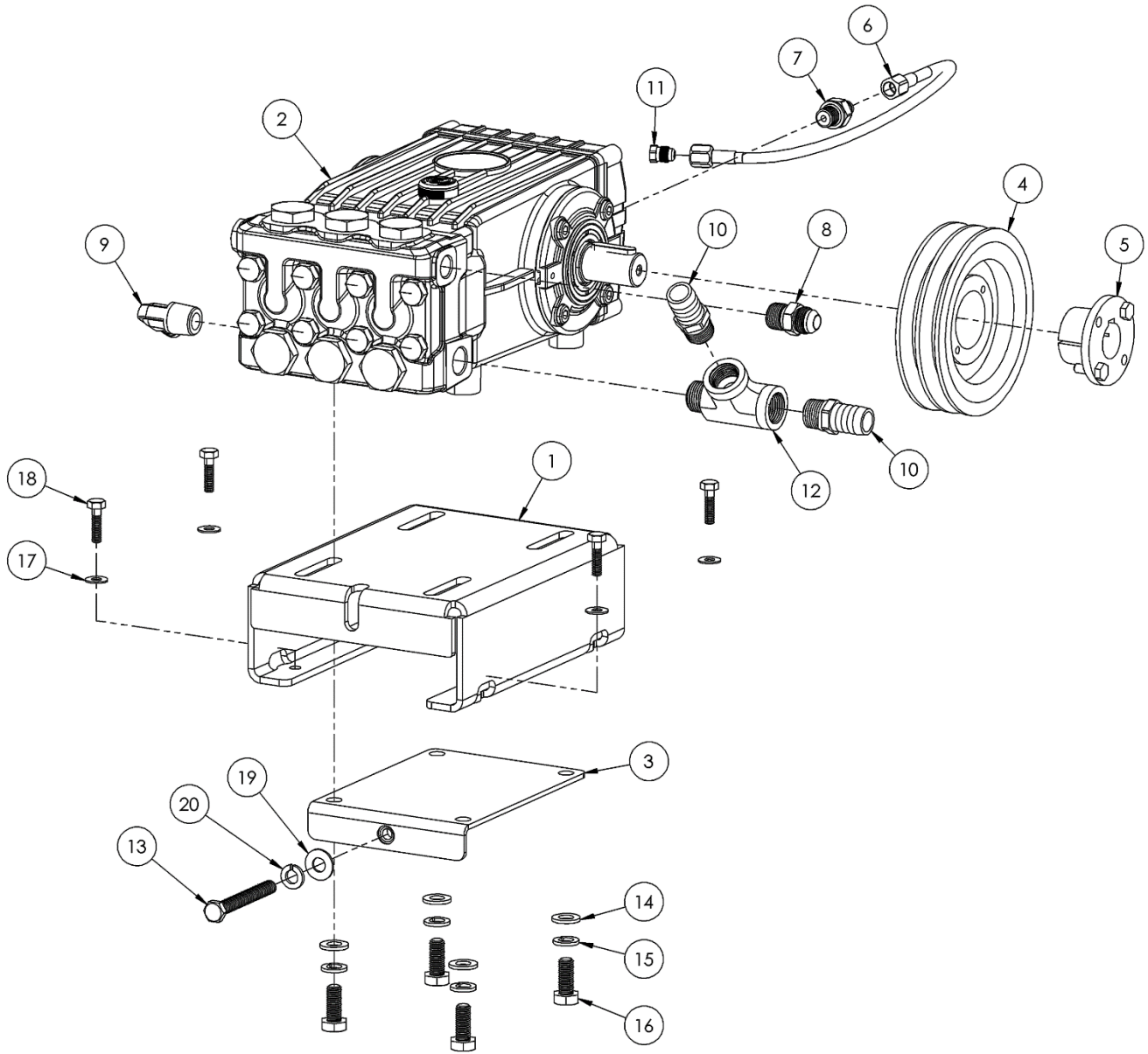
1	4	125257	ELL, STREET 1/4 NPT 90 PP
1	3	125278	FTTG, BRB 1/4 MNPT X 5/16 H PP
1	2	125415	BUSHING, 3/4 - 1/4 NPT PP
1	1	125408	TANK, UTILITY 12 GAL W/LID
QTY	ITEM	PART NO.	DESCRIPTION

SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
**125230 ENGINE ASSEMBLY**



