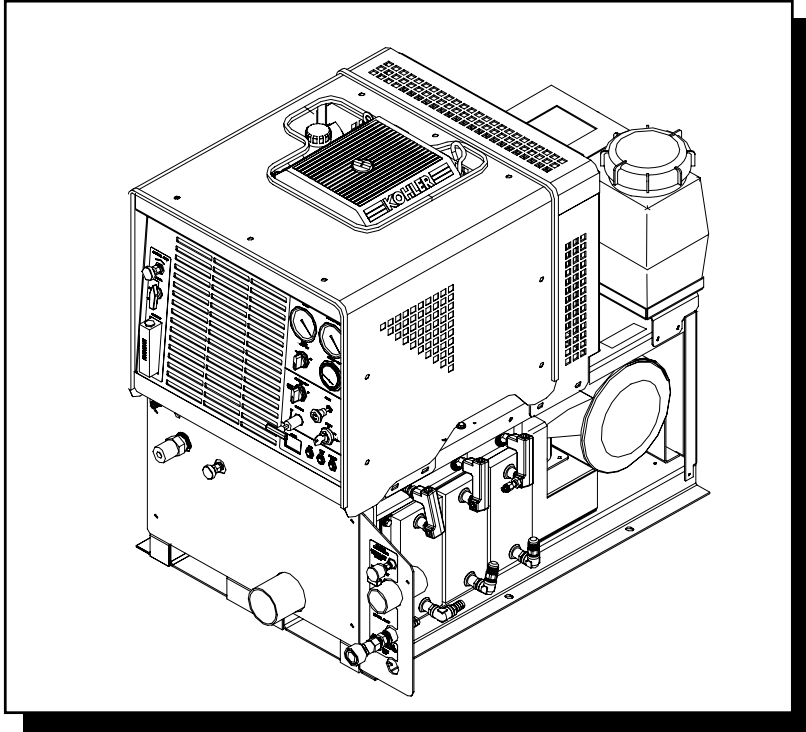


PROCHEM®

LEGEND XL

MOBILE CLEANING UNIT



Operating Instructions (ENG)

MODELS: LEGEND XL

Read instructions before operating the machine.

J

980157
07/09/04

MACHINE DATA LOG/OVERVIEW

MODEL _____
DATE OF PURCHASE _____
SERIAL NUMBER _____
SALES REPRESENTATIVE # _____

YOUR DEALER	
Name:	_____
Address:	_____
Phone Number:	_____

Welcome...and congratulations on the purchase of your Mobile Cleaning Unit. This instruction manual is a guide for operating and servicing your unit. **Read this manual completely before installing or operating this unit.** This unit offers you personal convenience. All of your instrumentation and controls have been positioned to give you easy access for operation and daily maintenance.

Proper operation and service are essential to the efficient functioning of this unit. When maintained correctly, this unit will have a long, trouble-free life.

The service methods described in this manual are explained in such a manner that servicing may be performed accurately and safely. Proper service varies with the choice of procedure, the skill of the mechanic, and the tools or parts available. Before attempting any repair, make certain that you are thoroughly familiar with this equipment and are equipped with the proper tools. Any questions pertaining to operating or servicing this unit should be directed to your nearest dealer.

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

MAKE CERTAIN THAT THE WARRANTY CARD IS FILLED OUT AT THE TIME OF INSTALLATION AND IS RETURNED TO YOUR DEALER.

PROFESSIONAL CHEMICALS CORPORATION
325 SOUTH PRICE ROAD
CHANDLER, ARIZONA 85224

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

TABLE OF CONTENTS

<i>Machine Data Log/Overview</i>	1
<i>Table of Contents</i>	2
<i>Receiving Your Unit</i>	4

HOW TO USE THIS MANUAL

<i>How to use this Manual</i>	1-1
-------------------------------------	-----

SAFETY

<i>Safety Instructions</i>	2-1
<i>Hazard Intensity Level</i>	2-3

OPERATION & SYSTEMS

<i>Technical Specifications</i>	3-1
<i>Installation Requirements</i>	3-2
<i>Fuel Requirements</i>	3-2
<i>Engine Oil Requirements</i>	3-2
<i>Chemical Requirements</i>	3-3
<i>Components</i>	3-4
<i>Water Pumping And Heat Transfer System</i>	3-8
<i>Chemical Injection System</i>	3-9
<i>Vacuum System</i>	3-10
<i>Pre-run Inspections</i>	3-11
<i>Water Supply Connections</i>	3-11
<i>High Pressure Hose</i>	3-11
<i>Vacuum Hose</i>	3-11
<i>Filters</i>	3-11
<i>Priming the Chemical Pump</i>	3-12
<i>Waste Pump (Optional)</i>	3-12
<i>Cleaning</i>	3-12
<i>Upholstery Cleaning</i>	3-13
<i>Shutdown and Daily Maintenance</i>	3-13
<i>De-flooding Operations</i>	3-13
<i>Freezing Protection</i>	3-13
<i>Winterizing Your Unit</i>	3-14
<i>Removing Anti-freeze from Unit</i>	3-15

MAINTENANCE & SERVICE

Maintenance

<i>Maintenance Schedule</i>	4-1
<i>Key Maintenance Checkpoints</i>	4-3
<i>Engine</i>	4-4
<i>Vacuum Pump</i>	4-5
<i>Water Pump</i>	4-6
<i>Vacuum Inlet Filter</i>	4-6
<i>Vacuum Relief Valve</i>	4-6
<i>Vacuum Drive Belts</i>	4-6
<i>Water Pump Drive Belt</i>	4-7
<i>Float Valve (Water Box)</i>	4-7
<i>Waste Tank Strainer Basket</i>	4-7
<i>Waste Tank Float Valve</i>	4-7
<i>Y-Strainer (Outlet)</i>	4-7
<i>Check Valve (Outlet)</i>	4-7
<i>Chemical Pump</i>	4-7
<i>Chemical And Heat Bypass Valves</i>	4-7
<i>Nitrogen Accumulator</i>	4-8
<i>Pressure Regulator</i>	4-8
<i>Vacuum Hoses</i>	4-8
<i>High Pressure Hoses</i>	4-8
<i>Optional Waste Pump-out</i>	4-8
<i>Service Adjustments</i>	
<i>Engine Speed</i>	4-9
<i>Check Valve (Solution Outlet)</i>	4-9
<i>Water Box</i>	4-9
<i>Chemical Pump</i>	4-9
<i>Drive Belts for Water Pump and Vacuum Pump</i>	4-9
<i>Packing Nut Adjustment (Chemical Metering & Selector Valves)</i> ..	4-10
<i>Pressure Regulator</i>	4-10
<i>Troubleshooting</i>	4-11

PARTS LIST

<i>Frame</i>	5-1
<i>Side Panel</i>	5-3
<i>Control Panel</i>	5-5
<i>Engine</i>	5-7
<i>Water Pump & Chemical Pump</i>	5-11
<i>Heat Exchanger</i>	5-15
<i>Pressure Regulator & Temperature Bypass</i>	5-17
<i>Water Box</i>	5-19
<i>Waste Tank</i>	5-21
<i>Hose Accessories</i>	5-23
<i>Battery-Floor Mount</i>	5-25
<i>Automatic Pumpout-Optional</i>	5-27
<i>Wand-Titanium Six Jet-Optional</i>	5-31
<i>Wand-Quad Jet-Optional</i>	5-33
<i>Wand-Tri Jet-Optional</i>	5-35
<i>Stair Tool-Optional</i>	5-37
<i>Upholstery Tool-Optional</i>	5-39
<i>Shelf Assembly-Optional</i>	5-41
<i>Water Tank, Dual With Demand Pump-Optional</i>	5-43
<i>Water Tank-Demand Pump-Optional</i>	5-45
<i>Auxiliary Water Tank-Optional</i>	5-47
<i>Hose Reel-Optional</i>	5-49
<i>Wiring Diagram</i>	5-51
<i>Hose Diagram</i>	5-52
<i>Warranty</i>	5-54

RECEIVING YOUR UNIT

ACCEPTANCE OF SHIPMENT

Every part of your cleaning unit was carefully checked, tested, and inspected before it left our manufacturing plant. **Upon receiving the unit, make the following acceptance check:**

1. The unit should not show any outward signs of damage. If damaged, notify the delivering carrier immediately.
2. Check your equipment and packing list. The cleaning unit should arrive equipped with the following items (unless otherwise specified).

Note: your distributor from whom you purchased this mobile cleaning unit is responsible for the correct installation of this machine. The dealer is also responsible for initial training of your operators and maintenance personnel in the proper operation and maintenance of this unit.

EQUIPMENT LIST:

1. Console.
2. Waste Tank
3. Hose Clamps For Vacuum Hoses.
4. 100 Ft. Of 2" Vacuum Hose.
5. 1 Vacuum Hose Connection.
6. 100 Ft. Of 1/4" High Pressure Hose With Quick Connects.
7. 50 Ft. Water Supply Hose With Quick Connect.
8. Installation Bolting Kit.
9. Installation Mounting Plates.
10. Operation And Service Manual For Engine, Water Pump, And Vacuum Pump.

Each unit will require a fuel system installation kit that is purchased separately from the unit and is specific for each manufacturer and model year of van.

HOW TO USE THIS MANUAL

This manual contains the following sections:

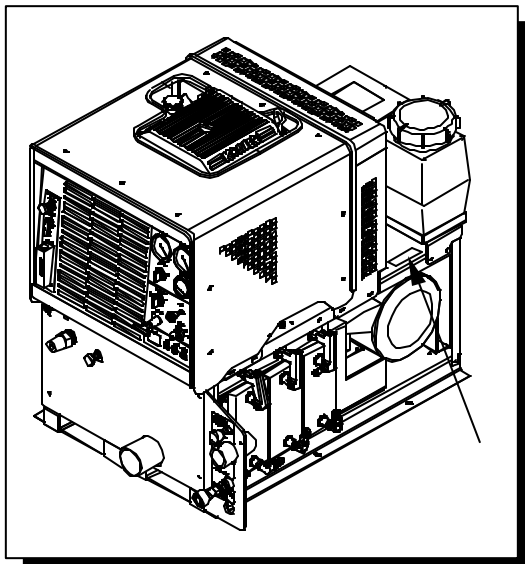
- HOW TO USE THIS MANUAL
- SAFETY
- SYSTEMS
- OPERATIONS
- MAINTENANCE & SERVICE
- PARTS LIST

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 _____
SALES REPRESENTATIVE # _____

The model and serial number of your machine is on the side approximately where shown.



The SAFETY section contains important information regarding hazard or unsafe practices of the machine. Levels of hazards is identified that could result in product or personal injury, or severe injury resulting in death.

The OPERATIONS 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. They are listed in this general order:

- Engine
- Vacuum Pump
- Water Pump
- Drive Belts, Pulleys & Hubs
- Chemical Pump
- Hoses
- Vac/Exhaust Heat Exchanger
- General Service Adjustments
- Troubleshooting

The PARTS LIST section contains assembled parts illustrations and corresponding parts list. The parts lists include a number of columns of information:

- **REF** – column refers to the reference number on the parts illustration.
- **PART NO.** – column lists the part number for the part.
- **DESCRIPTION** – column is a brief description of the part.
- **SERIAL NO. FROM** – column indicates the first machine the part number is applicable to. When the machine design has changed, this column will indicate serial number of applicable machine. The main illustration shows the most current design of the machine. The boxed illustrations show older designs. If column has an asterisk (*), call manufacturer for serial number.
- **NOTES** – column for information not noted by the other columns.

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.

NOTE: The 98# on the lower left corner of the front cover is the part number for this manual.

IMPORTANT SAFETY INSTRUCTIONS

When using this machine, basic precautions must always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE.

⚠ WARNING:

These symbols mean WARNING or CAUTION. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property damage. Follow these instructions carefully!

⚠ CAUTION:

Read the operator's manual before installing or starting this unit. Failure to adhere to instructions could result in severe personal injury or could be fatal.

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 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.

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

DO NOT store any type of flammable material in the vehicle.

This unit must be operated with the vehicle or trailer doors open in order to ensure adequate engine ventilation.

DO NOT operate engine if gasoline is spilled. Avoid creating any ignition until the gasoline has been cleaned up. Never use gasoline as a cleaning agent.

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 fatality.

Never operate this unit without belt guards or hoods. The high speed moving parts, such as belts and pulleys, should be avoided while this unit is running. Severe injury, damage, or fatality may result.

DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury or severed limbs.

Never touch electrical wires or components while the engine is running. They can be sources of electrical shock.

Engine components can get extremely hot from operation. To prevent severe burns, **DO NOT** touch these areas while the engine is running - or immediately after the engine is turned off.

DO NOT touch the exhaust system while this unit is running. Severe burns may result.

Before servicing this unit, allow it to "cool down." This will prevent burns from occurring.

Water under high pressure at high temperature can cause burns, severe personal injury, or fatality. Shut down machine, allow to cool down, and relieve system of all pressure before removing valves, caps, plugs, fittings, filters, and bolts.

Always wear hearing protection when unit is running. Always comply with your company's Personal Protection Equipment (PPE) plan. Always comply with local noise ordinance when operating units.

DO NOT leave the vehicle engine running while operating this unit.

Dangerous Acid, Explosive Gases! Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times. Keep batteries out of the reach of children. Remove all jewelry when servicing batteries.

Before disconnecting the negative (-) ground cable, make sure all switches are OFF. If ON, a spark will occur at the ground cable terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. When disconnecting the battery, **ALWAYS** disconnect the negative (-) terminal FIRST.

DO NOT smoke around the unit. Gas fumes may accumulate and be ignited. The battery is also extremely flammable. This will prevent possible explosions.

DO NOT damage the vehicle in any manner during installation. When routing fuel lines **DO NOT** place the hose in any location where damage may occur to the hose or vehicle. Avoid any contact with moving parts, areas of high temperature, brake lines, fuel lines, muffler, catalytic converter, or sharp objects.

Use only ProChem supplied fuel installation kits. Ensure to use the kit specific for the truckmount model and van model being used. When traversing the vehicle floor with fuel lines, always use a bulkhead adapter. This will prevent leakage and ensure that the hose is not punctured by vehicle vibration abrasion.

DO NOT exceed your vehicle's weight limit. The console with empty waste tank and accessories weighs approximately 770 lbs. Make certain to account for any additional accessories in your weight and balance calculations. Make certain that the vehicle has the correct axle rating. This will prevent unsafe vehicle driving conditions.

We require high-back seats on all vehicles in which units are to be installed for head and neck protection. We recommend using a metal partition between the seats and equipment.

DO NOT operate this unit without the water supply attached and turned on. The water pump and other vital components may be seriously damaged if this unit is permitted to operate dry without water.

DO NOT operate this unit without the filter installed in the waste tank.

Keep your vehicle work area clean. Wands, stair tools, and other accessories must be securely fastened before driving the vehicle.

All high pressure hoses must be rated for 3000 PSI at 250°F. 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.

The winterizing loop hose assembly, Part #10-805380, is for winterizing use only. If used improperly, live steam may escape from this hose, causing it to whip around. Burns or injury may result.

Make certain that you receive complete training by the distributor from whom you purchased this unit.

This unit uses high pressure and temperature. Improper or irresponsible use may result in serious injury.

Do not modify this unit in any manner. Improper modification can cause severe personal injury or fatality.

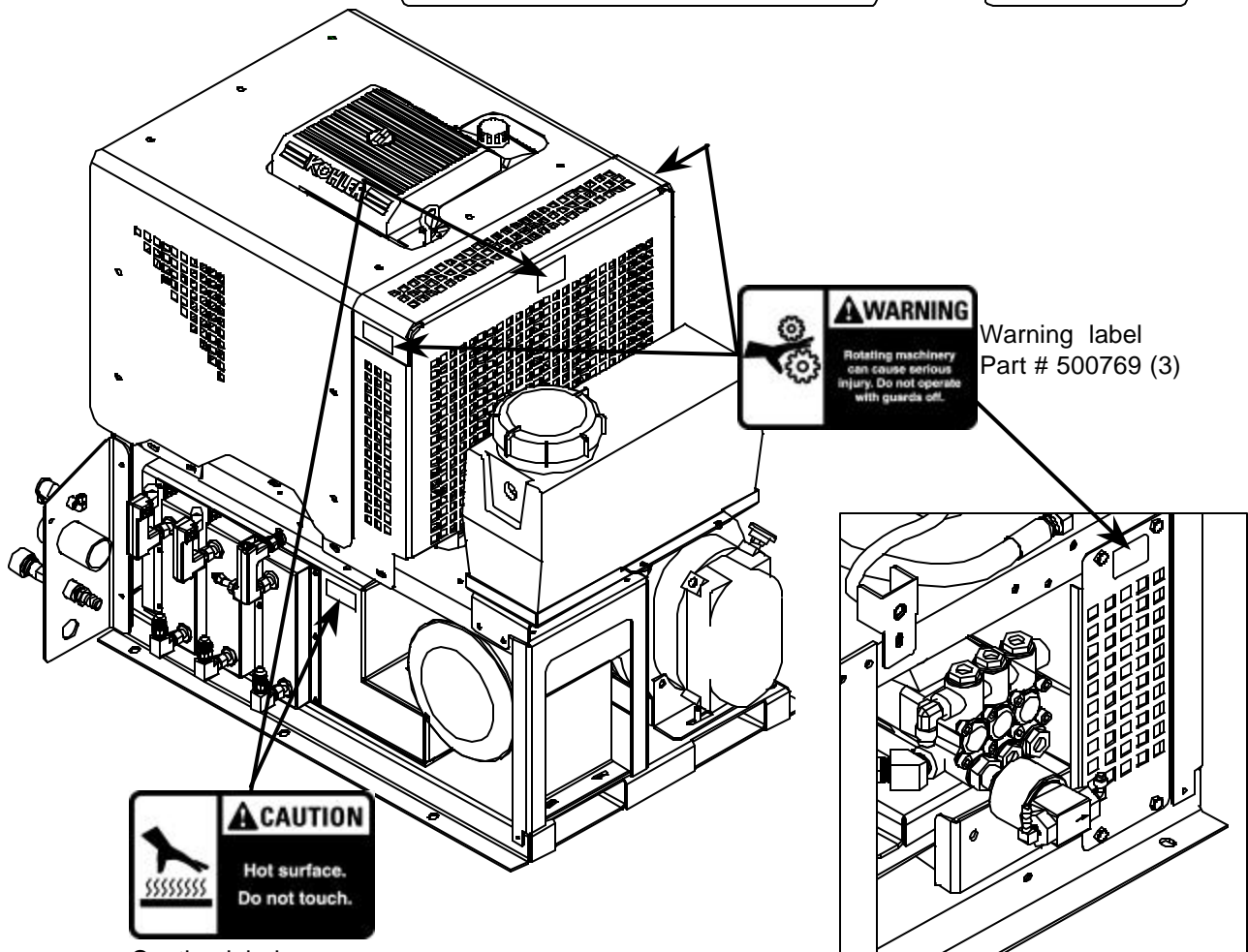
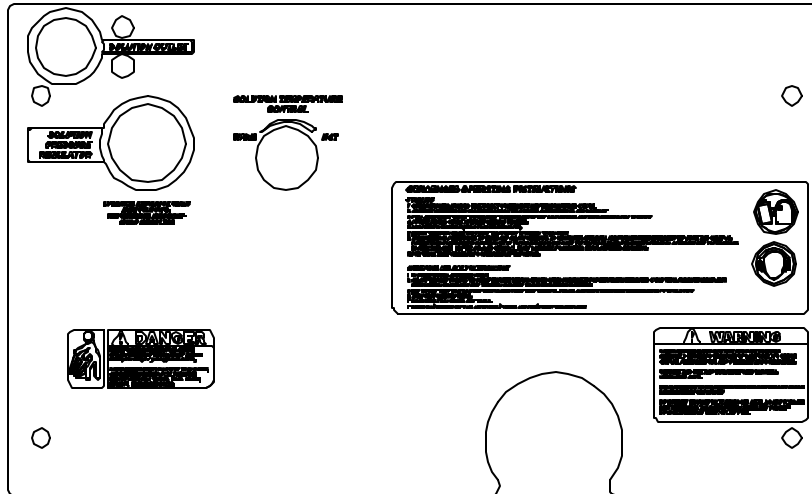
CALIFORNIA PROPOSITION 65 WARNING: Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Running with out adequate water supply could damage water pump. Ensure always to have an adequate water supply.

HAZARD LEVEL INTENSITY

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

NOTE: If at any time the labels become illegible, promptly replace them.

Lower front panel decal
With warning labels
Part # 500836



Warning label
Part # 500769 (3)



Caution label
Part # 500770 (2)

TECHNICAL SPECIFICATIONS

ITEM	DIMENSION/CAPACITY
Engine speed	2850 rpm 1400 rpm (idle speed)
Water pump rpm	1625 rpm
Vacuum pump rpm	2850 rpm
Water flow rate	3.5 GPM (maximum)
Water pump pressure	1000 PSI (maximum)
Vacuum relief valve	13" Hg
Waste tank capacity	60 gallons
Console weight	560 lbs. (650 lbs. If mounted on water tank)
Console weight (with waste tank & accessories)	770 lbs (If waste tank is empty) (1285 lbs. If waste tank is full) (1800 lbs. If auxiliary water tank and waste tank are full)
TORQUE VALUES	
Engine	264 inch lbs 22 foot lbs
Engine rear vac pump	264 inch lbs 22 foot lbs
Engine front water pump drive pulley hub on sub-shaft	168 inch lbs 14 foot lbs
Water pump clutch:	
M8 x 2.5 shaft screw	300 inch lbs 25 foot lbs
Mounting plate screw, M6	55 inch lbs 4.4 foot lbs
Coil plate, 1/4" screw	55 inch lbs 4.4 foot lbs

JET SIZING:

Prochem recommends **floor tool** tip sizing not exceed a total of ".030". Using larger jet sizes on your may reduce cleaning temperatures.

Example: **Tri-jet wand uses three 95010 jets** (95° spray angle w/ 010 orifice).
01 x 3 = 030

Upholstery tool jet size: **80015**

Stair tool jet size: **9502**

OPERATION

INSTALLATION REQUIREMENTS

Prior to starting the installation, first read the **ENTIRE** "Installation" section of this manual. Since the cleaning unit (with empty waste tank and accessories) weighs approximately 770 lbs. (860 lbs. if mounted on water tank), consider the following recommendations before installing this unit.

1. The unit should **NOT** be mounted in any motor vehicle of less than **1/2 ton capacity**, or **3/4 ton** if equipped with one or more auxiliary fresh water tanks.



The console with waste tank and accessories must NOT exceed the vehicle's axle weight limit.

2. If mounting in a trailer, make certain that the trailer is rated for the total weight of the **UNIT AND TRAILER**. Electric or hydraulic brakes should be provided, and a strict compliance with any State and Federal vehicle laws must be maintained.
3. The vehicle tires should have a load rating above the combined vehicle and unit weight.
4. We do not recommend using flooring materials that absorb water. This could result in rust and corrosion of the vehicle floor.
5. Padding under rubber floor mats should be removed before installing this unit.
6. We highly recommend using a galvanized drip tray under the console (Part #56-501845, or Part #56-501930 for units mounted on a water tank.)
7. If using a trailer, the console should be positioned so that it balances properly with respect to the axle. Ten percent (10%) of the overall unit weight (without accessories or water) should be on the tongue.

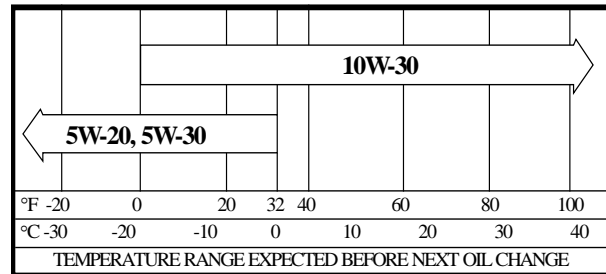
FUEL REQUIREMENTS

Use unleaded gasoline ONLY. DO NOT use any gasoline additives. We recommend the use of clean, fresh, unleaded gasoline intended for automotive use. High octane gasoline should **NOT** be used with the engine on this unit.

ENGINE OIL REQUIREMENTS

Use high quality detergent oil of at least API (American Petroleum Institute) service class SF or SG. Select the viscosity based on the air temperature at the time of operation as shown in the following table. **NOTE:** Using less than service class SF or SG oil or extending oil change intervals longer than recommended can cause engine damage.

RECOMMENDED SAE VISCOSITY GRADE



ALTITUDE REQUIREMENTS

Engines perform differently with increases/decreases in altitude. Be sure to check engine speeds during initial installation. See engine speeds in Technical Specifications section.

CHEMICAL REQUIREMENTS

The unit, due to its chemical injection pump design, can be used with a variety of water-diluted chemical compounds (either acidic or alkaline), depending on the job to be done. However, to obtain optimum results with this unit, we recommend using the Prochem line of chemicals. For information on using the cleaning compounds, refer to the chemical manual.

WATER REQUIREMENTS

Hard water deposits will adversely affect the plumbing and heat exchange systems on this unit. The map below will give you an idea of where areas of high water hardness may occur. However, any water supply obtained from a well is almost always hard water and a water softener will be needed to protect your equipment.

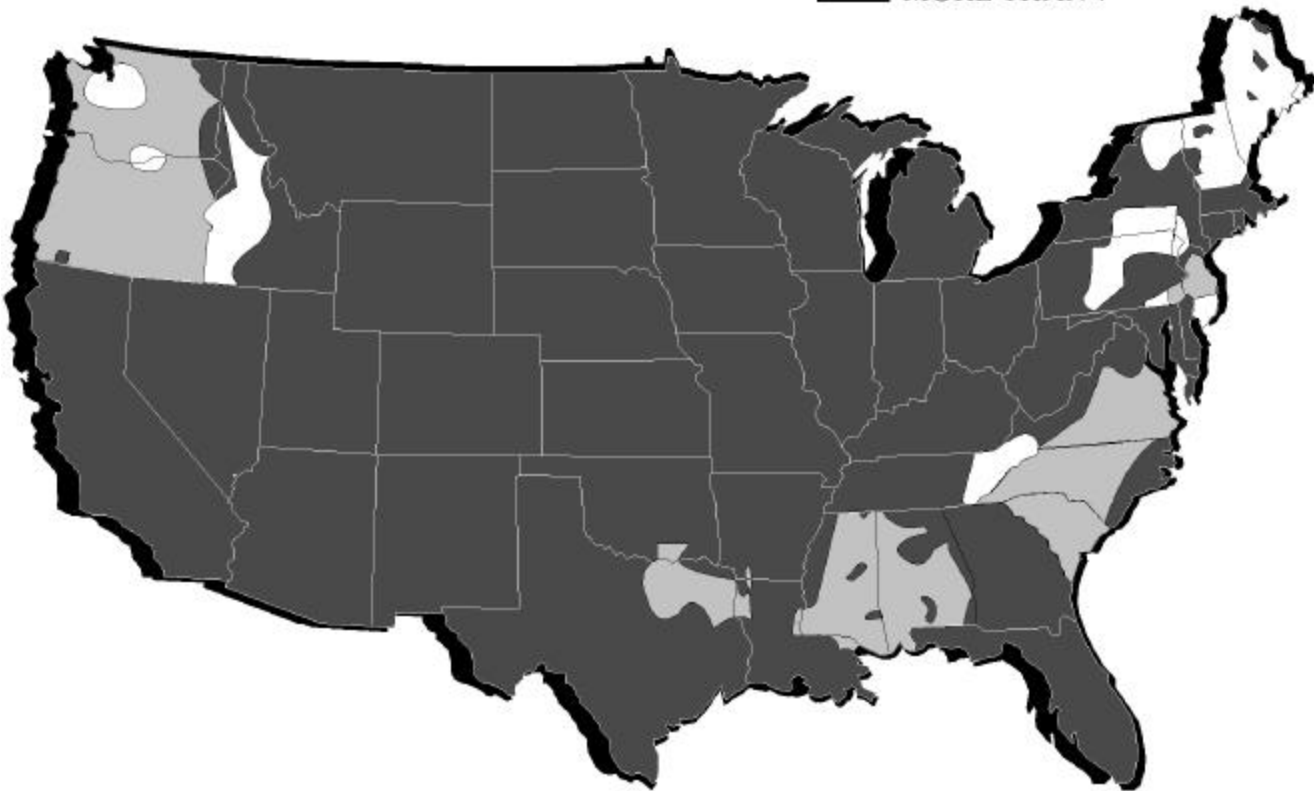
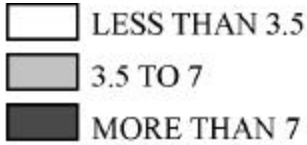
NOTE: Equipment malfunction or component failure caused by hard water scaling is NOT covered under the warranty.

If you are operating this unit in an area where the unit will be using water in which the hardness exceeds 3-1/2 grains, we highly recommend a suitable water softener be installed. If using a water softener, it must have a five (5) GPM (or greater) flow capacity without any hose constrictions.

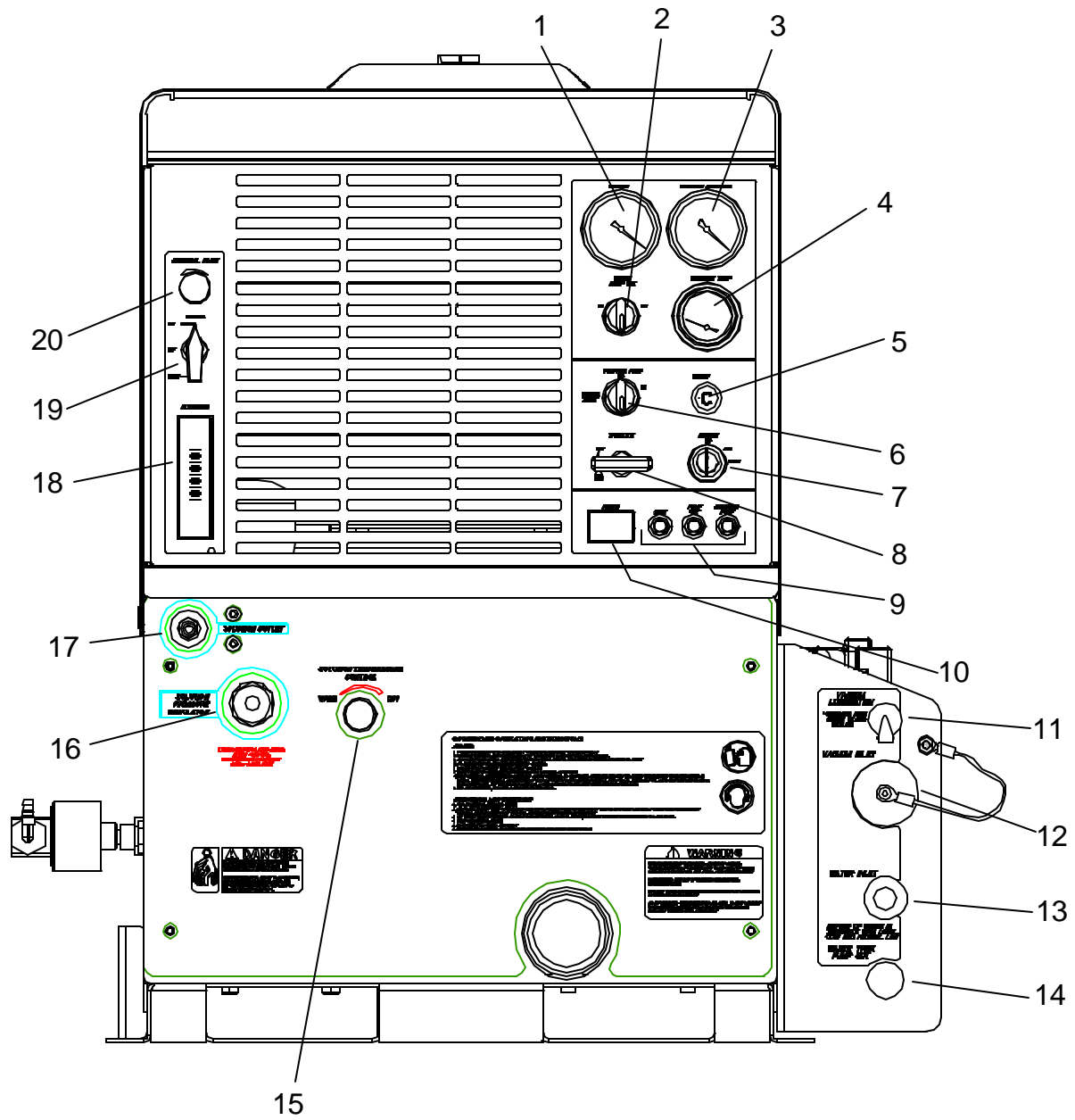
Using a water softener will reduce maintenance and decrease down time caused by hard water scaling. It will also allow cleaning chemicals to be more effective in lower concentrations.

