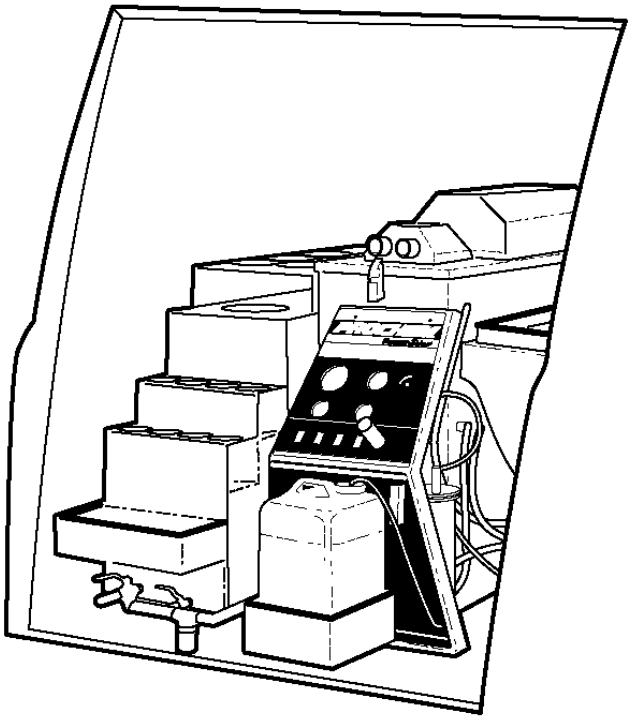
PowerDirect

MOBILE CLEANING UNIT

Operating Instructions (ENG)



MODELS:	PDF	POWER DIRECT (FORD)
	PDFX	POWER DIRECT XTRA (FORD)
	PDG	POWER DIRECT (GM)
	PDT	POWER DIRECT WATER TANK
	PDT	POWER DIRECT WATER TANK

Read instructions before operating the machine.

C 980185
11/30/04

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

TABLE OF CONTENTS

PARTS LIST

IMPORTANT SAFETY INSTRUCTIONS

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

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE

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!

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.

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

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.

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 local noise ordinance when operating units.

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.

DO NOT exceed your vehicle's weight limit. The console with waste tank and accessories weights approximately 800 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 attachment 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 deg 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.

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.

TECHNICAL SPECIFICATIONS

ITEM	DIMENSION/CAPACITY
Engine speed	1450 rpm (high speed) Water Pump ON
Water pump rpm	850 rpm
Vacuum pump rpm	2850 rpm
Water flow rate	4 GPM (maximum)
Water pump pressure (low pressure)	1000 PSI (maximum)
Vacuum relief valve	14" Hg
Waste tank capacity	120 gallons
Console weight (with waste tank)	800 lbs.

JET SIZING:
Recommended **floor tool** tip sizing not exceed a total of ".045". Using larger jet sizes on your cleaning unit may reduce cleaning temperatures.

Example: **Tri-jet wand uses three 95015 jets** (95 deg spray angle w/ 015 orifice).
015 x 3 = 045

Upholstery tool jet size: **80015**
Stair tool jet size: **9502**

NOTES:

OPERATION

1. Tachometer/Hour Meter
The tachometer shows the rpm of the vacuum pump and the hour meter records the number of hours the unit has run. This serves as a time recorder for servicing the machine.

2. Solution Pressure Gauge
This gauge registers the amount of pressure in the system.

3. Solution Temperature Gauge
This gauge measures the temperature of the cleaning solution as it exits the machine.

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

5. Solution Temperature Control
This valve allows the operator to control the solution temperature by adjusting the valve from cold to hot.

6. 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 knob clockwise. The pressure is increased or reduced by turning the valve counter clockwise. This valve must be maintained in accordance with this manual maintenance table.

7. Carpet/Upholstery Mode Switch
This switch serves to energize the magnetic clutch to turn the PTO and set the engine speed for the desired operation of cleaning. Turning the switch to the Upholstery Mode for lower speed and turning the switch to Carpet Mode for higher speed of the vacuum pump.

8. Solution Pump Switch
This switch serves to energize the magnetic clutch to turn the water pump on or off.

9. Interior Lights
This switch controls the spot lights located in the van cargo area.

10. Waste Pumpout Switch
This switch controls the (Optional) auxiliary pump to empty the waste collection tank automatically. A float located inside the tank automatically turns off and on when the solution level reaches a certain point.

11. Solution Outlets
The solution outlets are the connecting points for the high pressure hoses. These outlets have quick disconnects that allow hoses to be plugged into the unit.

12. Water Inlet
This quick connect allows water supply hose to be connected to the unit.

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

14. Waste Tank Pumpout Outlet
This port is filled with a chrome plug unless the (Optional) Waste Pumpout has been installed, then there will be a garden hose fitting to attach a hose to.

15. Flow Meter
The flow meter is a gauge to indicate how much liquid chemical is being introduced in the water system. Turning the knob on the flow meter clockwise can increase the quantity.

16. Solution Pump Prime
This valve is used to purge the system when air is slowed to enter. Example, empties chemical container or empty water storage tank. Open and close valve with chemical flow meter open and adequate water supply. When solution pressure gauge indicator needle remains stable, all air has been evacuated.

OPERATION

Water Pumping and Heat Transfer System:

Cold water enters the panel through the water inlet. When the water tank is full the valve will automatically shut off.

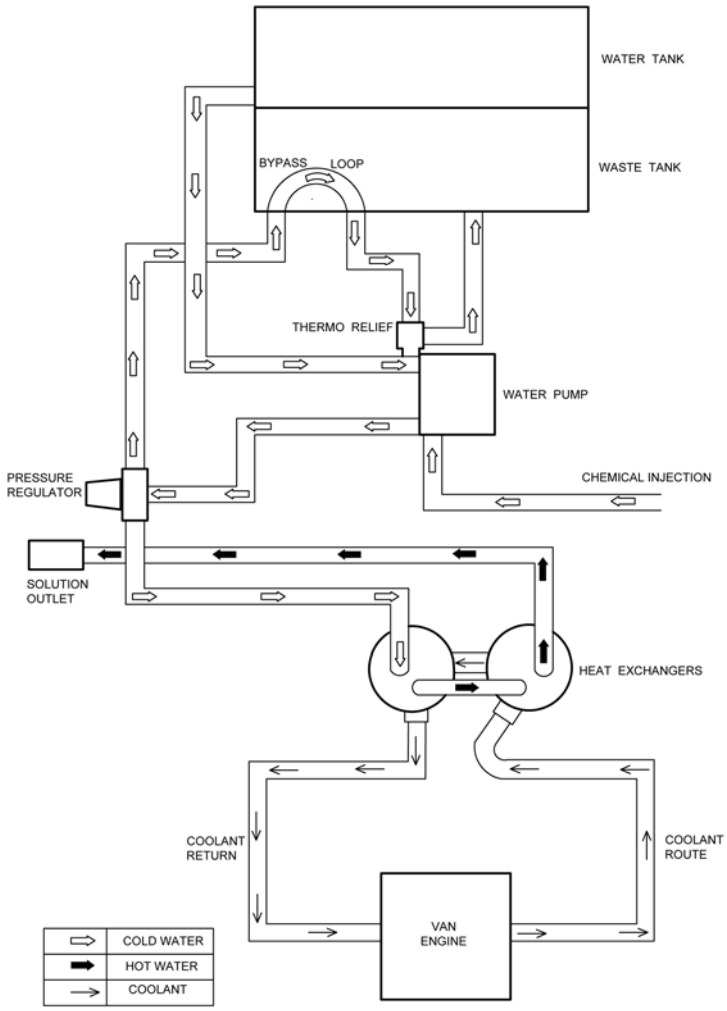
Water then flows from the water tank, through a strainer, into the water pump where chemical is introduced at this point. Then it is pumped to the pressure regulator that provides and maintains the desired pressure setting.

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 to the by-pass coil in the recovery tank then flows to the inlet side of the pump to be circulated again.

The heating stage occurs when the water leaving the pressure regulator and directed to the first of two heat exchangers. Heat from the vehicle engine coolant is exchanged to the cleaning solution spiraled copper tubing. This allows the engine coolant to travel in a counter rotating direction to the cleaning water during the exchange process creating a very efficient transfer of heat out of the engine and into the cleaning solution.

The hot solution then exits the second heat exchanger where it enters the outlet manifold. The manifold serves as a sensing point and connection for the high-pressure hoses.

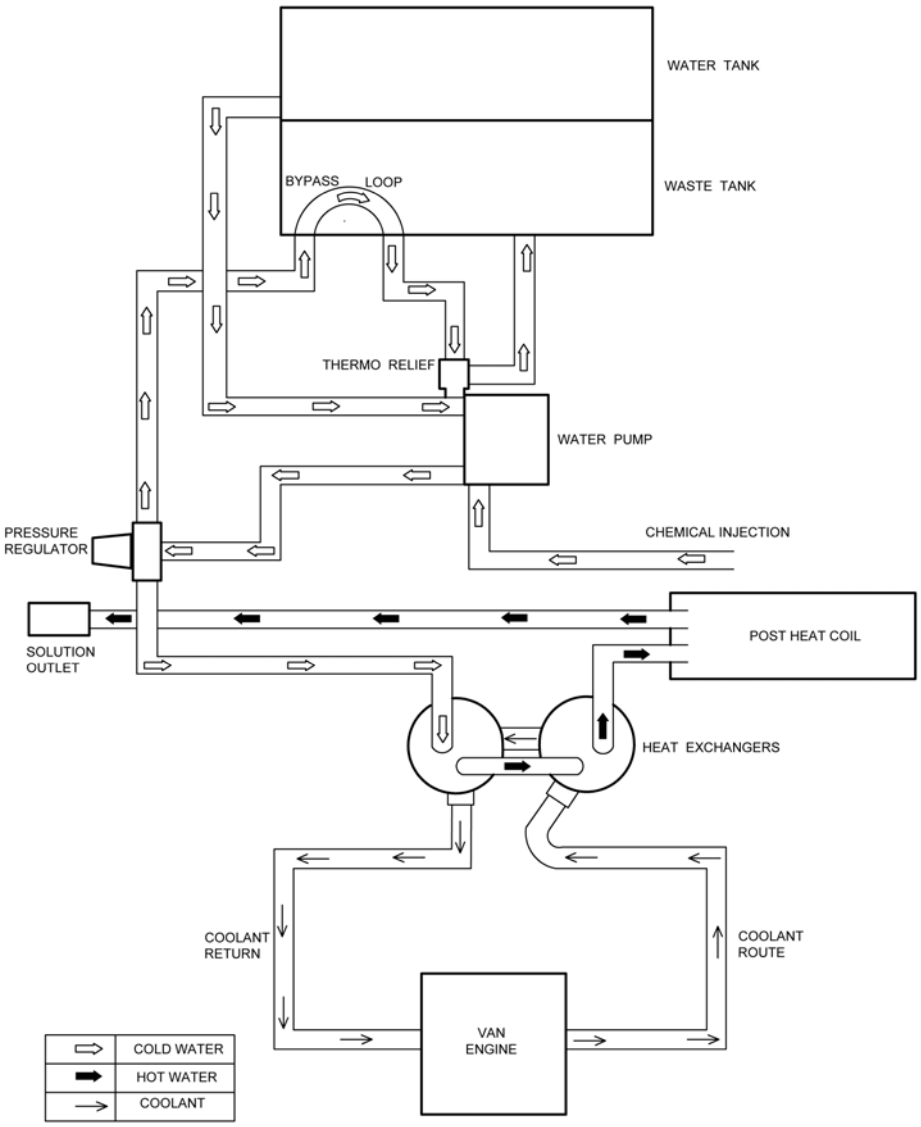
Finally, the cleaning solution then passes through pressure hoses and is distributed by the cleaning tool to a surface that is being cleaned, completing the water pumping and heating cycle of the cleaning unit.



OPERATION

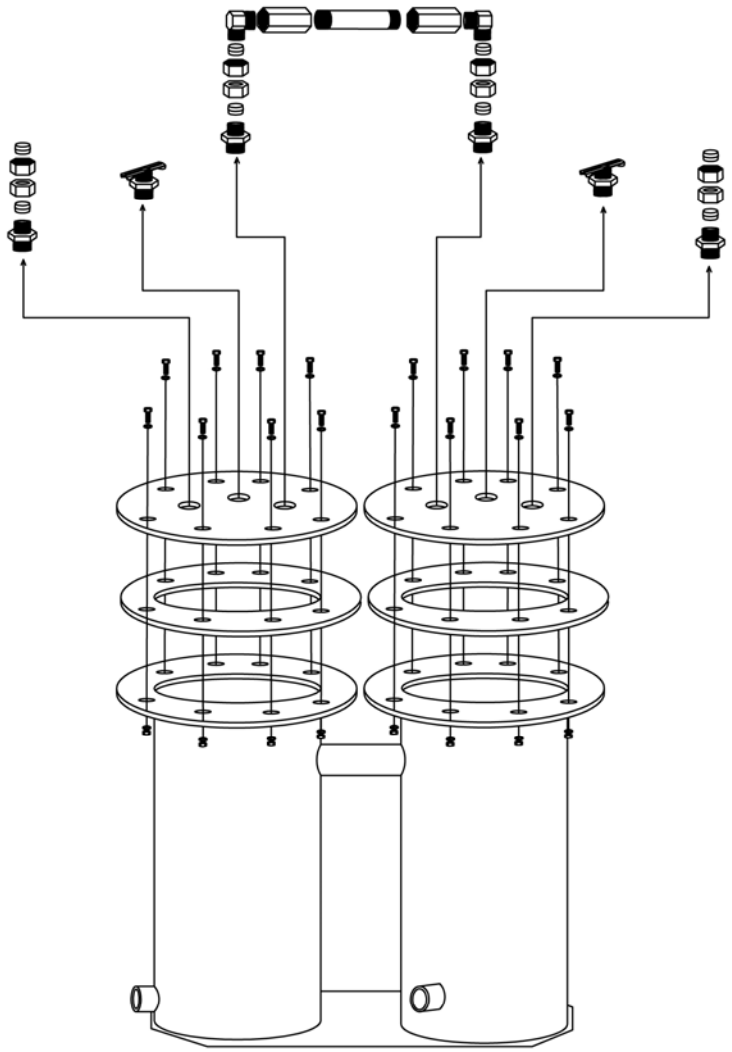
Optional Post Heat

With the Optional Post Heat, the cleaning solution goes to a second stage of plumbing and heating which takes place in the heater core located just after the vacuum pump. This is the hottest point of exhaust air coming from the vacuum pump. The hot exhaust air is forced through the post heat core, creating the second stage of heat transfer to the cleaning solution.



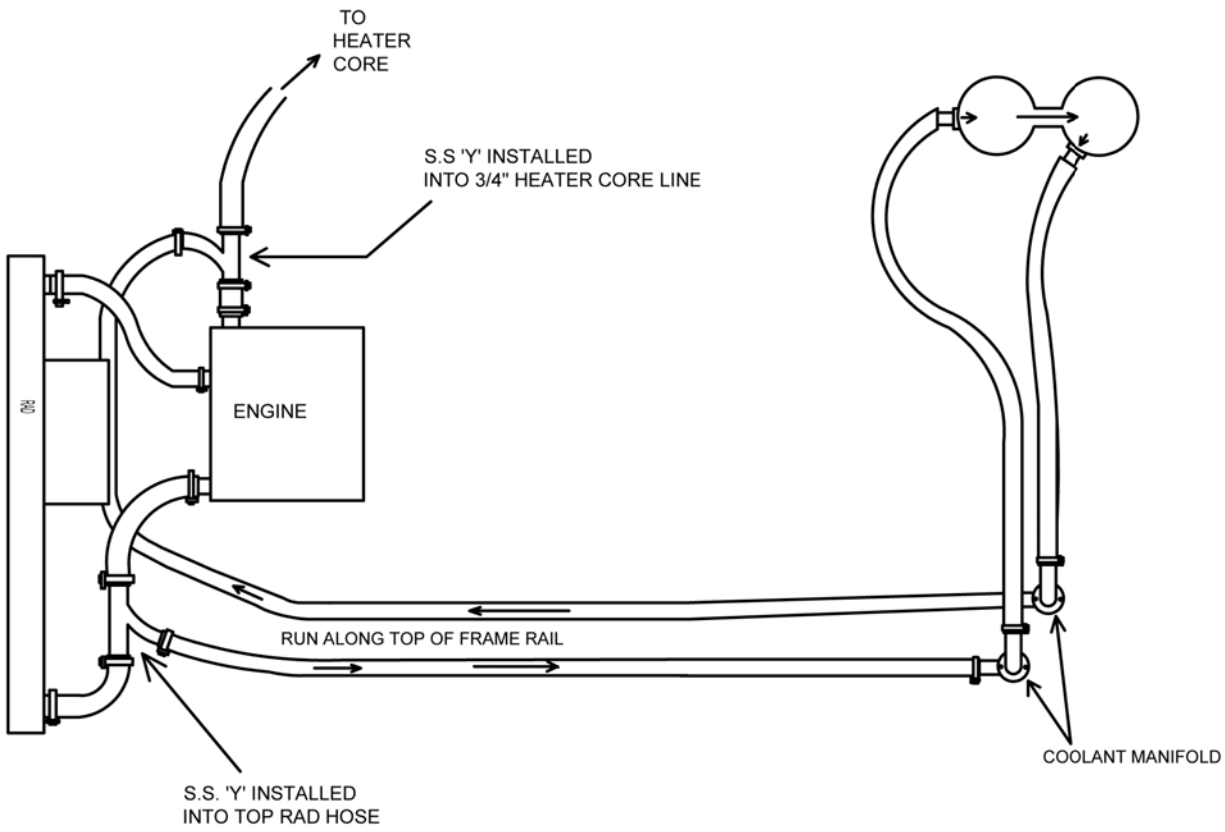
PROCHEM PowerBrite

HEAT EXCHANGER



PROCHEM PowerDirect

COOLANT HOSE ROUTING

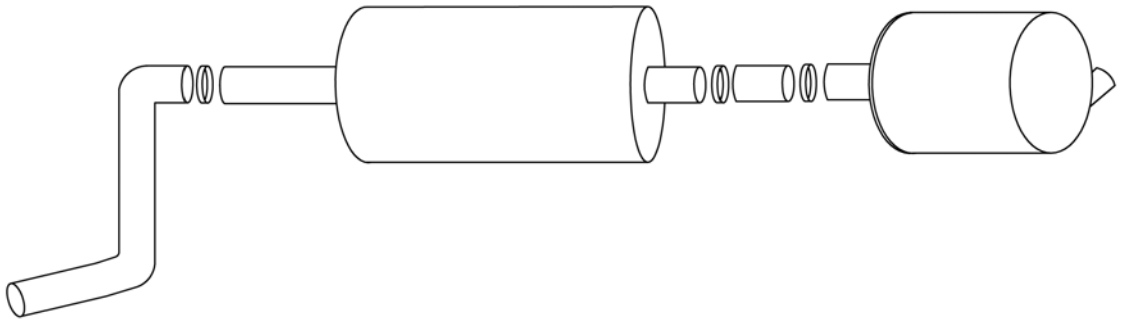


NOTE: USE 3" TUBE CLAMPS AND TIE STRAPS TO PREVENT HOSES FROM DROPPING OR COMING IN CONTACT WITH HOT SURFACES OR MOVING PARTS