1	17	125660	KIT, KOHLER PA-CH440 EXHAUST DIVERTER
1	16	102681	CLAMP, 1/2 VINYL COVERED 3/8 BOLT
2	15	124396	SCREW, MACH 1/4-20 X 1 HXHD YZ8
2	14	124461	LKWSR, 1/4 ZINC
1	13	110900	PLUG, 1/2 T BR
4	12	125497	SCREW, 3/8-16 X 4 HXHD SS
4	11	109391	NUT, 3/8-16 NYLOK SS
8	10	125498	WASHER, FLAT 3/8 X 7/8 OD SS
2	9	125495	LKNUT, 1/4-20 NYLOK SS
2	8	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
4	7	116630	WASHER, FLAT 1/4 SS ANC
1	6	125250	ADAPTER, 04 JIC TO M12-1.5 HEX ZPS
1	5	125403	HOSE ASSY, DRAIN ENGINE 3/8 X 15 IN FLEXPULSE
2	4	106294	BELT, AX42 GATES EPDM
1	3	107970	HUB, H X 1 W/SET SCREW
1	2	125413	PULLEY, IDC 2AK039H
1	1	125129	ENGINE, PA-CH440 3275 KOHLER 14HP
QTY	ITEM	PART NO.	DESCRIPTION

SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125231 PRESSURE PUMP ASSEMBLY