If you require a water softener, your dealer has a model to meet your needs. Please contact your nearest distributor for information, price, and availability.

Figure 1 HARD WATER MAP



OPERATION



OPERATION

1. VACUUM GAUGE

This gauge indicates in inches of mercury how much vacuum the system is producing at any given time.

2. WASTE PUMPOUT AND AUXILIARY WATER PUMP SWITCH

This two position switch is for activating the waste pumpout device.

3. SOLUTION PRESSURE GAUGE

This gauge registers the amount of pressure in the system.

4. SOLUTION TEMP GAUGE

This gauge measure the temperature of the cleaning solution exiting the machine.

5. CHOKE

The choke cable is for restricting air to the carburetor, this enriches the fuel mixture. The primary purpose is for starting in cold temperatures. When the cable is pulled out air is restricted, when pushed in the engine is in run position.

6. SOLUTION PUMP SWITCH

This switch serves to energize the magnetic clutch, to turn the pump on and off. Turn clockwise to activate the pump and counter clockwise for de-activating the pump.

7. KEY SWITCH

The key switch controls the power for the machine. To turn the machine on, rotate the key clockwise while holding solution pump switch to override position until the starter engages the engine. When machine is running let off the switch and engine will continue to run. To turn power off, rotate key counter clockwise to stop position, engine will then stop.

8. THROTTLE

This serves to set the speed of the engine. "T" handle pushed in sets engine to idle. "T" handle pulled out sets engine speed to maximum. "T" handle clockwise to lock in position and counter clockwise to move or change throttle settings.

9. CIRCUIT BREAKERS

These serve to protect the circuits from electrical spike and over loads and protects wires from damage and fire.

10. HOUR METER

The hour meter records the number of hours the unit has run. This serves as a time recorder for servicing the machine.

11. OIL CUP

The oil cup allows lubricant spray to reach the vacuum blower.

12. VACUUM INLET

The vacuum inlet serve as connecting point for vacuum hoses.

13. WATER INLET

This quick connect allows the

14. WASTE PUMPOUT (OPTIONAL)

This two-position switch is for activating the waste pumpout device. For turning on pump, rotate clockwise. For turning off pump, rotate counter clockwise.

15. TEMPERATURE BYPASS VALVE

This valve allow the operator to control the solution temperature by bypassing hot water to the waste tank, for low temperature cleaning such as upholstery. Turning the valve counter clockwise opens the valve. Turning clockwise closes the valve and has the effect of stopping water from bypassing.

OPERATION

16. PRESSURE CONTROL REGULATOR

The pressure regulator sets the pressure of the solution system. This spring loaded valve can be adjusted up or down setting the pressure of the unit by turning the valve clockwise. The pressure is increased or reduced by turning the valve counter clockwise. **(This valve must be maintained in accordance with this manuals maintenance table.)**

17. SOLUTION OUTLET

The solution outlet is the connecting point for the high pressure cleaning hoses. This outlet has a quick disconnects that allow hoses to be plugged into the unit.

18. FLOW METER

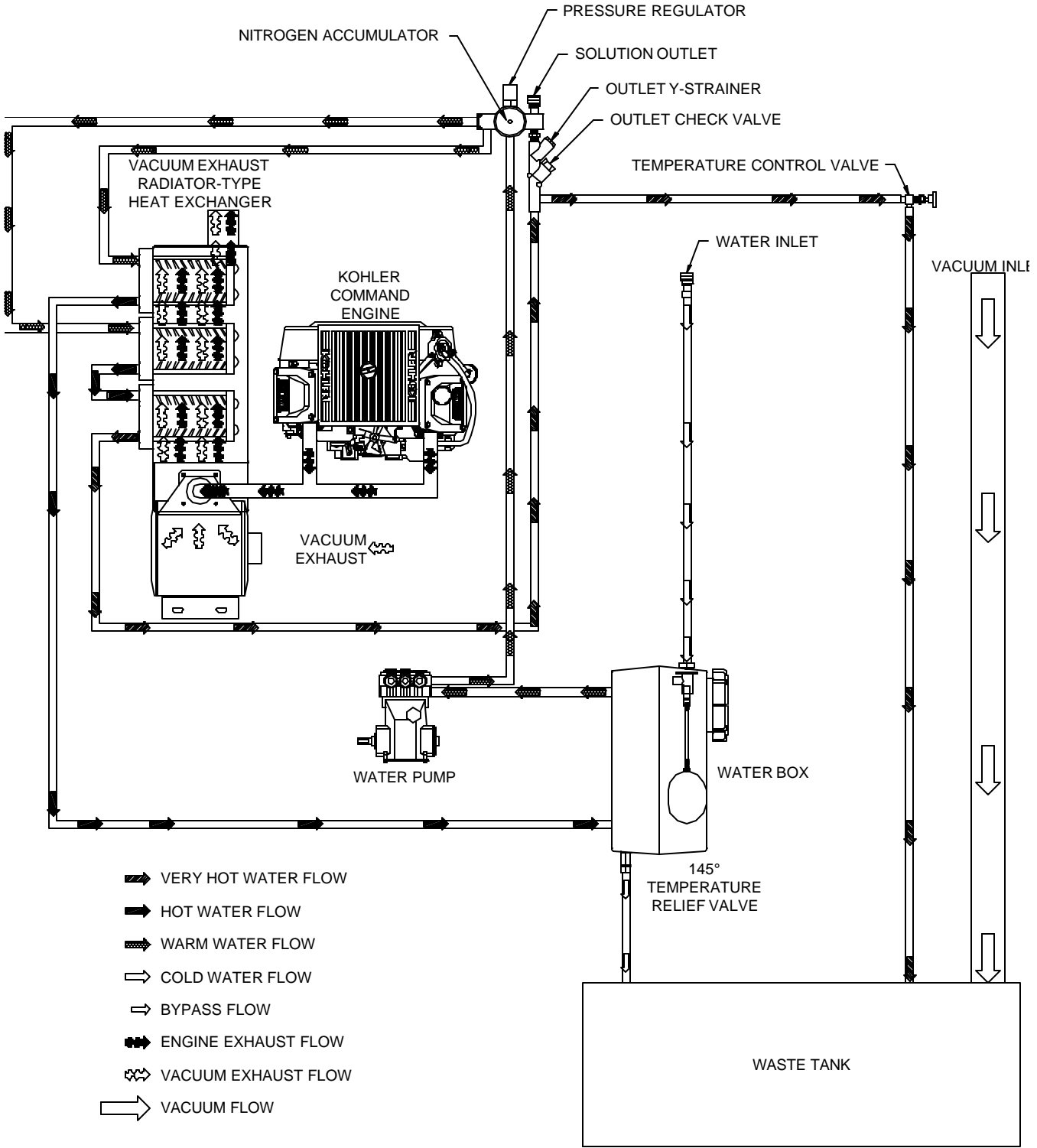
The flow meter is a gauge to indicate how much liquid chemical is being introduced in the water system. The quantity can be increased by turning the chemical flow knob counter clockwise.

19. CHEMICAL PRIME CONTROL VALVE

This valve allows the chemical to circulate through the chemical system with little or no restriction. It also purges out air that may be trapped in the lines and cavities of the chemical pump. By turning the valve clockwise the injection system is enabled.

20. CHEMICAL METERING VALVE

The chemical metering valve regulates the amount of chemical that is injected into the system. Clockwise rotation of the knob closes the valve. Counter clockwise rotation opens the valve, allowing more chemical to enter the system.



OPERATION

⚠ WARNING:

Always wear hearing protection and proper personal protection equipment when operating unit.

WATER PUMPING AND HEAT TRANSFER SYSTEM

Cold water enters the console through the water inlet. When the water box is full the valve will automatically shut off.

Water then flows from the water box, through a strainer, into the water pump where it is pumped to the pressure regulator manifold where the pressure regulator provides and maintains the desired pressure setting.

The pressure regulator manifold includes a nitrogen charged accumulator which helps reduce pressure spikes from the pump.

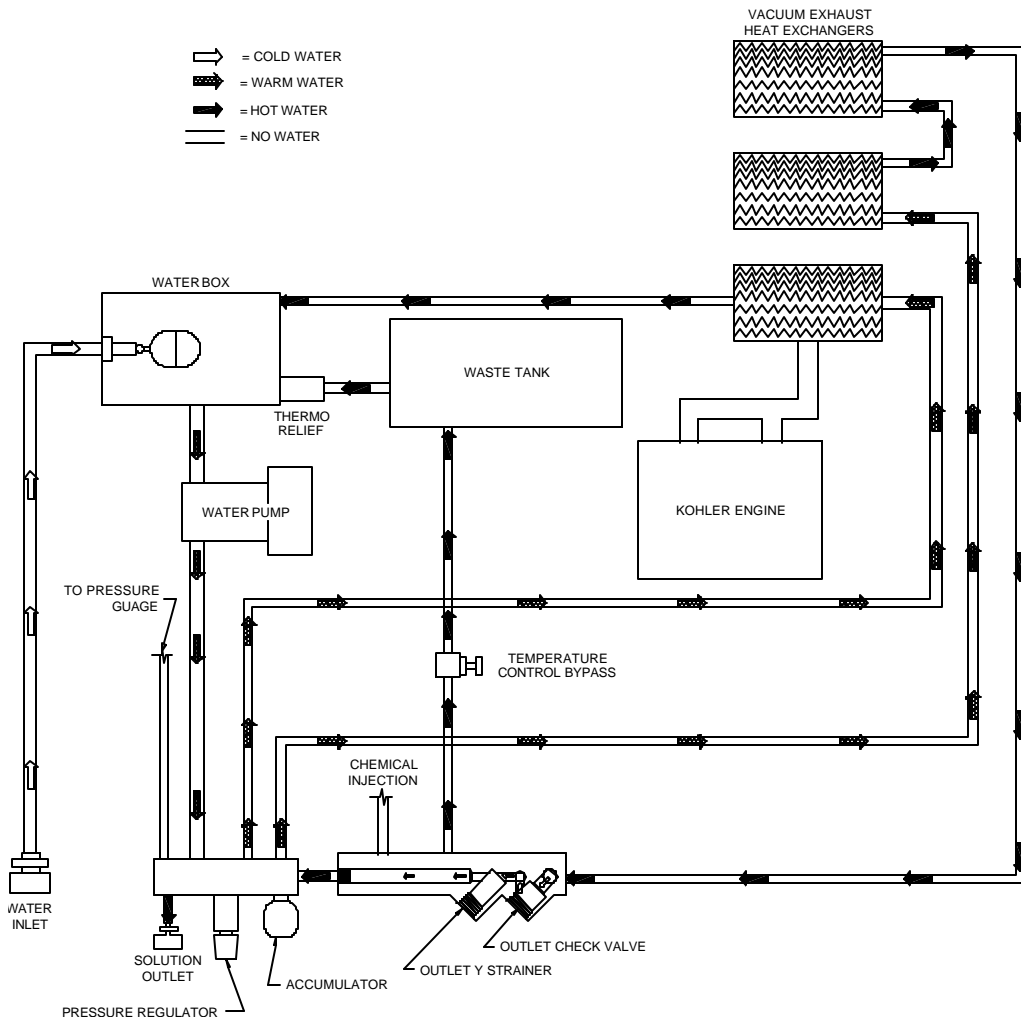
A certain amount of water is by-passed from the pressure regulator due to over pumping capacity of the water pump. Water that is not called for in the

cleaning process is channeled through a heat exchanger box into the first heater core from the front of the unit. This bypass water may circulate several times through the bypass heat exchanger allowing the water to be pre-warmed.

The next stage of plumbing and heat exchange takes place in the 2nd and 3rd heater core located in the heater box. This is the hottest point of the gases coming from the vacuum pump and the engine. These hot gases are forced through heater core #2 and #3 creating the second stage of heat transfer to the cleaning solution.

Finally, the hot solution passes to the outlet manifold where cleaning chemicals are injected from the chemical pulse pump. This manifold serves as a connecting point for the high-pressure hoses. Also a check valve is located in this outlet manifold prohibiting chemicals from backing up into the system.

The cleaning solution then passes through high-pressure hoses and is distributed by the cleaning tool to a surface that is being cleaned, completing the water pumping and heating cycle of the cleaning unit.



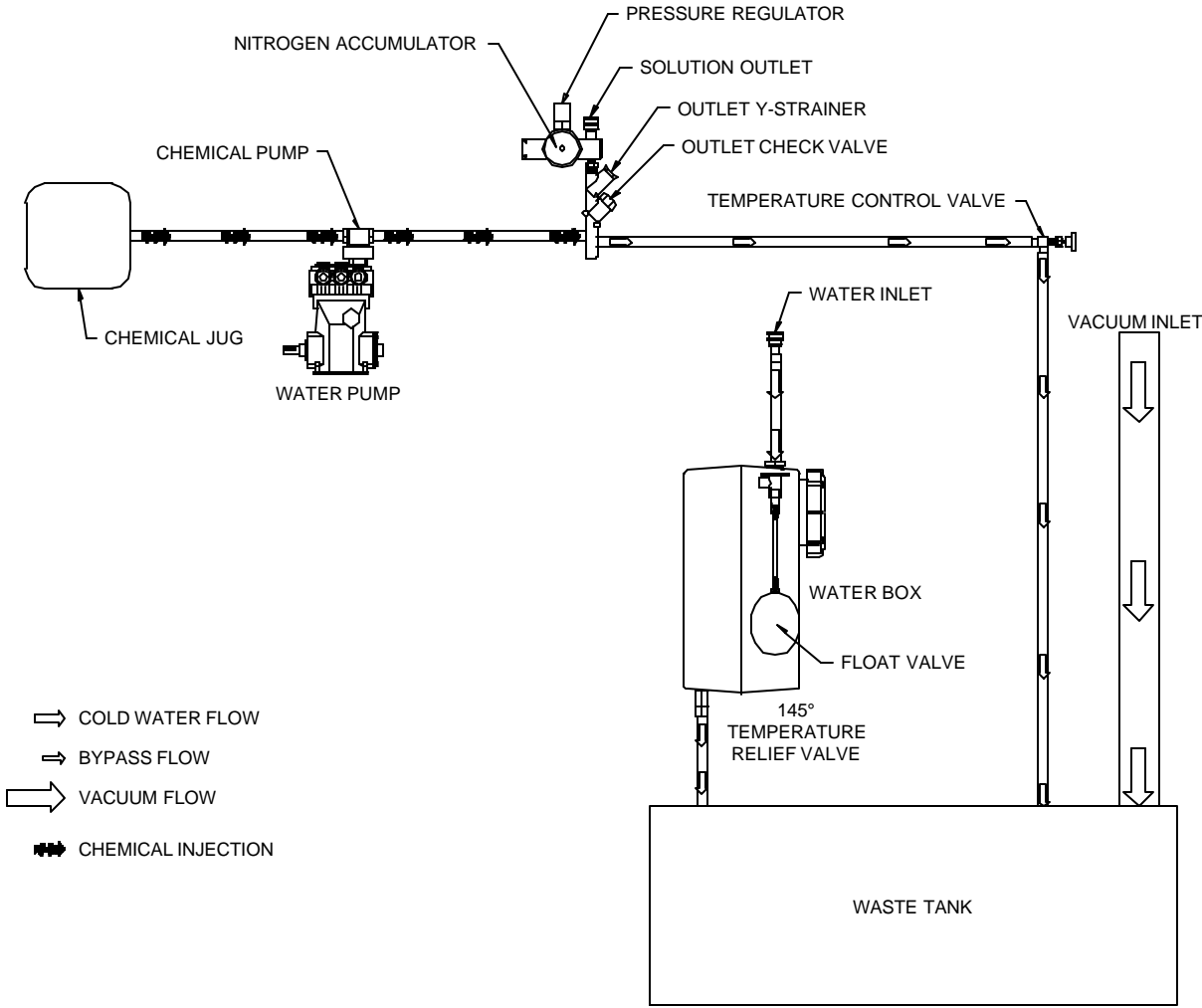
CHEMICAL INJECTION SYSTEM

The chemical injection system is unique in that it utilizes the pressure spikes generated by the high-pressure water pump to move chemical into the main pressure stream. The high pressure spikes move the diaphragm in the chemical pulse pump forcing small amounts of liquid chemical to be moved in a single direction of flow with the aid of two check valves.

The chemical is picked up from the container and fed through the flow meter to the chemical pulse pump where it is pressurized.

After reaching the chemical pulse pump the chemicals can either go into a bypass loop to purge air from the system. The chemical can then be directed by the chemical selector valve to the metering valve. The metering valve creates an orifice allowing the correct amount of chemical to enter the outlet manifold. The outlet manifold assembly is complete with a check valve that will not allow the chemicals to travel upstream into the plumbing system of the unit.

The chemicals are then mixed with hot pressurized water that make up a solution for cleaning application.



OPERATION

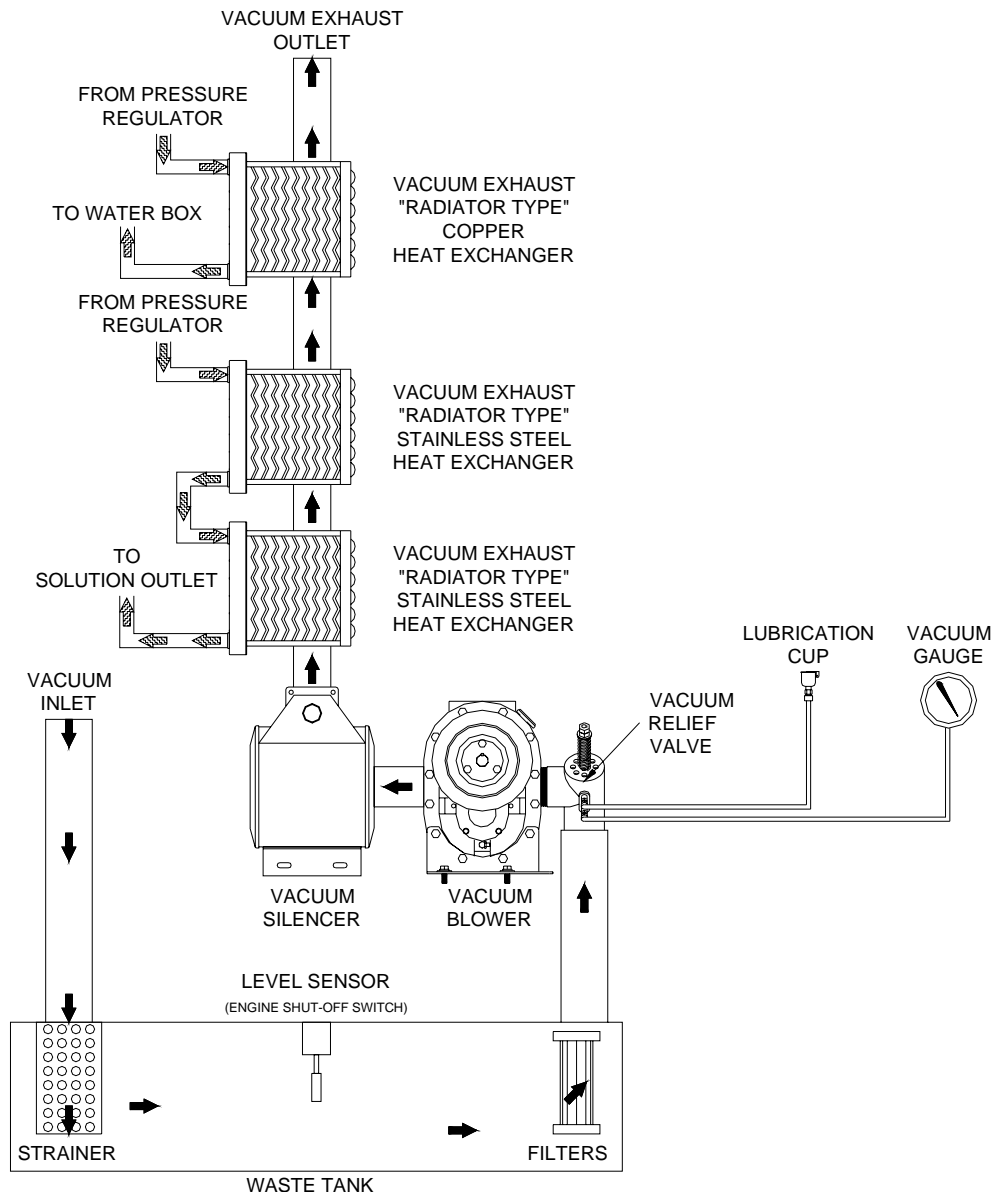
VACUUM SYSTEM

The engine turning an air pump generates vacuum. The air is channeled in one side of the vacuum pump, compressed and discharged on the opposite side, creating airflow.

The movement of air is used to do the work necessary for the extraction process. A vacuum nozzle applied to the carpet surface removes moisture, dirt and spent chemicals. These elements are conveyed back to a separating tank utilizing hoses and the force of air. Particles of moisture and dirt are separated in the vacuum tank using a series of changes in direction and velocity. The air is then filtered and rushes into the vacuum pump.

The vacuum pump compresses and heats the incoming air. The hot discharged air is forced down stream into a silencer for noise abatement. After exiting the silencer, this hot air is mixed with the hot air and gases from the engine. This mixture of hot air and gases are then forced through 3 radiators serving as heat collectors. Heat from the engine and vacuum pump is then transferred into the plumbing system raising the water temperature for better cleaning.

The engine and blower speeds are factory set to maximize vacuum pressure and provide sustained system life. Do not alter the engine or vacuum speeds outside the recommended ranges shown in the Technical Specifications section.



PRE-RUN INSPECTION

NOTE: Operation of this unit is simple. However, only trained personnel 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 fatality. **DO NOT** operate this unit 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. This unit uses approximately .95 to 1.25 gallons of fuel per hour, depending on the speed setting.

REMOVE TOOLS FROM VEHICLE

Remove any **tools** or **hoses** from the van which you will require.

WATER SUPPLY CONNECTION

NOTE: Before connecting your water hose to the supply faucet, flush out the faucet until the water is free of any debris. Flush out any debris which may be in your water inlet hose.

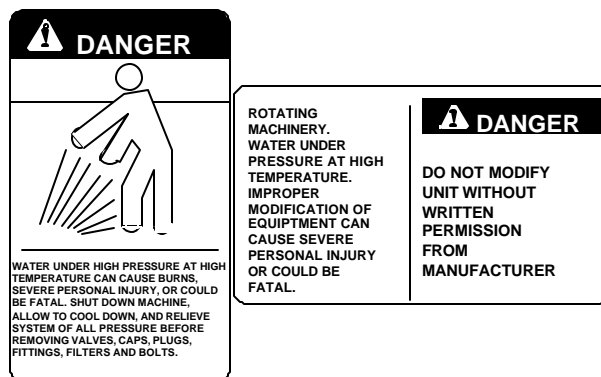
1. Connect the **water supply hose** to the **water inlet** quick-connect at the left front of the console. Connect the hose to the water supply faucet.

NOTE: Never use your waste pump outlet hose as a water inlet hose. Use only clean hoses for water inlet.

2. Turn the **water supply faucet** on. The water will fill the **water box**.

HIGH PRESSURE HOSE

Before starting the unit, connect the **pressure hose** to the **outlet connection** at the front of the unit. Connect the **cleaning tool** to the **pressure hose**.



VACUUM HOSE

Connect the **vacuum hose** to the **vacuum inlet** connection at the front of the unit. Connect the other end of the **vacuum hose** to the **cleaning tool**.

FILTERS

Ensure all filters on machine and in waste tank are free of debris.

OPERATION

PRIMING THE CHEMICAL PUMP

1. Connect water hose to water inlet connection and turn on water supply.
2. Connect cleaning and vacuum hoses to the desired cleaning tool and console.
3. Insert chemical inlet and prime tubing into chemical container.
4. Pull out engine choke and turn ignition key to start.
5. Push in engine choke after engine has started.
6. Set throttle to idle speed.
7. Fill chemical container and inspect chemical filter.
8. Turn chemical prime valve to prime and allow chemical to circulate. After all air bubbles have been removed from chemical tubing, turn the valve to the horizontal (off) position and open the chemical metering valve, triggering the solution flow on the cleaning tool. Set the desired chemical flow rate while observing the flow meter indicator.
9. Set throttle to maximum position with vacuum port blocked off for quick unit heat up.

WASTE PUMP (OPTIONAL)

1. If your unit is equipped with an automatic waste pump, connect one end of a garden hose to the pump-out connection on the console and the other end to an appropriate waste disposal.
2. Turn the pump-out switch on the control panel to the ON position. The waste pump will operate automatically throughout the cleaning operation.

We recommend that you use a 3/4" I.D. water hose as a waste pump outlet hose. DO NOT use a hose smaller than 5/8" I.D.

NEVER use your automatic waste pump outlet hose as a water inlet hose.

 **WARNING:** NEVER dispose of waste in storm drains, waterways, or on ground areas. Always dispose of waste in accordance with Local, State, and Federal laws.

Once you have completed steps 1 through 8, proceed with the cleaning operation. Your unit should be in the correct throttle position for your cleaning operation or extracting. A float switch located inside the waste tank will automatically shut down the unit when it reaches its full capacity. When this occurs, empty the waste tank before continuing.

CLEANING

Observe the following guidelines, while cleaning:

1. Before proceeding make sure the nozzles are functioning properly.
 - a. To check, hold the wand about one foot above the surface to be cleaned and open the wand valve. A full spray should be observed from the cleaning nozzles.
 - b. If the nozzles are not showing a full spray pattern, adjust nozzles for proper pattern, clean, or replace nozzles, if required.
2. Normally chemical is applied on the push stroke of the wand when cleaning and vacuuming is done on the pull stroke. For heavily soiled carpets the wand may be used in a scrubbing manner, apply chemical in both push and pull strokes. Always finish up an area with a vacuum stroke.
3. When cleaning, keep the working opening (mouth) flat on the surface being cleaned. Keep the wand moving when the valve is open.
4. The unit will automatically shut-down when the waste tank is full. This will prevent water being drawn into the vacuum pump. If shut-down occurs, empty the waste tank before proceeding.

UPHOLSTERY CLEANING

Upholstery tool, part #78513

1. Set temperature as desired and slow down the engine speed to minimize excess heat.
2. Use one (1) "80015" spray tip in tool.

SHUTDOWN AND DAILY MAINTENANCE

1. Close chemical metering valve.
2. Allow the unit to run for 2 minutes with the vacuum hose disconnected to remove moisture. Spray WD40 (or equivalent) into the vacuum lubrication cup. This will prevent corrosion due to moisture.
3. Set engine throttle at idle position and allow the water temperature to cool down, unitizing the bypass valve in the open position to bleed off residual hot water left in the system.
4. Turn off ignition switch.
5. Disconnect all hoses and tools.
6. Drain waste tank and rinse with clean water.

DE-FLOODING OPERATIONS

De-flooding operations involve removal of water from carpet and flooring. This differs from normal cleaning operations in that no water or solution is required. An automatic waste pump-out is highly recommended for all de-flooding operations due to the large amount of water removal often required.

1. Start unit.
2. Set pressure regulator at 100 psi.
3. Shut off water pump.
4. Begin de-flooding operations.
5. Under almost all conditions, the unit will sufficiently cool itself. If you find yourself operating in extreme heat: Hook up a water supply; turn on the water pump at 100 psi, and crack the bypass valve slightly to provide additional cooling.

FREEZING PROTECTION



If the unit is exposed to freezing weather the water in the unit may freeze, causing SERIOUS DAMAGE to the unit. To avoid this, the following is recommended during the cold weather season.

When the unit is not in use, always park it in a heated building.

While in operation, avoid long shutdowns as the unit provides heat while running. Shut it down just prior to leaving for the next job.

If a heated building is not available, we recommend that you winterize the unit with anti-freeze. At present, it is only possible to winterize units, which do not have an auxiliary water tank. Units with auxiliary water tanks must be stored in a heated building when not in use.

OVERHEATING PROTECTION

Air cooled engines rely on the flow of air over the engine for cooling operations. Ensure that there is sufficient air flow in the van. Never operate the unit with all the vehicle doors closed and no alternate ventilation system.

OPERATION

WINTERIZING YOUR UNIT

1. Shut off the water supply. Disconnect the **water inlet hose** from the front of your console.
2. Connect all **high pressure hoses and tools** that may have water in them.
3. Start the unit and turn water pump on. Open the tool valve until water pressure drops and water stops flowing.
4. Fill the water box with approximately two gallons of 100% glycol base anti-freeze.
5. Start the unit. Turn the **solution pump switch** ON.
6. Open the tool valve until anti-freeze begins to come out of the tool. Recover **ALL** anti-freeze that comes out of the tools into an approved container. We strongly recommend that you recycle and re-use the anti-freeze.

Repeat this procedure with all the remaining tools. After all tools and pressure hoses have been filled with anti-freeze, disconnect and store them.

7. Turn the **solution pump switch** OFF. Attach the **winterizing loop hose** with attachment, Part #10-805380, to the solution outlet connection and the water inlet connection. Turn the **solution pump switch** ON.

Allow the unit to run for approximately 3 minutes with the winterizing loop hose attached.

Open bypass valve and allow anti-freeze to flow to waste tank.

8. Prime the chemical system with 50/50 anti-freeze/water mix. Insert the chemical inlet and prime discharge tubes into the anti-freeze container. Turn the chemical valve to PRIME until anti-freeze begins to flow out of the prime hose.
9. Now turn the chemical valve to the open position, making certain that the flow meter indicates flow and that all anti-freeze drains out of the chemical hose into an approved container, after 30 seconds, turn off both valves.