19,01,2004

PROCHEM. Power Direct

SILENCER SYSTEM



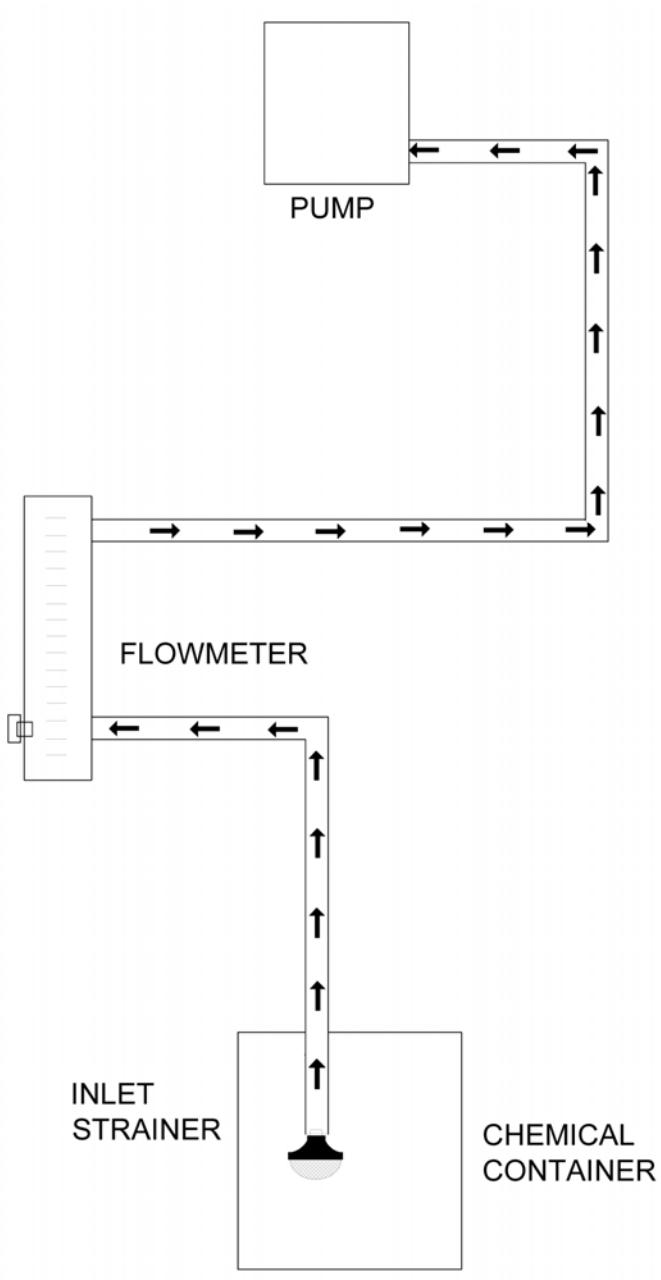
OPERATION

CHEMICAL INJECTION SYSTEM:

The chemical injection system utilizes the natural inlet draw of the high-pressure pump to move the chemical into the main pressure stream.

The chemical is picked up from the container and fed through the flow meter at a desired amount of chemical which is adjusted through the metering valve.

The chemicals and water are mixed in the high-pressure pump and then forced through the heat exchangers and outlet manifold where then it is distributed to high-pressure hoses out to the cleaning tool.



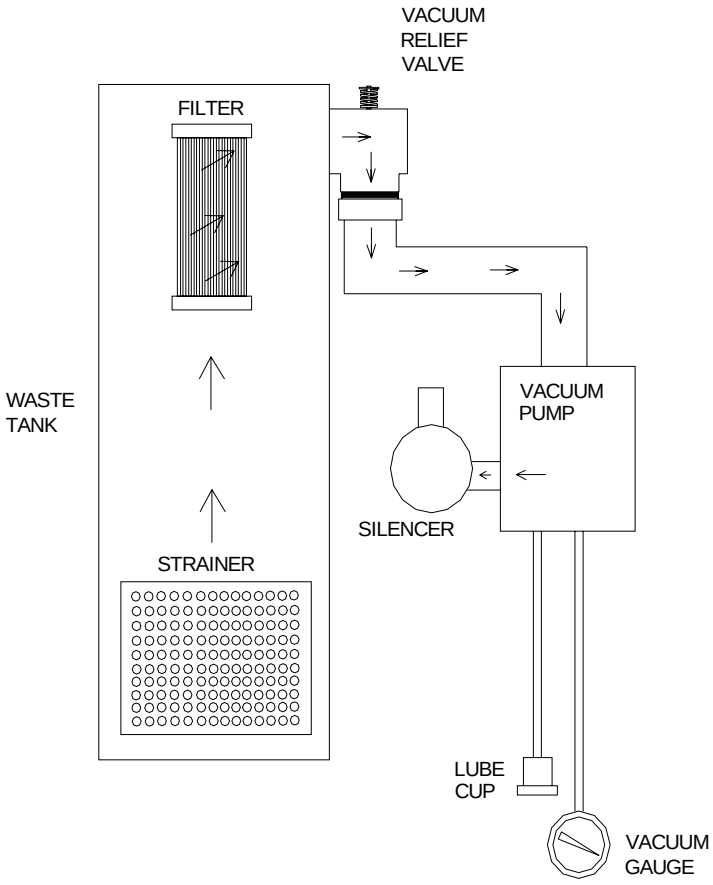
OPERATION

VACUUM SYSTEM

The PTO 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 the waste 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. Finally the hot air is exhausted outside.



OPERATION

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 2.1 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 tank.**

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.

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 nozzle are not showing a full spray pattern, adjust nozzles for proper pattern, clean, or replace nozzles, if required.

2. Nomally chemical is applied on the push stoke 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.

OPERATION

UPHOLSTERY CLEANING

Upholstery tool

1. Set temperature as desired and use Upholstery Mode on the unit switch.
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 WD-40 (or equivalent) into the vacuum lubrication cup. This will prevent corrosion due to moisture.
3. Turn off Unit and Pump switch.
4. Disconnect all hoses and tools.
5. 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 in Carpet Mode.
2. Leave Pump switch OFF.
3. Begin de-flooding operations.

FREEZING PROTECTION

⚠ CAUTION:

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 vehicle provides heat while running.

OPERATION

WINTERIZING YOUR UNIT

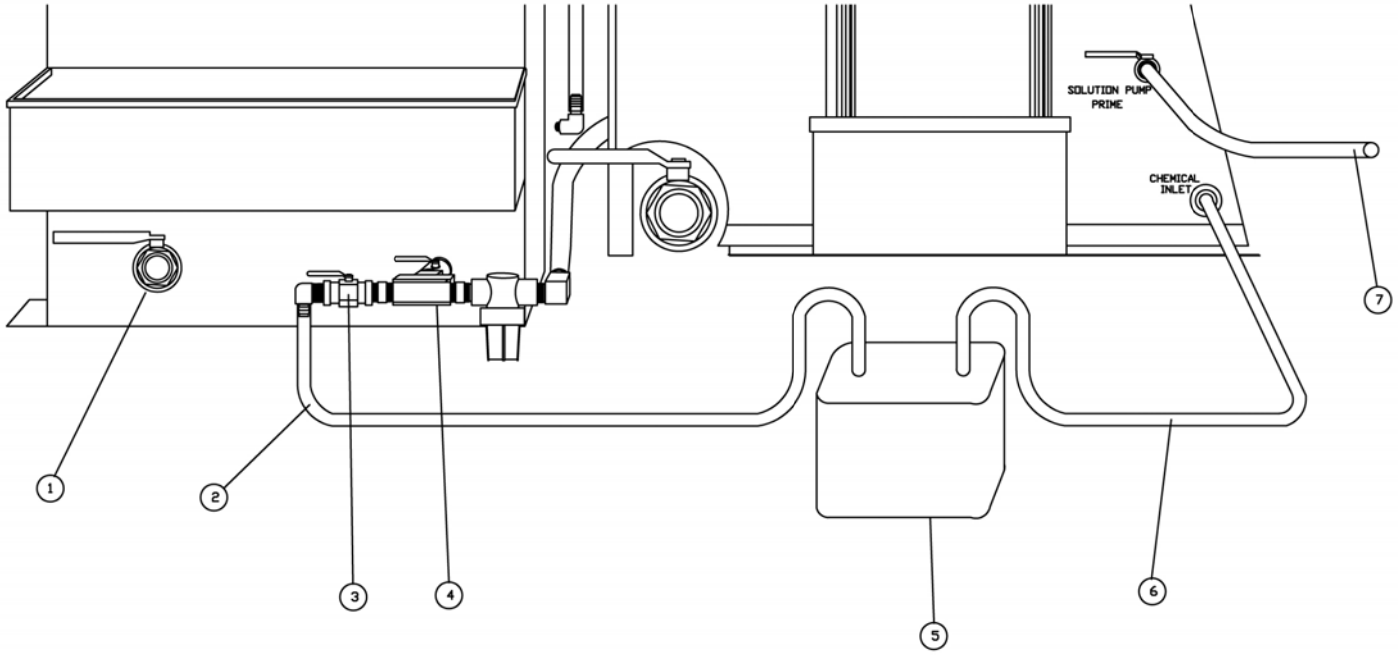
1) Drain fresh water tank by opening the ball valve (# 1)
2) Close ball valve (# 4)
3) Place hose (# 3) into container of 100% glycol base antifreeze
4) Place chemical feed hose (# 6) into container of antifreeze, open flow meter valve
5) Open ball valve (# 3)
6) Place primer hose into empty container
7) Turn main switch to “Upholstery Mode” and pump switch to the “ON” position
8) Open ball valve on primer hose until antifreeze comes out, then turn the primer hose valve off and on for another 30 seconds to replace the bypass loop with antifreeze.
9) Turn the pump and main switch off, then hook up the high pressure hoses and wand to the panel. Turn main switch to “Upholstery Mode” and the pump switch to the “ON” position.
10) With the primer hose valve closed, open the wand valve until antifreeze appears, repeat this for all other tools.

RETURNING CLEANING UNIT BACK INTO SERVICE

1) Close fresh water valve (# 1)
2) Fill tank with fresh water
3) Close valve (# 3) and open valve (# 4)
4) Place chemical feed hose (# 6) into chemical jug, open flow meter valve
5) Place primer hose into empty container
6) Turn main switch to “Upholstery Mode” and pump switch to the “ON” position
7) Open the primer hose valve to evacuate the antifreeze from the system, remember to open and close this valve a couple of times during this process to clear the bypass loop.
8) Turn the pump and main switch off, hook up the high pressure hoses and wand. Turn the main switch to “Upholstery Mode” and the pump switch to the “ON” position.
9) Open the valve on the wand and recover the antifreeze, repeat this for all other tools.

PROCHEM PowerDrive

WINTERIZING



MAINTENANCE

SERVICE SCHEDULE

Van Engine	Daily	Check engine oil level.*** Fill to proper level
Van Engine	Daily	Check coolant level in overflow bottle
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 Tank Float Valve	Weekly	Check for proper seating and shut-off
Water Pump Inlet Filter	Weekly*	Check for debris and clean
Pressure Regulator	50 hrs	Lubricate o-rings
Pressure Regulator	50 hrs	Lubricate plug behind spring
PTO Shaft	50 hrs	Grease v-joints
High Pressure Hoses	100 hrs	Inspect for damage or impending damage
Van Engine	100 hrs	Change engine oil***
Van Engine	100 hrs	Change oil filter***
Van Engine	100 hrs	Check fan belt tightness
Van Battery	100 hrs*	Clean battery terminals
Float Valve Seal	200 hrs	Replace seal

MAINTENANCE

SERVICE SCHEDULE

Water Pump	500 hrs	Change oil**
Pulley Set Screws & Hub Cap Screws	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****
Vacuum Lubrication Lines	500 hrs	Check for line obstructions. Replace tubing if cracked or damaged
Heater Core	500 hrs	Clean and inspect.
Vacuum Pump	1500 hrs	Drain, flush, and replace oil*****
Waste Tank Shut-off Float Switch	Monthly	Check for debris hindering movement
Van Engine	Yearly	Flush radiator and change engine coolant.
Waste Tank Filters/Strainers	Yearly	Check for damage and blockage. Replace if needed.
Van Engine	2 years	Replace radiator hoses and hose clamps.

* Or as often as required
** Change water pump crankcase oil after the first 50 hours
*** Change vacuum pump 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

VACUUM PUMP

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

Lubrication: We recommend that you use AEON PD Synthetic Blower Lubricant in the vacuum pump for all operation 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 many times longer than a premium mineral oil.

NOTE: AEON PD is the oil which PROCHEM puts in the vacuum pump at the factory. 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 4000 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.

MAINTENANCE

WATER PUMP

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. Change the crankcase oil with Cat Pump Crankcase Oil, after the **first 50 hours** of operation. Drain and refill the crankcase oil with Cat Pump Crankcase Oil **every 500 hours** thereafter.

3. Other Cat approved oil equivalents are: Mobil DTE 16, Amoco Rykow 68, and Shell Tellus T68.

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 14" Hg.

VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the four screws which hold the vacuum pump mount in place.

2. Turn the adjusting bolt until the proper belt tension is achieved (1/2" deflection in the center of the belt, halfway between the pulleys).

3. Re-tighten all bolts previously loosened at the vacuum muffler.

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

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

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

TORQUE VALUES		
COMPONENT	INCH/LBS	FOOT/LBS
Rear PTO Hub	300	25
Vacuum Pump Hub	300	25

5. 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.**
Check for belt ride in the groove.

MAINTENANCE

PRESSURE REGULATOR

Lubricate the o-rings and bullet **every 50 hours.** Use o-ring lubricant.

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.**

⚠ WARNING:

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 deg 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.

ENGINE COOLANT REPLACEMENT

Annually the coolant in the Vehicle Engine should be replaced. This coolant is an integral part of the heating system and needs to be maintained as any other working part of the system. We recommend that this procedure be accomplished by the following steps.

DRAINING COOLANT:

1. Remove one end of Heater core "Y". Open Heat Exchanger Petcock's.

NOTE: Be sure that used coolant is collected in a proper container and disposed of in accordance with local laws.

REPLACING COOLANT:

1. Fill radiator with 60/40 anti-freeze water mix.

2. Start unit at idle.

3. As the unit warms up, maintain a full radiator with a 60/40 mix.

4. Open petcocks slightly on Heat Exchanger to allow any trapped air to escape. When coolant runs out of Heat Exchangers, close petcocks.

5. Fill radiator with 60/40 coolant mix.

6. Re-install radiator cap.

7. Shutdown unit.

Check radiator overflow bottle. Add coolant to proper "cold" level.

MAINTENANCE

WATER PUMP DRIVE BELT

To tighten the water pump belt:

1. Loosen the nuts 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.

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 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. Check the float valve for debris at least once a month.

MAINTENANCE

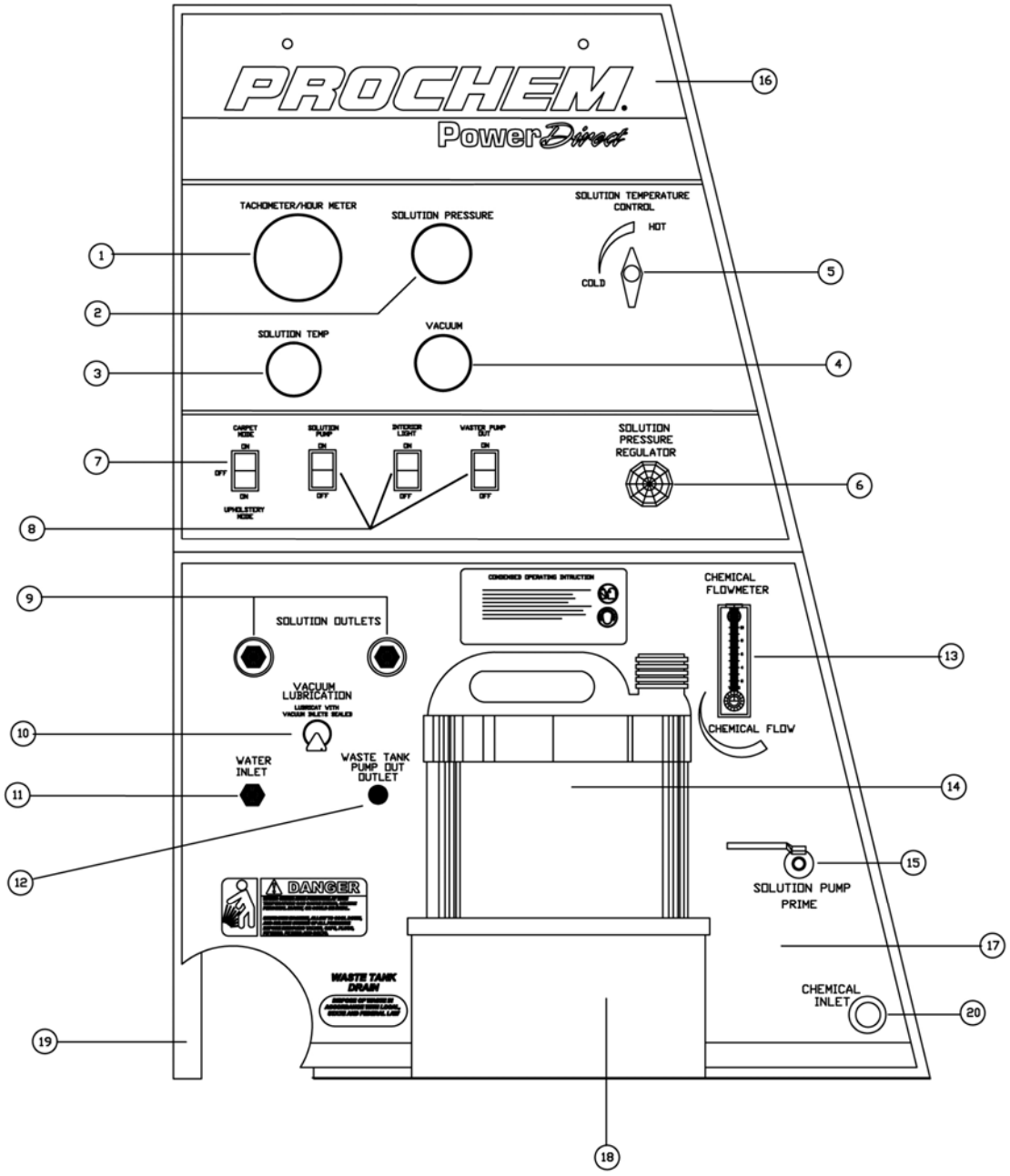
PROBLEM	CAUSE	SOLUTION
Loss of water pump pressure. With the cleaning tool open, the water pressure gauge reads below the normal operating pressure.	Water supply is turned off or the float valve is stuck or improperly adjusted.	Turn the water supply on or up. Check for kinks in the water supply hose. 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).
	Pressure regulator o-rings are dry.	Lubricate o-rings, using o-ring lubricant.
	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.
	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.
	Belts loose or broken	Re-tension or replace as needed.
	Loss of pump prime	Manually prime water pump.
Loss of solution volume at cleaning tool orifice. Water gauge reads normal.	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.
	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, metering valve.	Check for air leaks. Replace faulty parts.