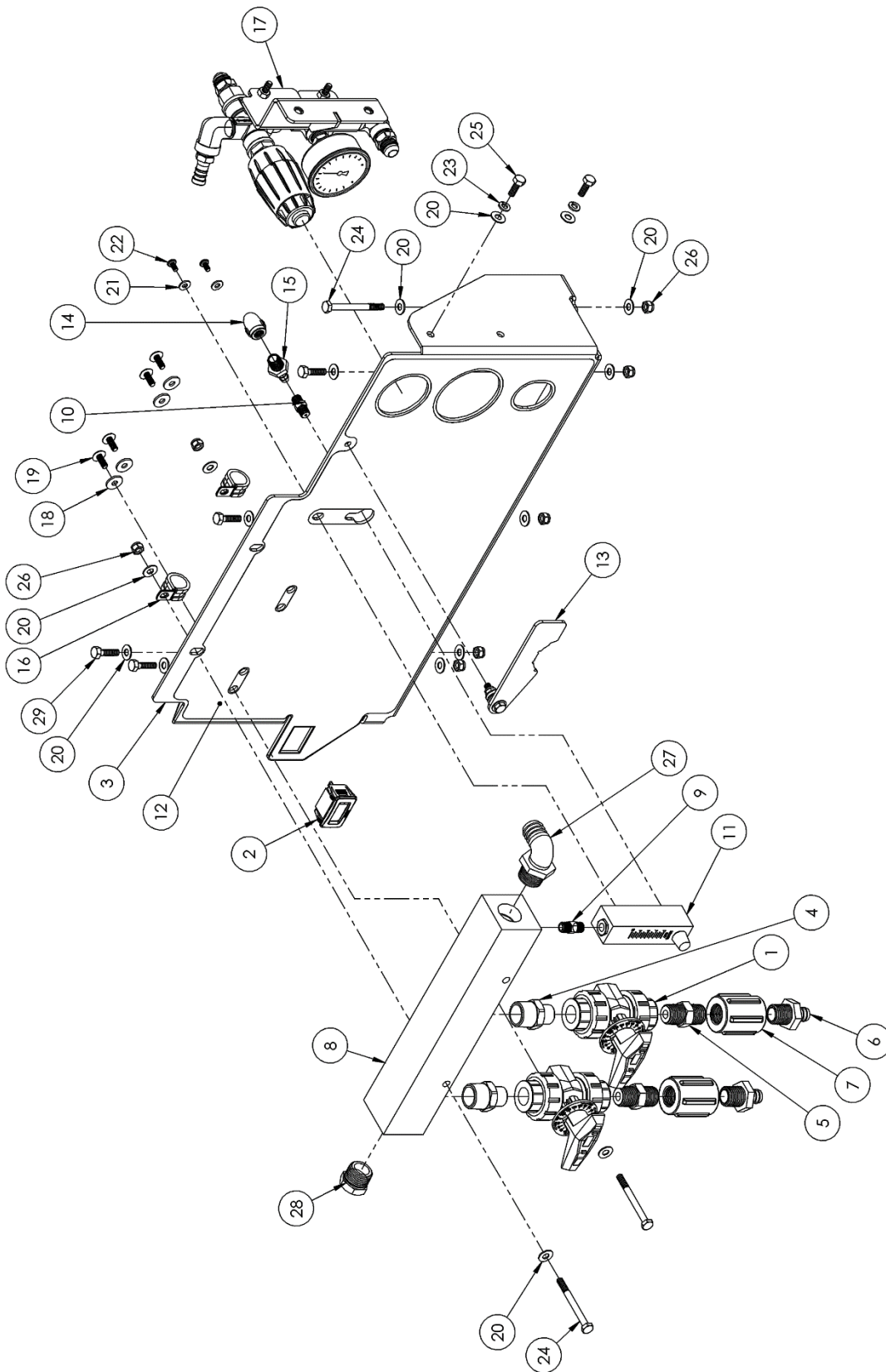


## SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS

**125231 PRESSURE PUMP ASSEMBLY TABLE**

1	20	125645	LKWSR, 3/8 SS
1	19	125498	WASHER, FLAT 3/8 X 7/8 OD SS
4	18	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
4	17	116630	WASHER, FLAT 1/4 SS ANC
4	16	125624	SCREW, MACH M10-1.5 X 25 HXHD SS
4	15	125626	LKWSR, M10 X 18.1 OD SS
4	14	125625	WASHER, FLAT M10 X 20 OD SS
1	13	125644	BOLT, TAP 3/8-16 X 3 SS
1	12	125526	TEE, RUN 1/2 MXFXF NPT 316 SS
1	11	112849	PLUG, 1/4 JIC BRASS
2	10	125588	FTTG, BRB 1/2 MNPT X 3/4 H SS
1	9	125417	ELL, BRB 1/2 MNPT X 1/2 H 90 SS
1	8	125431	CONN, 3/8 MNPT X 1/2 JIC SS
1	7	106615	FTTG, 1/4 BSPP X 1/4 JIC STEEL
1	6	105696	HOSE ASSEMBLY, 3/16 ID X 04 FJIC X 04 FJIC X 16.5 L
1	5	121306	HUB, H X 24MM
1	4	125412	PULLEY, 2AK054H
1	3	125509	WMT, PRESSURE PUMP ADJUST SS
1	2	125411	PRESSURE PUMP, GEN TS2212SS ALT SPEC
1	1	125531	WMT, PRESSURE PUMP MOUNT
QTY	ITEM	PART NO.	DESCRIPTION

SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125232 CONTROL/MIXING SYSTEM