When disposing of used anti-freeze, observe local laws and regulations. Do not drain onto the ground or into storm drainage systems.

REMOVING ANTI-FREEZE FROM THE UNIT

1. Connect one end of the **winterizing loop hose** to the solution outlet connection. Place the other end of the loop hose, without the attachment, into an approved container.
2. Start the unit. Allow the anti-freeze to flow into the container until flow stops.
3. Fill the water box with fresh water and repeat step #2.
4. Connect the **water inlet hose** to the water inlet connection on the console. Turn the water supply on.
5. Connect all **solution hoses and any tools** which require purging of anti-freeze to the solution outlet connection(s).
6. Open the tool valves and drain the anti-freeze into an approved container until the flow is clear and all anti-freeze is purged from the tools and hoses.

7. Place the chemical prime hose into the approved container. Submerge the chemical inlet hose in water. Turn the **chemical valve** to the PRIME position until clear water comes through the prime hose, and then remove the prime hose from the container.

Turn the **chemical valve** to the ON (CHEMICAL) position. This will allow water to flow into the other side of the system.

Once all of the anti-freeze is removed, the unit is ready to use.

Eventually, the anti-freeze in your storage container will become diluted with water. If the anti-freeze level drops below 50% of the total, dispose of it and start with fresh 100% anti-freeze.

WARNING:

When disposing of used anti-freeze, observe local laws and regulations. Do not drain onto the ground or into storm drainage systems.

MAINTENANCE

SERVICE SCHEDULE

Engine	Daily	Check engine oil level. *** Fill to proper level
Vacuum Pump	Daily	Spray WD-40 in lubrication cup at front of console for 5 sec.
Water Pump	Daily	Check oil level.** Fill to proper level
Solution Inlet Tube Strainer	Daily	Check strainer for blockage, remove any debris
Vacuum Inlet Filter (In Waste Tank)	Daily	Clean filter, inspect, replace if damaged
Vacuum Hoses	Daily	Wash out with clean water
Automatic Waste Pump	Daily	Inspect and remove any debris or sediment
Chemical Filter	Daily	Inspect daily
Vacuum Pump	Weekly*	Check oil level. Fill to proper level
Water Box Float Valve	Weekly	Check for proper seating and shut-off
Water Pump Inlet Filter	Weekly*	Check for debris and clean
Battery	Weekly*	Check for proper fluid level. Fill with distilled water only
Solution Outlet Y-Strainer	Weekly*	Inspect and remove any debris or blockage
High Pressure Hoses	25 hrs	Inspect for damage or impending damage
Pressure Regulator	50 hrs	Lubricate o-rings
Pressure Regulator	50 hrs	Lubricate plug behind spring
Engine	100 hrs	Change engine oil***
Engine	100 hrs	Change oil filter***
Engine	100 hrs	Check fan belt tightness
Battery	100 hrs*	Clean battery terminals
Belts/Pulleys	100 hrs	Check belt wear and tension. Check pulley alignment.
Automatic Waste Pumpout	100 hrs	Clean inlet and outlet ports
Float Valve Seal	200 hrs.	Replace seal
Engine	200 hrs	Service air cleaner elements*
Fuel Pump	200 hrs	Check hose connections
Engine	200 hrs	Check spark plugs for carbon deposits and proper gap
Chemical Valves	200 hrs	Inspect and/or adjust packing nuts
Heat Bypass Valve	200 hrs	Inspect and/or adjust packing nuts

MAINTENANCE

SERVICE SCHEDULE

Vacuum pump	250 hrs	Lubricate bearing on pulley end with grease
Vacuum Exhaust Heat Exchanger	500 hrs	Inspect cores and remove debris.
Water Pump	500 hrs	Change oil**
Pulley Set Screws & Hub Cap Screws, Water Pump Clutch Shaft Bolts	500 hrs	Check for proper torque valves. Re-torque, if required****
Drive Pulley	500 hrs	Inspect, clean and check for pulley groove wear****
Drive Pulley	500 hrs	Check pulley alignment****
Drive Belts	500 hrs	Inspect and clean****
Drive Belts	500 hrs	Check belt tension****
Chemical Pump & Check Valves	500 hrs	Replace diaphragm and check valves.
Vacuum Lubrication Lines	500 hrs	Check for line obstructions. Replace tubing if cracked or damaged
Engine	500 hrs	Replace in-line fuel filter on engine.
Heater Core	500 hrs	Clean and inspect.
Engine	1000 hrs	Replace spark plugs.
Check Valve (Solution Outlet)	1000 hrs	Inspect, clean, and repair, if needed.
Vacuum Pump	250 hrs	Lubricate bearing on pulley with grease
Waste Tank Shut-off Float Switch	Monthly	Check for debris hindering movement
Engine	Yearly	Flush radiator and change engine coolant.
Vacuum pump	Yearly	Drain, flush and replace oil*****
Nitrogen Accumulator	Yearly*	Replace Accumulator.
Waste Tank Filters/Strainers	Yearly	Check for damage and blockage. Replace if needed.
Engine	Yearly	Replace air cleaner element
Engine	3 years	Replace ignition wires.

* Or as often as required

** Change water pump crankcase oil after the first 50 hours

*** Change engine crankcase oil and filter after the first 50 hours

**** Perform drive belt, pulley and hub maintenance after the first 25 hours of operation, and then again at 100 hours

***** If using AEON PD synthetic lubricant, 4000 hours or every 2 years, whichever comes first

MAINTENANCE

KEY CHECKPOINTS

Note: Initiation of a planned preventative maintenance program will assure that your unit has optimum performance, a long operating life, and a minimal amount of "down" time.

EXTERNAL FUEL PUMP MAINTENANCE

The power plant for the unit receives fuel from the main gas tank of your van/truck. An external fuel pump that provides this fuel is located on the underside of the van/truck. Loose fittings and hose connections will cause your unit to perform poorly. Follow the recommended fuel pump maintenance in the Maintenance Schedule in this manual. Refer any additional questions to your dealer.

CHEMICAL SUPPLY SYSTEM MAINTENANCE

The chemical supply system pulls chemicals from your chemical bottle utilizing a pump that works off the water pump pulsing. Any clogged filters or loose connections will result in a chemical supply system malfunction or a malfunction at the cleaning tool. Maintenance of the solution outlet check valve and strainer are vital to effective cleaning operation and minimal unit downtime. Additionally, the hoses related to supplying water and chemical to the outlet manifold are under high pressures and experience thermal expansion and contraction. Periodic inspections of these hoses for tears, cracks, and failing connectors are necessary to avoid unwanted leaks. To keep your chemical system functioning properly, follow the chemical pump and solution outlet maintenance in the Maintenance Schedule in this manual. Refer any additional questions to your dealer.

HEAT EXCHANGER SYSTEM MAINTENANCE

The heat exchange system in your unit transfers energy between the unwanted heat of the power plant /blower and the solution supply system. The heat transfer of this system is highly dependent on the surface area contact in the heat exchanger cores located in the heat exchanger box. This surface area amount is adversely minimized when the supplied water is not softened to recommended levels. Hard water will result in scaling on the inside walls of the heat exchanger tubes. It is recommended that you use a dealer approved water softener to avoid premature heat exchanger core failure. Contact your local dealer for advice on the water hardness levels in your area.

Additionally, the heat exchanger tubes are very sensitive to freezing conditions. As the water freezes during cold conditions, it expands in the heat exchanger tubes and causes damage. Often the tubes are cracked and require the replacement of the heat exchanger core. Refer to the Freeze Protection instructions section in this manual. Refer any additional questions to your dealer.

VACUUM PUMP MAINTENANCE

(Refer to manufacturer's manual for specific maintenance instructions)

The total function of the unit is based around the performance of the vacuum pump. Heat transfer used to raise the temperature of the solution is gained from the air drawn by the vacuum pump and solution is removed from the carpet with the vacuum suction of the vacuum pump. General maintenance actions for the vacuum pump as listed in this manual are vital to prolonged vacuum pump operations. Daily lubrication of the pump is required to avoid seizure of the system. Also, waste tank filters and strainers must be maintained to prevent unwanted debris from entering the vacuum pump.



WARNING: DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury, severed limbs, or fatality.

NOTE: Use the hour meter as a guide for coordinating the maintenance schedule.

ENGINE

(Refer to manufacturer's manual (P/N 67-945310) for specific maintenance instructions)

1. Check the engine oil level **daily**, when in use. Make certain that proper oil level is maintained. **NEVER** overfill.
2. Change the break-in oil after the first **50 hours** of operation. Thereafter, change oil every **100 hours** of operation. USE ONLY KOHLER BRAND OIL FILTERS (PN 42-902277). USING ANY OTHER TYPE OIL FILTER WILL VOID YOUR ENGINE WARRANTY. Torque drain plug to 10 ft lbs.

Oil Recommendation. See "ENGINE OIL REQUIREMENTS" in Operations section.

NOTE: Using other than service class **SG, SH, SJ** or higher oil or extending oil change intervals longer than recommended can cause engine damage.

3. Check the spark plugs every **200 hours**. Clean if necessary. Replace the spark plugs every **1000 hours**. **NOTE:** Never sandblast spark plugs. Spark plugs should be cleaned by scraping or wire brushing.
4. Replace the air cleaner element every **year**.
5. Replace the in-line gas filter every **500 hrs.**

NOTE: For additional engine service information, obtain a "Kohler Repair Manual" from any authorized Kohler Service Center. If service or repair is required, contact an authorized Kohler Service Center. You will need to provide the serial number of the engine.

MAINTENANCE

VACUUM PUMP

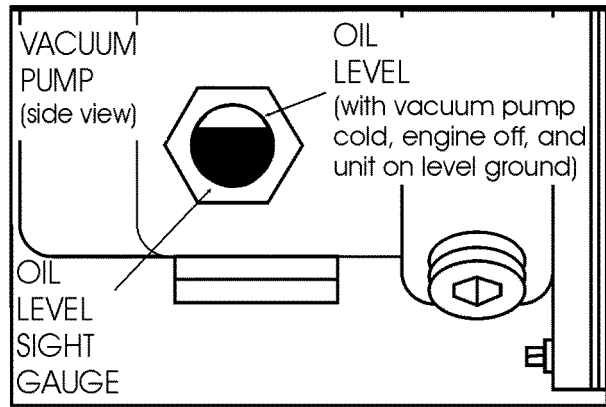
Refer to the Vacuum Pump Operation and Service Manual (P/N 67-945307) for specific instructions.

Lubrication: We recommend that you use AEON PD Synthetic Blower Lubricant in the gear end of the vacuum pump for all operating temperatures. AEON PD is formulated especially for positive displacement blower service to provide maximum blower protection at any temperature. One filling of AEON PD will last a many times longer than a premium mineral oil.

NOTE: AEON PD (Part# 05-008039) is the oil in the vacuum pump. Topping off or adding petroleum oil to synthetic oil is NOT recommended.

1. Check the oil level **daily** to assure the proper level. **PROPER LEVEL** cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating. Use the illustration as a guide when adding oil.
2. To prevent rust from building up inside the vacuum pump (if moisture exists) we have provided a lubrication cup on the front of the unit.

First run the unit at least **1 minute** to remove any moisture from the vacuum pump. Next, fill the lubrication cup with WD-40, or a similar lubricant, for **5 seconds** while the unit is running and the vacuum inlets are sealed. Do this at the end of **each working day**.

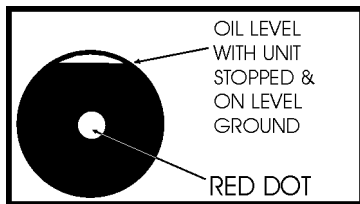


3. Drain, flush and replace oil **every 1500 hours or yearly, whichever comes first**. Change oil more frequently if inspection so indicates. With AEON PD synthetic lubricant, perform the oil change maintenance **every 4500 hours or every 2 years, whichever comes first**.
 4. Vacuum pump lubrication is vital to performance of our pump. Failure to follow the maintenance schedule in the "Maintenance Schedule" can lead to permanent damage to your blower.
- Refer to the Vacuum Pump Operation and Service Manual (P/N 67-945307) for specific instructions.
5. Bearings on the drive end of the blower require grease lubrication every 250 hours of operation.

WATER PUMP

Refer to the Water Pump Operation and Service Manual for specific instructions (P/N 67-945621).

1. Check the crankcase oil level **daily** to assure the proper level. Use the illustration as a guide when checking the oil level. If the level has dropped, check for the source of leakage and repair.
2. Use the provided dipstick. Remove red filler cap and insert dipstick. Oil level should be between marks on the dipstick or use a mirror and refer to the illustration.



3. Change the crankcase oil with Cat Pump Crankcase Oil, Part #05-008016, after the **first 50 hours** of operation. Drain and refill the crankcase oil with Cat Pump Crankcase Oil **every 500 hours** thereafter.
4. Other Cat approved oil equivalents are: Mobil DTE 16, Amoco Rykow 68, and Shell Tellus T68.

WATER PUMP CLUTCH

⚠ CAUTION: After removing or replacing water pump clutch, make certain that bolt is re-torqued to the proper value.

Component	Torque Value	
	Inch pounds	Foot pounds
Water pump shaft bolt	300	25

VACUUM INLET FILTER (IN WASTE TANK)

1. The vacuum filter in the waste tank should be removed and cleaned **daily**. If this is done, the filter will last for a long period of time.

VACUUM RELIEF VALVE

While the unit is running at full RPM, block the air flow at the vacuum inlet connection and read the vacuum gauge. If adjustment is required, shut the unit down and adjust the vacuum relief valve locking nut tension. Start your unit and read the vacuum gauge. Repeat this process until the relief valve opens at 13" Hg.

VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the four nuts which hold the vacuum pump mount in place.
2. Loosen the hose connecting the pump to vacuum muffler.
3. Turn the adjusting bolts until the proper belt tension is achieved (1/2" deflection in the center of the belt, halfway between the pulleys).
4. Retighten all nuts and hose clamps previously loosened at the vacuum muffler.

NOTE: When adjusting belt tension, make certain that the engine shaft and vacuum pump shaft remain parallel, and the belt tension is equal throughout the belt width.

3. After adjusting, re-tighten the four nuts which hold the vacuum pump mount in position. Check belt alignment with straight-edge.

⚠ CAUTION: Make certain that when you re-torque these screws, that you use a clockwise pattern and continue until proper torque is achieved.

4. Check for pulley groove wear, clean belts and pulley grooves, check for worn belts, proper belt tension, and pulley alignment after the **first 25 hours** and then again at **100 hours**.

MAINTENANCE

WATER PUMP DRIVE BELT


To tighten the water pump belt:

1. Loosen the bolts which hold the water pump mount to base.
2. Adjust the position of the belt tension adjusting bolt until the proper belt tension is achieved. (1/2" deflection in the center of the belt, halfway between the pulleys).
3. While checking the alignment, tighten the nuts which hold the water pump mount to base.
4. Check belt and pulleys every 100 hrs.

FLOAT VALVE (WATER BOX)

1. Check the float valve weekly for proper operation. If overfilling is a problem, check the plunger for a proper seal. Replace tip on plunger (PN 16-808164) if needed.

NOTE: *If the float ball has any water inside it must be replaced.*

 **CAUTION:** When replacing float ball, **DO NOT** over-tighten, as the rod can puncture the ball. Make sure to tighten the nuts on the rod.

2. Disassemble the valve and check the piston and seat for damage, replace if needed. See the "Illustrated Parts Listing" for a parts break-down.

WASTE TANK STRAINER BASKET

The strainer basket located inside the waste tank should be removed and cleaned whenever it is full of debris. This should be done on at the end of each job.

WASTE TANK FLOAT VALVE

The float valve in the waste tank shuts the unit down once the waste tank becomes full. Debris can collect around the hinge of the float valve. Check the float valve for debris at least once a month.

Y-STRAINER (OUTLET)

Inspect the Y-strainer **after the first week** of running the unit by unscrewing the screen and remove any accumulated debris. Inspect the strainer again at **2 and 4 weeks**.

The Y-strainer should then be inspected **every month**. However, if the Y-strainer has a frequent build-up of debris it should be inspected and cleaned more often.

CHECK VALVE (OUTLET)

Inspect the check valve when rebuilding the chemical pump or as needed. Remove and disassemble the check valve. Check the Teflon seat for debris or abnormal wear. Clean or replace seat if needed.

NOTE: Improper seating of the check valve poppet, damaged spring, or o-rings will cause poor operation of the chemical system.

For the procedure, see the "General Service Adjustments" section in this manual for details.

CHEMICAL PUMP

Rebuild the chemical pump **every 500 hours**. This involves changing the diaphragm and check valves.

For the procedure, see the "Chemical Pump" section in this manual for details.

NOTE: *Inspect chemical filter daily.*

CHEMICAL AND HEAT BYPASS VALVES

Examine the packing nut on the chemical selector valve, heat bypass valve, and chemical metering valve **every 200 hours**. Keeping these valve packings properly adjusted will eliminate possible leakage from the valve stems and add to overall valve life.

For the procedure, see the "General Service Adjustments" section in this manual for details.

NITROGEN ACCUMULATOR

The nitrogen accumulator is pressurized to 250 PSI and must be replaced periodically. The accumulator cannot be repaired or recharged. We recommend replacement every 1000 hours (or yearly) of use.

PRESSURE REGULATOR

Lubricate the o-rings and bullet **every 50 hours**. Use o-ring lubricant Part #05-008035.

For the procedure, see the "General Service Adjustments" section in this manual for details.

VACUUM HOSES

To assure maximum hose life, we recommend that the hoses be washed out with clean water at the end of each **working day**.

HIGH PRESSURE HOSES

Inspect your high pressure hoses for wear after the **first 100 hours** of use. Inspect **every 25 hours thereafter**. If hoses show any signs of damage or impending rupture, **replace the hose**.



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 3000 PSI at 250°F. 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.

OPTIONAL WASTE PUMP-OUT

At the end of each work day, make certain that you remove any debris or sediment which may be inside the waste pump by pumping fresh water through the pump.

MAINTENANCE

SERVICE GENERAL ADJUSTMENTS

WARNING:

USE EXTREME CAUTION while servicing while machine is running. The high-speed mechanical parts as well as high temperature components may result in severe injury, severed limbs, or fatality.

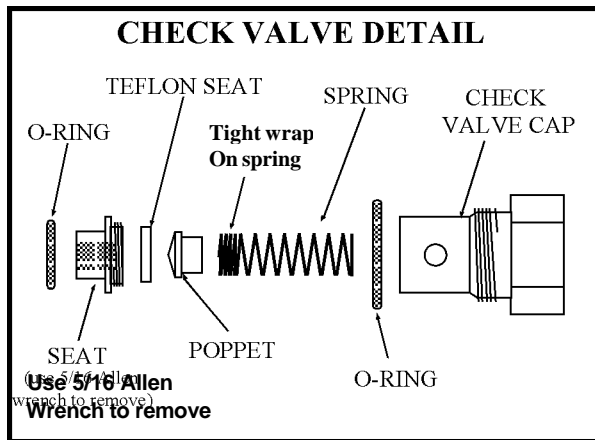
ENGINE SPEED

This unit uses a factory installed Kohler engine governor. The engine speed is adjusted using the "T" handle throttle control. Pushed in the engine is at idle speed (1400 rpm). With throttle control pulled out, engine operates at maximum rpm (2850). By turning "T" handle clockwise, throttle can be locked at any engine speed between idle and maximum speed.

CHECK VALVE (SOLUTION OUTLET)

Inspect the check valve whenever doing service on the chemical pump or if flow problems occur in the chemical system:

1. Remove the check valve. Be sure the small o-ring for the seat comes out with the check valve.
2. Remove the seat, using a 5/16" Allen wrench.
3. Check the Teflon seat for debris or wear. Clean or replace Teflon seat if needed.
4. Clean the poppet and spring, inspect for wear or damage, and replace as needed.
5. Re-assemble the check valve. Start the seat by hand, tighten using a 5/16" Allen wrench. **DO NOT** over-tighten seat.



NOTE: Improper seating of the check valve poppet, damaged spring or o-rings will cause poor operation of the chemical system.

6. Lubricate the o-rings with o-ring lubricant Part #05-008035 and reinstall.

WATER BOX

1. Check inlet strainer for debris and blockage. A blocked strainer could damage the water pump if water flow is restricted.
2. Inspect water box float valve for freedom of movement and water leaking past valve.

CHEMICAL PUMP

The only repairs which the chemical pump may require is the replacement of the diaphragm or check valves. To replace the diaphragm, unscrew the cover from the body. When replacing the diaphragm, lubricate the outer edges of the diaphragm with o-ring lubricant Part #05-008035 and reassemble. To replace the check valves, unscrew the check valve caps. Replace the check valves and reassemble, using new o-rings.

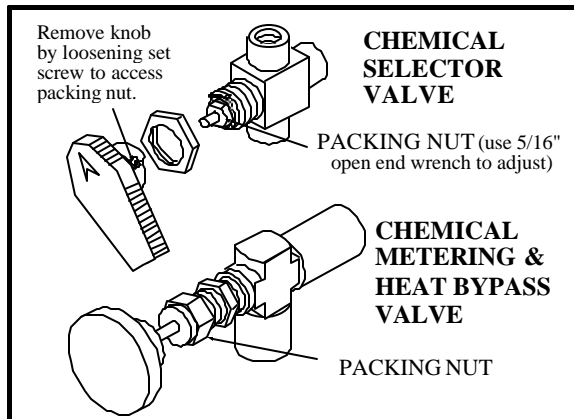
DO NOT attempt to re-use o-rings once the check valves have been removed. See the "Illustrated Parts Listing" for a parts break-down on the chemical pump.

DRIVE BELTS FOR WATER PUMP AND VACUUM PUMP

Use only exact replacement for system drive belts. Use only exact manufacturer and models for replacements.

PACKING NUT ADJUSTMENT FOR CHEMICAL METERING BYPASS AND CHEMICAL SELECTOR VALVES

Examine the packing nut on the metering and selector valves for proper tension every **200 hours**. When turning the knob, there should be a small amount of resistance. If not, slightly tighten the packing nut. **DO NOT** over tighten. Keeping the valve packings properly adjusted will eliminate possible leakage from the valve stem and add to overall valve life.



PRESSURE REGULATOR

The pressure regulator serves to maintain water pressure at a preset point and to bypass this water back to the water box.

To adjust:

1. With your unit running, close the cleaning tool. Check the pressure gauge. Open the tool valve. We recommend setting the pressure regulator so that the pressure gauge reads 450 PSI with the tool valve **open**.

When the tool valve is opened, there is an approximate drop of 50 PSI in pressure. **If there is a pressure drop greater than 100 PSI, it may be necessary to lubricate the o-ring in the pressure regulator.**

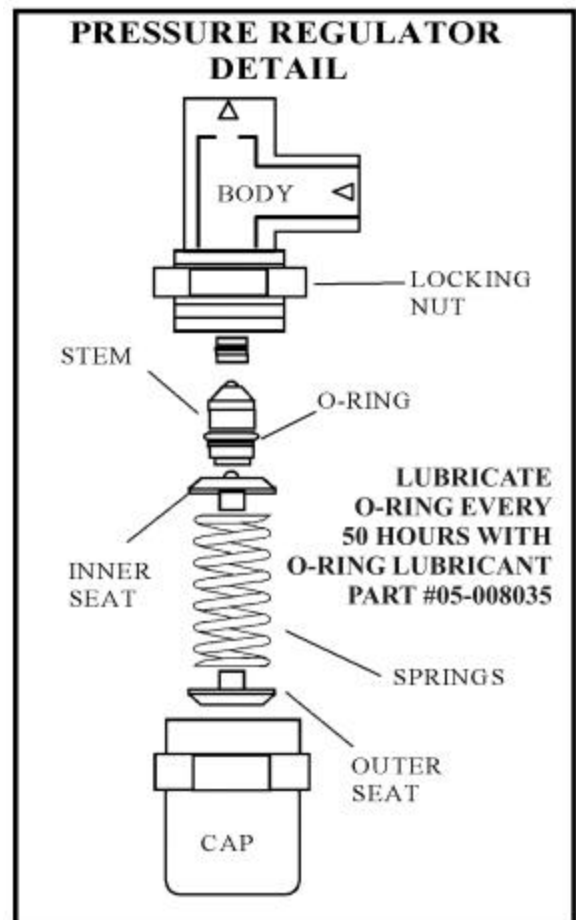
2. If the pressure regulator requires adjustment, loosen the locking nut, then turn the adjusting body (cap) (while observing the pressure gauge on the control panel) until the desired pressure is obtained. Retighten the locking nut.

⚠ WARNING:

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

We recommend that you lubricate the pressure regulator o-ring every **50 hours**, or whenever required. If you do not, the stem may become seized due to inadequate lubrication. If this occurs:

- a) Shutdown the unit.
- b) Relieve all pressure from the water system.
- c) Remove the cap from the pressure regulator and remove the stem with long nose pliers.
- d) Clean and lubricate stem.
- e) Reassemble pressure regulator.



MAINTENANCE

PROBLEM	CAUSE	SOLUTION
Loss of water pump pressure. With the cleaning tool open, the water pressure gauge reads below the normal operating pressure.	Water supply is turned off or the float valve is stuck or improperly adjusted.	Turn the water supply on or up. Check for kinks in the water supply hose. Examine the float valve and adjust or replace.
	Water pump inlet supply line is plugged or drawing air.	Examine the water inlet filter inside the water box. Remove accumulated debris and replace if required. Check for suction leaks and loose clamps or fittings. Tighten any loose fittings or clamps. Replace any ruptured hose(s).
	Improper engine speed	Using a tachometer, check the engine speed. Full throttle engine speed is 2850 RPM. Idle engine speed is 1400 RPM. Refer to the "engine speed" section for instructions on how to re-adjust.
	Pressure regulator o-rings are dry.	Lubricate o-rings, using o-ring lubricant Part #05-008035.
	Pressure regulator has worn o-rings	Check o-rings. If necessary, replace.
	Pressure regulator is dirty, stuck open, or improperly adjusted.	Clean or repair regulator. Adjust to working pressure. Lubricate o-rings, using o-ring lubricant Part #05-008035.
	Low pump volume. (Measure the amount of water being returned to the water box from the pressure regulator. It should fill a gallon container about every 17 seconds).	Examine the check valves, plunger cups, and cylinder head on the water pump. Repair, whenever required (refer to the water pump service manual).
	Defective water pressure gauge.	Replace gauge
	Orifice (spray nozzle) in the cleaning tool is worn, defective, or wrong size.	Replace Nozzle or change nozzle size.
	Debris clogging water lines or water inlet disconnect.	Clean or replace as needed.
Loss of solution volume at cleaning tool orifice. Water gauge reads normal.	Belts loose or broken	Re-tension or replace as needed.
	Loss of pump prime	Manually prime water pump.
	Plugged orifice and/or screen in the cleaning tool.	Unplug or replace orifice and/or screen
	Internal block between the pressure regulator manifold and the outlet Y-strainer, or the Y-strainer screen is clogged	Inspect all lines, remove accumulated debris which is blocking proper flow. Replace any defective hoses. Remove, inspect, and clean the Y-strainer screen. De-scale unit and install a water softener, if necessary.
	Outlet check valve is plugged	Examine the check valve, remove any debris
	Defective quick-connect on one or more of the high pressure hoses.	Replace defective quick-connects(s) on high pressure hoses(s).
	Cleaning tool valve is malfunctioning.	Repair or replace valve.
Hose inner lining is constricted.	Remove restriction or replace hose.	
	Air leak in chemical supply line, priming valve or metering valve.	Check for air leaks. Replace faulty parts.

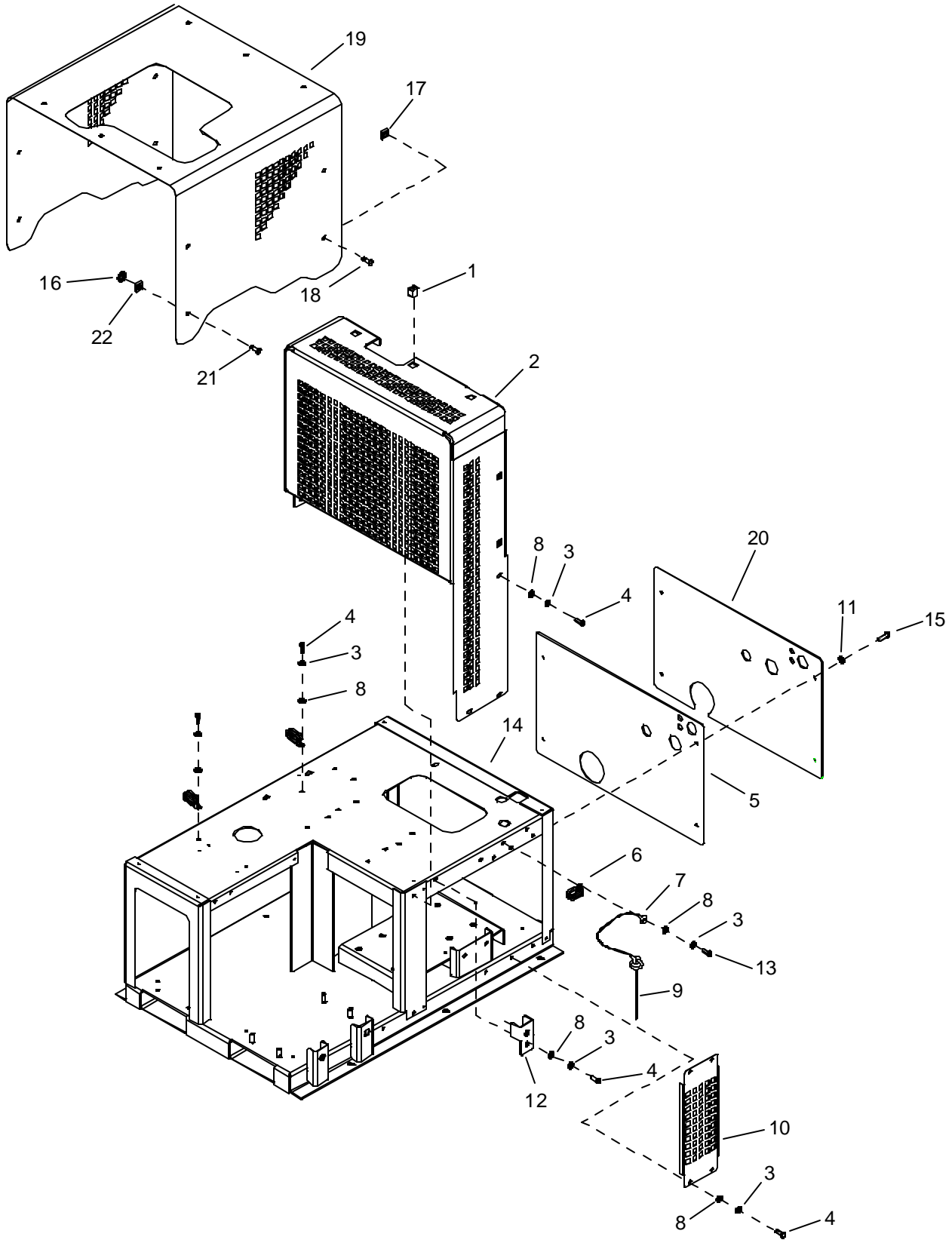
PROBLEM	CAUSE	SOLUTION
<p>Loss of vacuum</p> <p>While cleaning, the vacuum is not up to specification. Engine RPM is normal.</p>	Vacuum gauge is giving an improper reading.	Examine the tubing between the vacuum relief valve and the vacuum gauge and remove any blockage.
	Vacuum hose(s) is damaged, causing a suction leak.	Inspect hose(s), repair or replace.
	Waste tank gaskets not sealing properly, not positioned properly	Inspect the gasket. Repair seal or replace Re-position lid(s).
	Plugged vacuum hose or vacuum plumbing between vacuum inlet and strainer basket.	Unplug vacuum hose or inlet plumbing.
	Waste tank filter or strainer basket is plugged.	Clean or replace filter. Clean strainer basket.
	Loose vacuum pump drive belts.	Tighten the drive belts
	Waste tank drain valve is damaged or left open, causing a vacuum leak.	Drain the waste tank. Close drain valve, if open. Remove the dump valve and, after inspecting, replace the defective components.
	Vacuum relief valve requires adjustment or has a vacuum leak due to damaged diaphragm.	Re-adjust the vacuum relief valve. If the vacuum does not increase, remove and inspect the relief valve diaphragm. If damaged, replace
	Vacuum exhaust heat exchangers are plugged with lint.	Remove and clean.
	Vacuum pump is worn out.	Replace the vacuum pump.
<p>Excessive Vacuum</p>	Improper throttle adjustment.	Adjust throttle to set desired vacuum pressure.
	Vacuum obstruction	Inspect hoses for obstructions.
	Vacuum relief valve requires adjustment.	Readjust the vacuum relief valve.
<p>Loss of chemical</p> <p>With the cleaning tool valve open, no chemical</p>	Chemical pump is improperly primed.	Refer to chemical pump priming instructions.
	The strainer at the inlet end of the chemical inlet line is clogged	Unclog the strainer. If damaged, replace.
	Suction leak in the inlet line leading into the chemical pump.	Inspect inlet lines and flow meter for air leaks or damage and replace, if required.
	Chemical pump check valve(s) is clogged	Remove any debris from the chemical check valve(s). Replace chemical check valve(s) or seals, if necessary.
	Chemical prime/on-off valve or chemical metering valve is defective.	Replace valve(s).
	Chemical pump diaphragm is ruptured.	Disassemble the chemical pump and replace the damaged diaphragm.
	Defective cylinder in the water pump.	Measure the pump volume. If the pump volume is less than normal, refer to "Loss of Pump Volume" in the Troubleshooting section in this manual.