PROBLEM	CAUSE	SOLUTION
Loss of vacuum While cleaning, the vacuum is not up to specification. Engine RPM is normal.	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 pump is worn out.	Replace the vacuum pump.
Excessive Vacuum	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.
Loss of chemical With the cleaning tool valve open, no chemical	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 pump.	Inspect inlet lines and flow meter for air leaks or damage and replace, if required.
	chemical prime/on-off valve or chemical metering valve is defective.	Replace valve(s).
	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.**
Water pump does not engage.	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 ¼-20 x1/2 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.

FRONT PANEL PARTS LIST



FRONT PANEL

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	360-210	Tachometer/Hour Meter		
2	360-225	Solution Pressure Gauge		
3	360-205	Solution Temp Gauge		
4	360-215	Vacuum Gauge		
5	551-028	Solution Temp Control		
6	530-105	Pressure Regulator		
7	305-090	Rock Switch 6 Pole White		
8	305-085	Rock Switch White		
9	580-010	Coupler FM 1/4 Closed		
10	551-075	Oil Cup Port		
11	580-135	Coupler M 3/8 Closed		
12	498-066	Chrome Plug		
13	360-125	Flow Meter		
14	759-011	20 LT Jug		
15	545-012	Ball Valve 1/4		
16	845-242	Top Panel		
17	845-243	Bottom Panel		
18	845-244	Chem Jug Bracket		
19	845-241	Panel Frame		
20	498-035	Rubber Grommet		

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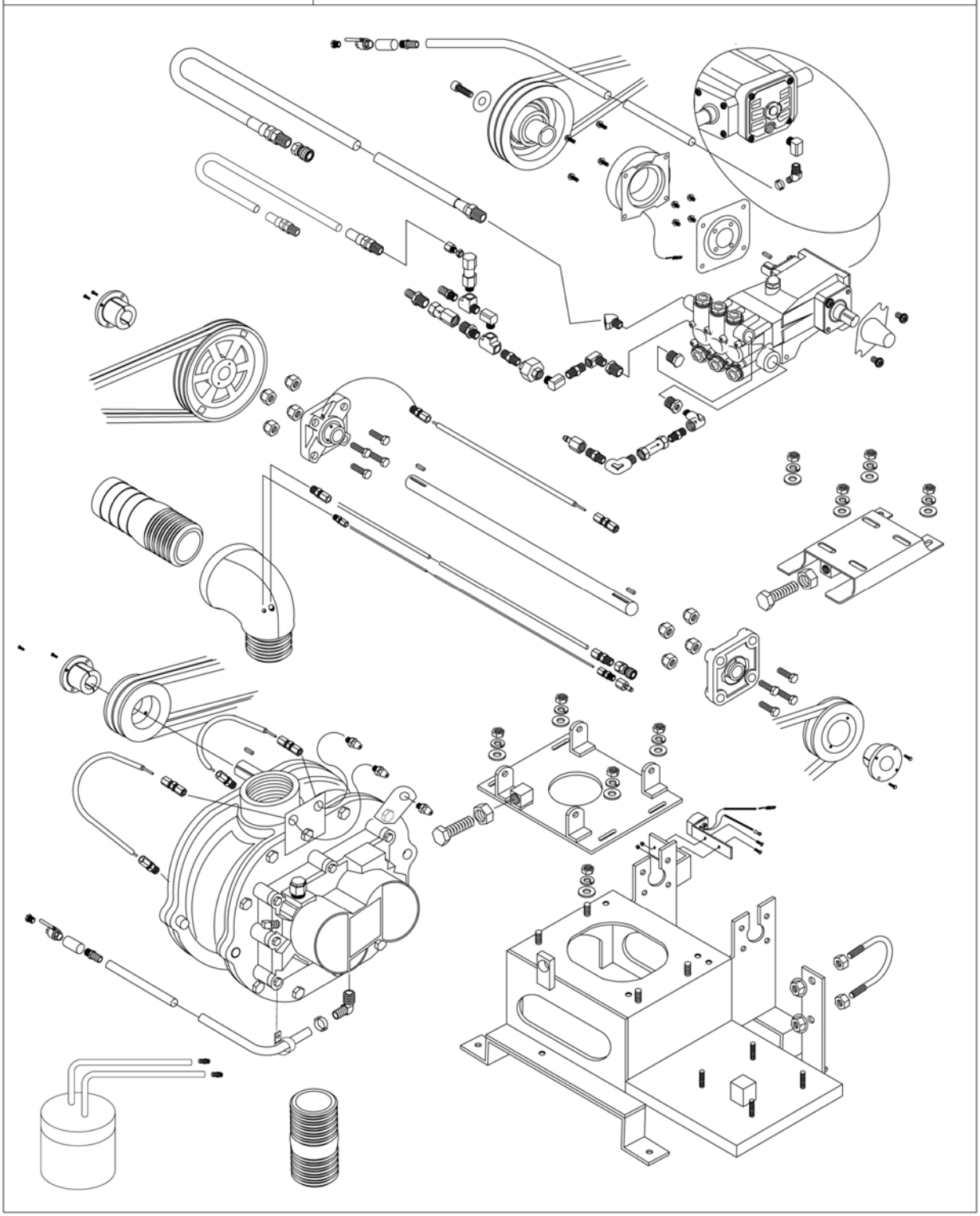
BASE PLATE



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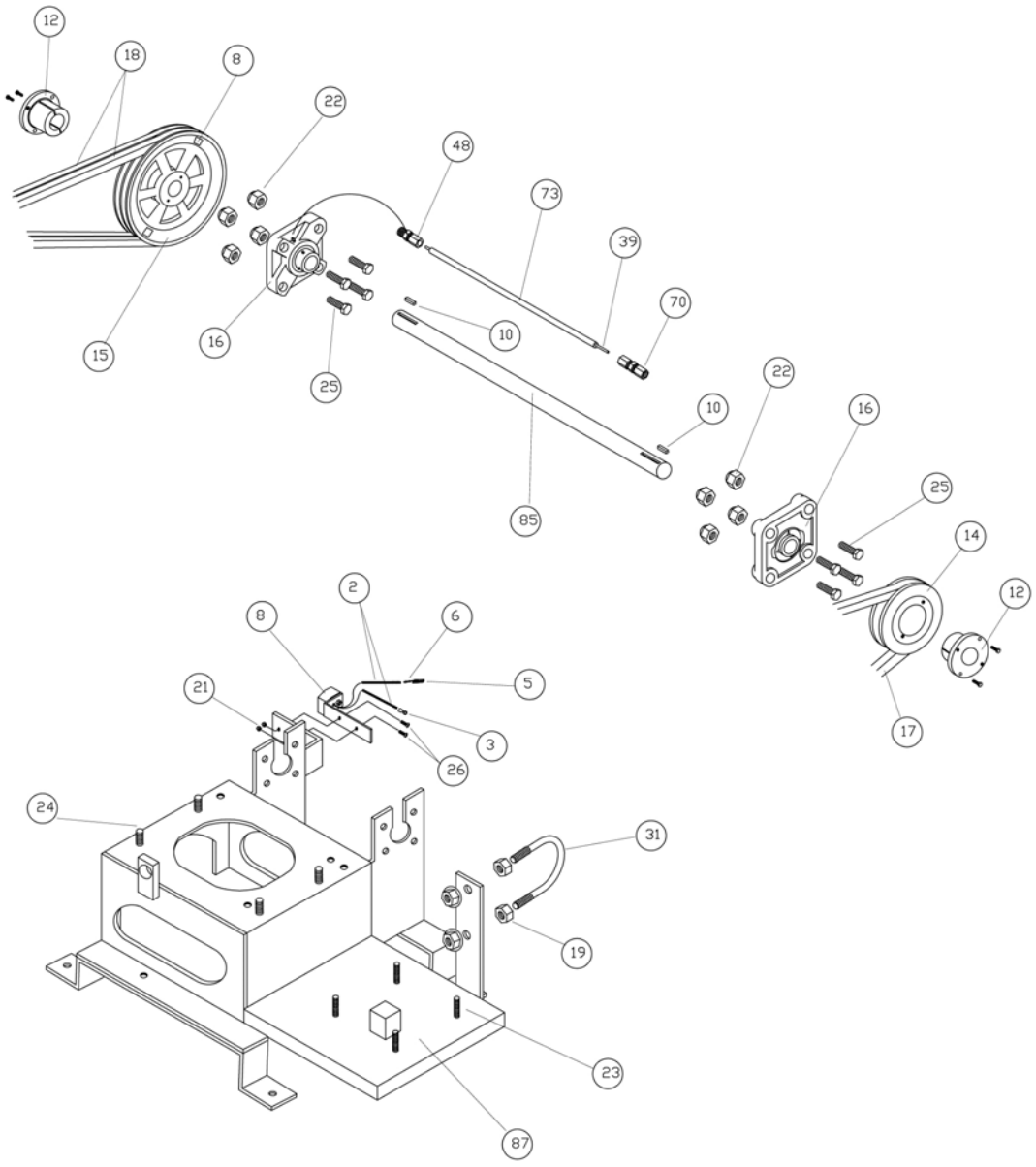
SHAFT & BASE PLATE ASSEMBLY



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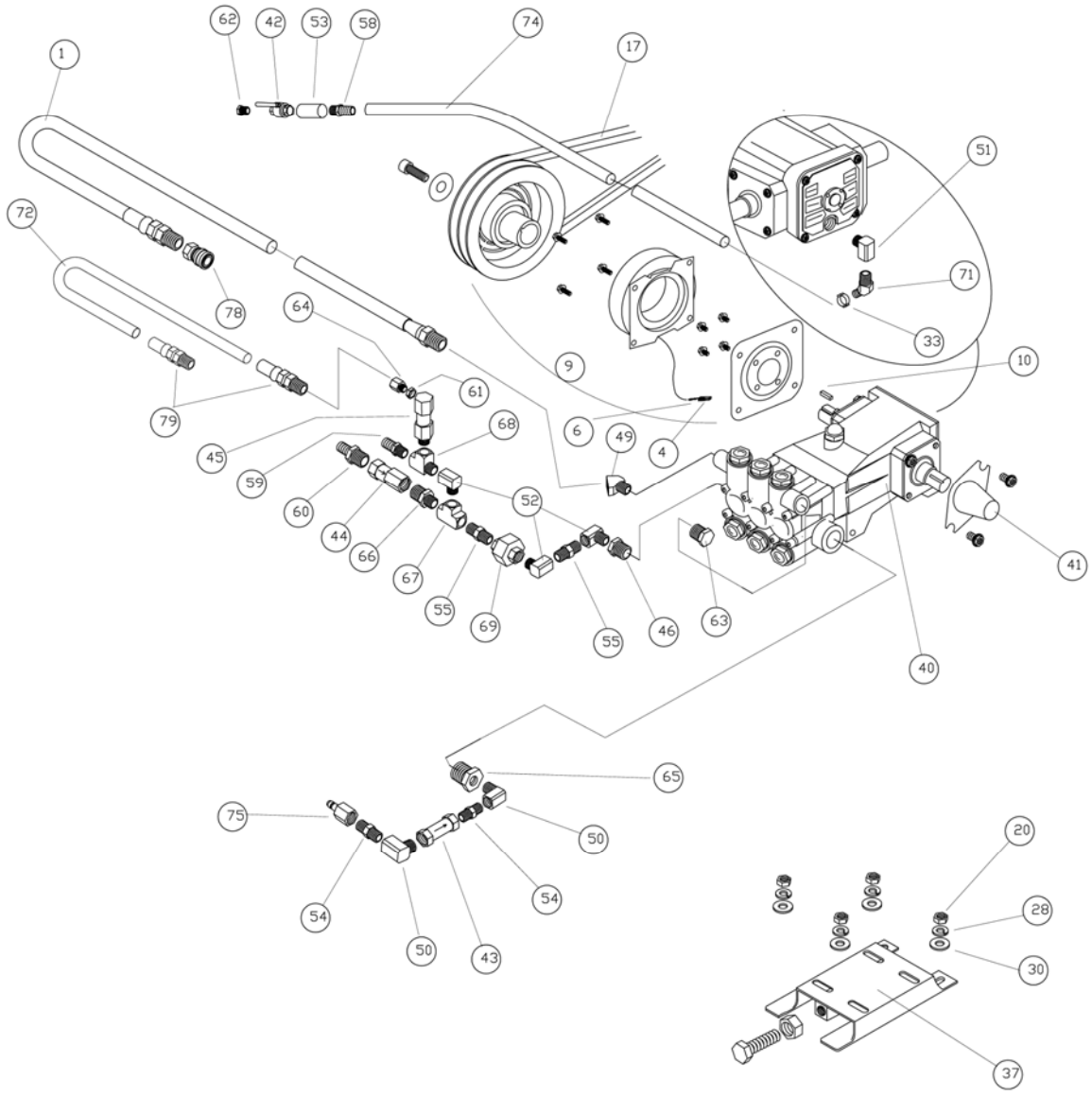
PUMP ASSEMBLY



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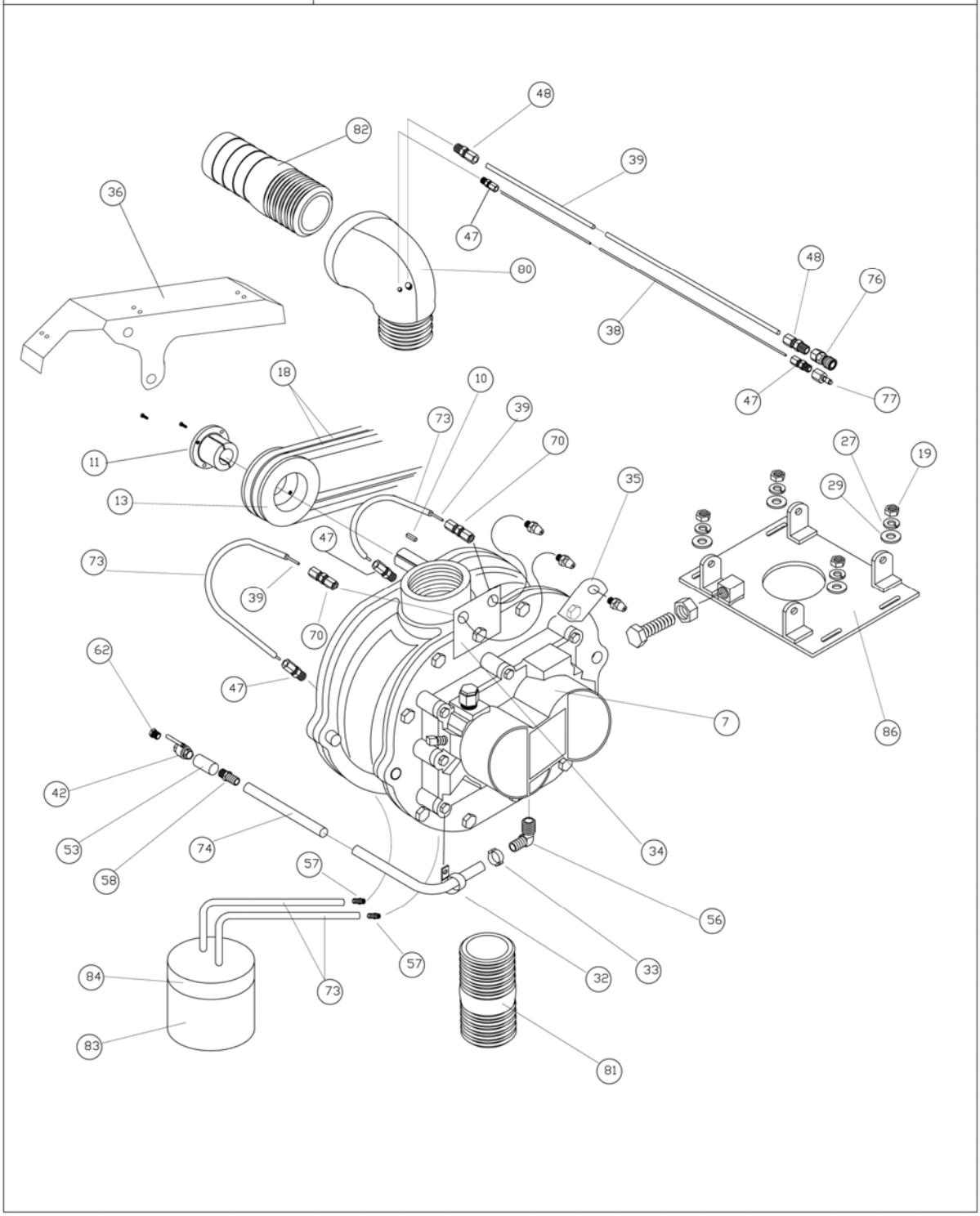
BLOWER ASSEMBLY



BASEPLATE, BLOWER AND PUMP

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	263-205	HP Hose Assy 3/8 x 43"		
2	315-009	Conduit, Plastic 1/4"		
3	325-230	Terminal Ring, #10 - Blue		
4	325-300	Power Lock Terminal - Black		
5	325-315	Power Lock Terminal - Green		
6	325-320	Power Lock Insert		
7	358-906	Blower (47) Whispair Urai		
8	360-220	Tach/Sender		
9	36-900141	Cat Clutch 2-GRV-7"/20MM		
10	380-550	Keystock, 1/4"		
11	385-015	Bushing, H 7/8		
12	385-016	Bushing, H 1		
13	385-118	Pulley, 2BK40H		
14	385-119	Pulley, AK44H		
15	385-171	Pulley, 7.75 O.D.		
16	385-525	Bearing, 1" Flange Complete Unit		
17	44-802311	Belt AX29		
18	397-039	Belt BX32		
19	57111	Nut, 3/8 x 16 Zinc		
20	57031	Hex Nut, 5/16 Zinc		
21	57090	Locknut, 10 x 32 Nylon SS		
22	400-151	Locknut, 12 x 1.25 Nylon		
23	70266	Bolt, 3/8 x 1 GR5 Zinc		
24	405-110	Bolt, 3/8 x 1 1/4 GR5 Zinc		
25	405-396	Bolt, 12MM x 35MM (1.25)		
26	70088	MS, 10-32 x 1/2 Panphil SS		
27	87163	LW, 3/8 Zinc		
28	87083	LW, 5/16 Zinc		
29	87171	FW, 3/8 Zinc		
30	02-000143	FW, 5/16 Zinc		
31	425-114	Muffler Clamp 3"		
32	425-140	Clamp, Tube 3/4"		
33	425-180	O-Clamp 19/32		
34	465-090	Brkt, Grease Line Blower		
35	465-091	Brkt, Grease Line F/Bearing		
36	465-092	Brkt, Blower Belt Guard (Roots)		
37	465-680	Brkt, Pump (Baseplate)		
38	480-100	Tubing, 1/8" Nylon		
39	480-105	Tubing, 1/4" Nylon		
40	790435	Cat Pump Model 5CP2120W		
41	516-210	Shaft Protector		
42	545-012	Ball Valve 1/4		