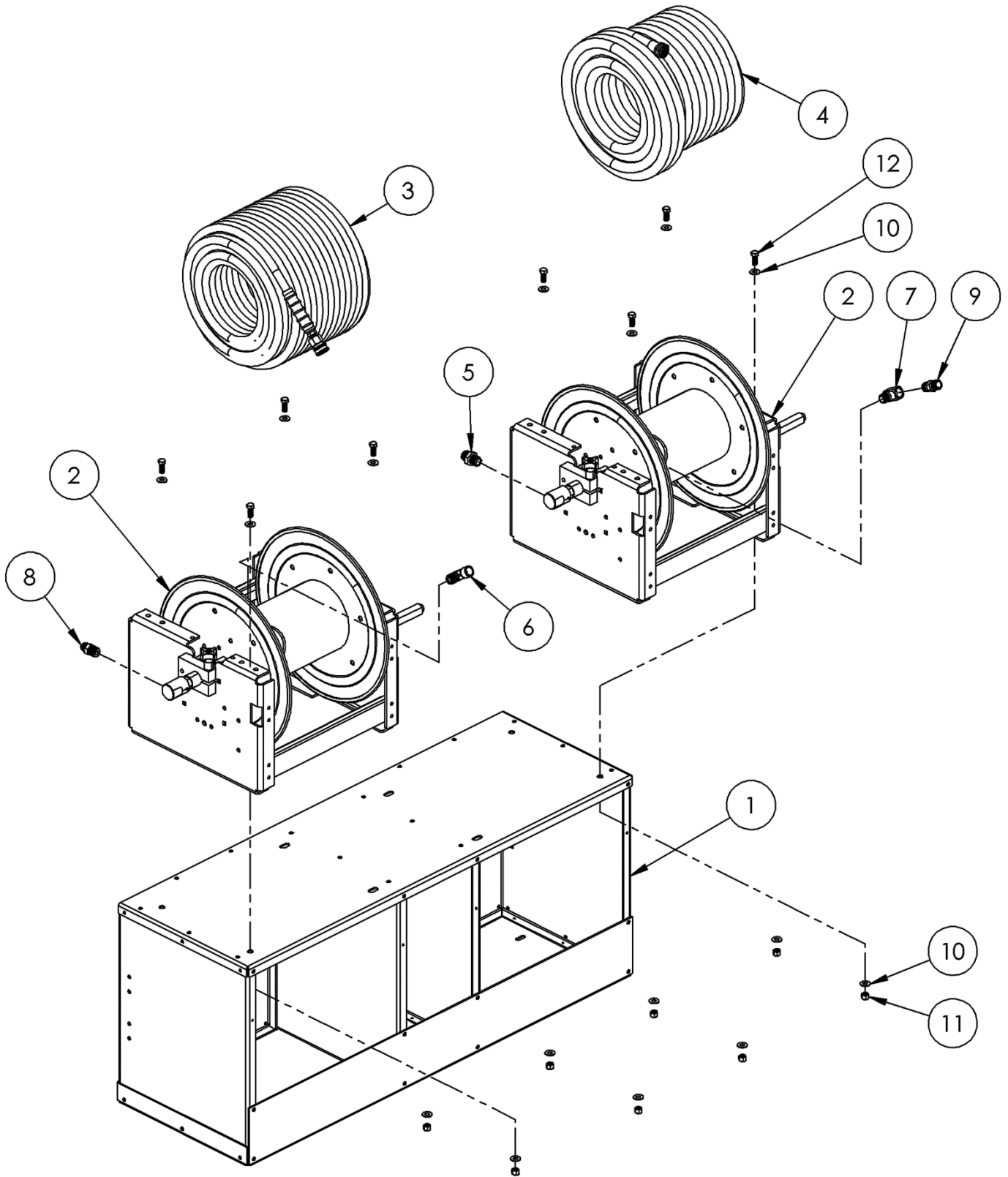


## SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS

**125232 CONTROL SYSTEM TABLE**

4	29	124621	SCREW, MACH 1/4-20 X 1 HXHD SS
1	28	118902	PLUG, 3/4 IN PVC
1	27	125419	ELL, BRB 3/4 MNPT X 3/4 H PP
7	26	125495	LKNUT, 1/4-20 NYLOK SS
2	25	125344	SCREW, MACH 1/4-20 X 3/4 HXHD SS
3	24	125579	SCREW, 1/4-20 X 2-3/4 HXHD SS
2	23	118145	LKWSR, 1/4 IN SS
2	22	125648	SCREW, 10-32 X 3/8 PHP 316 SS
2	21	123608	WASHER, FLAT #10 SS
16	20	116630	WASHER, FLAT 1/4 SS ANC
4	19	125427	SCREW, M6-1.0 X 16MM PH X-WIDE TRUSS 316 SS
4	18	125647	WASHER, FENDER M6 X 18MM OD SS
1	17	124810	ASSY, PRESSURE MANIFOLD
2	16	110316	CLAMP, WIRE CUSHION 3/4 ID X 1/4 BOLT
1	15	125278	FTTG, BRB 1/4 MNPT X 5/16 H PP
1	14	125277	ELL, 1/4 X 1/8 FNPT SS
1	13	125233	ASSY, PRESSURE REGULATOR LATCH
1	12	125332	LABEL, CONTROL PANEL
1	11	125442	VALVE, SURFACTANT FLOWMETER
1	10	125276	CHECK VALVE, 1/8 MNPT PVDF PLASTIC
1	9	125259	NIP, HEX 1/8 NPT SS
1	8	124958	MANIFOLD, MIXING
2	7	125421	COUPLER, 1/2 FNPT PP
2	6	125414	FTTG, BRB 1/2 MNPT X 1/2 H PP
2	5	125275	CHECK VALVE, 1/2 MNPT PVDF PLASTIC
2	4	125256	NIP, HEX REDUCING 3/4 X 1/2 MNPT SS
1	3	124808	PNL, MIXING CONTROL
1	2	122916	HOUR METER - RECTANGULAR MINI 115/230V SNAP IN
2	1	125418	VALVE, METERING BALL 1/2 FNPT PVC/FKM
QTY	ITEM	PART NO.	DESCRIPTION