MAINTENANCE

PROBLEM	CAUSE	SOLUTION
Chemical flow meter indicates flow with the tool valve closed	External leak in chemical piping	Tighten fittings. Re-apply thread sealant where required. If any fittings are damaged, replace.
	Outlet 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.
	Chemical pump diaphragm is ruptured	Close the chemical valve on the instrument panel. If the flow meter still indicates flow, replace the chemical pump diaphragm.
	Internal leak in chemical valve causing continual flow through prime tube returning to container.	Tighten valve packing nut (see "General Service Adjustments" section in this manual). Replace valve, if necessary.
Water pump does not engage	Solution pump circuit breaker has been tripped	Check the solution pump circuit breaker on the control panel. Press the circuit breaker reset button.
	Defective electrical connection in the console wiring or defective switch.	Examine switch, electrical connections, and wiring. Repair any defective connections. If there is power going to the switch but not going out, replace the defective switch.
	Water pump has not been activated	Turn solution pump switch to on.
	Defective water pump clutch. NOTE: The clutch may be manually set by inserting two 1/4-20 x 1/2 bolts. Line up the holes on the clutch and insert the bolts. To disengage the pump, remove the bolts.	If there is power in the switch, but not power at the clutch, replace the defective wire. If there is power at the clutch, replace the defective switch.
	Loose or broken water pump belts.	Tighten or replace belts.
Engine will not start The engine does not turn over	Main circuit breaker on the control panel has been tripped.	After inspecting the unit to determine the cause of the tripped circuit breaker, press the reset button.
	Loose or corroded battery.	Clean, tighten, or replace the battery terminals.
	Dead battery.	Recharge or replace battery.
	Defective ignition switch.	Test ignition switch for power going into the switch. If there is power going in but NO power going out, replace the switch.
	Defective starter motor.	Test the starter motor. If necessary replace.
	Vacuum pump seized.	Refer to Gardner Denver Service & Repair Manual.
Starter turns over engine, but will not start	Waste tank is full.	Empty the waste tank.
	Defective fuel pump.	Replace the fuel pump.
	Loose or broken wires leading to waste tank float switch.	Repair or replace any broken electrical connections.
	Defective float switch in the waste tank.	Check switch for proper operation, replace as necessary.
	Oil pressure switch (located on engine), fuel shut-off solenoid (located on engine), high temperature switch (located on engine).	Test these components. If any are defective, replace. Consult the Kohler Engine Operation and Maintenance Manual.

PROBLEM	CAUSE	SOLUTION
Starter turns over engine, but will not start	Engine is malfunctioning	Refer to Kohler Engine Operation and Maintenance Manual.
Engine stops running While doing normal cleaning, the engine stops running	Engine is out of gasoline	Add gasoline to the fuel tank.
	Waste tank is full	Empty waste tank.
	Main or engine circuit breaker on the control panel has been tripped.	After inspecting the unit to determine the cause of the tripped circuit breaker, press the reset button.
	Engine coolant temperture has exceeded 240°F, triggering the high temperature switch to shut the unit down.	Determine the cause of the overheating before restarting the unit. Refer to the Kohler Engine Operation and Maintenance Manual.
	Defective fuel pump.	Replace fuel pump.
	Defective float switch inside the waste tank.	Check switch for proper operaton. Replace as necessary.
	Defective 240°F engine coolant high-temperature shudown switch.	Test switch. If necessary, replace.
	Oil pressure gauge on engine has shut down, due to insufficient oil pressure.	Refer to the Kohler Engine Operation and Maintenance Manual. DO NOT restart the engine until the cause is determined and corrected.
	No ignition in the engine or engine is malfunctioning.	Refer to the Kohler Engine Operation and Maintenance Manual.
Excessive heating	Flow restriction caused by hard water scaling.	Descale unit, repair or replace damaged plumbing components as necessary. Install water softener.
	Not enough water flow.	Check jet size of tool.
Heat exchanger leaks NOTE: The heat exchanger will produce water condensation discharge at times during normal operation. DO NOT confuse this with a leak.	Engine/vacuum exhaust heat exchangers are damaged from frozen water.	Inspect heat exchangers for leaks. Visually inspect for damage. Pressure check after removing from the unit. (Maximum test pressure 1200 PSI).
Loss of temperature The heat output of the unit is LESS than normal.	Temperature relief valve on water box is stuck open.	Clean temperature relief valve and test. Replace, if necessary.
	Engine RPM is low.	Reset engine RPM.
	Defective temperature gauge.	Test gauge and sensor. Replace failed component.
Automatic waste pump is malfunctioning or not operating normally NOTE: When replacing either the pump or float switch, use new electrical connectors and heat shrink. Inspect connection for watertight seal.	Defective waste pump float switch.	Replace float switch.
	Broken diaphragm.	Replace diaphragm.
	Weak battery.	Charge or replace battery if needed. Check charging station.
	Pump-out circuit breaker on control panel has been tripped.	After inspecting waste pump to determine the cause of the tripped circuit breaker, press the reset button.

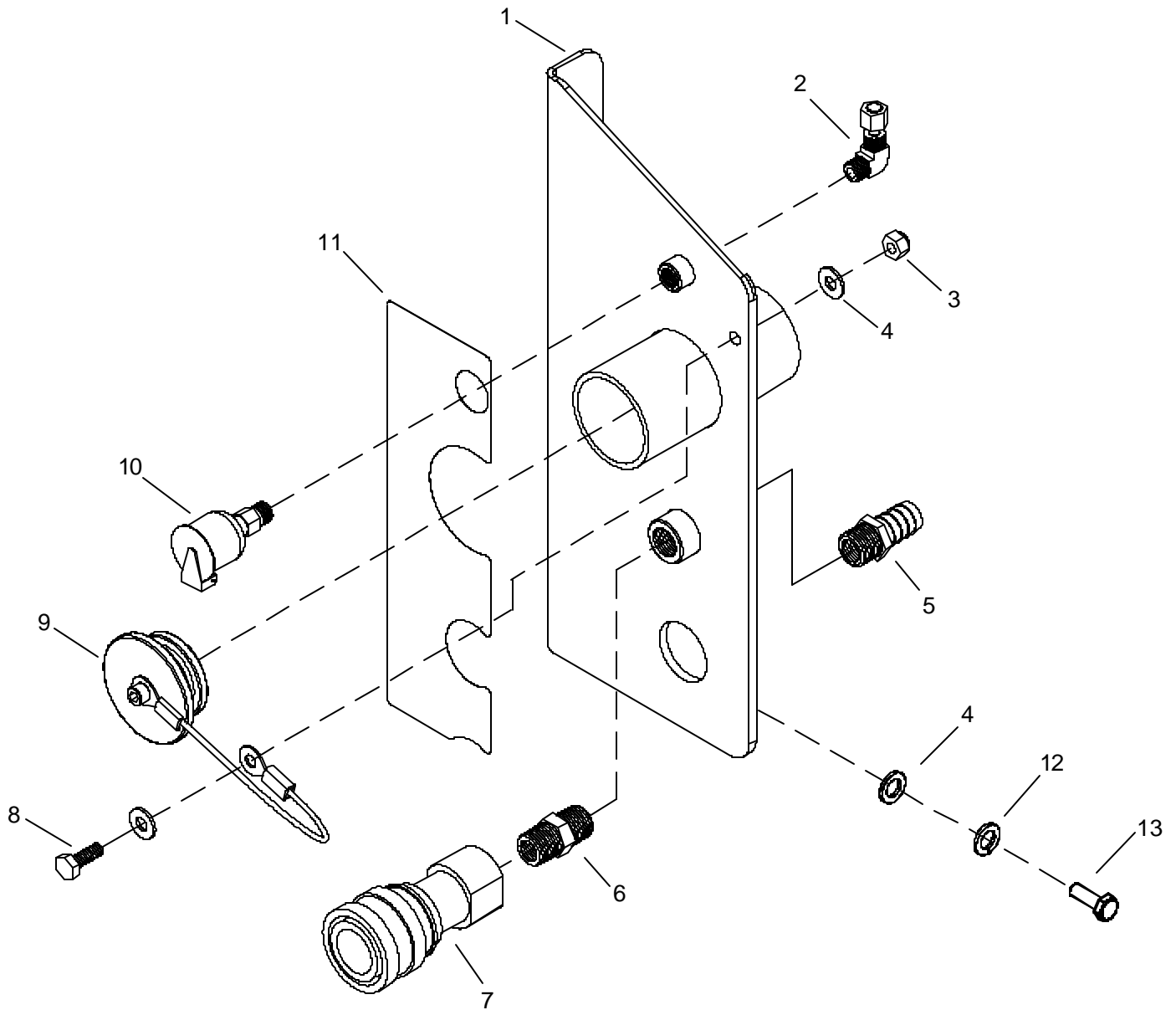
FRAME



FRAME

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	01-000259	14	RECPT, SNAPIN 1/4 TURNFAST		
2	790724	1	BRKT, HOOD		
3	87162	13	WASHER, 1/4 SPLIT LOCK PLTD		
4	70270	12	SCR, 1/4-20 X 3/4 HHCS PLTD		
5	61458	1	PNL, LWR FRNT		
6	03-000149	3	CLAMP, CABLE 1-1/4 ID 5/16 BLT		
7	64-950383	1	CABL, RETAIN VAC PLG 800		
8	02-000066	13	FLATWASHER, 1/4		
9	790487	1	DIPSTICK, CAT PUMP OIL 5CP		
10	790726	1	GUARD, PUMP		
11	87151	4	WASHER, 1/4 SPLIT LOCK BLK		
12	56-501857	1	BRKT, FUEL LINE		
13	00-000078	1	SCR, 1/4-20 X 1" HXHD GRD8		
14	790675	1	ASSY, FRAME XL		
15	70481	4	SCR, 1/4-20 X 3/4 BHCS BLK		
16	02-000268	14	SPLITRING, RETAIN, 1/4 TURN		
17	61395	7	PAD, 1/4 TURN FAST, .188 THK		
18	70802	7	STUD, 1/4 TURN FAST		
19	61461	1	PNL, HOOD ASM LGND X L		
20	500836	1	LABEL, LWR FRNT PNL		
21	00-000272	7	STUD, 1/4 TURNFAST #85 OV		
22	58-700023	7	PAD, 1/4 TURN VIBR		

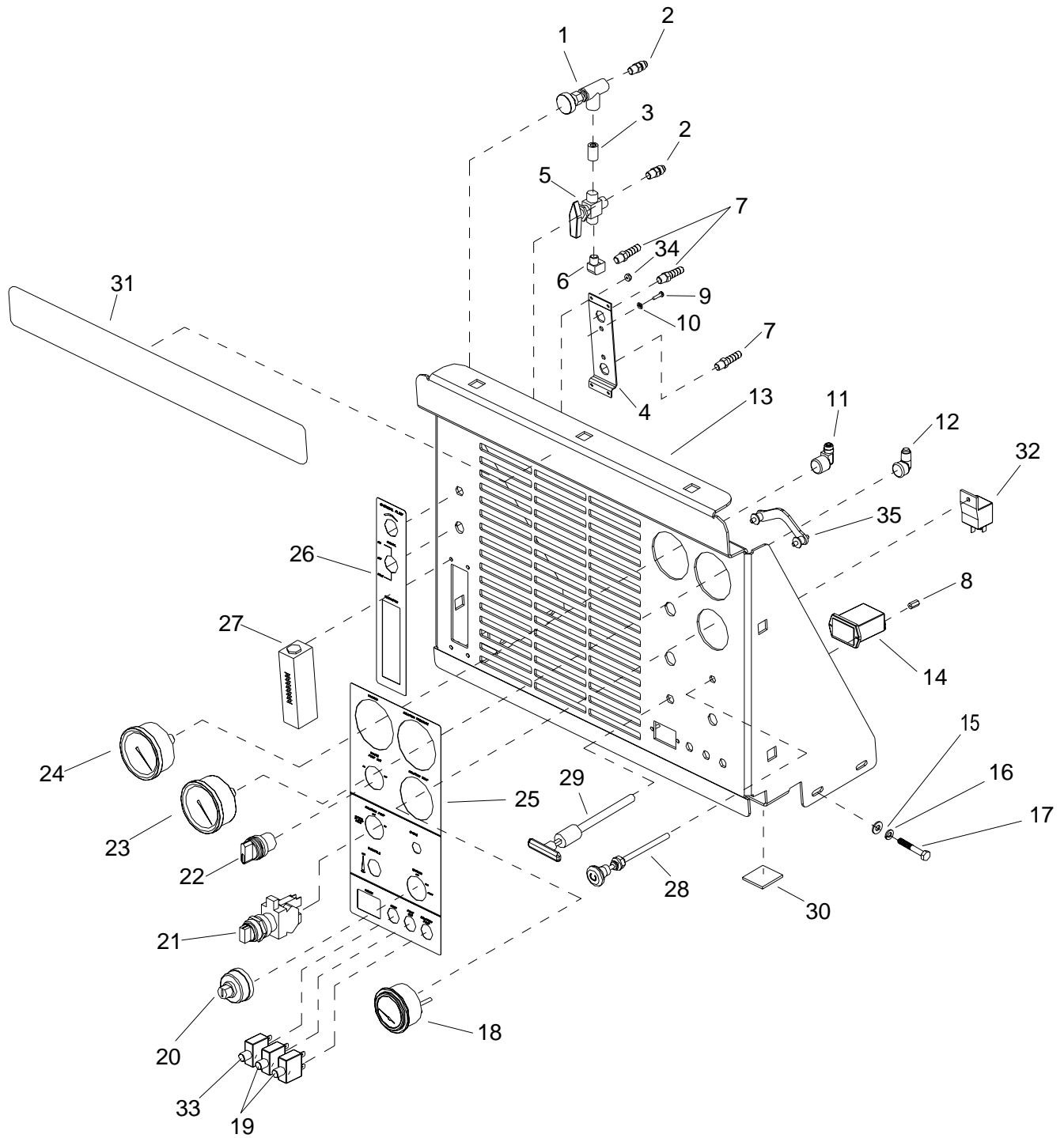
SIDE PANEL



SIDE PANEL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	790702	1	BRKT, WATER & WAV INLET XL		
2	12-800099	1	ELL, 1/8P X 1/4 POLY BR		
3	57047	1	NUT, 1/4-20 HEX NYLOCK		
4	02-000066	2	FLATWASHER, 1/4		
5	12-800269	1	FTTG, BRB 1/2P X 5/8 H BR		
6	11-800354	1	NIP, 1/2 X 3/8 HEX BR		
7	13-806008	1	DCS, 3/8F X 3/8FP		
8	00-000078	1	SCR, 1/4-20 X 1" HXHD GRD8		
9	66-945236	1	KIT, VAC INL PLG BRU2		
10	19-800075	1	CUP, OIL FILL 1/8P		
11	790599	1	LABEL, WTR & VAC INLET BRKT		
12	87162	2	WASHER, 1/4 SPLIT LOCK PLTD		
13	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		

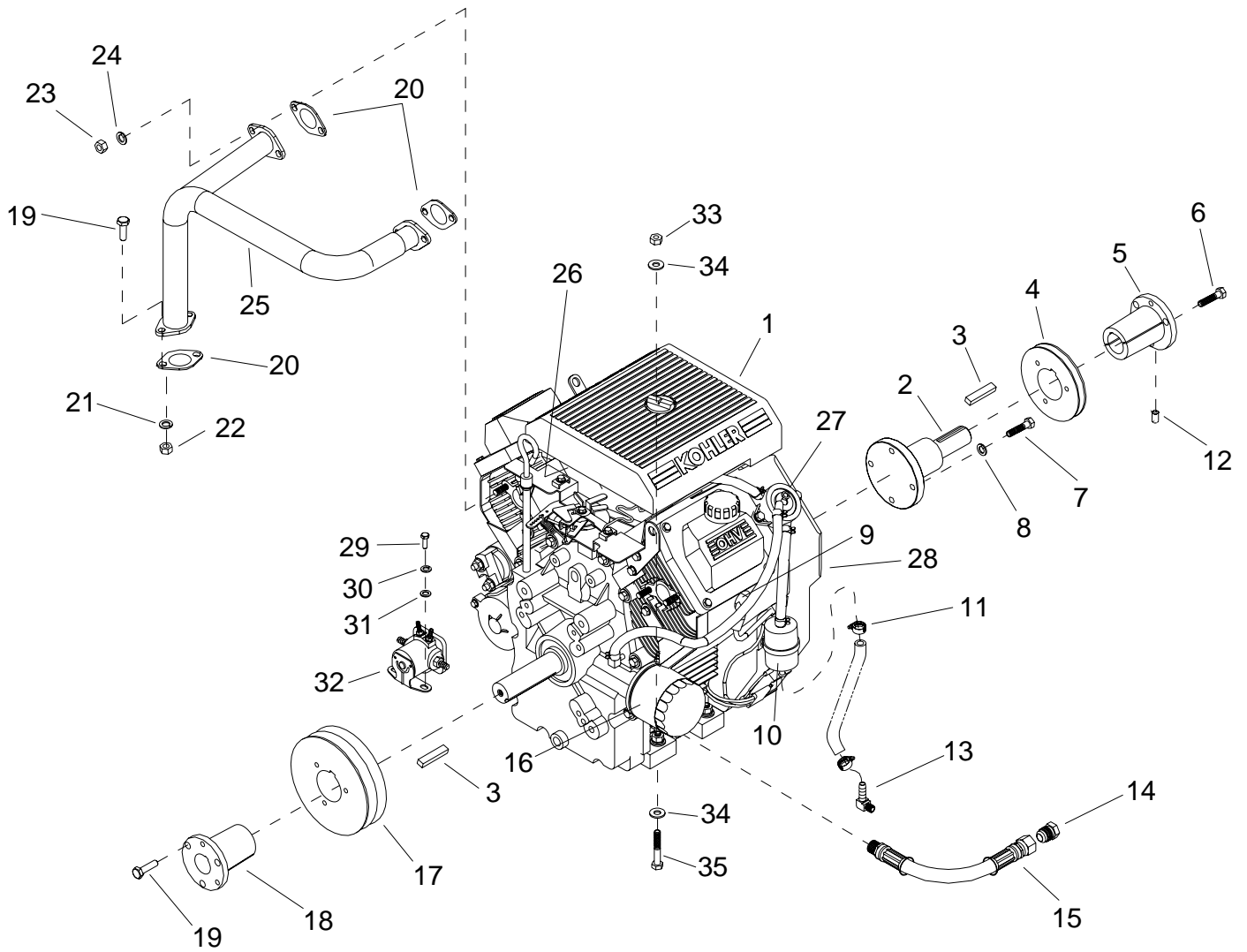
CONTROL PANEL-UPPER



CONTROL PANEL-UPPER

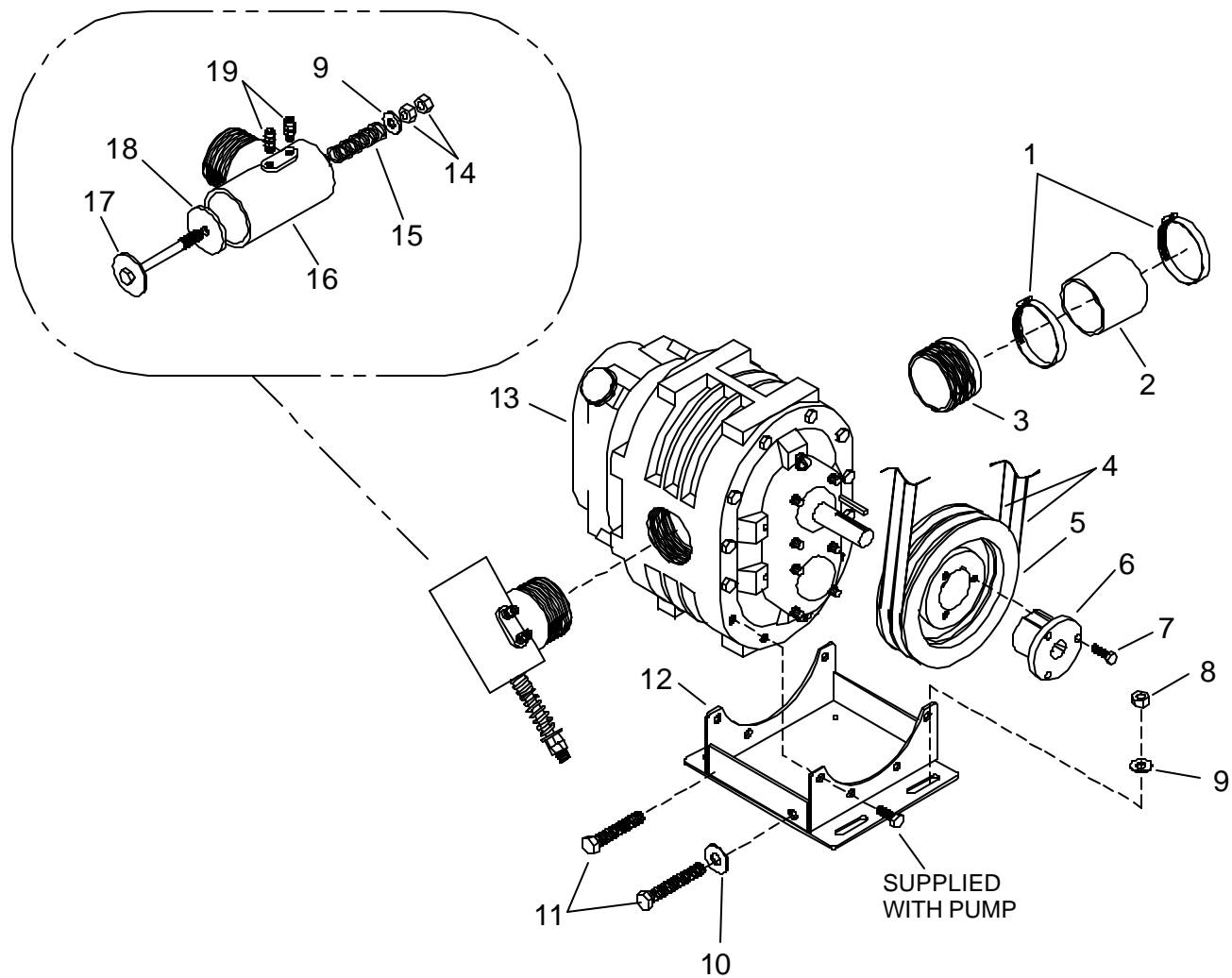
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	15-808106	1	VALVE, METER 1/8FP		
2	12-800065	2	CONN, 1/8P X 1/4T		
3	56032	1	NIPPLE, 1/8 CLOSE		
4	140675	1	BRKT, FLOW METER		
5	15-808022	1	VALVE, 3-WAY BALL 1/8FP		
6	11-800014	1	ELL, STREET 1/8 BR		
7	12-800093	3	FTTG, BRB 1/8P X 5/16H		
8	73811	2	STANDOFF, 3-32 X 1/2 HEX NYL		
9	70162	4	SCR, 10-32 X 3/8 PPHMS SS		
10	87165	4	WASHER, #10 SPLIT LOCK PLTD		
11	12-800101	1	ELL, 1/4FP X 1/4T BR		
12	12-800035	1	ELL, 1/4FP X 1/4T BR		
13	61457	1	PNL, FRNT, LGND XL, PC		
14	54092	1	METER, 0-60VDC HOUR		
15	02-000066	4	FLATWASHER, 1/4		
16	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
17	70270	4	SCR, 1/4-20 X 3/4 HHCS PLTD		
18	36229	1	GAUGE, TEMP, DATCON		
19	33-900163	2	BREAKER, CIRC 20A		
20	32-900174	1	KEYSWITCH		
21	32-902206	1	SW, RTRY W/BYPASS NON-ILL		
22	32-900205	1	SW, RTRY NON-ILLUM TM		
23	36225	1	GAUGE, 0-1500 PSI		
24	36227	1	GAUGE, VACUUM 30" HG		
25	500835	1	LABEL, CONTROL PNL LEGEND XL		
26	500834	1	LABEL, CHEM PNL XL		
27	18-808513	1	FLOWMETER, 1/8FP		
28	49-802518	1	CABLE, CHOKE		
29	49-802505	1	CABLE, THROTTLE		
30	790742	2	PAD, PNL		
31	500837	1	LABEL, FRNT HD, LXL, PC		
32	35-900188	1	RELAY, ENG SHTDWN		
33	33-900161	1	BREAKER, CIRC 30A		
34	57049	4	NUT, 6-32 HEX NYLOCK SS		
35	140702	1	BRKT, WIKA MOUNTING		

ENGINE



REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	42-902299	1	KOH ELEM, AIR CLNR #470830		
2	790677	1	DRIVESHAFT, FRONT KOHLER 20HP		
3	54-500412	1	KEY. 1/4 SQ X 1.88		
4	790719	1	PULLEY, 1B36SH		
5	790720	1	HUB, SH1		
6	00-000078	3	SCR, 1/4-20 X 1" HXHD GRD8		
7	70549	4	SCR, M8 X 25 HHCS GR8 PLTD		
8	87098	4	WASHER, M8 SPLIT LOCK		
9	42-902289	1	KOH SPK PLG#1213202		
10	42-902296	1	KOH FLTR, FUEL #2505003		
11	03-000065	4	CLAMP, HOSE #4 SST		
12	09-805447	1	HOSE, FUEL 1/4 X 9		
13	790606	1	EL, 90DEG 1/8NPT X 1/4HB		
14	12-800062	1	PLUG, 1/2T		
15	10-805291	1	HOSE, HP 3/8 X 10 (3/8 X 1/2FT)		
16	42-902277	1	KOH FLTR, OIL #1205001		
17	44-802212	1	PULLEY, 2TA54		
18	44-802182	1	HUB, P2X1-1/8		
19	00-000340	3	SCR, MACH 5/16-18 X 1" BG8		
20	790626	3	GSKT, EXHST, KHLR 25HP		
21	87083	2	WASHER, 5/16 SPLIT LOCK PLTD		
22	57031	2	NUT, 5/16-18 HEX		
23	57054	4	NUT, M8		
24	87098	4	WASHER, M8 LOCK		
25	790710	1	MNFLD, ENG EXH, KHLR, XL		
26	42-902293	1	KOH CARB # 2485335S		
27	42-902297	1	KOH PMP, FUEL PULSE #24393165		
28	40-902152	1	ENG, KOHLER 20 HP		
29	70270	1	SCR, 1/4-20 X 3/4 HHCS PLTD		
30	87162	1	WASHER, 1/4 SPLIT LOCK PLTD		
31	02-000066	1	FLATWASHER, 1/4		
32	35-901002	1	SOLENOID, STARTER		
33	57119	4	NUT, 3/8-16 HEX NYLOCK		
34	87171	8	WASHER, 3/8 FLAT		
35	00-000072	4	SCR, 3/8-16 X 2" HXHD		
36	70119	1	SET SCREW, 1/4-20 X 3/8 KCP		