43	550-030	Check Valve, 1/8 FPT		
44	550-040	Check Valve, 1/2 FM x FM		
45	551-070	Thermal Valve, 3/8 NTP (140F)		
46	11-800109	Bushing, 1/2 MPT x 3/8 FPT		
47	555-104	Comp. Fitting, 1/8 x 1/8 Male		
48	555-106	Comp. Fitting, 1/4 x 1/8 MPT		
49	11-800341	Elbow 45, 3/8" Street Extruded		
50	31028	Elbow 90, 1/8" Street Forged		
51	030-16	Elbow 90, 1/4" Street Extruded		
52	31026	Elbow 90, 3/8" Street Extruded		
53	555-254	Ferrule, 3/8" Hose		
54	11-800022	Hex Nipple, 1/8"		
55	11-800102	Hex Nipple, 3/8"		
56	40043	Hose Barb 90, 3/8 Barb x 3/8 MPT		
57	40011	Hose Barb, 1/4 Barb x 1/8 MPT		
58	40014	Hose Barb, 3/8 Barb x 1/4 MPT		
59	12-800345	Hose Barb, 5/8 Barb x 3/8 MPT		
60	12-800269	Hose Barb, 5/8 Barb x 1/2 MPT		
61	555-406	Locknut, 1/8" Brass		
62	66017	Plug, 1/4 MPT Hex		
63	555-454	Plug, 3/8 MPT Hex Head		
64	04066	Reducing Adpt, 1/4 FPT x 1/8 MPT		
65	555-520	Reducing Bushing, 1/8 F x 1/2 M		
66	11-800354	Reducing Nipple, 1/2 MPT x 3/8 MPT		
67	11-800352	Tee, 3/8" FPT.		
68	555-642	Tee, 3/8" Street Extruded		
69	555-660	Union Coupling, 3/8"		
70	555-914	Comp. Fitting, 1/4 x 1/8 FPT		
71	40038	Hose Barb 45, 3/8 Barb x 1/4 MPT		
72	572-042	Solution Hose, 1/4" Blue Neptune HP		
73	572-100	Clear Braided Hose 1/4"		
74	572-120	Hose, 3/8" Silicone		
75	270-11A	Q.C. 1/8" Male Shutoff		
76	270-11	Q.C. 1/8" Fem Shutoff		
77	580-115	Q.C. 1/8" Male (open) see notes		
78	580-140	Q.C. 3/8" Fem (open)		
79	581-015	Crimp Ftng, 1/4" HP Hose - 1/4 MPT SVL		
80	582-005	90, 3" Street Blk Mal		
81	582-027	Nipple, 3" x 4"		
82	582-069	Hose Barb, 3 x 3 NPT Plated		
83	759-030	Jar, 16 oz. White		
84	759-035	Cap, (White 16 oz. Jar)		
85	835-300	Baseplate Shaft 1" x 18"		
86	845-365	Brkt, Blower PD		
87	845-380	Baseplate PD		

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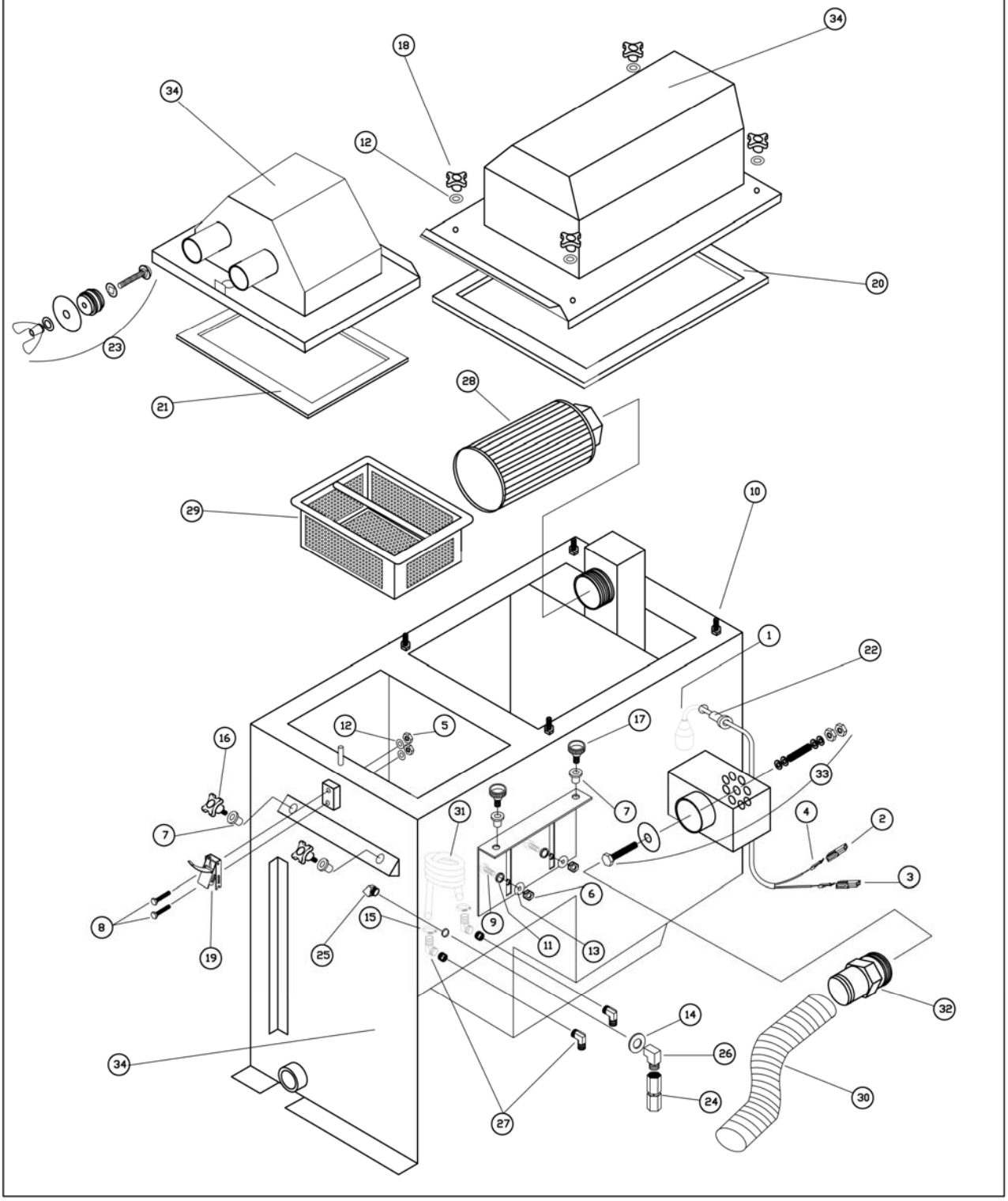
RECOVERY TANK PARTS LIST



RECOVERY TANK

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	
1	305-310	Switch, Mercury Float		
2	325-303	Power Lock Terminal – Red		
3	325-305	Power Lock Terminal – Yellow		
4	325-320	Power Lock Insert		
5	57245	Locknut, 1/4 x 20 Nylon SS		
6	57297	Locknut, 3/8 x 16 Nylon SS		
7	400-250	Well nut, 1/4 x 20 Neoprene		
8	70018	Bolt, 1/4 x 1 SS		
9	405-118	Bolt, 3/8 x 1 1/2 SS		
10	70070	Bolt, 3/8 x 2 SS		
11	415-035	LW, 3/8 SS		
12	87013	FW, 1/4 SS		
13	87003	FW, 3/8 SS		
14	87136	FW, 1/2 SS		
15	03-000246	Clamp, #8 hose 1/2 x 1		
16	435-040	Handwheel, Cross M		
17	435-044	Knob, Thumb M		
18	435-045	Handwheel, Cross FM		
19	445-050	Hasp		
20	475-135	Gasket, Filter Basket Lid (PD)		
21	475-140	Gasket, Vacuum Lid (PD)		
22	498-023	Grommet, 5/16 x 1		
23	498-032	Plug		
24	550-035	Check Valve, 1/4 FM x FM		
25	31021	Elbow 45, Street 1/4"		
26	030-16	Elbow 90, 1/4" Street Extruded		
27	40042	H. Barb 90, 1/2 Barb x 1/4 MPT		
28	560-206	Filter, 3" All SS		
29	560-360	Filter Basket PD		
30	572-032	Hose, Blower 3"		
31	572-134	Heater Hose, 1/2 Blue Hi-Miler		
32	590-408	PVC, Hose Barb 3"		
33	620-406	Vacuum Relief Assy (PD)		
34	860-300	Rec Tank PD		

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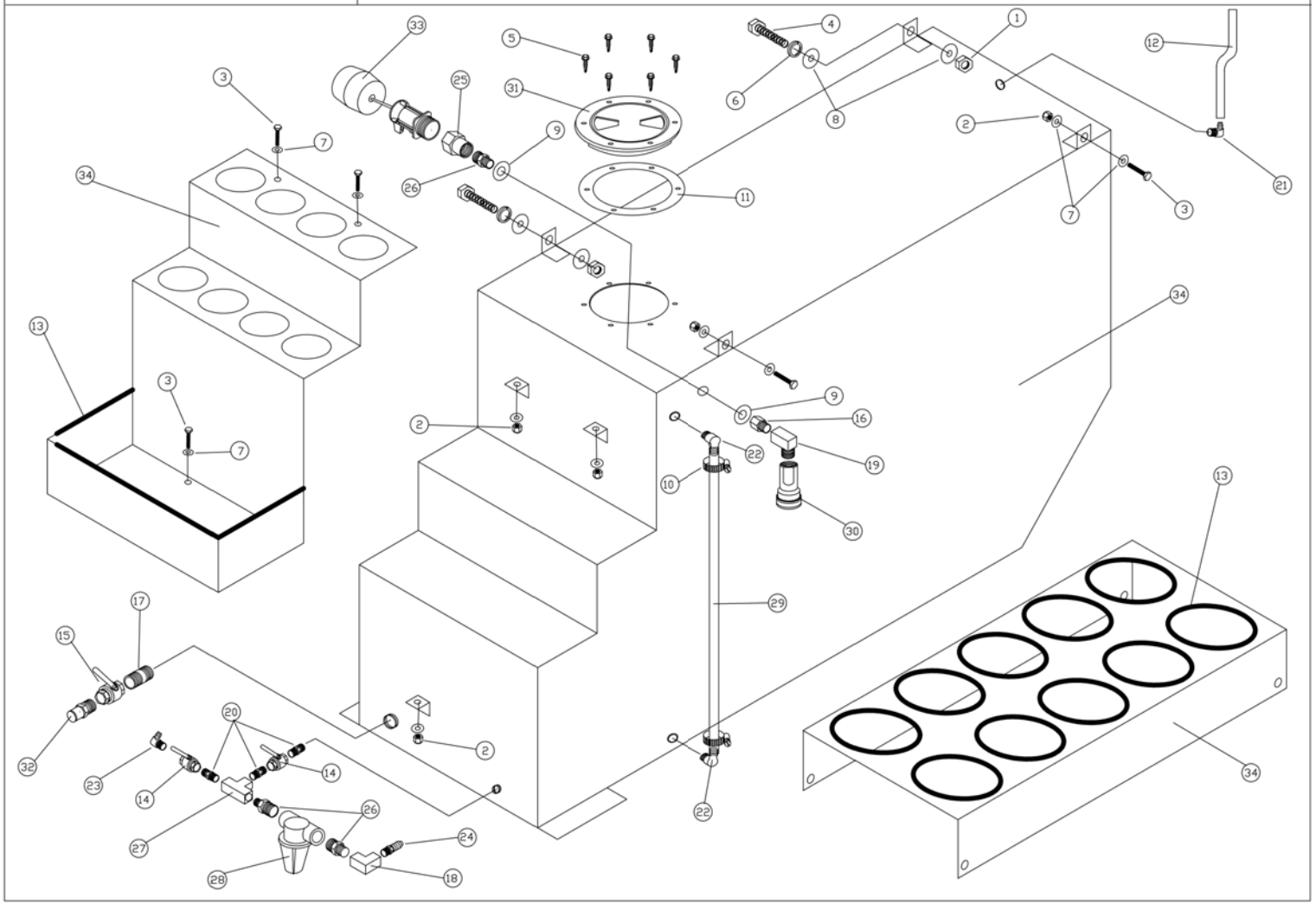
FRESH WATER (SOLUTION) TANK



WATER TANK

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	57111	Nut, 3/8 x 16 Zinc		
2	57245	Locknut, 1/4 x 20 Nylon SS		
3	405-009	Bolt, 1/4 x 3/4 SS		
4	70070	Bolt, 3/8 x 2 SS		
5	410-251	Tek Screw 3/16 x 3/4 SS		
6	87163	LW, 3/8 Zinc		
7	87013	FW, 1/4 SS		
8	87003	FW, 3/8 SS		
9	87088	FW, 5/8 SS		
10	425-004	Clamp, Gear 1"		
11	475-125	Gasket, 6" Access Cover - Clear		
12	480-010	PVC Tubing, 1/4" ID Clear		
13	499-005	Trim, 1/2" Black		
14	545-020	Ball Valve, 3/8		
15	545-036	Ball Valve 1"		
16	555-004	ADPT, 3/8 M x 3/8 F		
17	11-800523	Close Nipple 1"		
18	11-800276	Elbow 90, 3/8" FPT.		
19	31026	Elbow 90, 3/8" Street Extruded		
20	11-800102	Hex Nipple, 3/8"		
21	555-320	H. Barb 90, 1/4 Barb x 1/8 MPT		
22	56013	H. Barb 90, 3/8 Barb x 1/4 MPT		
23	40033	H. Barb 90, 1/2 Barb x 3/8 MPT		
24	40013	H. Barb, 1/2 Barb x 3/8 MPT		
25	555-516	Red. ADPT, 3/4 MPT x 1/2 F		
26	11-800354	Red. Nipple, 1/2 MPT x 3/8 MPT		
27	11-800352	Tee, 3/8" FPT.		
28	560-113	Filter, Inline 1/2" TM		
29	572-106	Clear Hose, 1/2 ID		
30	22011	Q.C. 3/8" FEM (Closed)		
31	585-210	Clear Cover, 6" C/W Ring		
32	590-404	PVC Hose Barb 1"		
33	597-065	Valve, Diaphragm - Auto Fill		
34	860-305	F/W Tank PD, C/W Holders		

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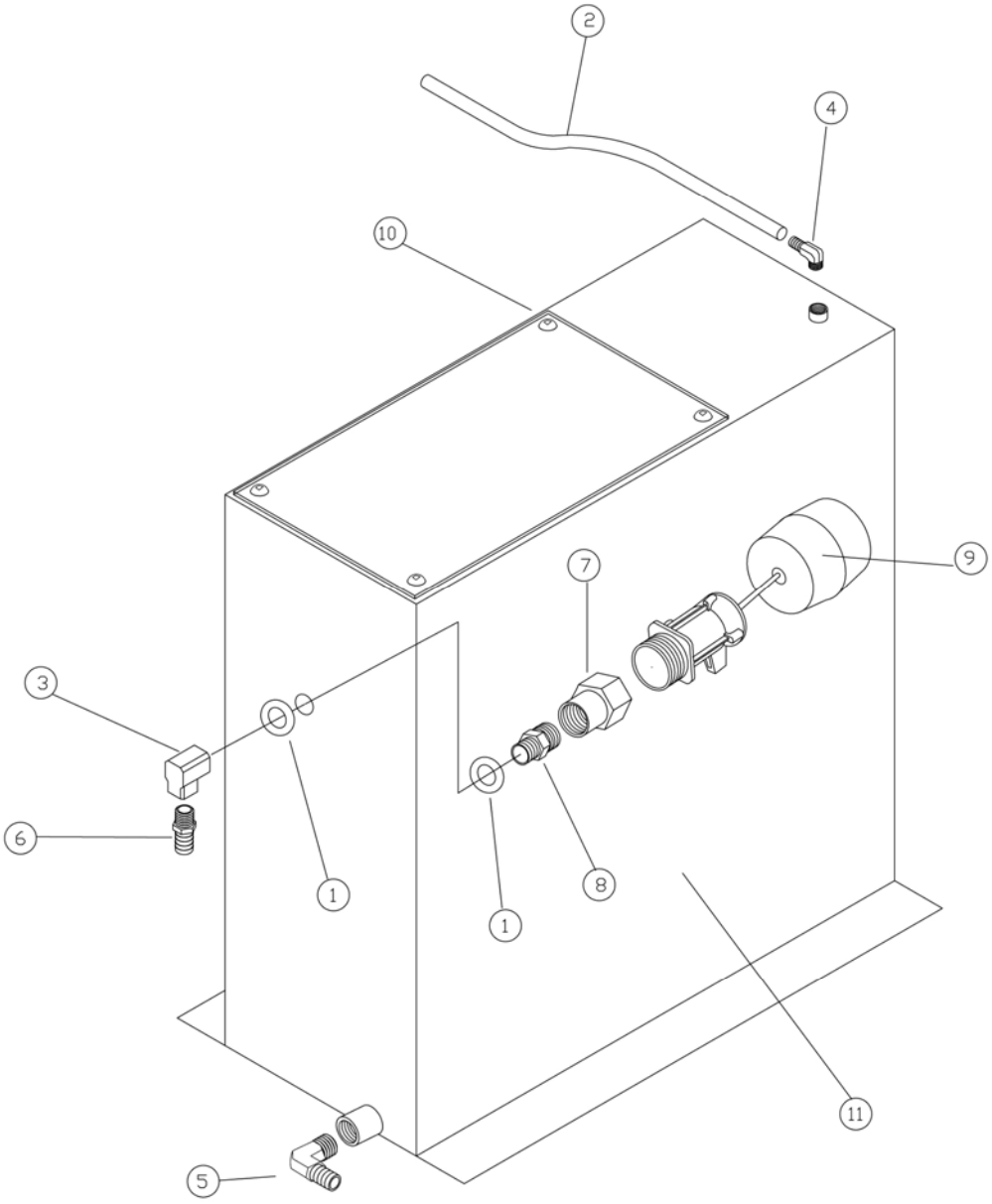
MINI WATER TANK