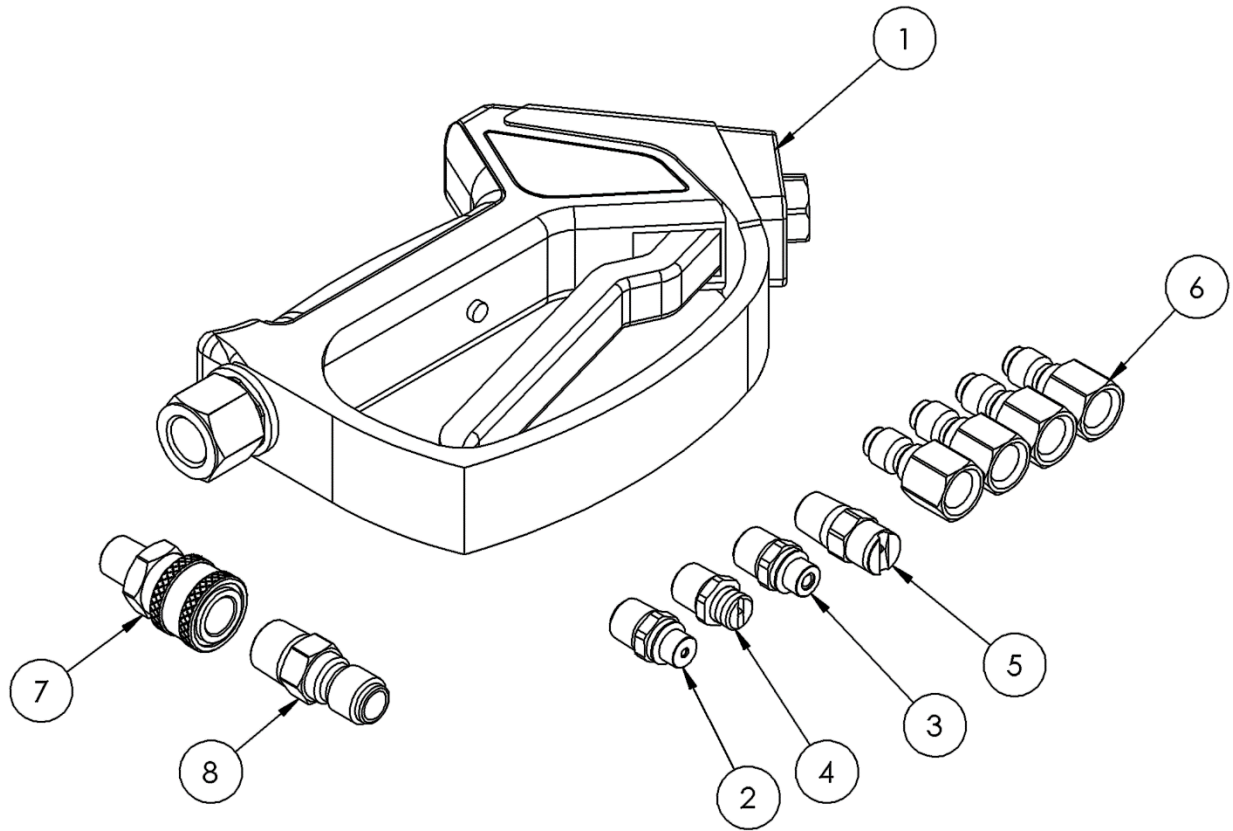
SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS  
125238 HOSE REEL SYSTEM



**SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS**  
**125238 HOSE REEL SYSTEM TABLE**

8	12	125656	SCREW, MACH 3/8-16 X 1 HXHD SS
8	11	109391	NUT, 3/8-16 NYLOK SS
16	10	125498	WASHER, FLAT 3/8 X 7/8 OD SS
1	9	118365	NIP, 1/2 IN HEX BRASS
1	8	125652	CONN, 1/2 MNPT X 1/2 MJIC HEX SS
1	7	104078	ELL, STREET 1/2 NPT BRASS
1	6	125649	ELL, 1/2 MP X 3/8 FP SS
1	5	125620	FTTG, BRB 1/2 MNPT X 3/4 H PP
1	4	125402	HOSE ASSY, 1/2 WATER X 100 FT 3/4 FGH X 1/2 FNPT BR
1	3	125450	ASSY, HOSE 3/8 3000 PSI SS 3/8 QDF
2	2	125353	HOSE REEL, 12" 5000 PSI STACKABLE ALUM/SS
1	1	125239	ASSY, HOSE REEL BOX
QTY	ITEM	PART NO.	DESCRIPTION

**SECTION FIVE: SPARE PARTS AND REFERENCE DOCUMENTS**  
**125679 KIT, SPRAY TOOL COMPONENTS**



1	8	125642	DSC, 3/8 M X 3/8 MNPT SS
1	7	125641	DSC, 1/4 F X 1/4 MNPT SS
1	6	125404	NOZZLE ASSY, SPRAY TOOL 3/8 QD SS
1	5	125502	NOZZLE, 1/4 MEG 2540 25 DEG JET
1	4	125501	NOZZLE, 1/4 MEG 2515 25 DEG JET
1	3	125500	NOZZLE, 1/4 MEG 0040 0 DEG JET
1	2	125499	NOZZLE, 1/4 MEG 0015 0 DEG JET
1	1	125405	SPRAY TOOL, SNUB NOSE 3/8 SS PRESSURE WASH
QTY	ITEM	PART NO.	DESCRIPTION