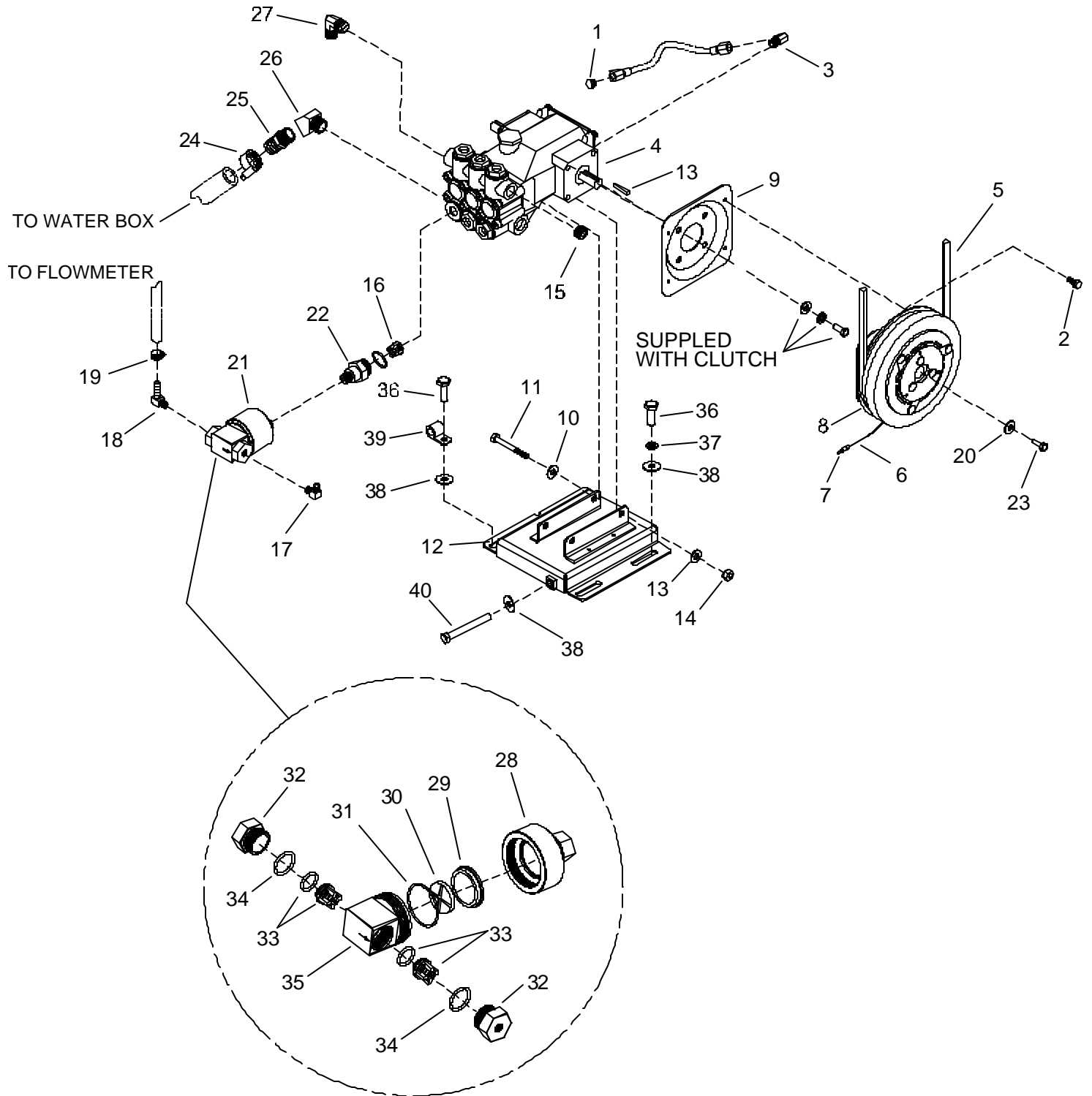
VACUUM PUMP



VACUUM PUMP

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	03-000112	2	CLAMP, HOSE #8		
2	09-805478	1	HOSE, VAC 2.88 X 2.5 BLK		
3	54-501593	1	NIP, VAC EXH OUTLET		
4	44-802314	2	BELT, AX28 GOODYEAR MATCH		
5	44-802212	1	PULLEY, 2TA54		
6	44-802196	1	PULL, AKG1H		
7	00-000340	3	SCR, MACH 5/16-18 X 1" GR8		
8	57119	4	NUT, 3/8-18 HEX NYLOCK		
9	87171	5	WASHER, 3/8 FLAT		
10	02-000057	1	FLATWASHER, 1/2" HEAVY		
11	70820	2	SCR, 1/2-13 X 2.5 FULL THDS		
12	790874	1	BRKT, VAC ADJ ASM XL		
13	41-905021	1	PMP, VAC 4M-L		
14	57114	2	NUT, 4/16-14 HEX		
15	04-000091	1	SPRING, VAC REL VLV		
16	52-501573	1	ELL, VAC REL VLV		
17	56-501615	1	STEM, VAC REL VLV #4 VAC		
18	43-807074	1	DIAPHRAM, VAC REL VLV		
19	12-800059	2	CONN, 1/8P X 1/4 POLY BR		

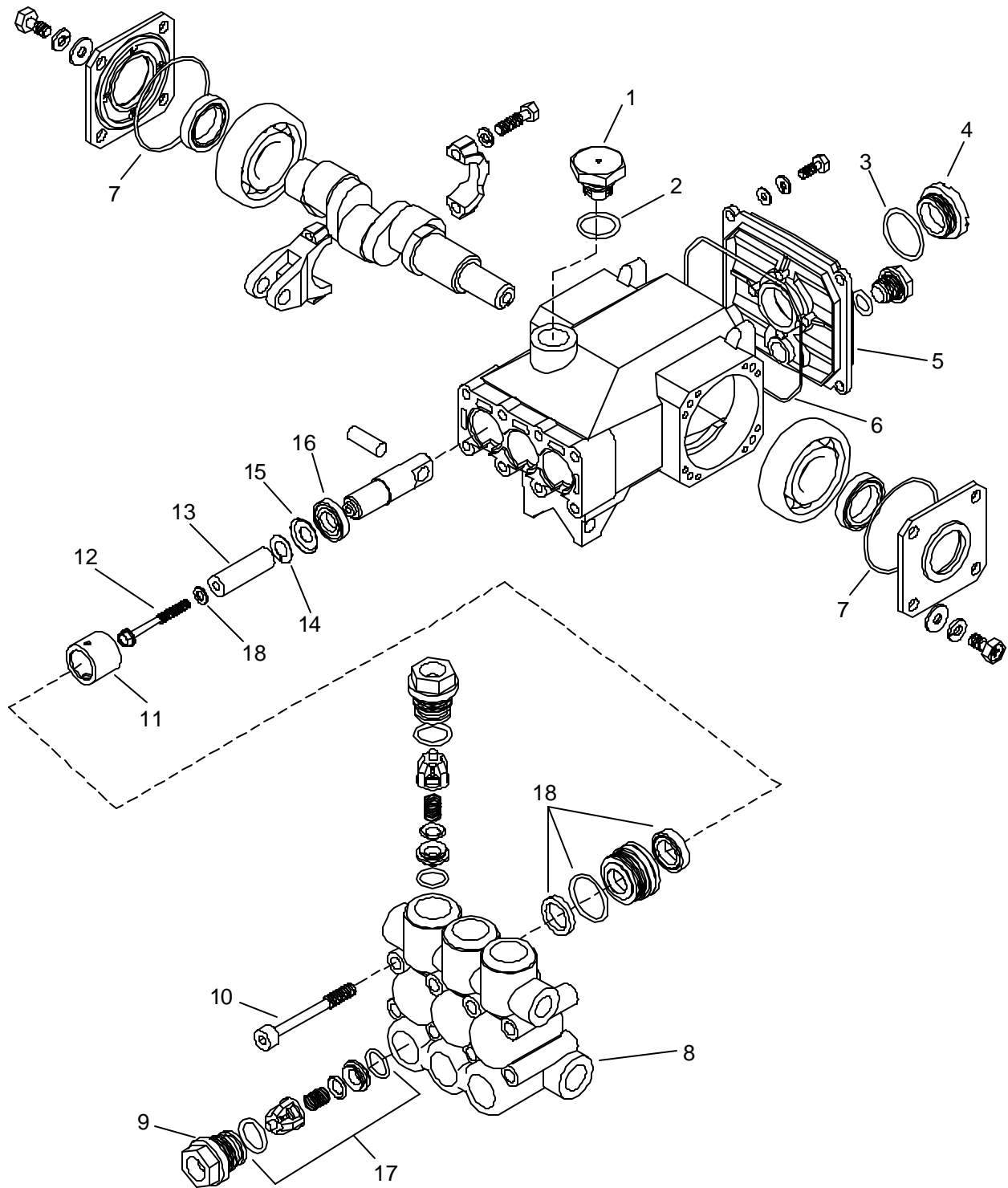
WATER PUMP & CHEMICAL PUMP



WATER PUMP & CHEMICAL PUMP

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	12-800029	1	PLUG, 1/4T BR		
2	140645	4	SCR, 1/4-20 X 3/8, SER FLNG		
3	12-800031	1	ELL, 1/4P X 1/4T BR		
4	41-809153	1	PMP, WTR CAT 3CP1140		
5	44-802315	1	BELT, AX40		
6	51372	1	LOOM, 1/4, HIGH TEMP 10"		
7	31-900185	1	CONN, BULLET M (.156)		
8	790613	1	CLUTCH, ELE, WTR PMP CAT 3CP		
9	790610	1	BRKT, CLUTCH, WTR PMP, 3CP CAT		
10	02-000143	2	WASHER, 5/16 FLAT PLTD		
11	70601	2	SCR, 5/16-18 X 2.75 HHCS GR5		
12	790544	1	ASSY, PMP ADJ BRKT		
13	48099	1	KEY, .20X.20X1.45, 3CP CAT		
14	57113	2	NUT, 5/16-18 HEX NYLOCK		
15	11-800224	1	PLUG, 3/8 SOCHD BR		
16	52-809123	1	RETAIN, VALVE SPRING		
17	12-800040	1	ELL, 1/8P X 1/4T BR		
18	790605	1	EL, 90DEG 1/8 X 5/16HB		
19	03-000065	1	CLAMP, HOSE #4 SST		
20	87240	1	WSHR, .328 ID X 1.00 OD X .119 ZNC		
21	41-809158	1	PUMP, CHEM TM (O-RING) SS		
22	52-809125	1	ADPT, CAT CHEM PMP		
23	140644	1	SCR, 5/16-18 X 1, SOC, ZNC		
24	03-000113	1	CLAMP, HOSE #12 SST		
25	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
26	11-800299	1	ELL, STREET 1/2 45 DEG		
27	12-800225	1	ELL, 3/8P X 1/2T BR		
28	52-502053	1	CVR, CHEM PMP		
29	42-809047	1	DIAPHRAGM, CHEM PUMP		
30	42-809264	1	DISK, CHEM PUMP		
31	43-810105	1	O-RING, 1-58 ID X 1-3/4 OD VITON		
32	52-502075	2	CAP, CHK VLV-HP CHEM PMP		
33	42-809265	2	CHECK VALVE, CHEM PUMP		
34	43-810079	2	O-RING, 7/8 ID X 1-1/16 OD		
35	52-502052	1	BDY, CHEM PMP		
36	70266	3	SCR, 3/8-16 X 1" HHCS GR 5 PLTD		
37	87163	3	WASHER, 3/8 SPLIT LOCK PLTD		
38	87171	3	WASHER, 3/8 FLAT		
39	03-000249	1	CLMP, CABL 1/4ID 3/8BLT		
40	00-000336	1	SCR, CAP 3/8-16 X 3 ALL THD		

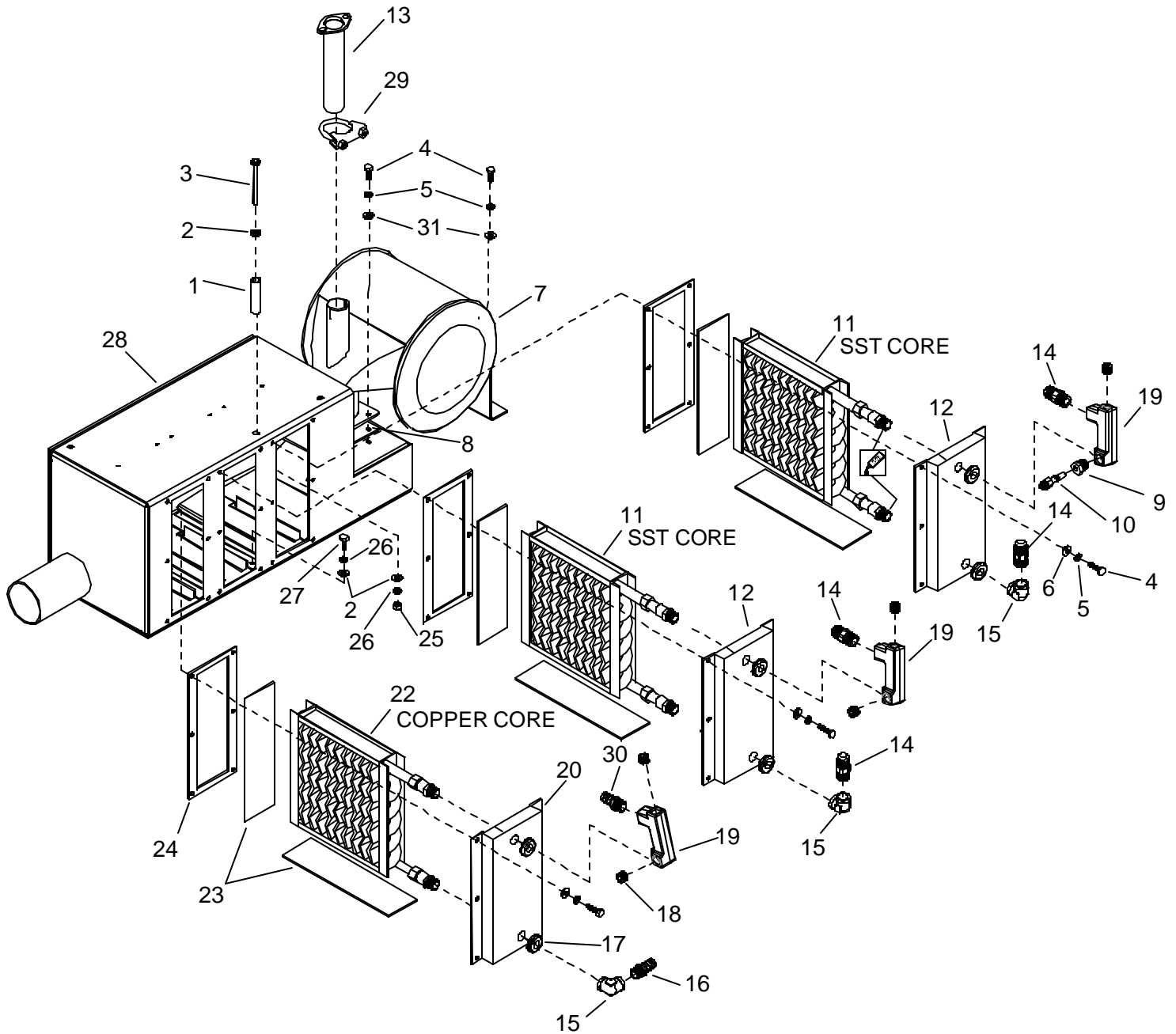
WATER PUMP



WATER PUMP

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	42-809238	1	CAP, OIL FILLER		
2	42-809239	1	O-RING, OIL FILL CAP		
3	43-807063	1	GASKET, OIL GAUGE		
4	42-902380	1	GAUGE, OIL LEVEL		
5	42-809401	1	COVER, CRANKCASE		
6	42-809402	1	O-RING, CRANK CVR		
7	42-809394	1	O-RING, BEARING CVR		
8	42-809403	1	MANIFOLD, HEAD		
9	42-809404	3	PLUG, VALVE		
10	42-809406	8	BOLT, MNFLD HD M8 X 65		
11	42-809405	3	RETAINER, SEAL		
12	42-809407	3	RETAINER, PNLGR W/STUD		
13	42-809408	3	PLUNGER		
14	42-809249	3	WASHER, KEYHOLE M18		
15	42-809381	3	SLINGER, BARRIER		
16	42-809409	3	SEAL, OIL CRANKCASE		
17	42-809410	3	KIT, SEAL		ORDER 1 EA. TO REPLACE ALL SEALS
18	66-950441	3	KIT, VLV		ORDER 1 EA. TO REPLACE ALL VALVES

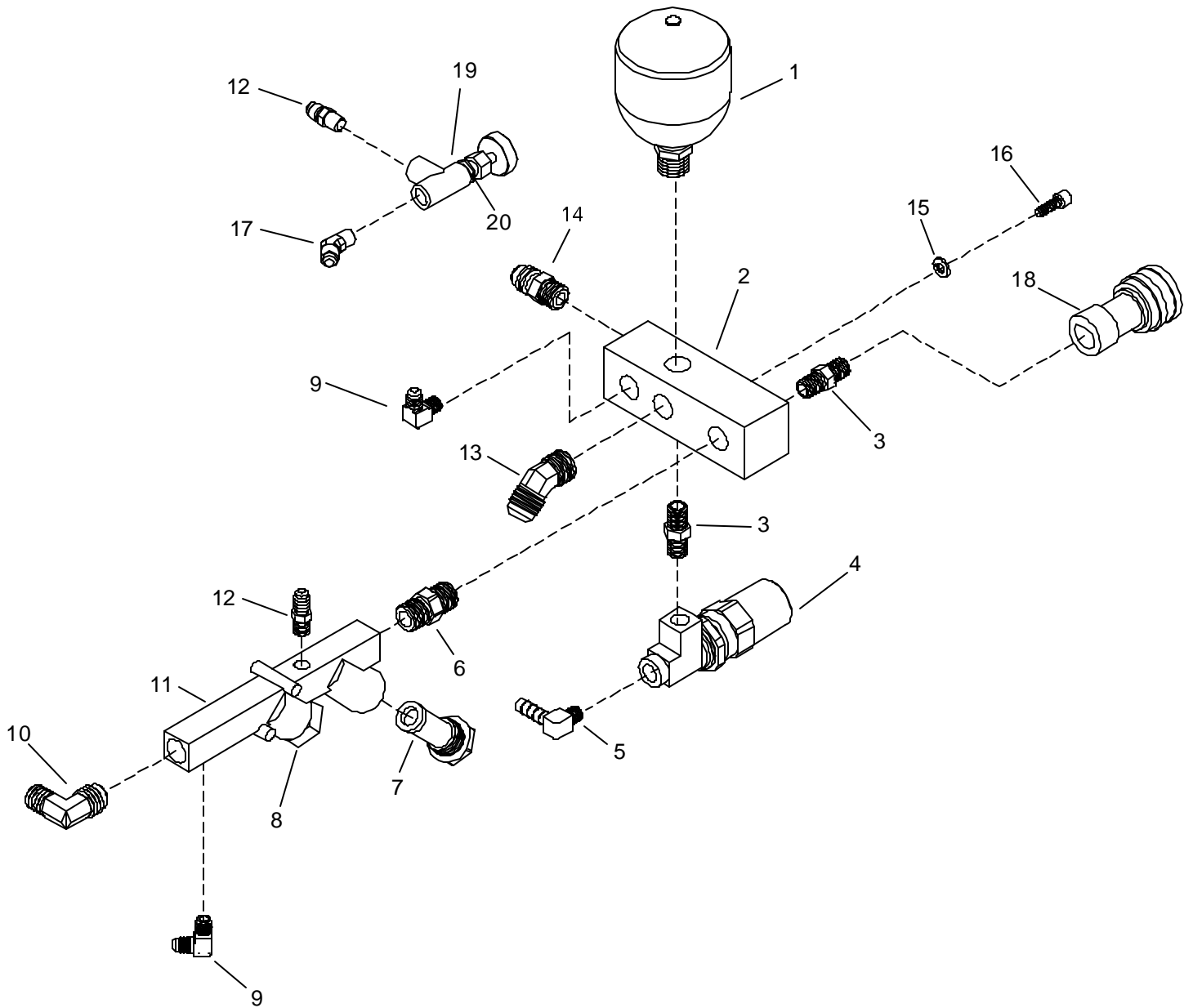
HEAT EXCHANGER



HEAT EXCHANGER

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	790714	3	SPACER, ENG SUPPORT		
2	02-000143	9	WASHER, 5/16 FLAT PLTD		
3	790721	3	SCR, 5/16-18 X 4.0 HHMS PLATED		
4	70270	26	SCR, 1/4-20 X 3/4 HHCS PLTD		
5	87162	24	WASHER, 1/4 SPLIT LOCK PLTD		
6	02-000066	18	FLATWASHER, 1/4		
7	790707	1	MUFFLER, VAC W/EXH TUBE		
8	43-807080	1	GASKET, VAC HE INLET		
9	11-800118	1	BUSH, 3/8 X 1/8 BR		
10	34-903019	1	SENDER, TEMP 140-320 DEG		
11	790388	2	ASSEMBLY, HEATER CORE SS		
12	790668	1	COVER, SST CORE VAC HE		
13	790708	1	TUBE, SILENCER/EXH MNFLD		
14	12-800282	2	CONN, 3/8P X 1/2T BR		
15	11-800276	3	ELL, 3/8 BR		
16	12-800345	1	FTTG, BRB 3/8P X 5/8H BR		
17	36238	6	GRONR, 1/2ID X 1-1/4OD 1/8G 5/16W		
18	11-800224	6	PLUG, 3/8 SOCHD BR		
19	790038	3	MANIFOLD, HEATER CORE		
20	790801	1	ASSY, HEATER CORE COPPER		
21	OPEN	-	-		
22	790619	1	CORE, HTR COPPER		INCLUDES 17 & 20
23	790423	6	PAD, REAR VAC HTR CORE		
24	790050	3	GASKET, VAC HE CVR		
25	57031	3	NUT, 5/16-18 HEX		
26	87083	6	WASHER, 5/16 SPLIT LOCK PLTD		
27	00-000340	3	SCR, MACH 5/16-18 X 1" GR8		
28	790671	1	HSG, VAC HE		
29	03-000086	1	CLAMP, MFLR 1-1/4		
30	12-800161	1	FTTG, BRB 3/8P X 1/2H BR		
31	87090	6	WASHER, 1/4 ID X 3/4 OD PLTD		

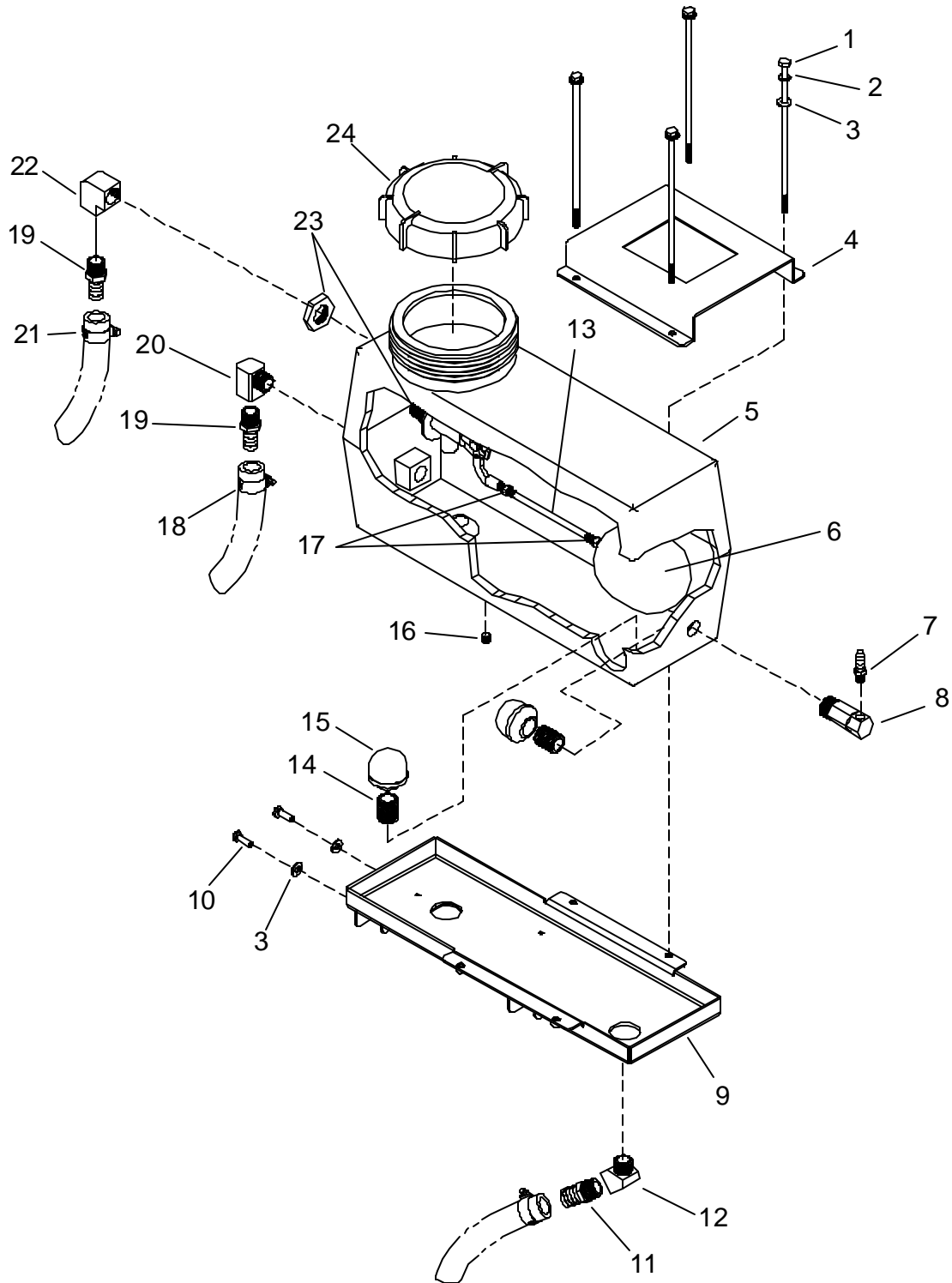
PRESSURE REGULATOR & TEMPERATURE BYPASS



PRESSURE REGULATOR & TEMPERATURE BYPASS

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	790106	1	ACCUMULATOR , 250PSI CAT 6026		
2	790713	1	MANIFOLD, PRESSURE REG		
3	11-800128	2	NIP, HEX 1/4 SST		
4	15-808081	1	REG, PRE W/O INNER SPRING		
5	790722	1	ELBOW, 1/4MP X 1/2H 90DEG		
6	11-800429	1	NIP, HEX 3/8 SST		
7	14-806549	1	SCREEN, CHECK VALVE		
8	15-808094	1	VALVE, CHECK		
9	12-800040	2	ELL, /18P X 1/4T BR		
10	12-800225	1	ELL, 3/8P X 1/2T BR		
11	15-808131	1	ASSY, CHECK VALVE MANIFOLD		INCLUDES 7 & 8
12	12-800065	2	CONN, 1/8P X 1/4T		
13	12-800347	1	ELL, 3/8P X 1/2T 45 DEG BR		
14	12-800141	1	CONN, 1/2P X 1/2T		
15	87151	2	WASHER, 1/4 SPLIT LOCK BLK		
16	70481	2	SCR, 1/4-20 X 3/4 BHCS BLK		
17	12-800261	1	ELL, 1/8P X 1/4T 45 DEG		
18	22015	1	COUPLER, 1/4 QD		
19	15-808106	1	VALVE, METER 1/8FP		
20	87012	1	WASHER, 7/16 STAR		

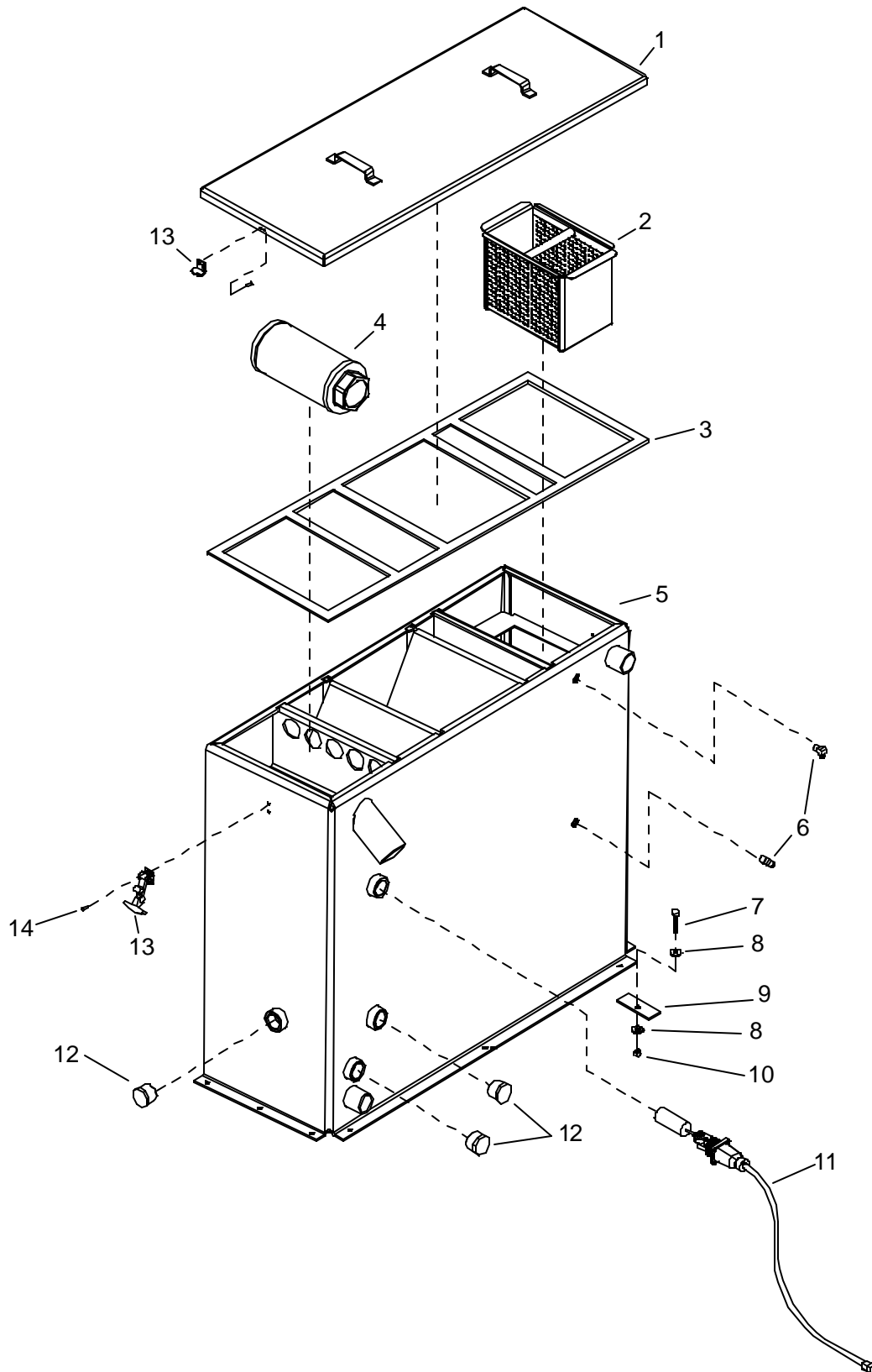
WATER BOX



WATER BOX

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	00-000335	4	SCR, 1/4-20 X 8 HXHD		
2	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
3	02-000066	4	FLATWASHER, 1/4		
4	50-501763	1	HOLD DOWN WTR BOX		
5	58-500781	1	MOLDING, WATER BOX		
6	19-807014	1	BALL, FLOAT		
7	12-800065	1	CONN, 1/8P X 1/4T		
8	15-808075	1	VLV, TEMP REL 145DEG		
9	790696	1	TRAY, WTR BX		
10	57047	4	NUT, 1/4-20 HEX NYLOCK		
11	12-800278	1	FTTG, BRB 1/2P X 3/4H BR		
12	11-800299	1	ELL, STREET 1/2 45 DEG		
13	54-501715	1	FLOAT ROD		
14	11-800300	2	NIP, 1/2 X CL		
15	14-806540	2	STRAINER, SUC END 1/2FP		
16	11-800345	1	PLUG, 1/4 SOCHD BRASS		
17	70270	2	SCR, 1-4-20 X 3/4 HHCS		
18	03-000246	2	CLAMP, HOSE #8 SST		
19	12-800269	2	FTTG, BRB 1/2P X 5/8H BR		
20	11-800041	1	ELL, STREET 1/2 BR		
21	03-000113	2	CLMP, HOSE #12 SST		
22	11-800361	1	ELL, 1/2 BR		
23	15-808110	1	VALVE, FLOAT		
24	11-800432	1	CAP, WATER BOX		