REF	PART NO.	DESCRIPTION	SERIAL FROM	
1	87088	FW, 5/8 S.S		
2	480-105	Clear Hose 1/4 ID		
3	11-800276	Elbow 90, 3/8 FPT		
4	555-322	H.Barb 90, 1/4 Barb x 1/4 MPT		
5	555-329	H.Barb 90, 1/2 Barb x 5/8 MPT		
6	40013	H.Barb, 1/2 Barb x 3/8 MPT		
7	555-516	Red.ADPT, 3/4 FPT x 1/2 FPT		
8	11-800354	Red.Nipple, 1/2 MPT x 3/8 MPT		
9	597-065	Valve, Diaphragm – Auto Fill		
10	710-125	SMS, 8 x 5/8 Pan ROB S.S		
11	993-225-208	Mini Water Tank		

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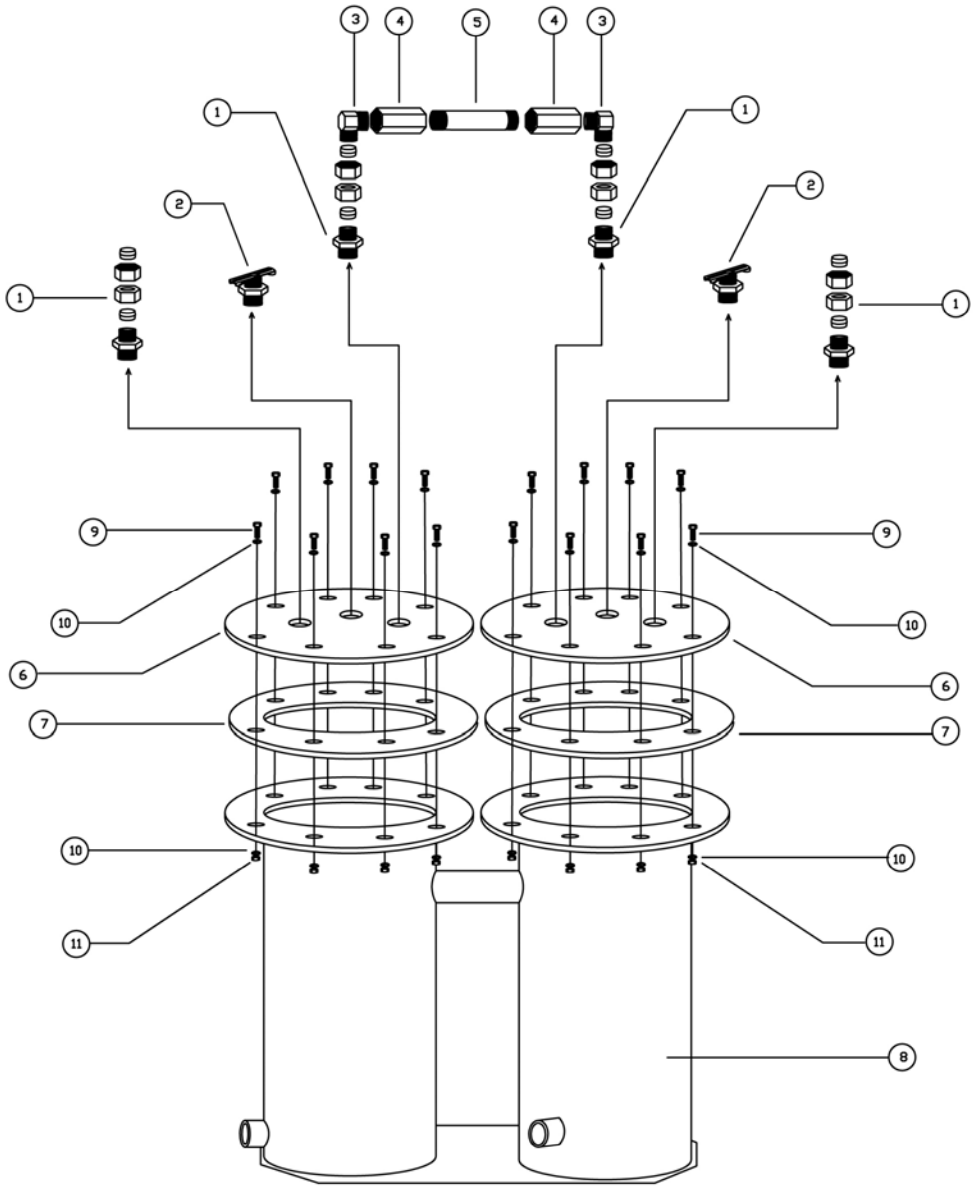
HEAT EXCHANGER PARTS LIST



HEAT EXCHANGER

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	555-114	Comp Fitting 3/8 x 3/8		
2	555-164	Drain Cock ¼		
3	555-100	Comp Fitting 90 3/8 x 3/8		
4	555-134	Coupling 3/8		
5	555-432	Nipple, Long 3/8 x 2 ½		
6	800-081	Cap #6		
7	475-065	Gasket, 7 ¼" Heat Exch.		
8	490-110	Casings, Heat Exch.		
9	70018	Bolt, ¼ x 1 ss		
10	87013	F/Washer, ¼ ss		
11	57245	Locknut, ¼ ss		
12	485-100	Coil, 3/8 x 25'		Not Shown

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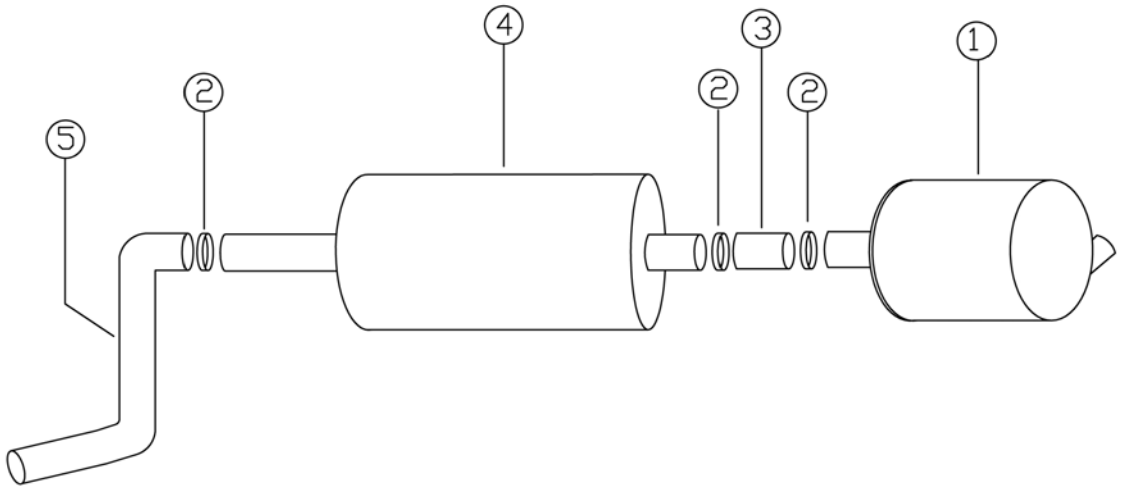
SILENCER SYSTEM PARTS LIST



SILENCER SYSTEM

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	850-020	Silencer		
2	425-114	Clamp 3"		
3	850-044	Tube 3" SLP		
4	850-005	Muffler 3"		
5	850-046	Pipe 3" 90 Degree		

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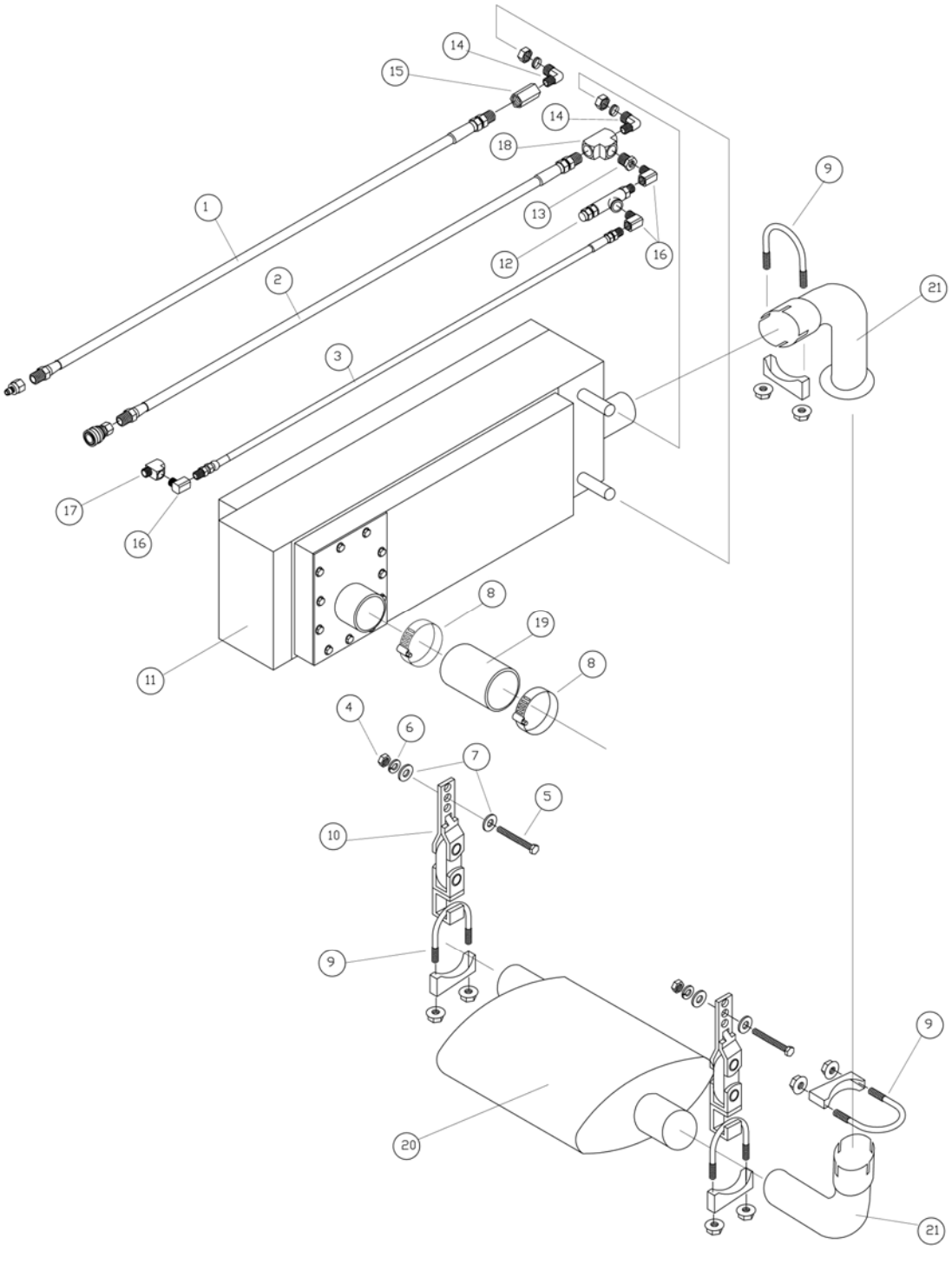
POST HEAT SYSTEM



POST HEAT SYSTEM

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	263-014	HP Hose Assy 32 1/2		
2	263-021	HP Hose Assy 57 1/2		
3	263-022	HP Hose Assy 52 1/2		
4	57111	Nut, 3/8 x 16 Zinc		
5	405-156	Bolt, 3/8 x 4 Allthread Zinc		
6	87163	LW, 3/8 Zinc		
7	87171	FW, 3/8 Zinc		
8	425-040	Clamp, #56 Hose		
9	425-116	Clamp, Muffler 3 1/2		
10	425-152	Muffler Hanger		
11	490-150	Post Heat Coil		
12	551-005	Valve, Press. Limiter - 1000 PSI (Kingston)		
13	14076	Bushing, 3/8 M x 1/4 F		
14	555-115	Comp. FTG 5/8T x 3/8NPT 90		
15	555-134	Coupling, 3/8		
16	030-16	Elbow 90, 1/4" Street Extruded		
17	78308	Tee, 1/4" Street Extruded		
18	11-800352	Tee, 3/8" FPT.		
19	575-035	All Flex Hose, 3 1/2" ID		
20	850-005	Muffler, 3"		
21	850-046	Elbow 3" 90 Degree		

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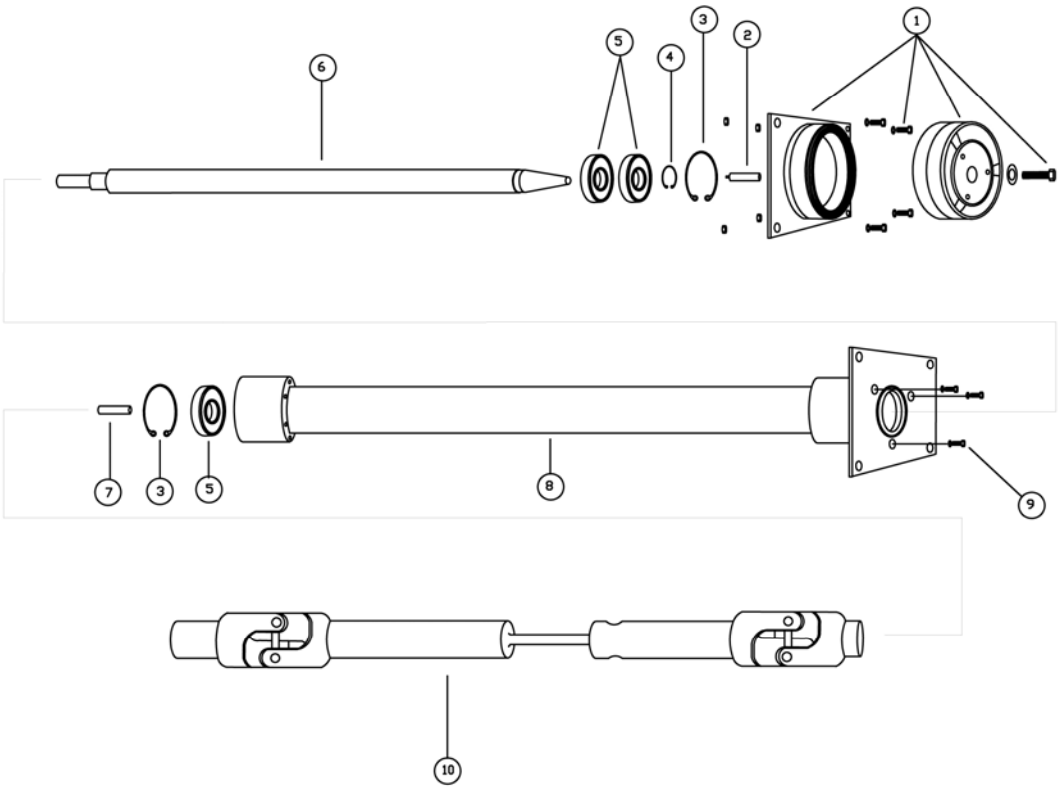
PTO SHAFT PARTS LIST



PTO SHAFT

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	365-010	Clutch assy, serpintine		
2	380-551	Key 5/32 x 5/8		
3	380-200	Snap Ring 2"		
4	380-205	Snap Ring 1"		
5	380-525	Bearing		
6	835-305	Shaft, inner		
7	48040	Key 1/4 x 1		
8	840-030	Shaft outer housing		
9	70584	Bolt 1/4 x 20 x 3/4 FH SOC		
10	230-820	Shaft, rear GM		
11	230-830	Shaft, rear Ford		Not Shown

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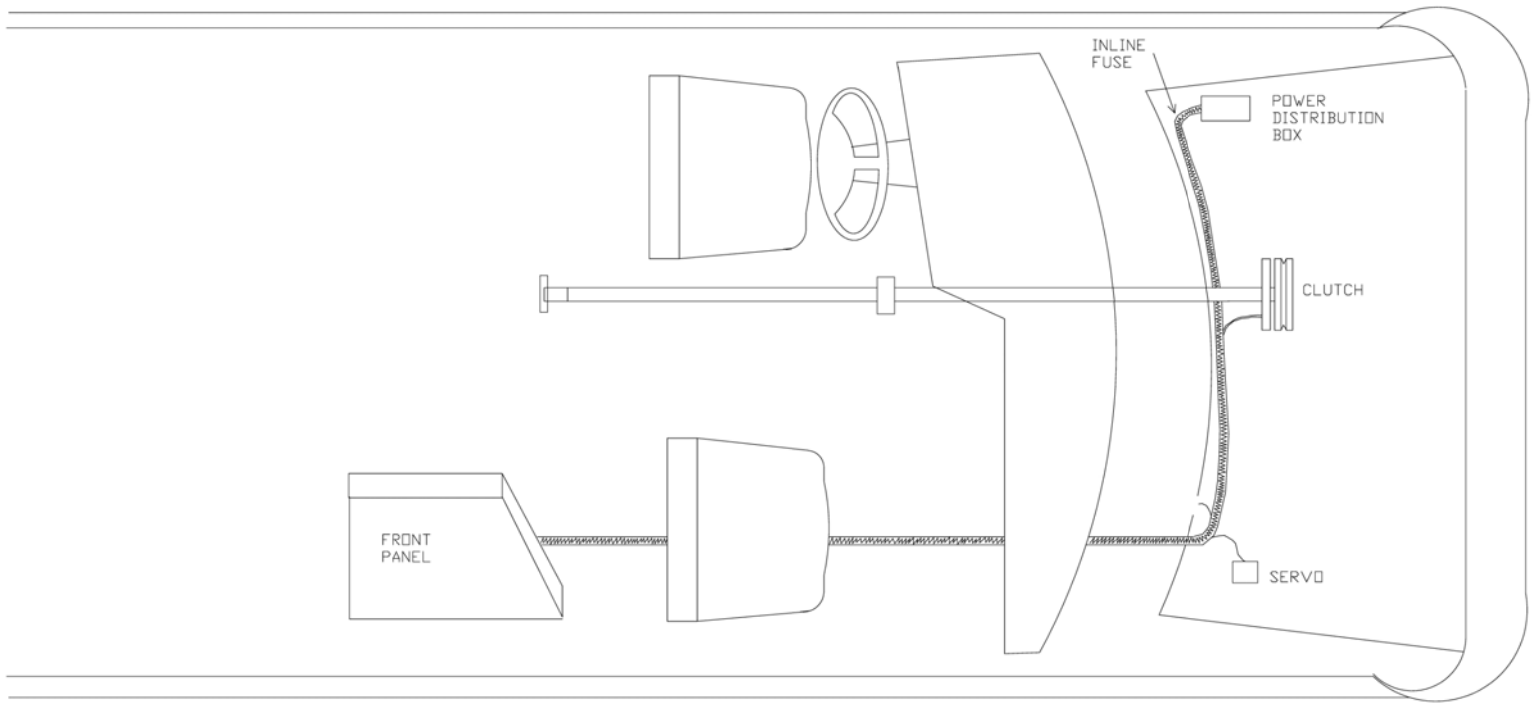
WIRING HARNESS ROUTING