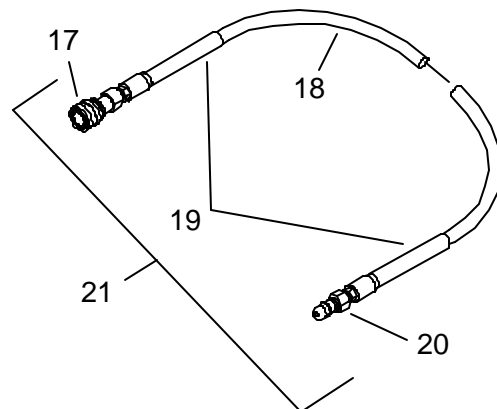
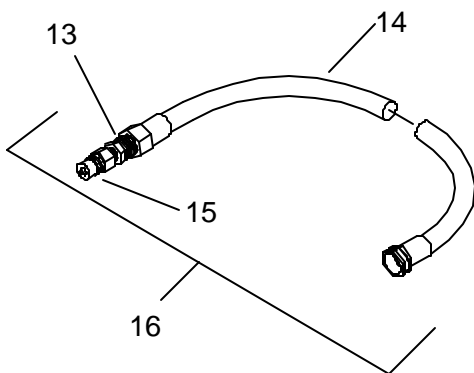
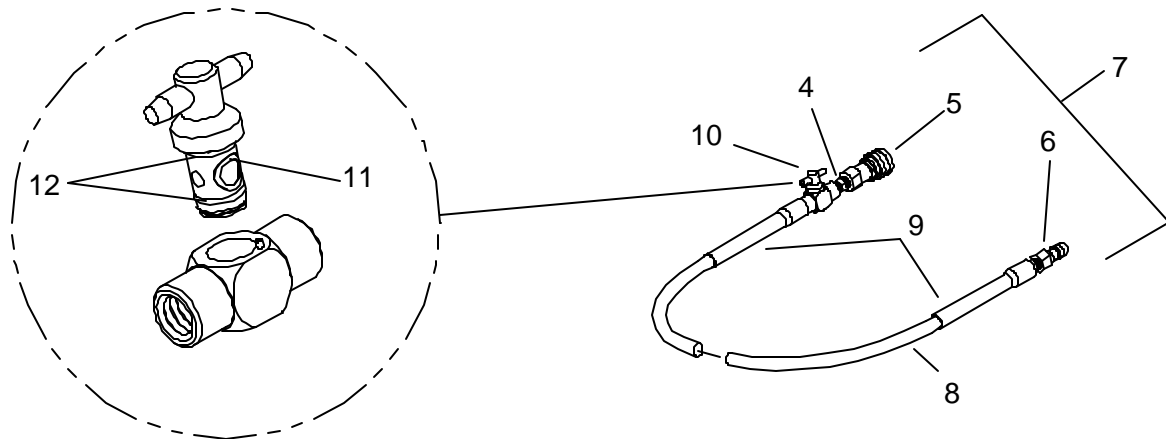
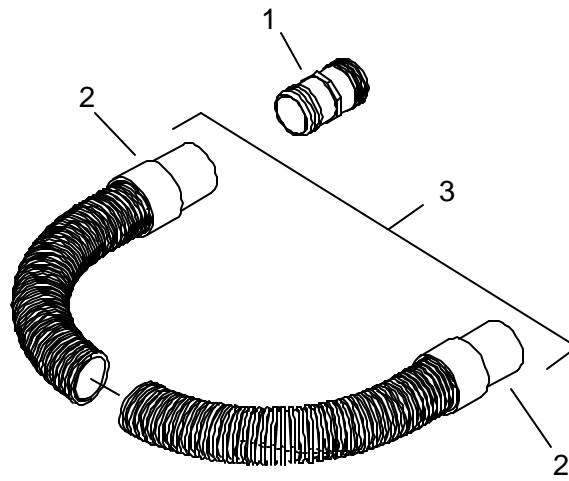
WASTE TANK



WASTE TANK

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	790652	1	LID, 60G WST TNK, SM		
2	56-501793	1	STRAINER BOWL		
3	790620	1	GSKT, WASTE TANK		
4	14-806518	1	STRAINER, WST TANK 2-1/2"		
5	790733	1	TNK, WST 60G, XL, SM		
6	12-800031	2	ELL, 1/4P X 1/4T BR		
7	00-000072	9	SCR, 3/8-16 X 2" HXHD		
8	87171	18	WASHER, 3/8 FLAT		
9	62986	6	PLATE, TRUCKMOUNT SHIPPING		
10	57119	9	NUT, 3/8-16 HEX NYLOCK		
11	61-950621	1	ASSY, LVL SENS SHTOF SW		
12	11-800402	3	PLUG, 1-1/4 HXHD PVC		
13	46-802510	2	LATCH, DRAW 2-7/8 SST		
14	67006	8	RIVET, 3/16 OD X 5/8 AL		

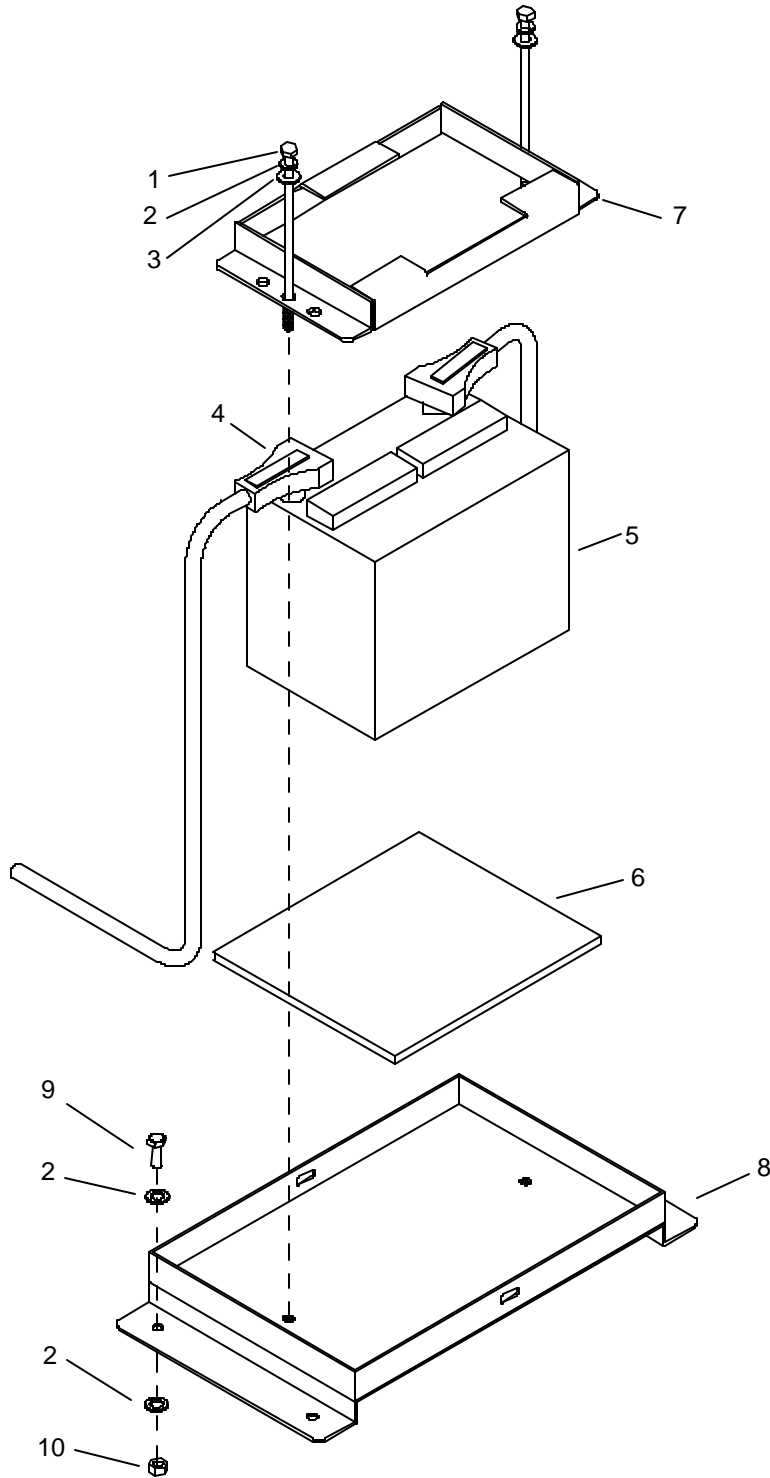
HOSE ACCESSORIES



HOSE ACCESSORIES

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	12-800078	1	FITTING, BRB 2H BS PVC		
2	08-805147	2	CUFF, 2"		
3	10-805060	1	HOSE, VAC 2"X50' W/ CUFFS & HOSE		
4	56015	1	NIPPLE, 1/4 HEX		
5	22015	1	COUPLER, 1/4 QD		
6	56012	1	NIPPLE, 1/4 FPT QD		
7	10-805108	1	HOSE, HP 1/4 X 50FT W/QD & VLVE		
8	10-805077	1	HOSE, HP 1/4 X 50'		
9	08-805155	2	GUARD, HOSE VINYL		
10	15-808012	1	VALVE, BALL 1/4FP		
11	43-810014	2	O-RING, 7/32ID X 11/32OD		
12	43-810019	2	O-RING, 3/8 ID X 1/2 OD		
13	11-800354	1	NIP, 1/2 X 3/8 HEX BR		
14	10-805157	1	HOSE, WATER 1/2 X 50'		
15	13-806009	1	DISCONNECT 3/8M X 3/8FP		
16	10-805295	1	HOSE, WATER 1/2 X 50'		
17	22015	1	COUPLER, 1/4 QD		
18	10-805077	1	HOSE, HP 1/4 X 50'		
19	08-805155	2	GUARD, HOSE VINYL		
20	56012	1	NIPPLE, 1/4 FPT QD		
21	10-805122	1	HOSE, HP 1/4 X 50FT W/QD		

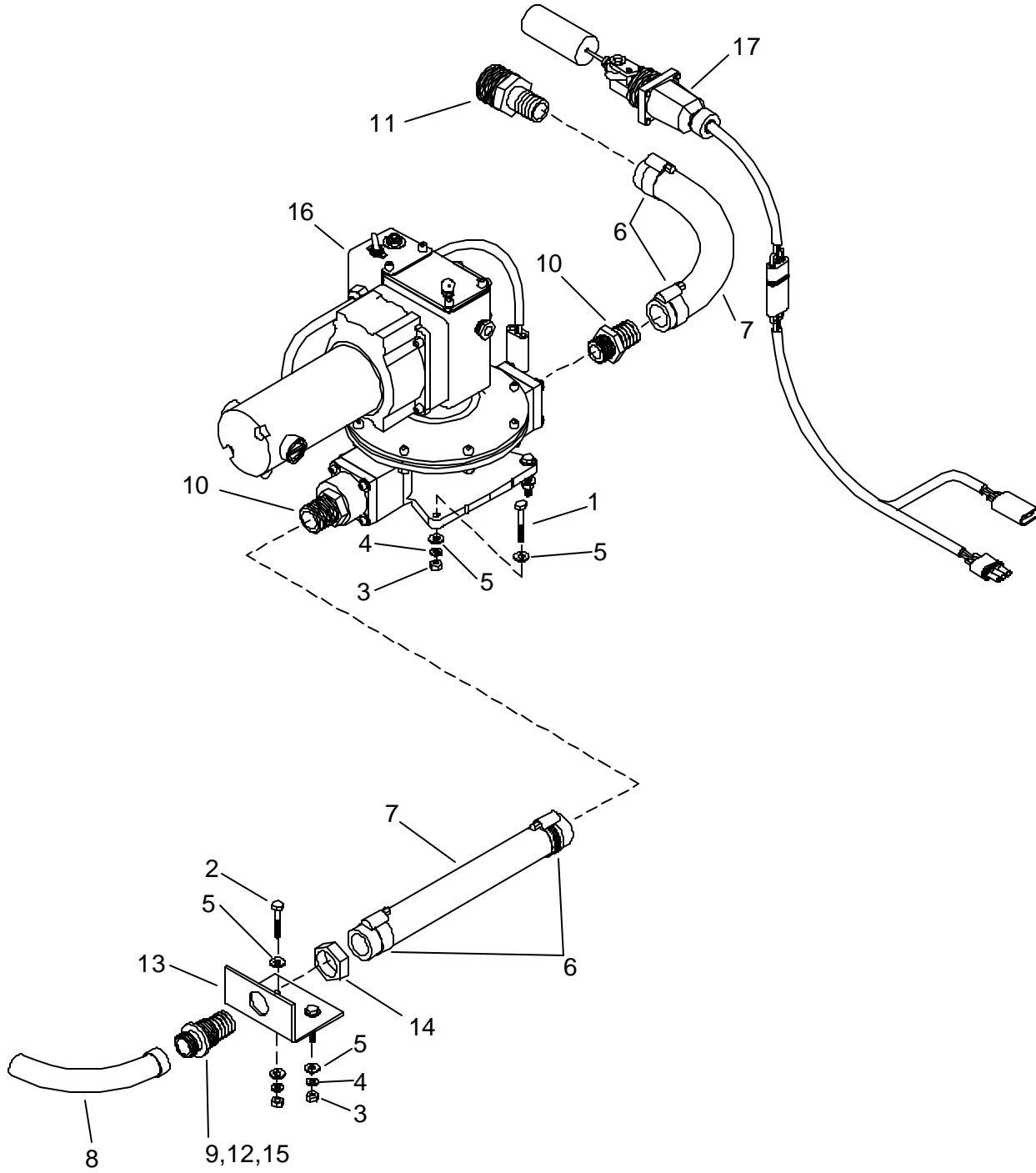
BATTERY-FLOOR MOUNT



BATTERY-FLOOR MOUNT

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	00-000167	2	SCR, 1/4-20 X 6" HXHD		
2	87162	2	WASHER, 1/4 SPLIT LOCK		
3	02-000066	10	FLATWASHER, 1/4		
4	31-900179	1	COVER, BATTERY TERMINAL		
5	36-900056	1	BATTERY		
6	47-700007	1	SHIELD, BAT MT HT		
7	56-500188	1	COVER, BATTERY		
8	56-502049	1	TRAY, BAT FLOOR MT		
9	00-000132	4	SCR, 1/4-20 X 1-1/2 HXHD		
10	57006	4	NUT, 1/4-20 HEX		

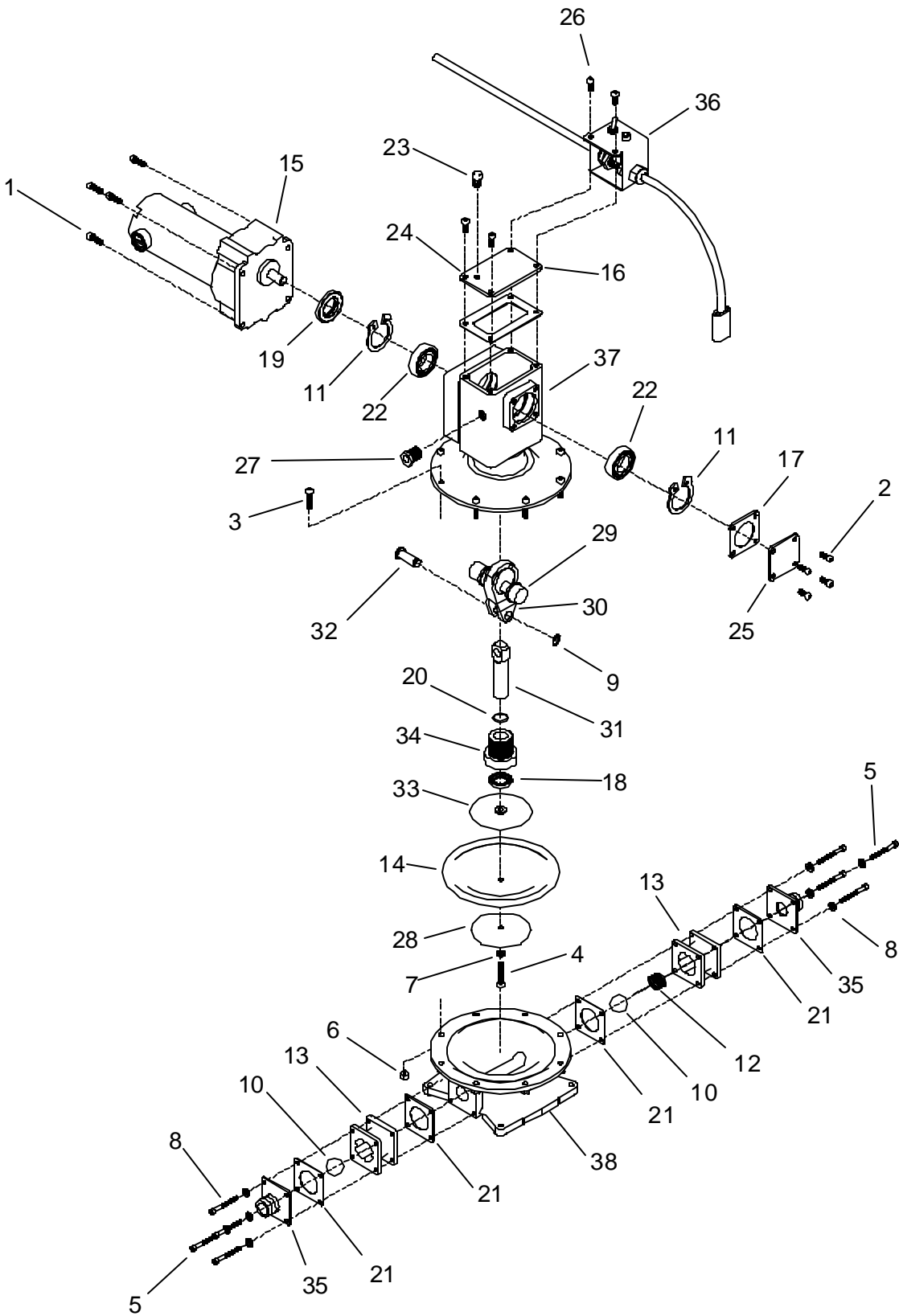
AUTOMATIC PUMPOUT-OPTIONAL



AUTOMATIC PUMPOUT-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	70105	4	SCR, M4 X 60 PH		
2	00-000132	2	SCR, 1/4-20 X 1/ 1/2 HXHD		
3	57006	4	NUT, 1/4-20 HEX		
4	87162	4	WASHER, 1/4 SPLIT LOCK PLTD		
5	02-000066	4	FLATWASHER, 1/4		
6	03-000176	4	CLAMP, HOSE #16		
7	09-805591	1	HOSE, WASTE PUMP 1" X 8'		
8	10-805484	1	HOSE, GARDEN 3/4 X 75'		
9	12-800052	1	CAP, HOSE 3/4 BR		
10	12-800367	1	FTTG, BRB 1PX1H BR		
11	12-800444	1	FTTG, 1-1/4P X 1" H BR		
12	43-807008	1	WASHER, HOSE 5/8 ID 1" OD		
13	50-502055	1	BRKT, CTR HOOD FR		
14	52-000123	1	NUT, 1-3/16-12 UN HXHD		
15	52-501993	1	CONN, HOSE WATER OUTL		
16	61-951306	1	PUMP, HD AUTO		
17	61-951319	1	ASSY, LVL SENS SHUT OFF SW		

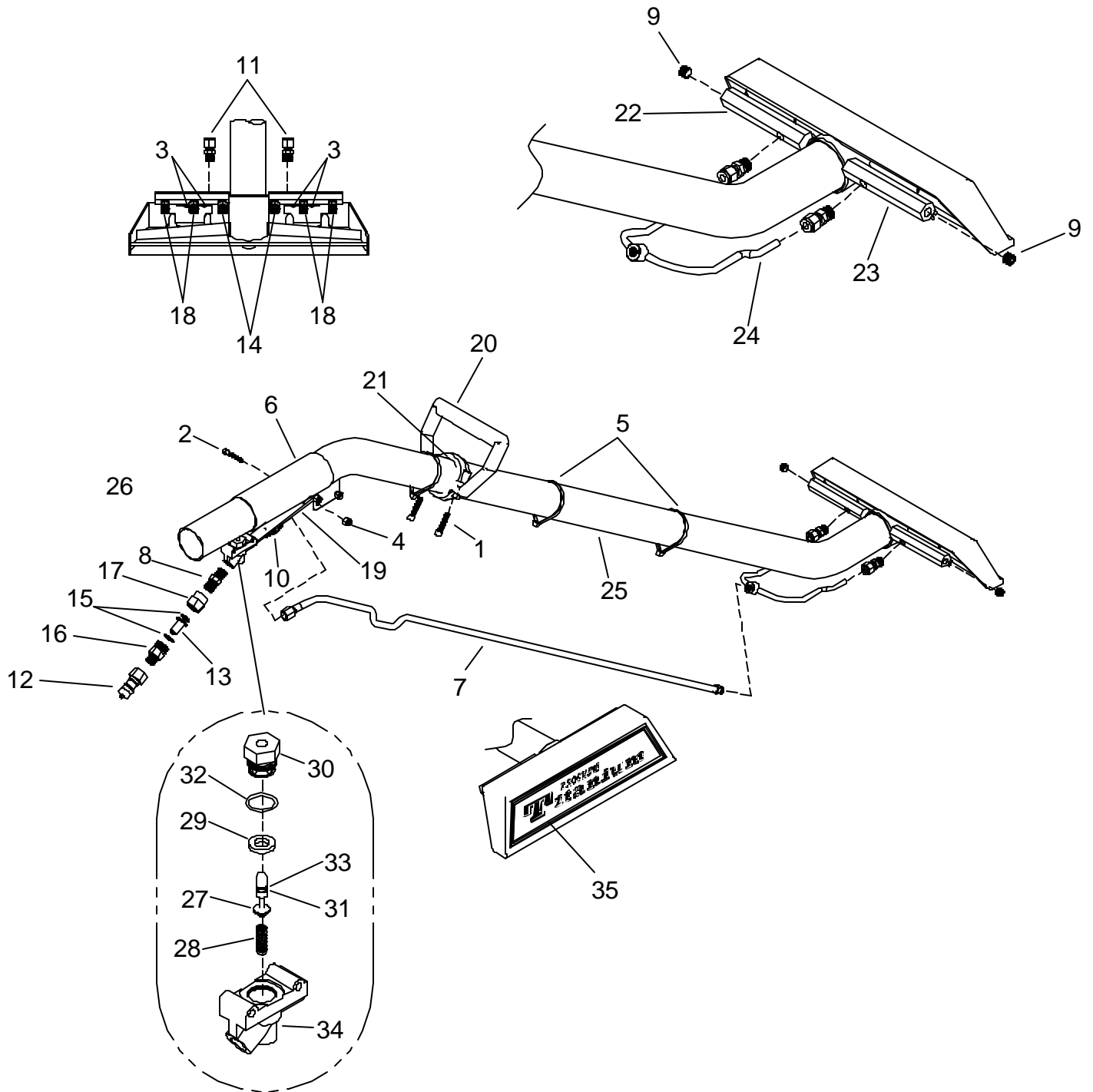
AUTOMATIC PUMPOUT-OPTIONAL



AUTOMATIC PUMPOUT-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	00-000210	4	SCR, 1/4-20 X 3/4 SOCHD		
2	00-000311	4	SCR, 1/4-20 X 1/2 SHCS SS		
3	00-000312	8	SCR, CAP 1/4 X 1 SOCHD		
4	00-000399	1	SCR, CAP 1/4 X 1 3/8 SOC		
5	00-000241	8	SCR, CAP 10-32 X 2 SOCHD SS		
6	57245	8	NUT, 1/4-20 HEX NYLOCK SS		
7	87162	1	WASHER, 1/4 SPLIT LOCK		
8	87165	8	WASHER, #10 SPLIT LOCK		
9	04-000312	1	RING, RETAIN EXT 1/2		
10	04-000334	2	BALL, NYL ID		
11	04-000335	2	RING, SNAP 1-7/8D		
12	04-000342	1	SPRING, PUMP-OUT BALL PRESS		
13	52-501822	2	INL, HOSE CONN WST TNK		
14	16-808241	1	DIAPH, WST TNK PMP-OUT		
15	40-902151	1	MOTOR, 1/8HP 12V		
16	43-807117	1	GSKT, CVR TOP PMPOUT		
17	43-807118	1	GSKT, CVR SD PMPOUT		
18	43-810091	1	SEAL, PUMPOUT SHFT		
19	43-810100	1	SEAL PUMPOUT CAM		
20	43-810101	1	O-RING, 800/1000 .072		
21	43-807116	2	GSKT, IN/OUTLT WST TNK-PM		
22	45-801927	4	BRG, SHFT PUMP-OUT		
23	49-876301	1	VENT, UPR SHFT BRNG HSG		
24	50-502025	1	PL, CVR TOP PUMP-OUT		
25	50-502026	1	PL, CVR SD PUMP-OUT		
26	00-000311	2	SCR, 1/4-20 X 1/2 SHCS SS		
27	11-800504	1	GA, FLOW SIGHT 3/8 NPT		
28	52-501828	1	BTM, PLNGR WST TNK PMP-OUT		
29	52-501829	1	SHT, 3/4" STROKE WST TNK		
30	52-501914	1	RD, CONNECT WST PMP-OUT		
31	52-501915	1	GUIDE, PLNGR WST PUMP-OUT		
32	52-501921	1	PIN, WRIST PUMP-OUT		
33	52-501934	1	TOP, PLNGR PUMP-OUT		
34	52-501950	1	BUSH, THREADED		
35	52-501822	2	INL, HOSE CONN WST TNK		
36	56-502428	1	BRKT, PMP-OUT SW/CCT BRKR		
37	52-501821	1	TOP, WST TNK PUMP-OUT		
38	52-501820	1	BASE, WST TANK PMP-OUT		

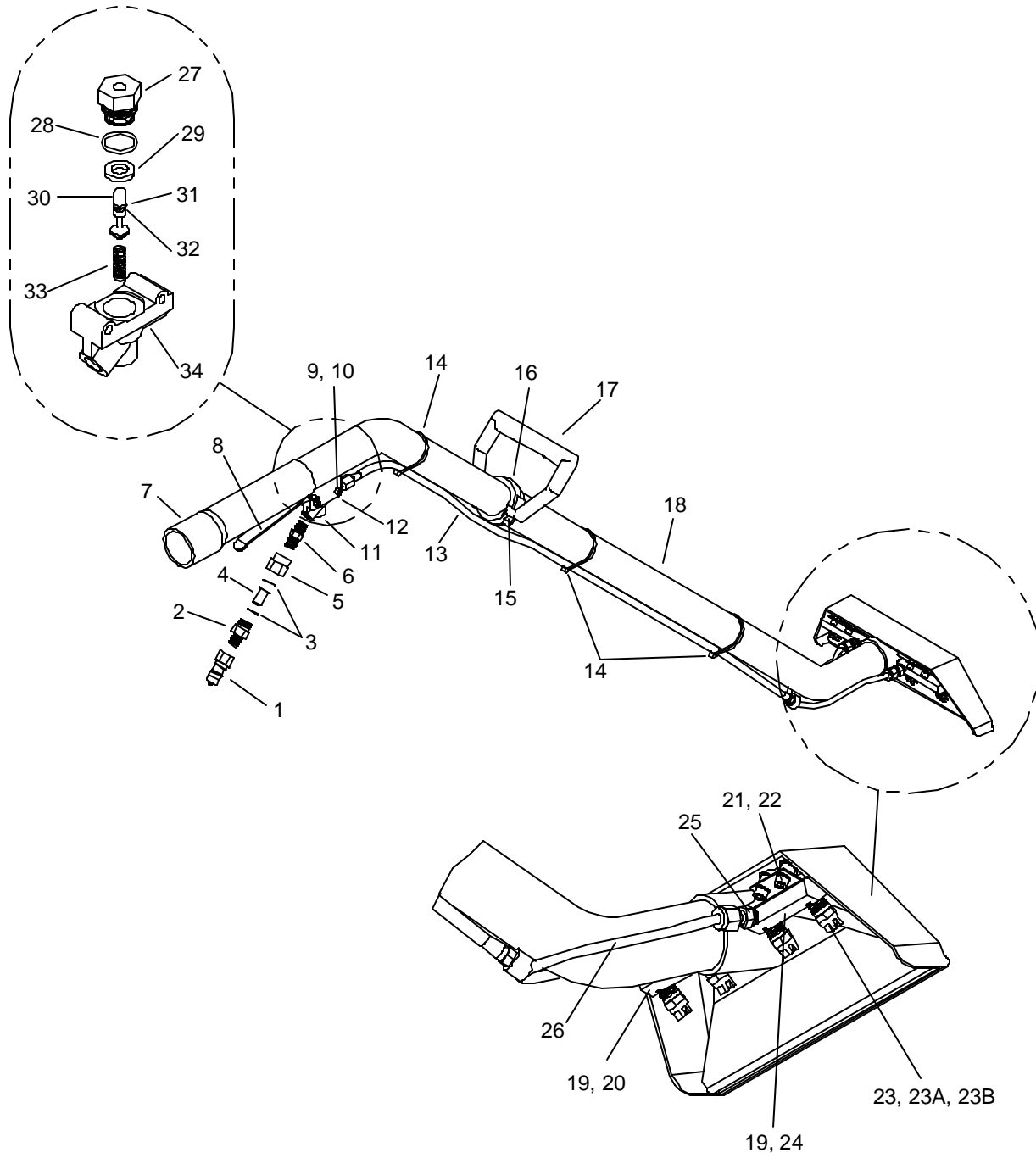
WAND-TITANIUM SIX JET-OPTIONAL



WAND-TITANIUM SIX JET-OPTIONAL

REF	PART NO.	QTY.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	00-000282	2	SCR, CAP 1/4-20 X 1 1/4 SOC		
2	00-000317	2	SCR, CAP 10-32 X 1 1/4 SOCH		
3	70228	4	SCR, 10-32 X 1/4 PPHMS SS		
4	57090	2	NUT, 10-32 HEX NYLOCK SS		
5	04-000093	2	TIE, CABLE 13"		
6	09-805603	1	HOSE, INT VAC 4-1/2 X 48		
7	10-805504	1	HOSE, 3/16 X 44-1/2		
8	56015	1	NIPPLE, 1/4 HEX		
9	11-800206	2	PLUG, 1/8 SOCHD BR		
10	12-800060	1	CONN, 1/4P X 1/4T BR		
11	12-800322	2	CONN, 1/8P X 1/4T COMP BR		
12	56012	1	NIPPLE, 1/4 FPT QD		
13	14-806512	1	STRAINER, JET 50 MESH		
14	17-803018	2	TIP, SPRAY 9501 X 1/8P SST		
15	17-803006	2	WASHER, NYLON		
16	17-803010	1	CONN, 1/4P X 11/16-16M		
17	17-803036	1	CONN, 1/4FP X 11/16-16F BR		
18	17-803078	4	TIP, SPRAY 8001 SST 1/8 VJET		
19	52-501619	1	TRIGGER, WD VALVE		
20	52-502008BK	1	BODY, WD HDL, 2" TB, BK		
21	52-502009	1	HOLD DN-WD HDL 2" TUBE		
22	52-502057	1	MANFOLD, LEFT		
23	52-502058	1	MANIFOLD, RIGHT		
24	56-502548	1	ASSY, MNFLD S-BEND		
25	56-502534	1	WD & HD TITANIUM		
26	61-950496	1	ASSY, EXTRACTOR VALVE		
27	16-808189	1	STEM, EXTRACTOR VALVE		
28	16-808190	1	SPRING, EXTRACTOR VALVE		
29	16-808228	1	SEAT, EXTRACTOR VALVE		
30	16-808229	1	HLDR, VLV STEM-EXTRACTOR VL		
31	43-810062	1	O-RING, .114 ID .254OD		
32	43-810063	1	O-RING, .551ID .691OD		
33	43-810064	1	BACK-UP, .250DIA		
34	52-501590	1	BDY, EXTRACTOR VLV		
35	48-941462	1	DEC, WD HD TITANIUM		

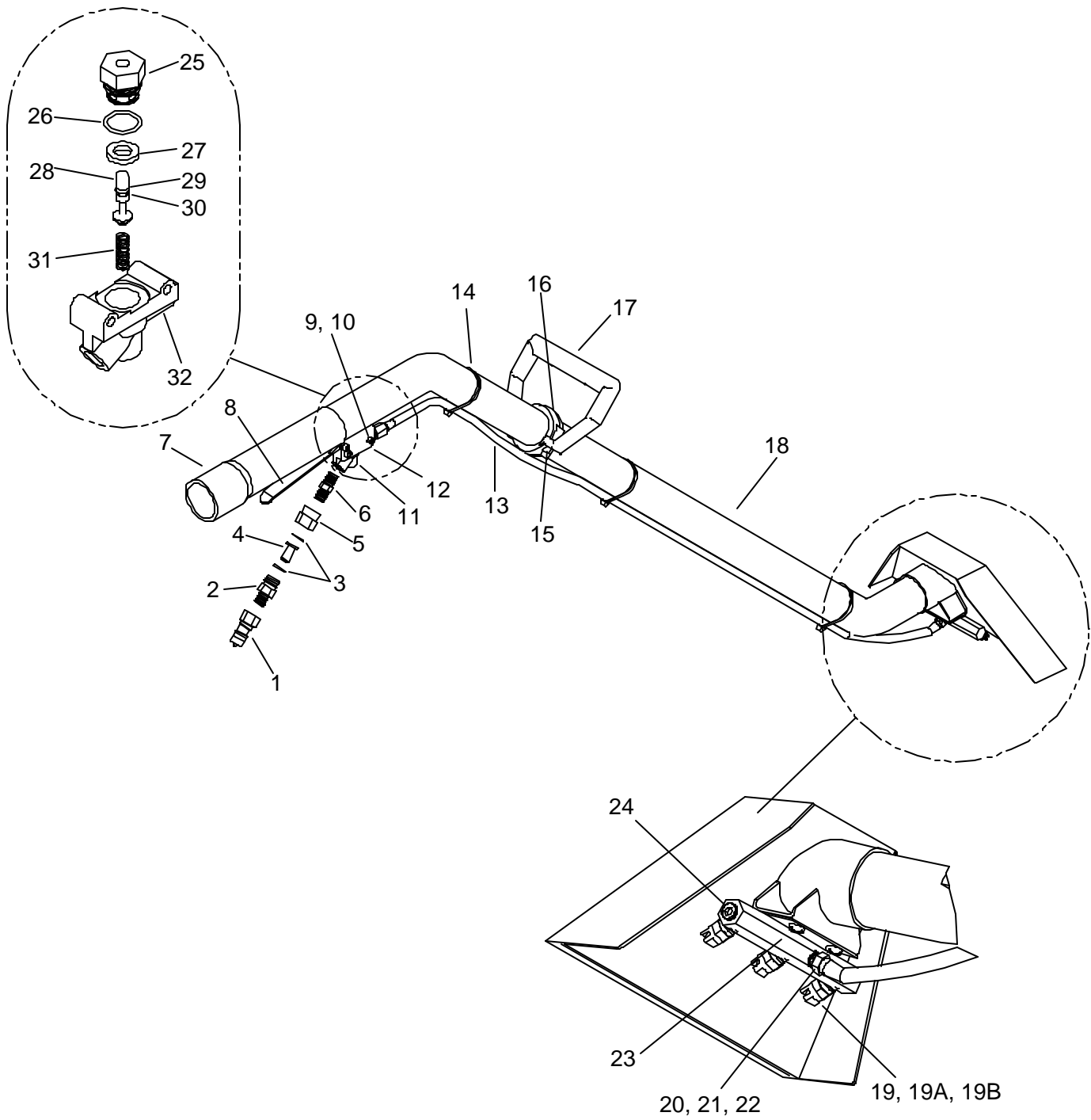
WAND-QUAD JET-OPTIONAL



WAND-QUAD JET-OPTIONAL

REF	PART NO.	QTY.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	89238	-	WAND, TM, QJW (95015) PC		COMPLETE
-	89239	-	WAND, TM, QJW (9502) PC		COMPLETE
-	89237	-	WAND, TM QJW (9501) PC		COMPLETE
-	89235	-	WAND, TM, QJW, (9501) NO DECAL		COMPLETE
1	56012	-	NIPPLE, 1/4 FPT QD		
2	17-503010	1	CONN, 1/4P X 11/16-16M		
3	17-803006	1	WASHER, NYLON		
4	14-806512	2	STRAINER, JET 50 MESH		
5	17-803036	1	CONN, 1/4FP,11/16-16R BR		
6	56015	1	NIPPLE, 1/4 HEX		
7	09-805359	1	SLEEVE, WD HDL 9.5		
8	52-501619	1	TRIGGER, WD VLV		
9	00-000317	3	SCR, CAP 10-32X 1-1/4 SOCH		
10	57090	3	NUT, 10-32 HEX NYLOCK SS		
11	61-950496	1	ASSY, EXTRCTR VLV		
12	12-800060	1	CONN, 1/4P X 1/4T BR		
13	10-805387	1	HOSE, 3/16 X 43-1/2 (1/8P X 1/4)		
14	04-000053	3	TIE, CABLE 8" WHT		
15	00-000282	2	SCR, CAP 1/4-20 X 1-1/4 SOC		
16	52-501569	1	HOLD DOWN, WD HDL		
17	52-501568	1	BODY, WD HDL		
18	56-501940	1	WAND & HEAD, CAST SST		
19	11-800206	2	PLUG, 1/8 SOCHD BR		
20	56-501966	1	ASSY, L S-BEND MNFLD		
21	00-000347	4	SCR, CAP 10-24 X1/4 SOCHD		
22	87165	4	WASHER, #10 SPLIT LOCK		
23	17-803001	4	TIP, SPRY 95015X1/8P SST		89238
23A	17-803002	4	TIP, SPRY 9502X1/8P SST		89239
23B	17-803018	4	TIP, SPRY 9501X1/8P SST		89237 89235 (NO DECAL)
24	56-501986	1	ASSY, RT S-BEND MNFLD		
25	12-800322	2	CONN, 1/8PX1/4T COMP BR		
26	56-501967	1	ASSY, S-BEND MNFLD		
27	16-808229	1	HOLDER, VLV STEM-EXTRCTR VL		
28	43-810063	1	O-RING, .551 ID .691 OD		
29	16-808228	1	SEAT, EXTRCTR VLV		
30	16-808189	1	STEM, EXTRCTR VLV		
31	43-810064	1	BACK-UP, .250 DIA		
32	43-810062	1	O-RING, .144 ID .254 OD		
33	16-808190	1	SPRING, EXTRCTR VLV		
34	52-501590	1	BODY, EXTRCTR VLV		
-	48-941186	1	DECAL, WD HD (CAST SS)		NOT SHOWN
-	66-808169		KIT, REP-WD VLV		NOT SHOWN INCLUDES PARTS 27- 29 & 31-33

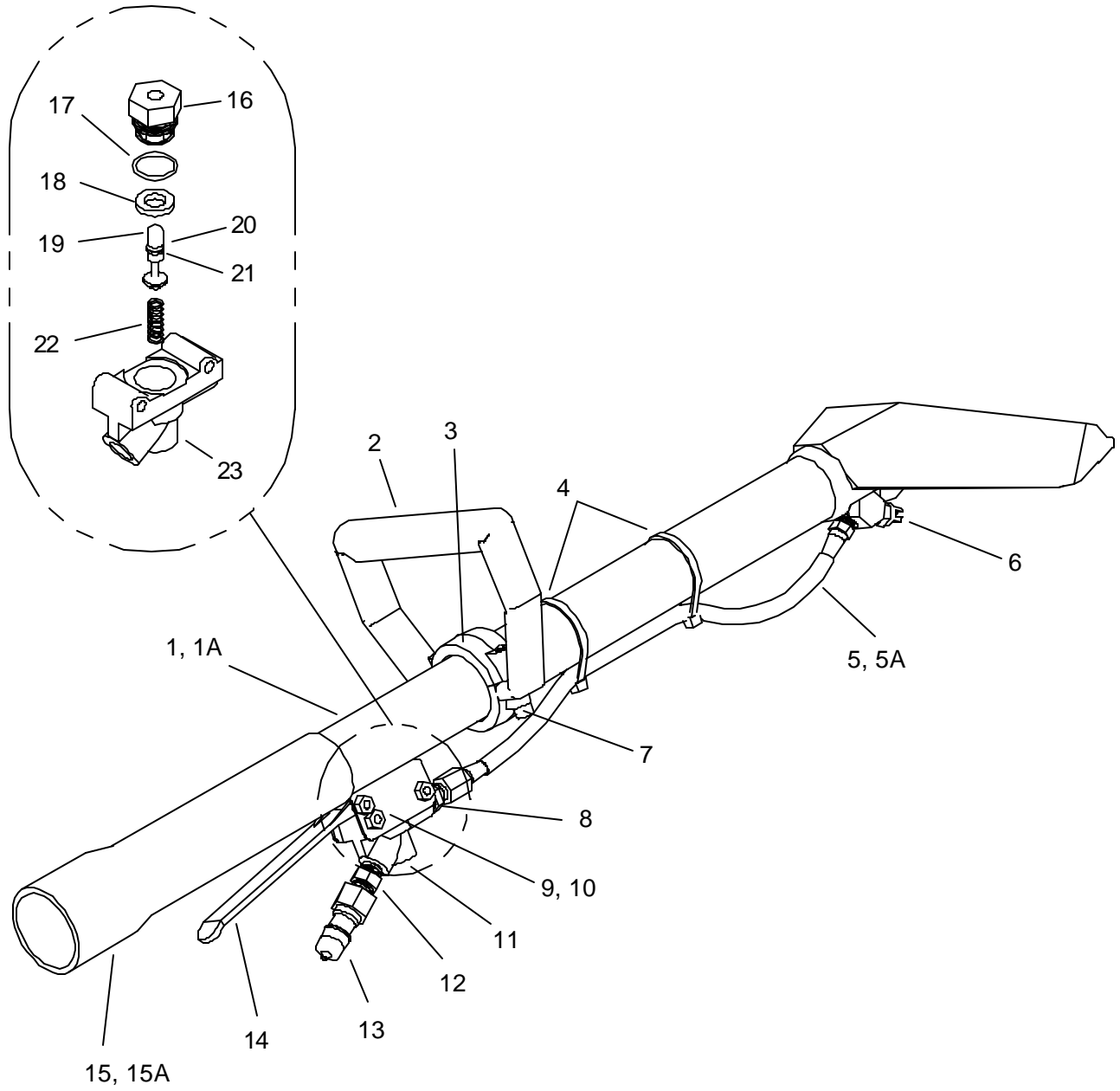
WAND- TRI JET- OPTIONAL



WAND- TRI JET-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	89233	-	WAND, TJW (9502) PC		COMPLETE
-	89232	-	WAND, TJW, (95015) CUBXL		COMPLETE
-	89234	-	WAND, TJW, (9503) PC		COMPLETE
1	56012	1	NIPPLE, 1/4 FPT QD		
2	17-503010	1	CONN, 1/4P X 11/16-16M		
3	17-803006	2	WASHER, NYLON		
4	14-806512	1	STRAINER, JET 50MESH		
5	17-803036	1	CONN, 1/4FP,11/16-16R BR		
6	56015	1	NIPPLE, 1/4 HEX		
7	09-805359	1	SLEEVE, WD HDL 9.5		
8	52-501619	1	TRIGGER, WD VLV		
9	00-000317	3	SCR, CAP 10-32X 1-1/4 SOCH		
10	57090	3	NUT, 10-32 HEX NYLOCK SS		
11	61-950496	1	ASSY, EXTRCTR VLV		
12	12-800060	1	CONN, 1/4P X 1/4T BR		
13	10-805253	1	HOSE, 3/16X49 (1/8P X 1/4FT)		
14	04-000053	3	TIE, CABLE 8" WHT		
15	00-000282	1	SCR, CAP 1/4-20 X 1-1/4 SOC		
16	52-501569	1	HOLD DOWN, WD HDL		
17	52-501568	1	BODY, WD HDL		
18	56-501712	1	WAND & HEAD, TRI-JET WD		
19	17-803002	3	TIP, SPRY 9502X1/8P SST		89233
19A	17-803001	3	TIP, SPRY 9501X1/8P SST		89232
19B	17-803046	3	TIP, SPRY 9503X1/8P SST		89234
20	70162	2	SCR, 10-32 X 3/8 PPHMS SS		
21	87165	2	WASHER, #10 SPLIT LOCK		
22	57014	2	NUT, 10-32 HEX SS		
23	56-501739	1	MANIFOLD, WD TRI-JET		
24	11-800206	2	PLUG, 1/8 SOCHD BR		
25	16-808229	1	HOLDER, VLV STEM-EXTRCTR VL		
26	43-810063	1	O-RING, .551 ID .691 OD		
27	16-808228	1	SEAT, EXTRCTR VLV		
28	16-808189	1	STEM, EXTRCT VLV		
29	43-810064	1	BACK-UP, .250DIA		
30	43-810062	1	O-RING, .114ID .254OD		
31	16-808190	1	SPRING, EXTRCTR VLV		
32	52-501590	1	BODY, EXTRCTR VLV		
-	48-941166		DECAL, WD HD		NOT SHOWN
-	66-808169		KIT, REP-WD VLV		NOT SHOWN INCLUDES PARTS 25-27 & 29-31

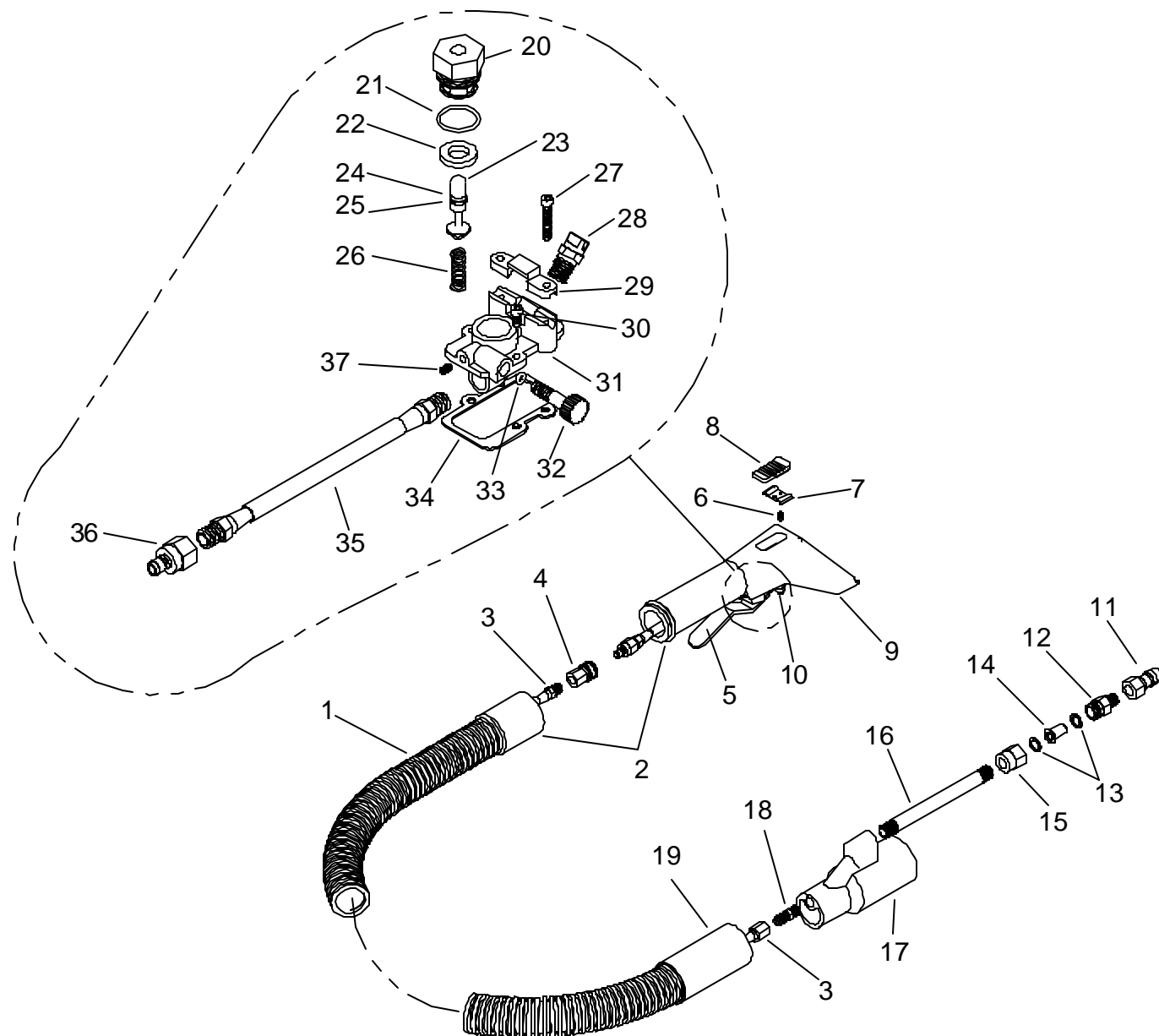
STAIR TOOL-OPTIONAL



STAIR TOOL-OPTIONAL

REF	PART NO.	QTY.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	78519	-	TL, STAIR, LNG, TM DJ (80015)		COMPLETE
-	78521	-	TL, STAIR, SHT, TM (80015)		COMPLETE
1A	56-501715	1	WAND & HEAD, STAIR TL		
1B	56-501907	1	WAND & HEAD, SHRT STAIR TL		
2	52-501576	1	BODY, WD HDL PORT		
3	52-501577	1	HOLD DOWN, WD HDL PORT		
4	04-000053	2	TIE, CABLE 8" WHT		
5A	10-805330	1	HOSE, 3/16X13-3/4 (1/8PX1/4)		
5B	10-805397	1	HOSE, 3/16X7-1/2 (1/8P X 1/4F)		
6	17-803002	1	TIP, SPRY 9502X1/8P SST		
7	00-000282	2	SCR, CAP 1/4-20 X 1-1/4 SOC		
8	12-800060	1	CONN, 1/4P X 1/4T BR		
9	00-000317	3	SCR, CAP 10-32X1-1/4 SOCH		
10	57090	3	NUT, 10-32 HEX NYLOCK SS		
11	61-950496	1	ASSY, EXTRCTR VLV		
12	56015	1	NIPPLE, 1/4 HEX		
13	56012	1	NIPPLE, 1/4 FPT QD		
14	52-501619	1	TRIGGER, WD VLV		
15A	09-805359	1	SLEEVE, WD HDL 9.5		
15B	09-805504	1	SLEEVE, STAIR TL HDL 7-1/8		
16	16-808229	1	HOLDER, VLV STEM-EXTRCTR VL		
17	43-810063	1	O-RING, .551 ID .691 OD		
18	16-808228	1	SEAT, EXTRCTR VLV		
19	16-808189	1	STEM, EXTRCTR VLV		
20	43-810064	1	BACK-UP, .250DIA		
21	43-810062	1	O-RING, .114 ID .254 OD		
22	16-808190	1	SPRING, EXTRCTR VLV		
23	52-501590		BODY, EXTRCTR VLV		
-	48-941163		DECAL, STAIR TL		NOT SHOWN
-	66-808169		KIT, REP-WD VLV		NOT SHOWN INCLUDES PARTS 16-19 & 20-22

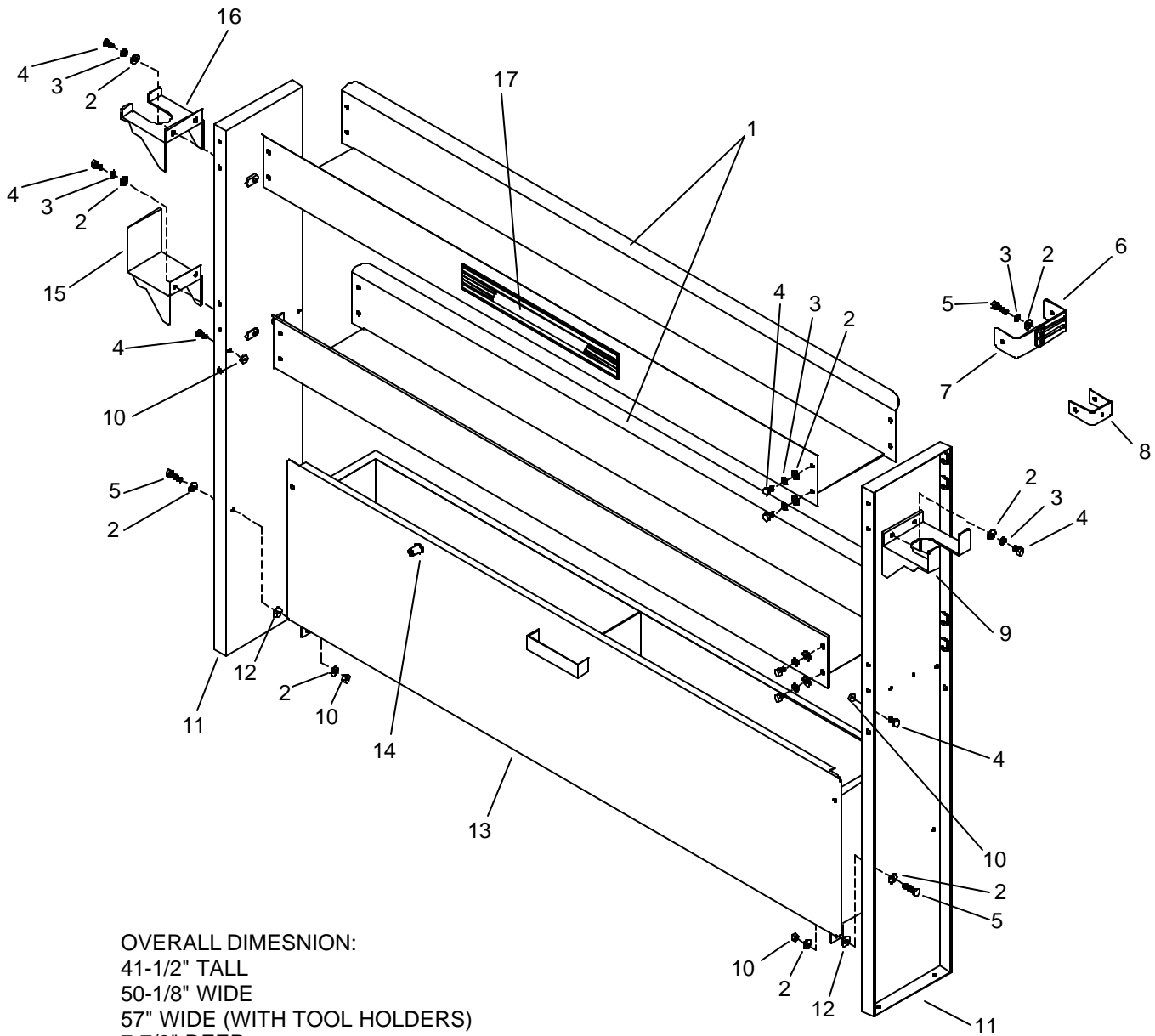
UPHOLSTERY TOOL-OPTIONAL



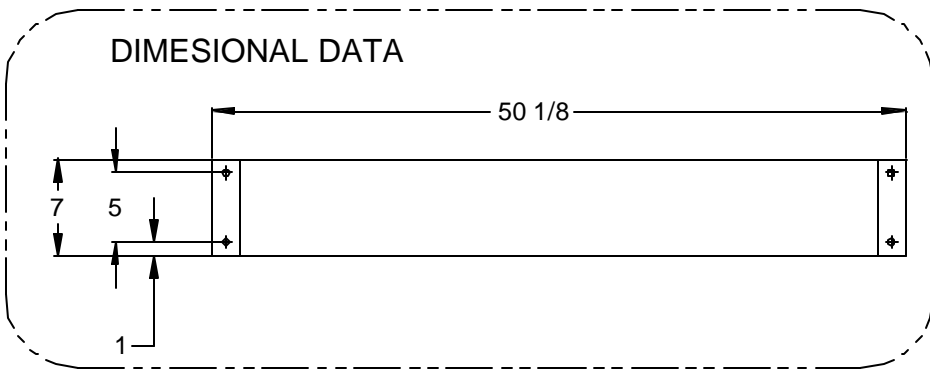
UPHOLSTERY TOOL-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	78513	1	TL, UPHOLST, PC (80015)		COMPLETE
1	09-805131	2	HOSE, VAC 1-1/4X10' BLU		
2	08-805243	1	CUFF, SWIV 1-1/4HX1-1/4T		
3	10-805347	1	HOSE, 3/16X119-1/2 (1/8PX1/4FT)		
4	13-806023	1	DSC, 1/8FC1/8FP SST		
5	58-500639	1	UPHOLSTERY TL TRIGGER		
6	00-000310	1	SCR, CAP 4-40 X7/32 SHCS SS		
7	04-000282	1	SPRING, VAC ADJ BUTT		
8	52-501624	1	BUTTON, VAC ADJ		
9	52-501842	1	TOOL, UPHOLSTERY		
10	61-950570	1	ASSY, UPHLST TL VLV		INCLUDES PARTS 20-26, 28, & 31- 37
11	560012	1	NIPPLE, 1/4 NPT QD		
12	17-803010	1	CONN, 1/4P X 11/16-16M		
13	17-803006	1	WASHER, NYLON		
14	14-806512	1	STRAIRNER, JET 50MESH		
15	17-803036	1	CONN, 1/4FPX11/16-16F BR		
16	11-800404	1	NIP, 1/4X5 SST		
17	52-501585	1	COUPLER, UPHLST TL		
18	12-800065	1	CONN, 1/8P X 1/4T		
19	08-805138	1	CUFF, 1 1/4H X 1 1/2T GRY		
20	16-808229	1	HOLDER, VLV STEM-EXTRCTR VL		
21	43-810063	1	O-RING, .551 ID .691 OD		
22	16-808228	1	SEAT, EXTRCTR VLV		
23	16-808189	1	STEM, EXTRCTR VLV		
24	43-810064	1	BACK-UP, 250DIA		
25	43-810062	1	O-RING, .144 ID .254 OD		
26	16-808190	1	SPRING, EXTRCTR VLV		
27	00-000306	2	SCR, 6-32 X 1 SCHD SS		
28	17-803033	1	TIP, SPRY 80015X1/8P SST		
29	58-500638	1	CSTG, TRIGGER CLMP		
30	00-000307	2	SCR, CAP 6-32X3/8 SOCHD		
31	52-501623	1	VALVE, UPHLST TL		
32	52-501626	1	VALVE, ADJ-UPHLST TL VLV		
33	43-810016	1	O-RING, 5/32IDX9/32OD VIT		
34	43-807513	1	GASKET, UPHLST TL VLV		
35	10-805348	1	HOSE, 3/16X6-1/2 (1/8P BS)		
36	13-806030	1	DSC, 1/8MX1/8FP SST		
37	00-000408	1	SCR, SET 3-32 X 1/4 SOCHD		
-	48-941164	1	DECAL, UPHLST TL		NOT SHOWN
-	66-808169	1	KIT, REPAIR-WAND VLV		NOT SHOWN INCLUDES PARTS 20-22 & 24-26

SHELF ASSEMBLY-OPTIONAL



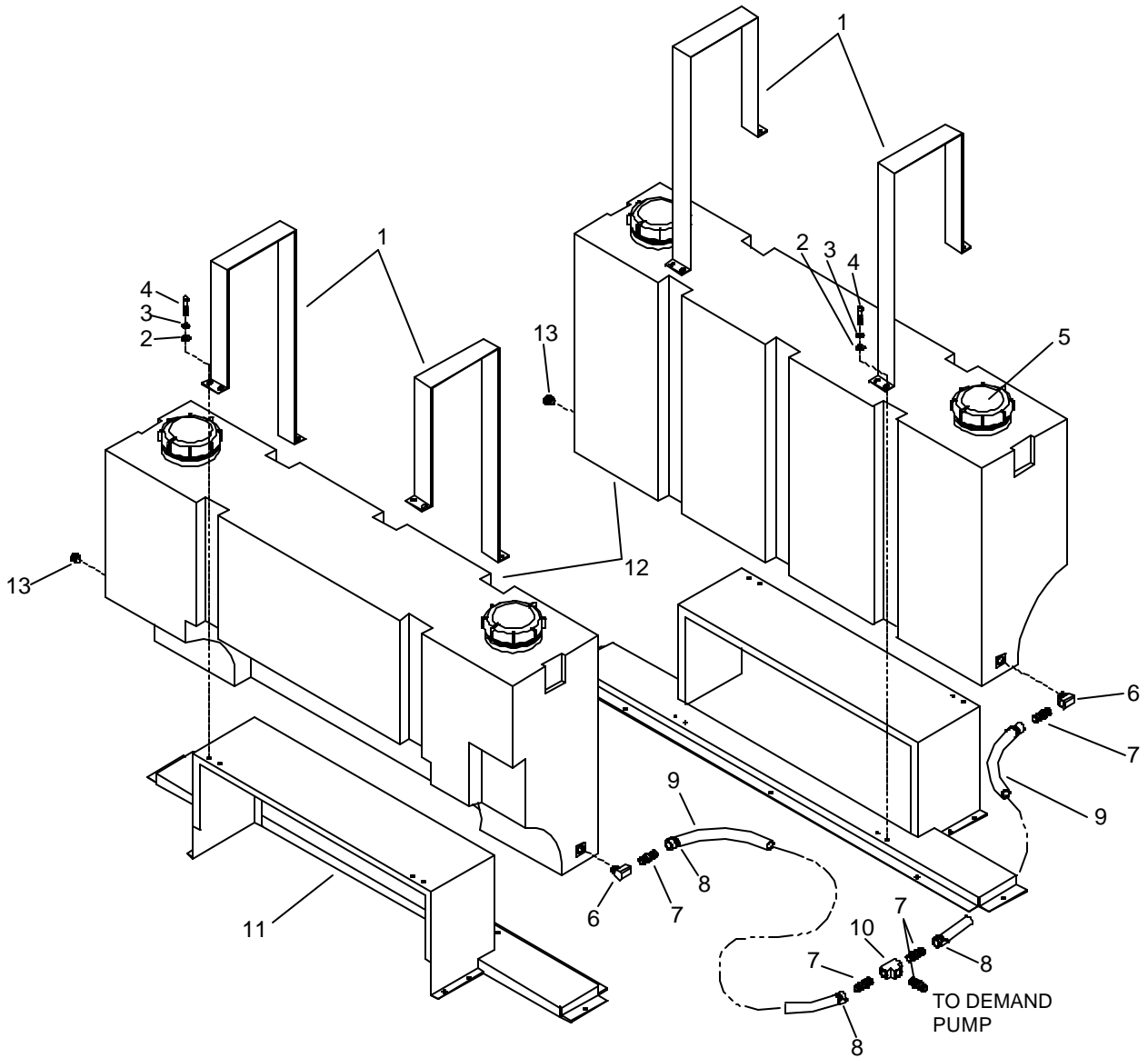
OVERALL DIMENSION:
 41-1/2" TALL
 50-1/8" WIDE
 57" WIDE (WITH TOOL HOLDERS)
 7-7/8" DEEP