NOTE: KEEP THE WIRING HARNESS INSIDE VAN,
THROUGH FIREWALL AND DISTRIBUTE TO COMPONENTS
IN THE ENGINE COMPPARTMENT

ORANGE: SERVO
RED/WHITE:POWER
YELLOW:CLUTCH
RED:POWER

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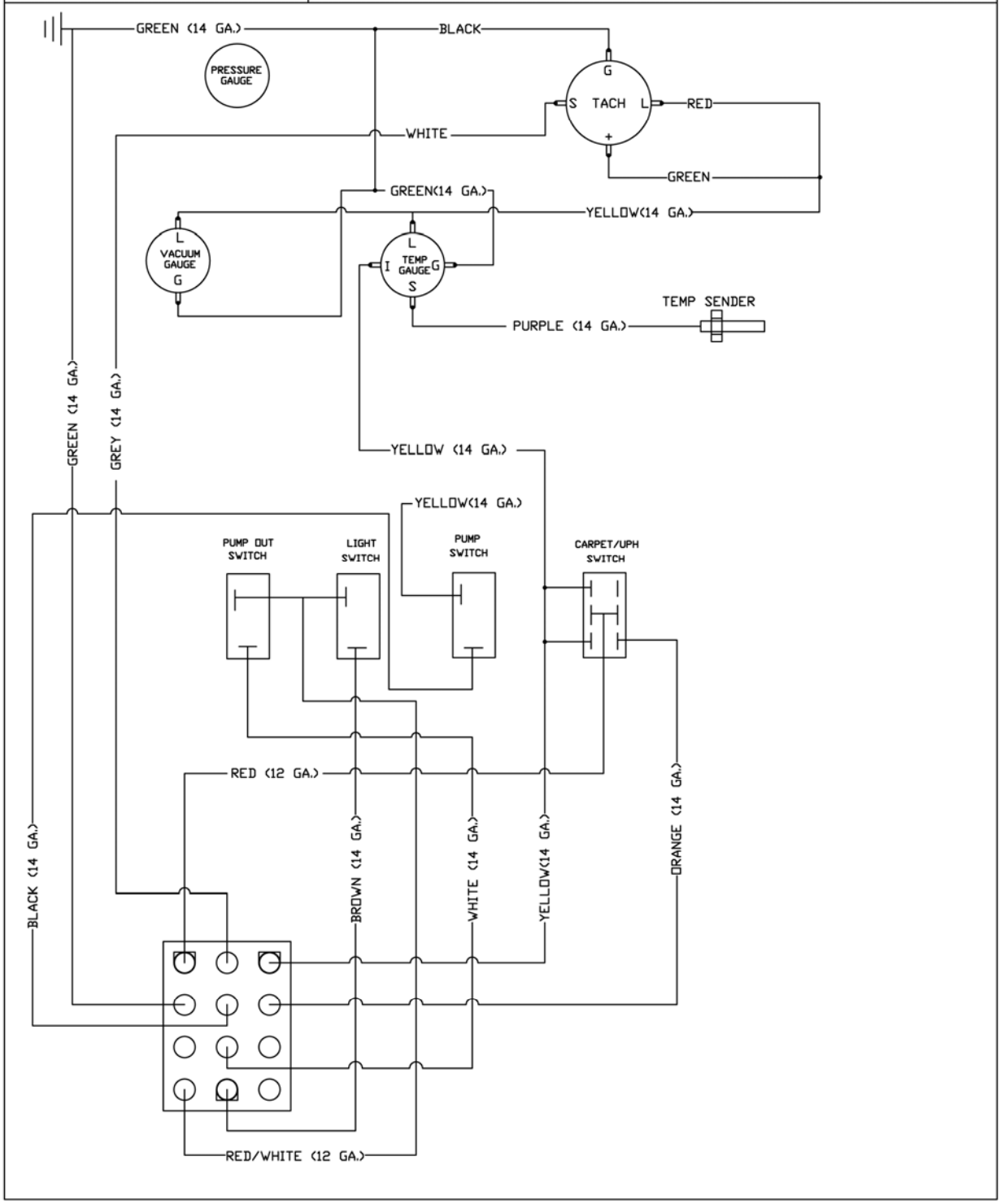
ELECTRIC WIRING (P.1)



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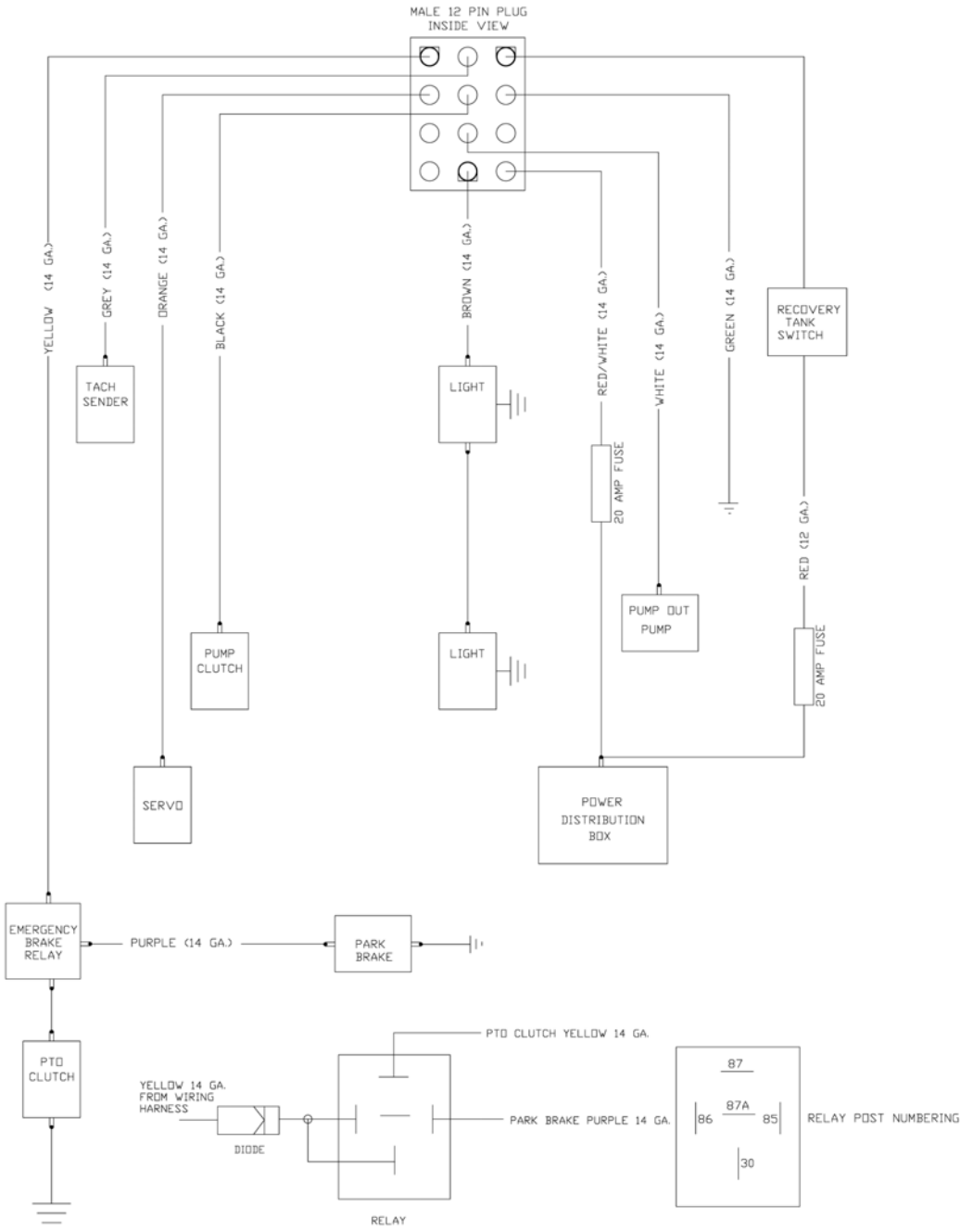
ELECTRIC WIRING (P.2)



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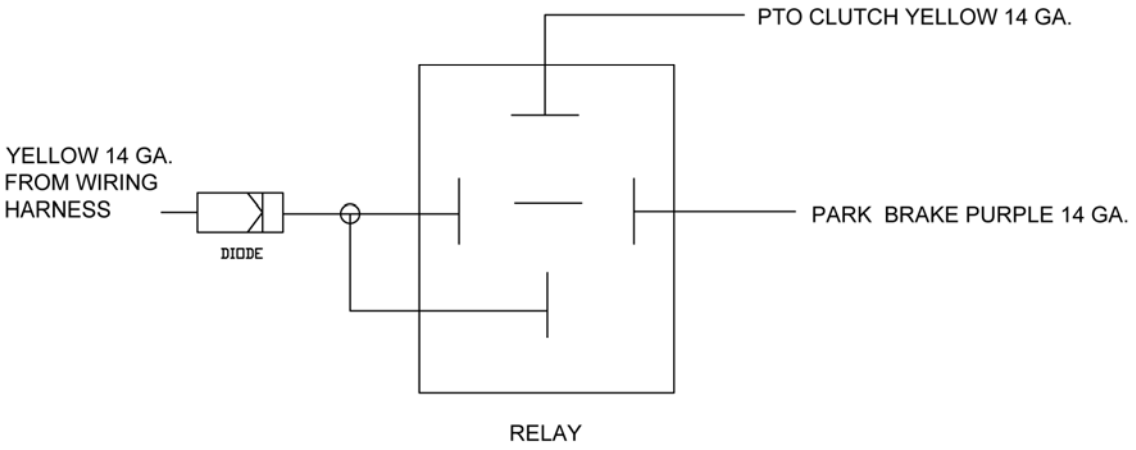
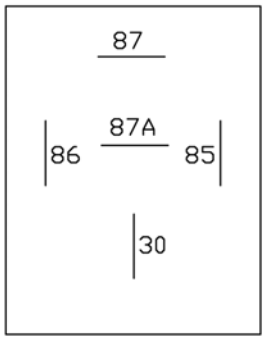
PARK BRAKE WIRING



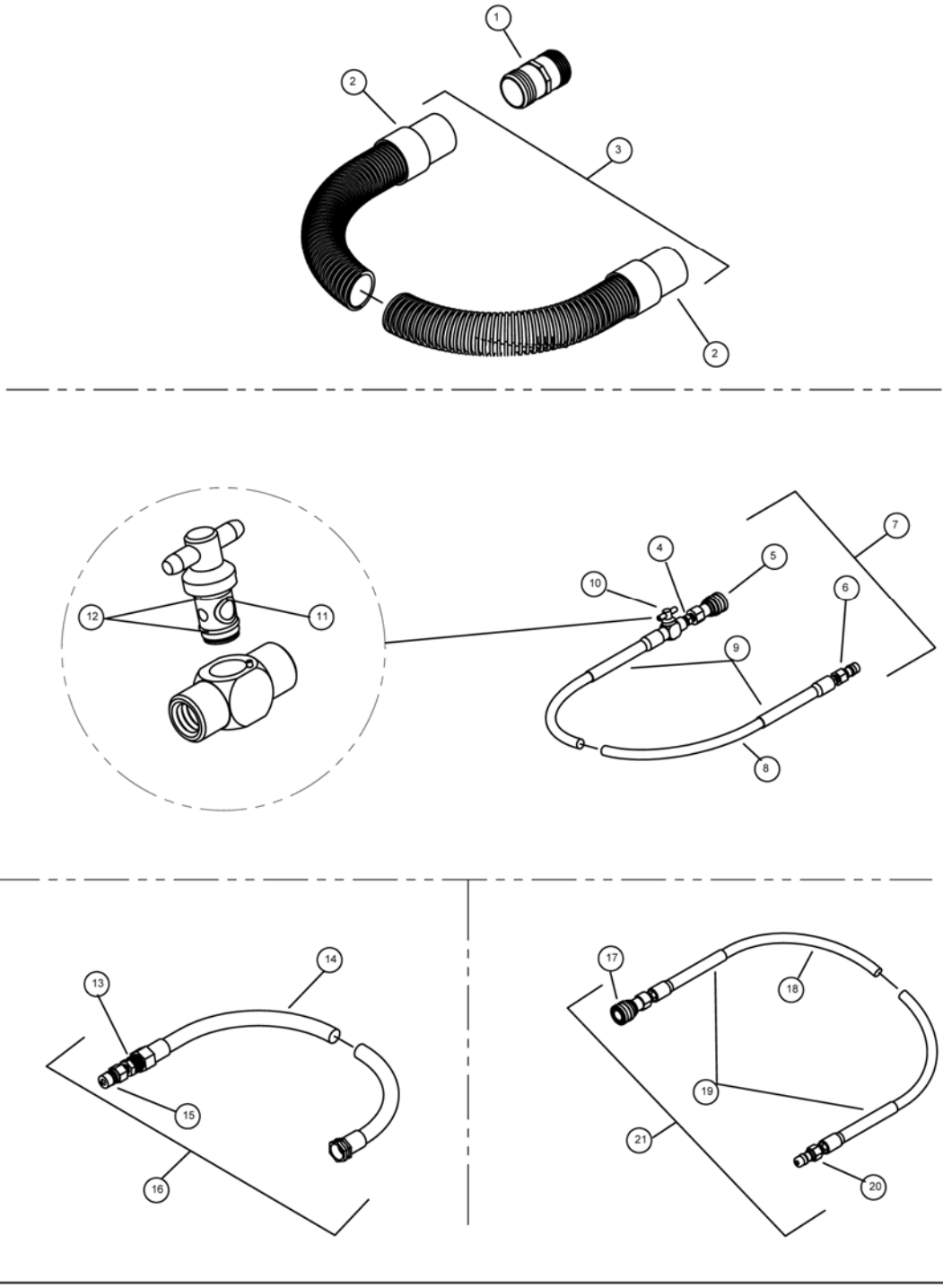


RELAY POST NUMBERING

22,05,2003

PROCHEM PowerDirect

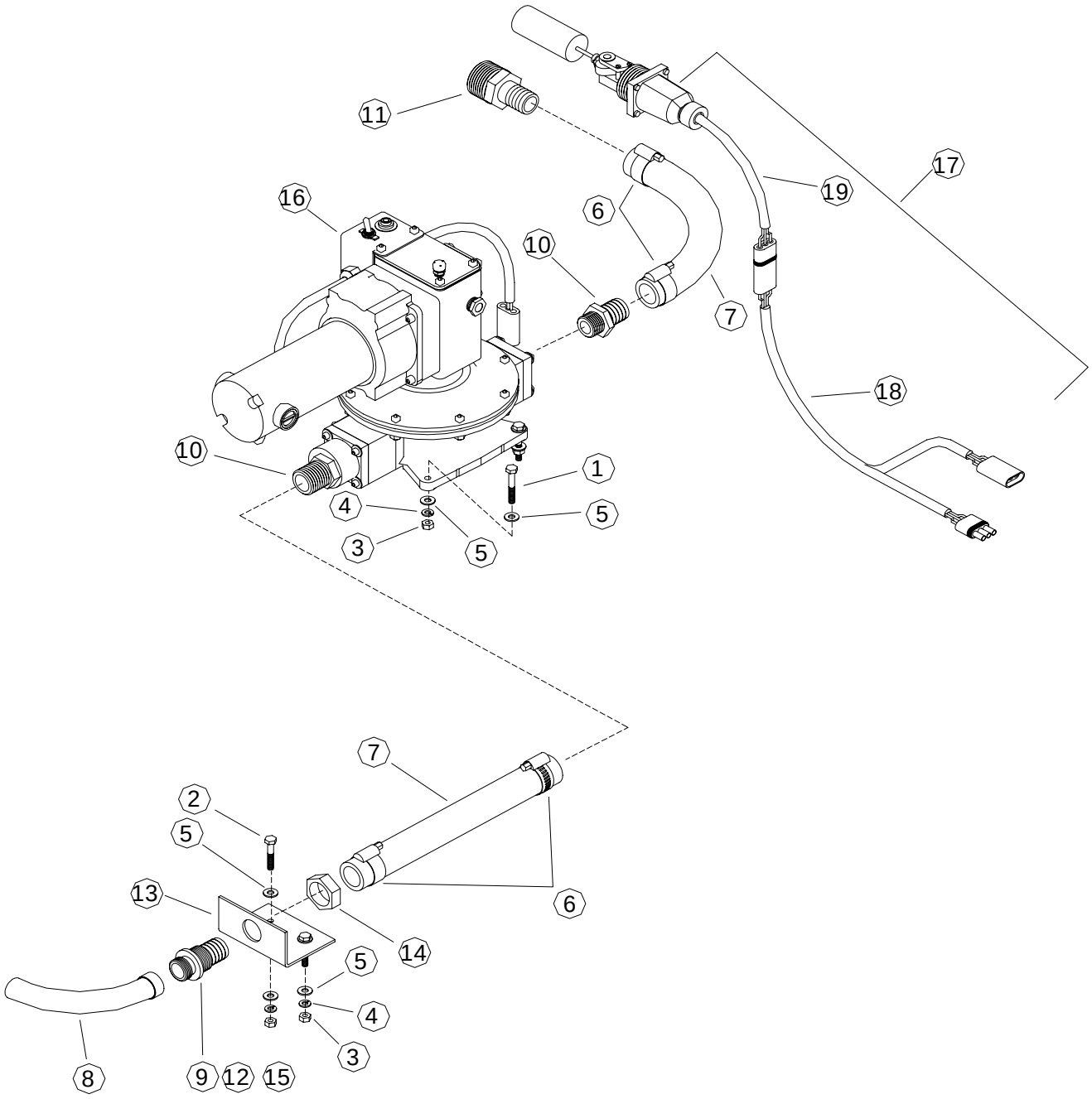
HOSE ACCESSORIES



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		

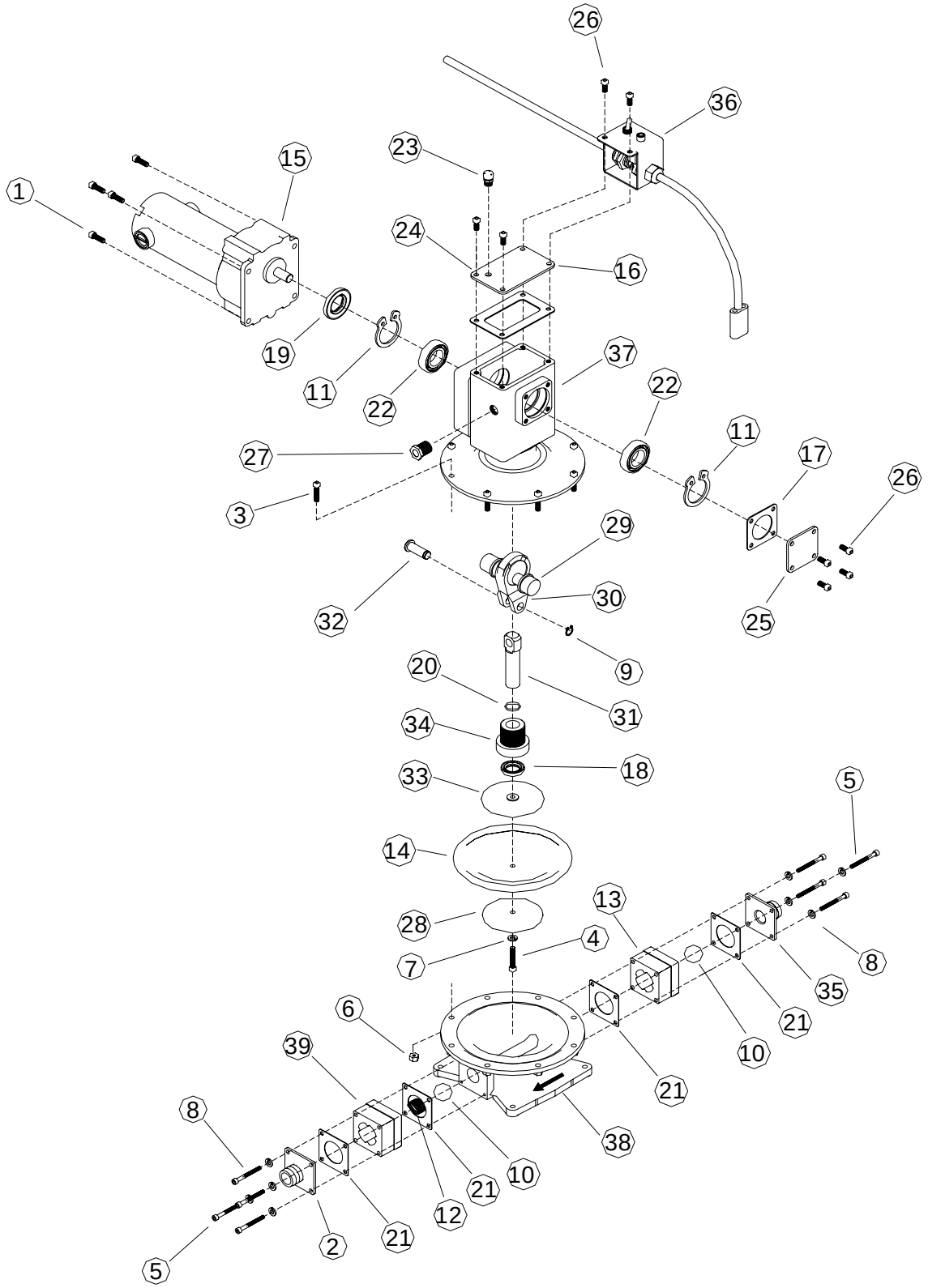
AUTOMATIC PUMPOUT-OPTIONAL (P.1)