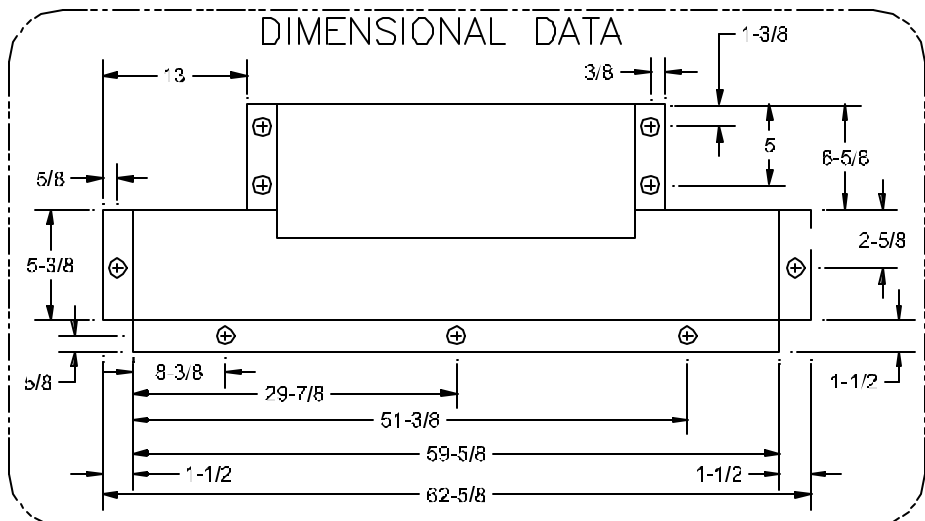
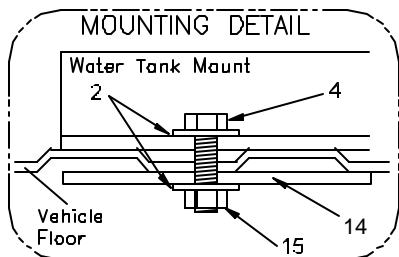
SHELF ASSEMBLY-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	65-950392	1	VAN STORAGE UNIT		COMPLETE
1	56-501921	1	SHELF, LWR		
2	02-000066	20	FLATWASHER, 1/4		
3	87162	20	WASHER, 1/4 SPLIT LOCK		
4	70721	16	SHOULDER BOLT, 182 OD X 2.25 L		
5	70270	4	SCR, 1/4-20 X 3/4 HHCS PLTD		
6	50-501840	1	BRKT, ADJUST MTG SLOT		
7	56-502067	1	BRKT, ADJUST MTF HLDR		
8	56-501942	1	BRKT, SHELF MOUNTING		
9	50-501753	1	HOLDER, STAIR TOOL		
10	01-000105	4	LOCK NUT, 1/4-20 HXHD		
11	56-501922	2	PANEL, SHLF END		
12	50-501749	2	WASHER, NYLON		
13	56-501920	1	DRAWER, SHELF GRAY		
14	46-802506	1	LATCH, ADJ GRIP		
15	50-501755	1	HOLDER, UP TO HOSE		
16	50-501754	1	HOLDER, UPHST TL		
17	48-941152	1	DECAL, PROCHEM		
-	66-945424	1	KIT, ADJ BRKT.		INCLUDES PARTS 6,7 & MOUNTING HARDWARE

WATER TANK, DUAL WITH DEMAND PUMP-OPTIONAL



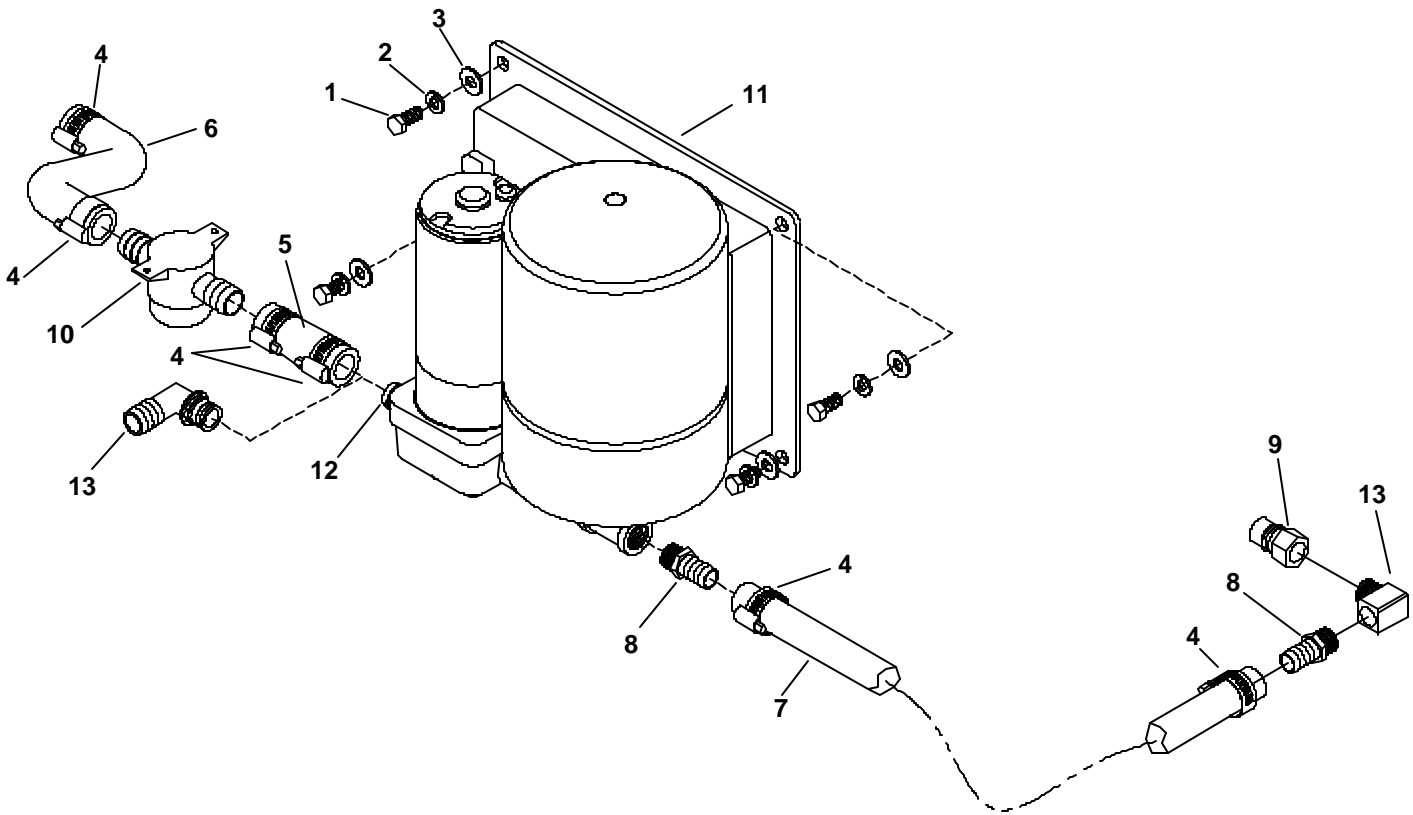
OVERALL DIMENSION:
 32-1/2" TALL
 62-5/8" WIDE
 15-1/2" DEEP



WATER TANK, DUAL WITH DEMAND PUMP-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	66-945260	-	TANK, DUAL SADDLE W/DMD PUMP		COMPLETE
-	66-945265	-	SINGLE SADDLE TANK W/DMND PMP		COMPLETE
1	50-501774	4	HOLD DOWN, SADDLE TANK GRAY		
2	87171	16	WASHER, 3/8 FLAT		
3	87163	16	WASHER 3/8 SPLIT LOCK		
4	00-000072	16	SCR, 3/8-16 X 2' HXHD		
5	11-800432	4	CAP, WATER BOX		
6	11-800041	2	ELL, STREET 1/2 BR		
7	12-800278	4	FTTG, BRB 1/2P X 3/4H BR		
8	03-000113	4	CLAMP, HOSE #12 SST		
9	09-805456	1	HOSE, WTR 3/4 X 96"		
10	11-800085	1	TEE, 1/2 BRASS		
11	56-502000	2	ASSY, BASE SADDLE TANK GRAY		
12	58-500661	2	MOLDING, WATER TANK		
13	11-800168	2	PLUG, 1/2 BRASS HXHD		
14	50-500511	1	PLATE, INSTALL MT		
15	57119	9	NUT, 3/8-16 HEX NYLOCK		
-	41458	1	SHLR, CHEM, 10-GAL JUG		NOT SHOWN

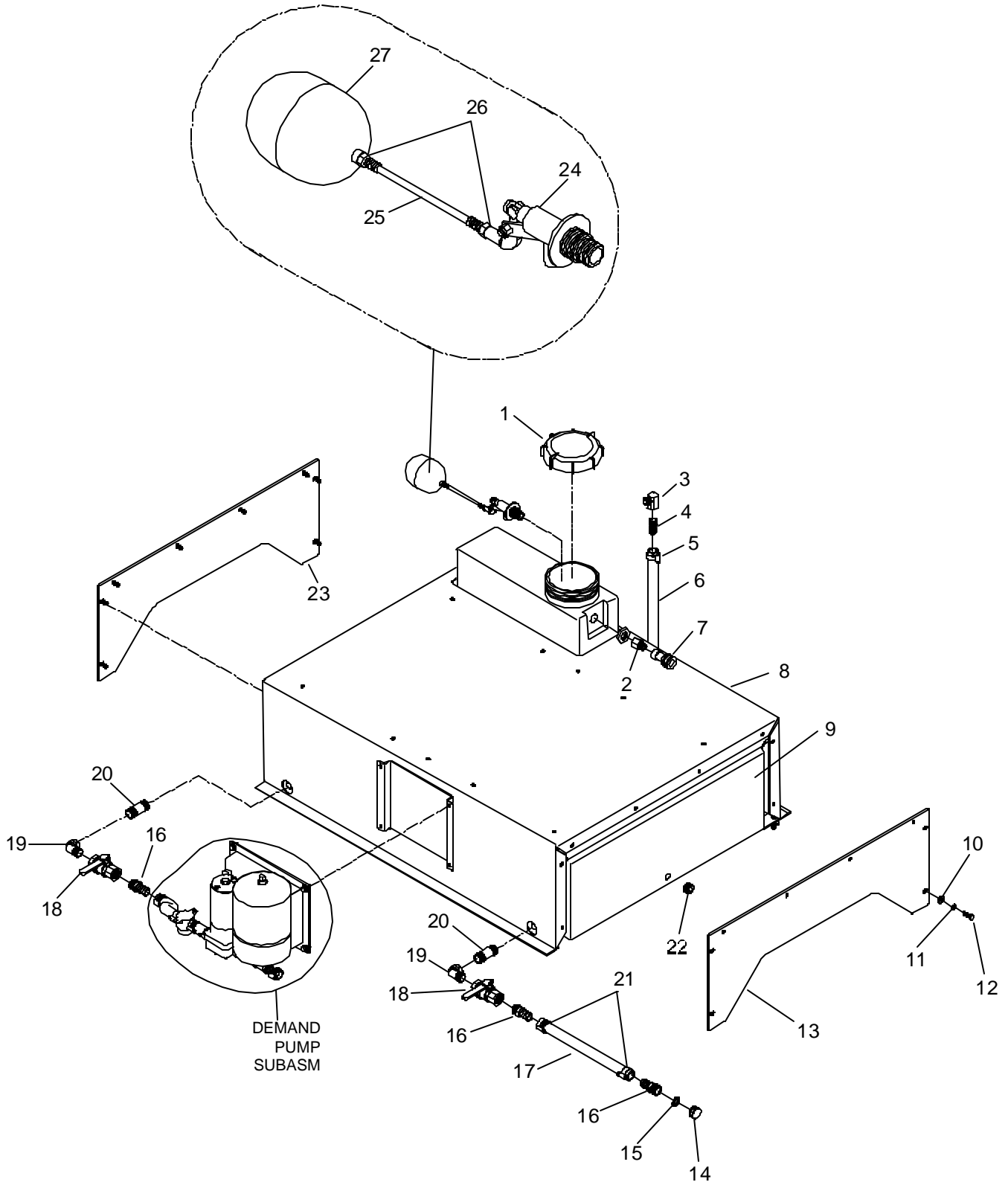
WATER TANK-DEMAND PUMP-OPTIONAL



WATER TANK - DEMAND PUMP-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	70305	4	SCR, 5/16-18 X 3/4 HHCS GR5 PL TDL		
2	87083	4	WASHER, 5/16 SPLIT LOCK PLTD		
3	02-000143	4	WASHER, 5/16 FLAT		
4	03-000113	6	CLAMP, HOSE #12 SST		
5	09-805278	1	HOSE, WATER 3/4 X 3"		
6	09-805357	1	HOSE, WATER .75 X 5.5		
7	09-805446	1	HOSE, WATER 5/8 X 55		
8	12-800345	1	FTTG, BRB 3/8P X 5/8H BR		
9	13-806009	1	DISCONNECT, 3/8M X 3/8FP		
10	14-806553	1	FILTER, DEMAND PUMP		
11	41-905049	1	PUMP, WATER BOOSTER FLOJET 2		
12	20381-022	1	KIT, PORT		
13	11-800275	1	ELBOW, ST 3/8 BR		

AUXILIARY WATER TANK-OPTIONAL

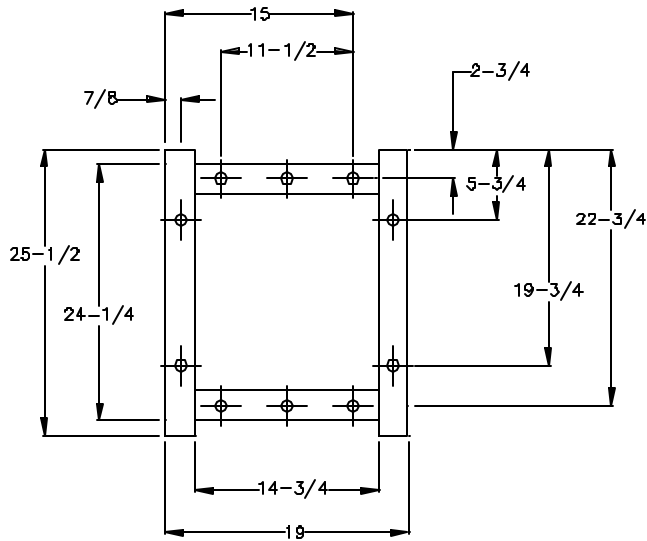
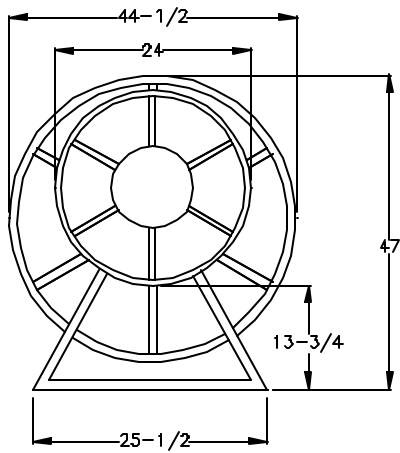


AUXILIARY WATER TANK-OPTIONAL

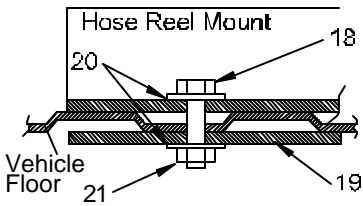
REF	PART NO.	QTY.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	11-800432	1	CAP, WATER BOX		
2	11-800283	1	RED, 1/2FP X 3/8P BR		
3	11-800041	1	ELL, STREET 1/2 BR		
4	12-800269	1	FTTG, BRB 1/2P X 5/8H BR		
5	03-000113	2	CLAMP, HOSE #12 SST		
6	09-805288	1	HOSE, WATER 5/8 X 27		
7	13-806008	1	DSC, 3/8F X 3/8 FP		
8	56-502505	1	ENCL, TNK SUPT W.DEM PMP		
9	58-500899	1	MLDG, WTR TNK, 60G W/OVR		
10	02-000143	1	WASHER, 5/16 FLAT PLTD		
11	87083	16	WASHER, 5/16 SPLIT LOCK PLTD		
12	70305	16	SCR, 5/16-18 X 3/4 HHCS		
13	50-502092	1	PL, FRT TANK SUPPORT		
14	12-800052	1	CAP, HOSE 3/4 BR		
15	43-807008	1	WSR, HOSE 5/8 ID 1" OD		
16	12-800095	3	FTTG, BRB 3/4P X 3/4H BR		
17	09-805100	1	HOSE, WTR 3/4 X 13-1/2		
18	15-808072	2	VLV, BAL 3/4FP BS		
19	11-800401	2	ELL, 3/4 ST BR		
20	11-800525	2	NIP, 3/4 X 2-1/2 BR		
21	03-000113	1	CLAMP, HOSE #12 SST		
22	11-800357	1	PLG, 3/4 SOCHD BR		
23	50-502092	1	PL, END, TNK SUP		
24	15-808110	1	VALVE, FLOAT, TM		
25	54-501715	1	FLOAT ROD, TM		
26	57006	1	NUT, 1/4-20 HEX		

HOSE REEL-OPTIONAL

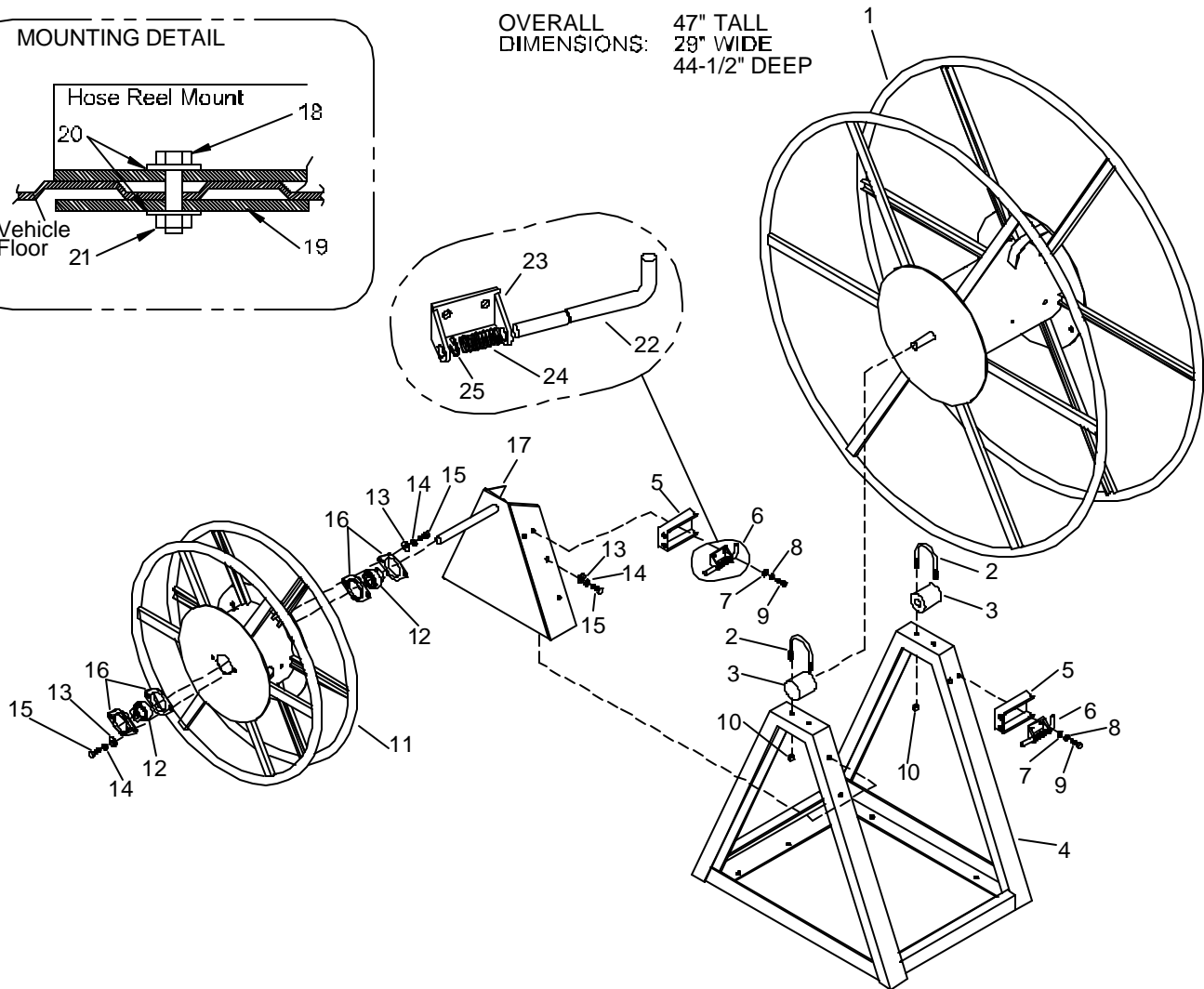
DIMENSIONAL DATA



MOUNTING DETAIL



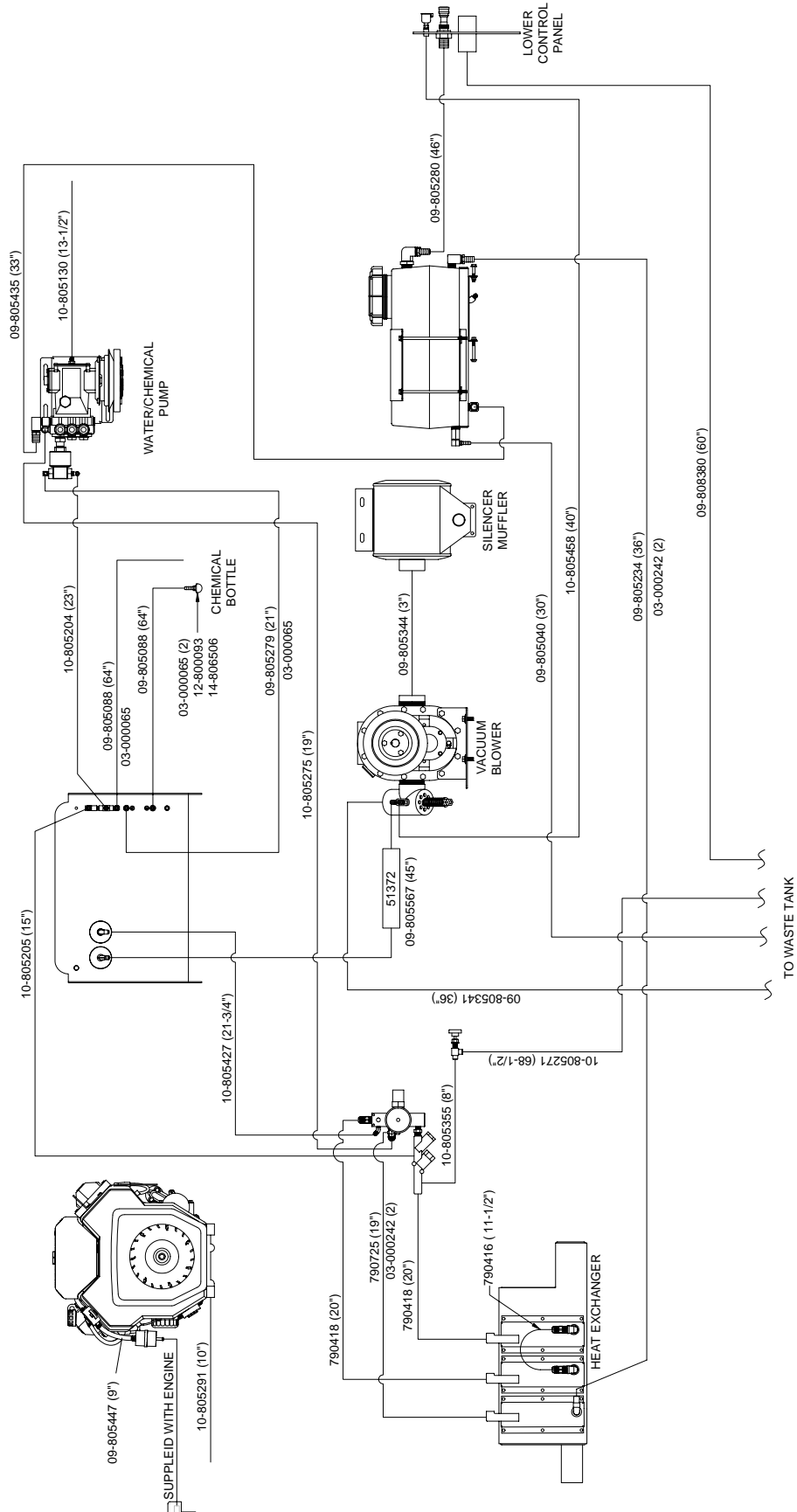
OVERALL DIMENSIONS:
47" TALL
29" WIDE
44-1/2" DEEP



HOSE REEL-OPTIONAL

REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	56-501962	1	REEL, VACUUM HOSE GRAY		
2	03-000124	2	CLAMP, MFLR 1-3/4		
3	52-501685	2	BUSHING, HOSE REEL		
4	56-501960	1	BASE, HOSE RL (250')		
5	56-502207	1	BRKT, LOCKOUT HOSE REEL		
6	61-950854	1	LATCH ASSEMBLY		
7	02-000066	2	FLATWASHER, 1/4		
8	87162	2	WASHER, 1/4 SLPIT LOCK		
9	70270	2	SCR, 1/4-20 X 3/4 HHCS PLTD		
10	57031	2	NUT, 5/16-18 HEX		
11	56-501968	1	REEL, HP HOSE GRAY		
12	45-802138	2	BEARING HOSE REEL		
13	02-000143	4	FLATWASHER, 5/16		
14	87083	4	WASHER, 5/16 SPLIT LOCK PLTD		
15	70302	4	SCR, 5/16-18 X 1" HHCSGR5PLT		
16	44-802122	4	FLANGE, 47MST		
17	56-501961	1	BODY, HP HOSE GRAY		
18	00-000072	10	SCR, 3/8-16 X 2" HXHD		
19	50-500511	1	PLATE, INSTALL MT		
20	87171	10	WASHER, 3/8 FLAT		
21	57119	10	NUT, 3/8-16 HEX NYLOCK		
22	55-501789	1	PIN, LOCK HOSE REEL		
23	50-501812	1	BRKT, HOSE REEL LOCK		
24	04-000302	1	SPRING, LOCK-LOCK PIN ASSY		
25	04-000303	1	CLIP, RETAINER-LOCK PIN ASSY		

HOSE DIAGRAM



NOTES



New Truck Mount Machine Warranty

Limited Warranty

PROCHEM warrants new machines against defects in material and workmanship under normal use and service to the original purchaser. Any statutory implied warranties, including any warranty of merchantability or fitness for a particular purpose, are expressly limited to the duration of this written warranty. *PROCHEM* will not be liable for any other damages, including but not limited to indirect or special consequential damages arising out of or in connection with the furnishing, performance, use or inability to use the machine. This remedy shall be the exclusive remedy of the buyer. The warranty period is subject to the conditions stated below.

Any local or distant transportation, related service labor, normal maintenance, and diagnostic calls are not included.

Parts replaced or repaired under this warranty are guaranteed for the remainder of the original warranty period or 90 days.

Component	Coverage Responsibility	Length of Warranty
Gasoline Engine*	Engine Dependant: Briggs & Stratton – 1-800-233-3723 Nissan – Contact Customer Care Kohler – 1-800-655-4356	1 year
Vacuum Pump	Gardner Denver – 1-800-982-3009	18 months
Heat Exchanger	PROCHEM	1 year
Water Pump	PROCHEM	2 years
Waste Pump	PROCHEM	1 year
Wands(except shut off valve and jets)	PROCHEM	1 year
Waste and Water Tanks	PROCHEM	1 year
Pressure Regulator	PROCHEM	1 year
All other component not excluded	PROCHEM	1 year
Battery*	Pro-rated through battery manufacturer's local dealer. 800-423-6569	1 year

* When applicable

Product exceptions and Exclusions:

- Normal wear items and maintenance items including but not limited to disposable filters, any fluids, electrical components, belts, pulleys, bearings, fittings, hoses, o-rings, seals, gaskets, diaphragms, engine tune up components, wand shut off valve, and jets are covered, **parts only**, for 90 days.
- **NOTE:** Engine warranty is administered through the engine manufacturer and must be repaired at an authorized service center.

This Warranty Shall Not Apply To:

1. Any product that has been subject to abuse, misuse, neglect or unauthorized alteration (including the use of incompatible or corrosive chemicals or overloading of capacity).
2. Products that have experienced shipping or freight damage.
3. Repairs necessary to correct any failure due to improper pre-delivery service and inspection by the selling dealer.
4. Time for cleaning units in preparation for repair.
5. Any repairs resulting from poor initial service work or improper diagnosis.
6. Any design alterations performed by an organization not authorized or specified by PROCHEM.
7. A unit which is improperly repaired.
8. Damage due to hard water scaling.
9. Exposure to freezing temperature conditions.
10. Electrical components exposed to moisture.

The warranty commences on the purchase date by the original end user from an authorized *PROCHEM* agent, subject to proof of purchase. **The warranty is non transferable and is intended for the original purchaser only.** The Machine Registration Card must be completed and returned within 10 day of the time of purchase. If proof of purchase cannot be identified, the warranty start date is 90 days after the date of sale to an authorized *PROCHEM* distributor.

If difficulty develops during the warranty period, contact the authorized *PROCHEM* agent from whom the product was purchased. *PROCHEM* may elect to require the return of components to validate a claim. Any defective part to be returned must be shipped **freight prepaid** to an authorized *PROCHEM* Distributor/Service Center or to the *PROCHEM* factory.

Use Of Parts Not Approved By PROCHEM Will Void All Warranties.

PROCHEM reserves the right to change its warranty policy without notice

PROCHEM. ? a Castle Rock Industries company ? 1351 W. Stanford Ave. ? (303) 762-1800 ? 800-444-7654 ? FAX (303) 865-2800