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		
18	23719	1	CORD ASM, CNCTN SIDE		
19	72185	1	SWITCH ASSEMBLY		

AUTOMATIC PUMPOUT-OPTIONAL (P.2)



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	52-502064	1	CVR, OUTLET WST PMP-OUT		
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	52-502061	1	BDY, INLET WST PMP-OUT		
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	43-810106	4	O-RING, 1-13/16 ID X 2 OD HDWP		
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	70094	8	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		PART OF 31
31	52-501915	1	GUIDE, PLNGR WST PUMP-OUT		INCL. 32, 18, 30
32	52-501921	1	PIN, WRIST PUMP-OUT		
33	52-501934	1	TOP, PLNGR PUMP-OUT		
34	52-501950	1	BUSH, THREADED		
35	52-502062	1	CVR, INLET WST PMP-OUT		
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		
39	52-502063	1	BDY, INLET WST PMP-OUT		

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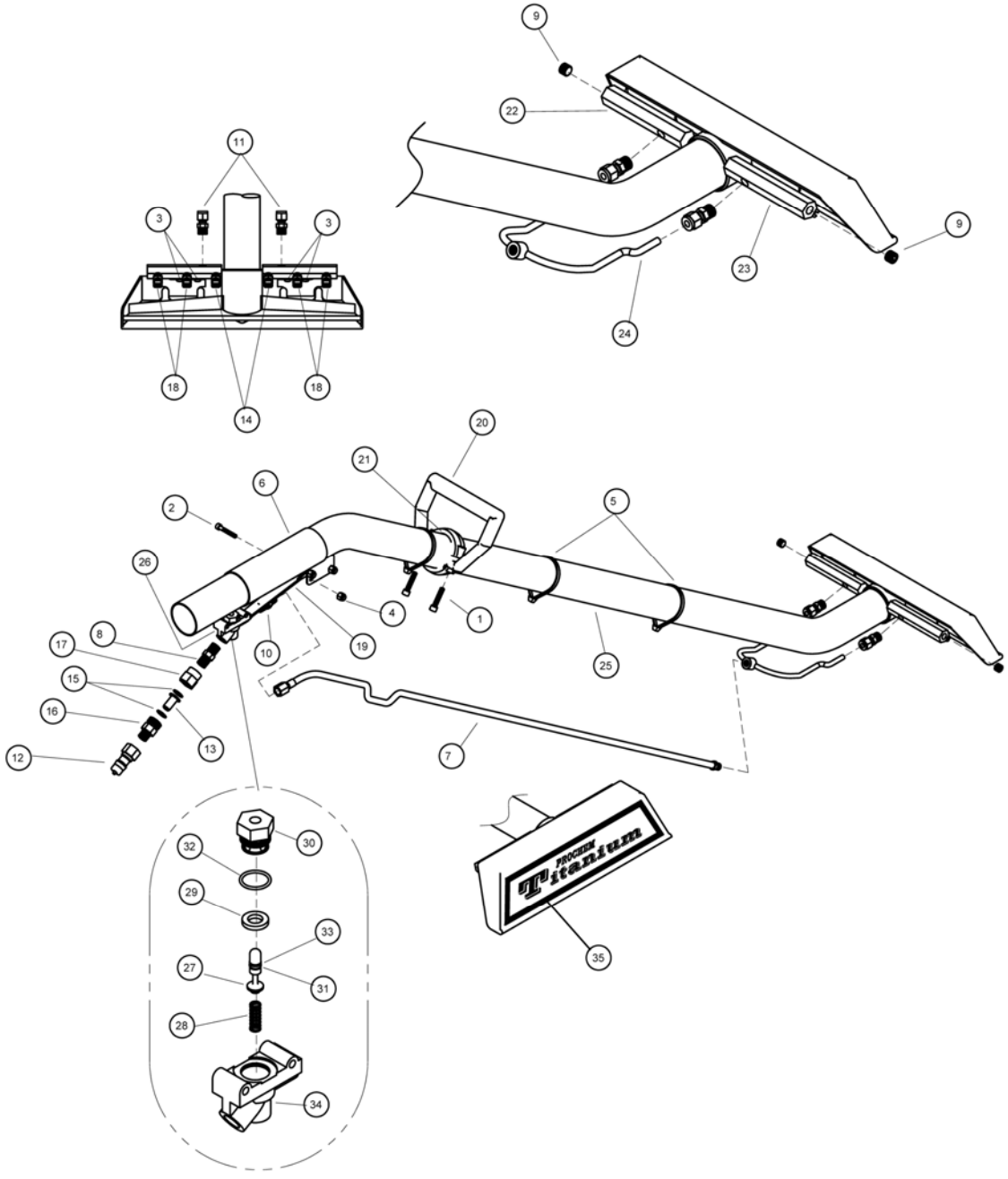
WAND- TITANIUM SIX JET-OPTIONAL

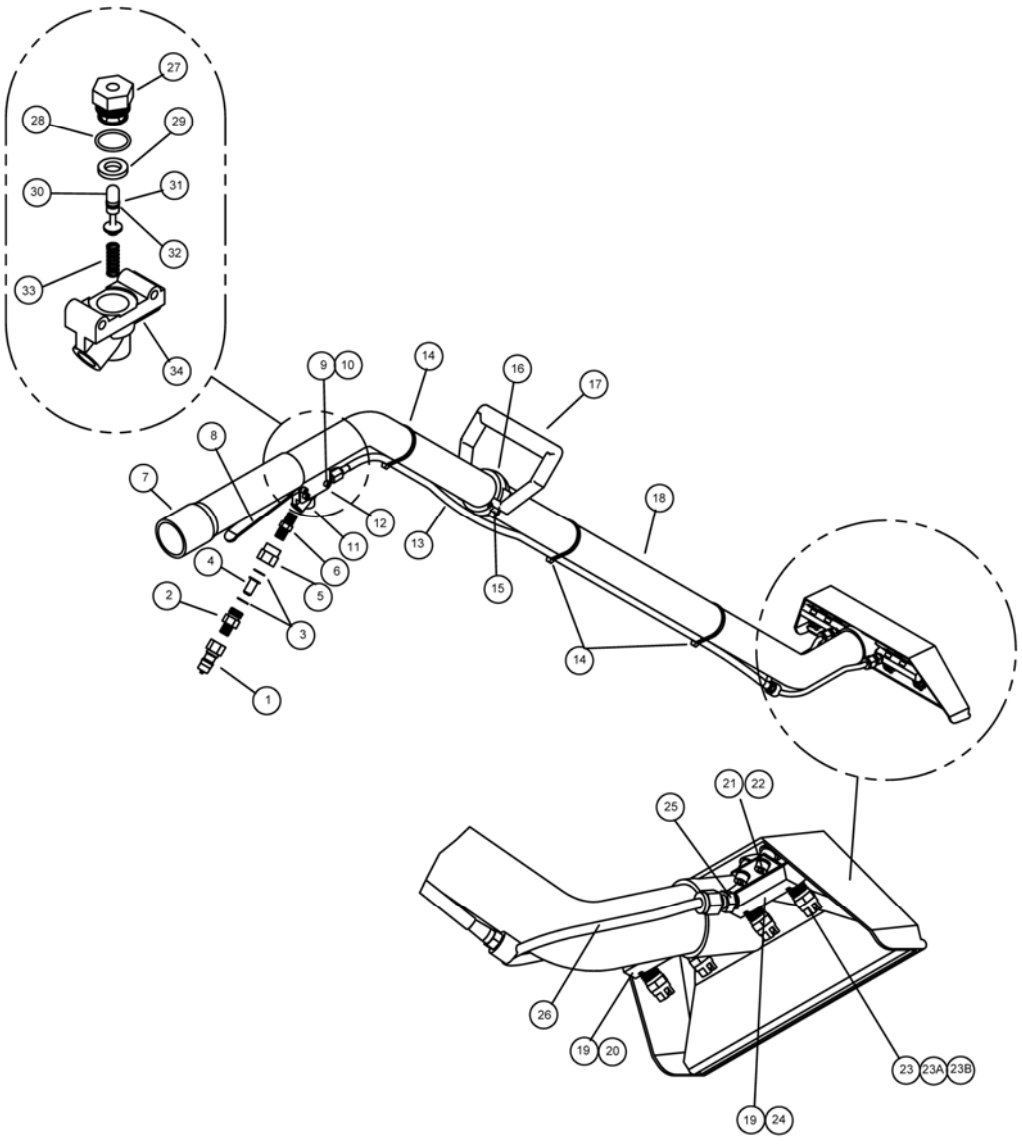


WAN-TITANIUM SIX JET - OPTIONAL

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
1	00-000282	SCR, CAP 1/4-20 X 1 1/4 SOC		
2	00-000317	SCR, CAP 10-32 X 1 1/4 SOCH		
3	70228	SCR, 10-32 X 1/4 PPHMS SS		
4	57090	NUT, 10-32 HEX NYLOCK SS		
5	04-000093	TIE, CABLE 13”		
6	09-805603	HOSE, INT VAC 4-1/2 X 48		
7	10-805504	HOSE, 3/16 X 44-1/2		
8	56015	NIPPLE, 1/4 HEX		
9	11-800206	PLUG, 1/8 SOCHD BR		
10	12-800060	CONN, 1/4P X 1/4T BR		
11	12-800322	CONN, 1/8P X 1/4T COMP BR		
12	56012	NIPPLE, 1/4 FPT QD		
13	14-806512	STRAINER, JET 50 MESH		
14	17-803018	TIP, SPRAY 9501 X 1/8P SST		
15	17-803006	WASHER, NYLON		
16	17-803010	CONN, 1/4P X 11/16-16M		
17	17-803036	CONN, 1/4FP X 11/16-16F BR		
18	17-803078	TIP, SPRAY 8001 SST 1/8 VJET		
19	52-501619	TRIGGER, WD VALVE		
20	52-502008BK	BODY, WD HDL, 2” TB, BK		
21	52-502009	HOLD DN-WD HDL 2” TUBE		
22	52-502057	MANFOLD, LEFT		
23	52-502058	MANIFOLD, RIGHT		
24	56-502548	ASSY, MNFLD S-BEND		
25	56-502534	WD & HD TITANIUM		
26	61-950496	ASSY, EXTRACTOR VALVE		
27	16-808189	STEM, EXTRACTOR VALVE		
28	16-808190	SPRING, EXTRACTOR VALVE		
29	16-808228	SEAT, EXTRACTOR VALVE		
30	16-808229	HLDR, VLV STEM-EXTRACTOR VL		
31	43-810062	O-RING, .114 ID .254OD		
32	43-810063	O-RING, .551ID .691OD		
33	43-810064	BACK-UP, .250DIA		
34	52-501590	BDY, EXTRACTOR VLV		
35	48-941462	DEC, WD HD TITANIUM		
-	48-941296	BLB, INSPECTION QC (PINK)		

PROCHEM PowerDirect

WAND - QUAD-JET - OPTIONAL

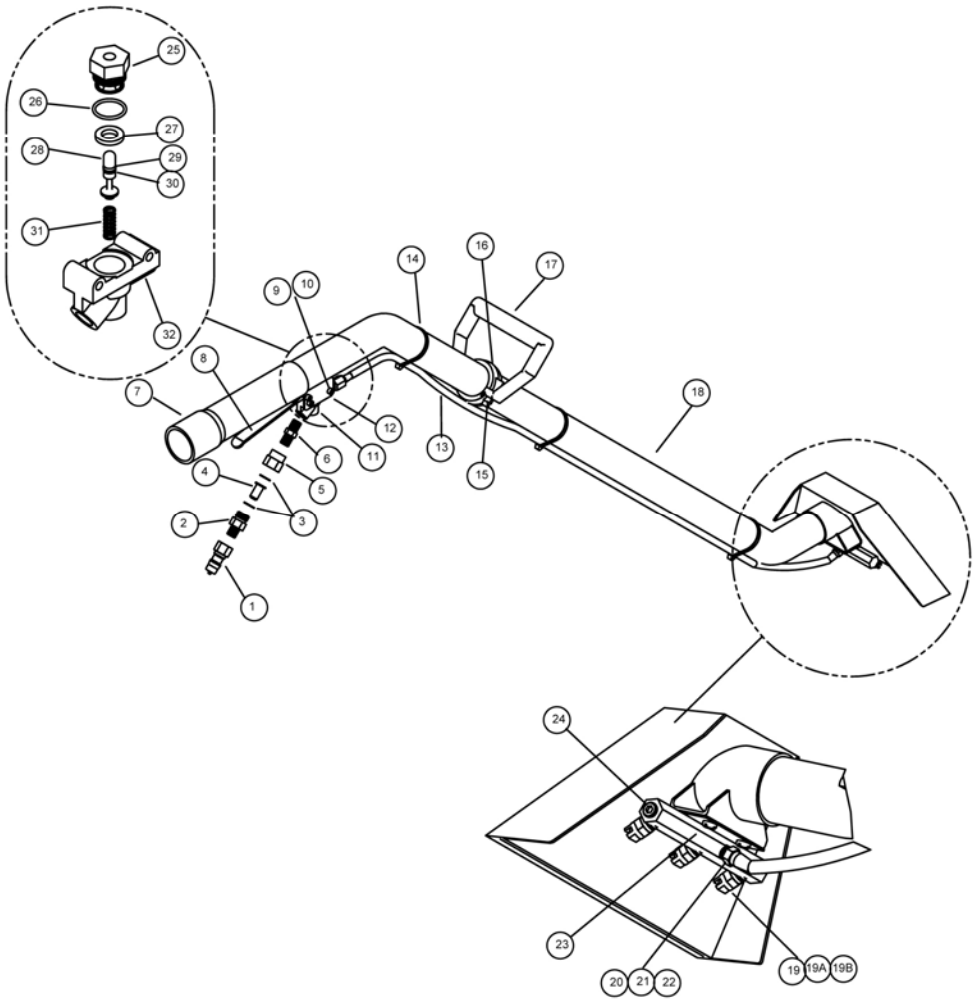


WAND – QUAD-JET - OPTIONAL

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

PROCHEM PowerDirect

WAND - TRI-JET - OPTIONAL

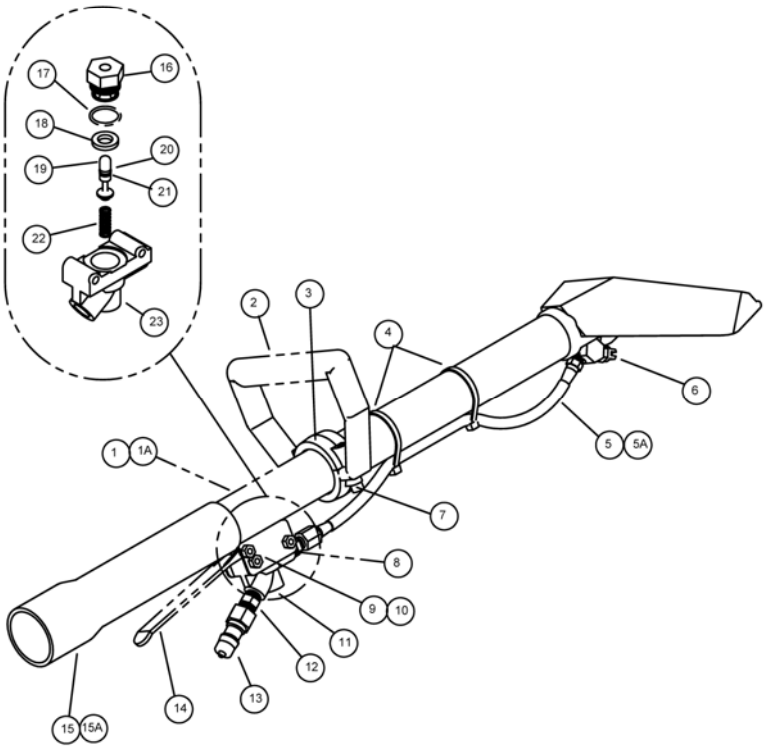


WAND – TRI - OPTIONAL

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

PROCHEM PowerDirect

STAIR TOOL-OPTIONAL

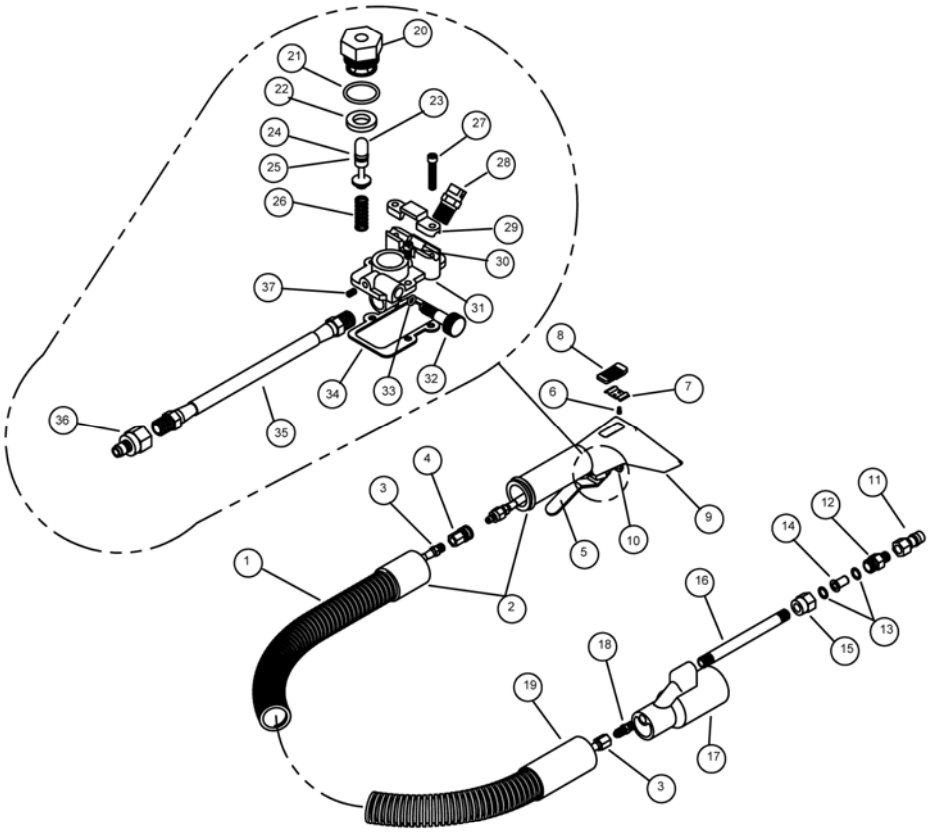


STAIR TOOL - OPTIONAL

REF	PART NO.	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	78519	TL, STAIR, LNG, TM DJ (80015)		COMPLETE
-	78521	TL, STAIR, SHT, TM (80015)		COMPLETE
1A	56-501715	WAND & HEAD, STAIR TL		
1B	56-501907	WAND & HEAD, SHRT STAIR TL		
2	52-501576	BODY, WD HDL PORT		
3	52-501577	HOLD DOWN, WD HDL PORT		
4	04-000053	TIE, CABLE 8” WHT		
5A	10-805330	HOSE, 3/16X13-3/4 (1/8PX1/4)		
5B	10-805397	HOSE, 3/16X7-1/2 (1/8P X 1/4F)		
6	17-803002	TIP, SPRY 9502X1/8P SST		
7	00-000282	SCR, CAP 1/4-20 X 1-1/4 SOC		
8	12-800060	CONN, 1/4P X 1/4T BR		
9	00-000317	SCR, CAP 10-32X1-1/4 SOCH		
10	57090	NUT, 10-32 HEX NYLOCK SS		
11	61-950496	ASSY, EXTRCTR VLV		
12	56015	NIPPLE, 1/4 HEX		
13	56012	NIPPLE, 1/4 FPT QD		
14	52-501619	TRIGGER, WD VLV		
15A	09-805359	SLEEVE, WD HDL 9.5		
15B	09-805504	SLEEVE, STAIR TL HDL 7-1/8		
16	16-808229	HOLDER, VLV STEM-EXTRCTR VL		
17	43-810063	O-RING, .551 ID .691 OD		
18	16-808228	SEAT, EXTRCTR VLV		
19	16-808189	STEM, EXTRCTR VLV		
20	43-810064	BACK-UP, .250DIA		
21	43-810062	O-RING, .114 ID .254 OD		
22	16-808190	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

PROCHEM PowerDirect

UPHOLSTERY TOOL-OPTIONAL

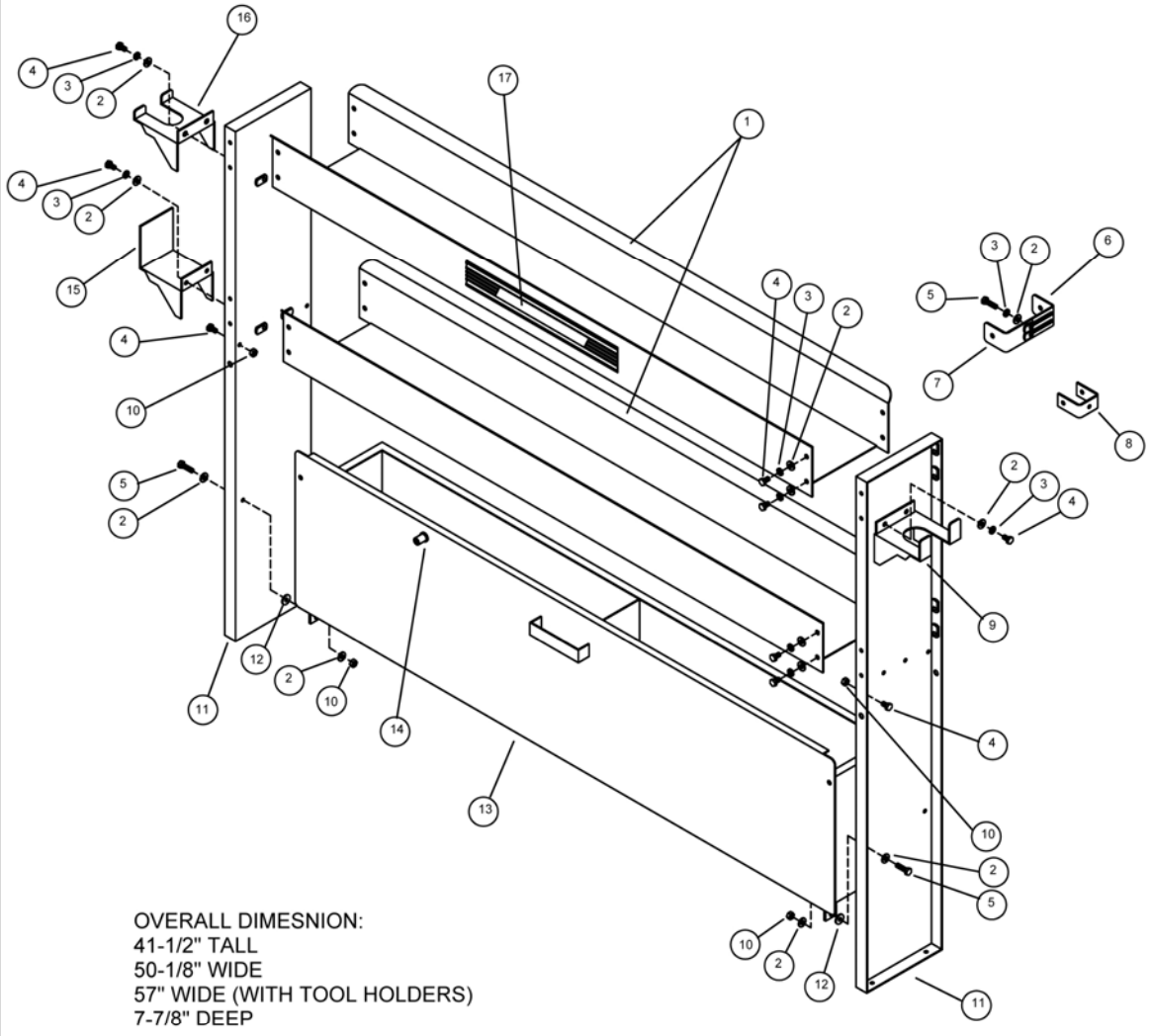


UPHOLSTERY TOOL - OPTIONAL

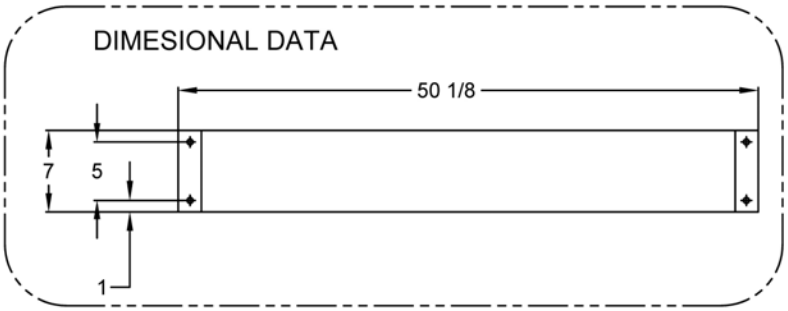
REF	PART NO.	QTY	DESCRIPTION	SERIAL NO. FROM	NOTES:
-	78513	1	TL, UPHOLST, PC (80015)		COMPLETE
1	09-805131	2	HOSE, VAC 1-1/4X10' BLU		
2	08-805243	1	CUFF, SWIV 1-1/4HX1-1/4T		
3	10-805347	1	HOSE, 3/16X119-1/2 (1/8PX1/4FT)		
4	13-806023	1	DSC, 1/8FC1/8FP SST		
5	58-500639	1	UPHOLSTERY TL TRIGGER		
6	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

PROCHEM PowerDrive

SHELF ASSEMBLY-OPTIONAL



OVERALL DIMESNION:
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		FLATWASHER, 1/4		
3	87162		WASHER, 1/4 SPLIT LOCK		
4	70721		SHOULDER BOLT, 182 OD X 2.25 L		
5	70270		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		LOCK NUT, 1/4-20 HXHD		
11	56-501922	2	PANEL, SHLF END		
12	50-501749		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

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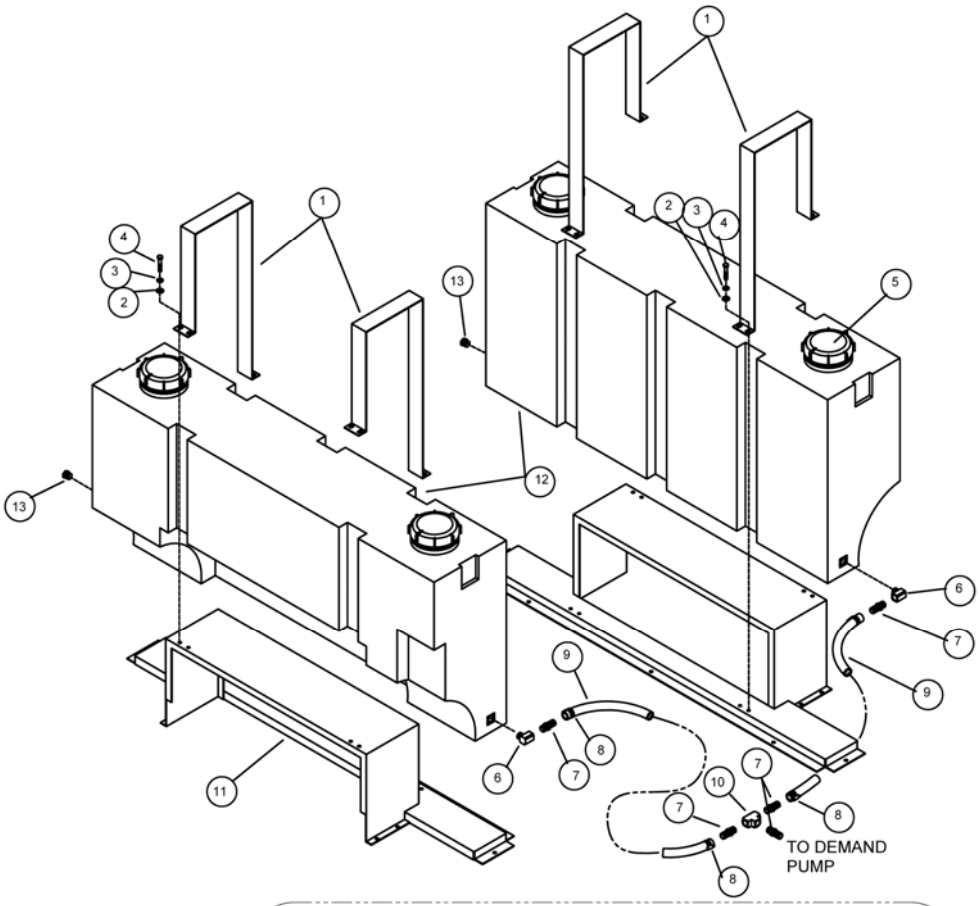
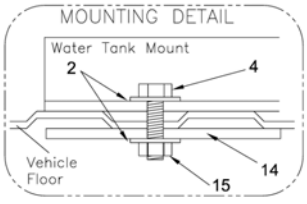
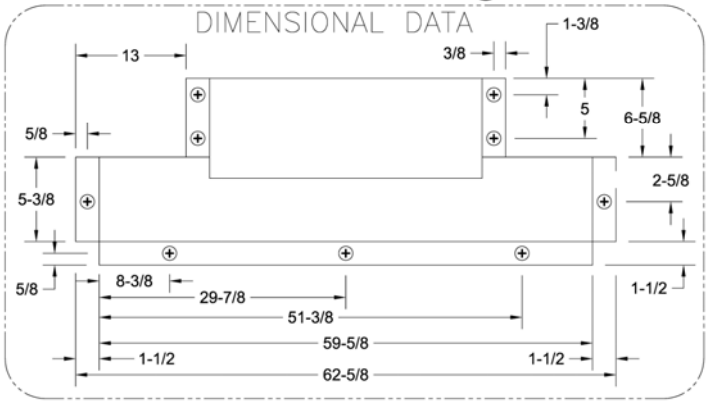
WATER TANK,DUAL WITH DEMAND PUMP-OPTIONAL



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

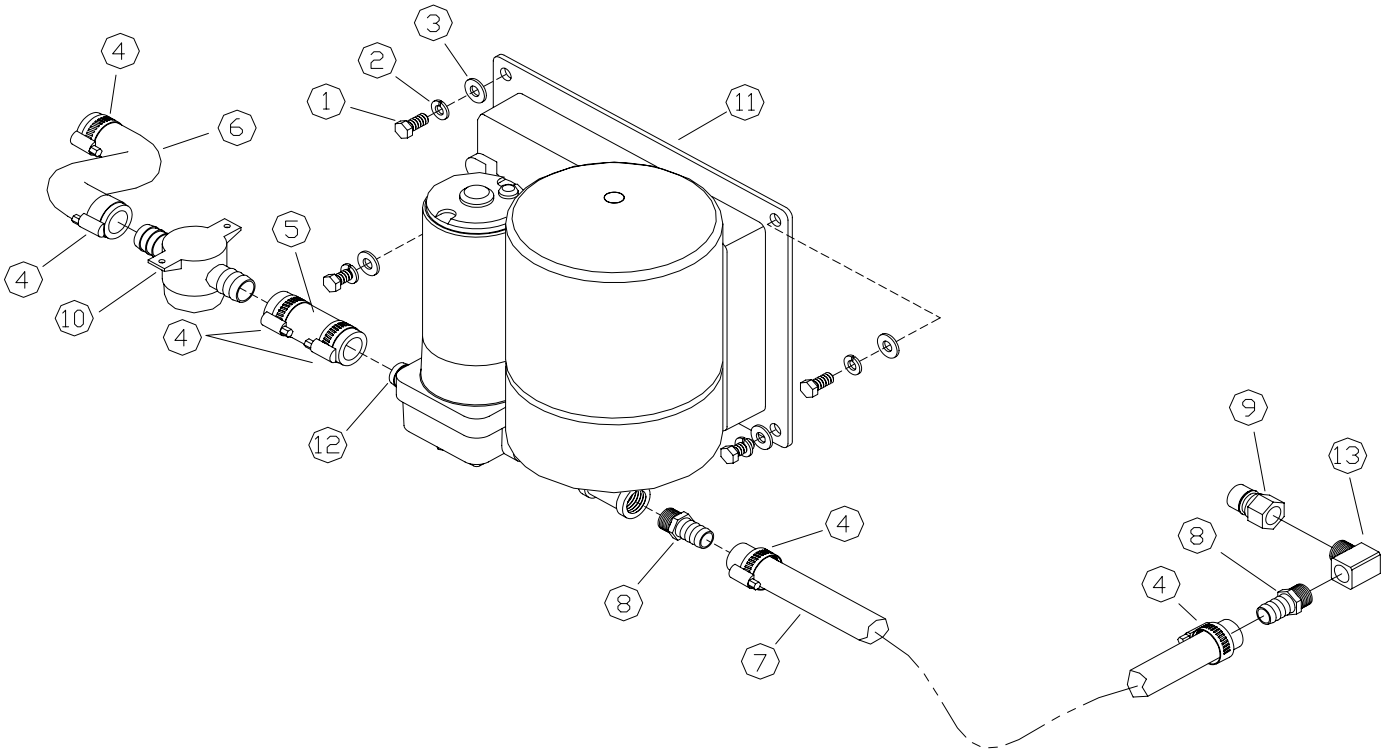




WATER TANK,DUAL WITH DEMAND PUMP-OPTIONAL

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

WATERTANK-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	48-809423	1	KIT, PORT		
13	11-800275	1	ELBOW, ST 3/8 BR		
14	65240	1	PUMP ONLY, TM DEMAND		NOT SHOWN
15	47449	1	KIT SERVICE DEMAND PMP FJ		NOT SHOWN

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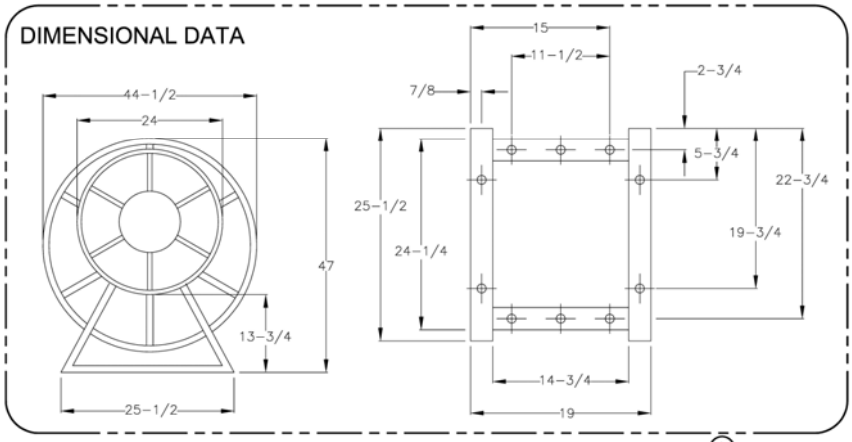
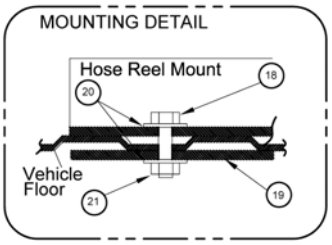
HOSE REEL-OPTIONAL





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		

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