

# ultimate washer

## Hydro Loop Recycle System



711 Commerce Way East, Suite 8.  
Jupiter, FL 33458

Toll Free: 866-858-4982      Fax: 561-741-2125

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## INTRODUCTION

**THANK YOU:** The employees and management thank you for selecting our products. The production and quality assurance personnel have taken the greatest care in the assembly process to ensure that your new Industrial Cleaning Equipment Recycler exceeds the standards set by you, the customer.

**YOUR RESPONSIBILITY:** This operator's manual was compiled for your benefit. By studying and following the safety, installation, operation, maintenance and trouble shooting information contained within, you can look forward to many years of trouble free service from your equipment. Every person who will operate the equipment must read and follow the safety warning and operating instructions sections of this owners manual prior to use. You are responsible for operating the product properly and safely. You are also responsible to follow the maintenance schedule in this manual to keep your warranty active.

**FREIGHT DAMAGE:** If delivered by trucking company, please inspect for any concealed freight damage and note this on the paperwork from the trucking company before signing. Should you find damage has occurred during shipping file a claim immediately with freight carrier.

**QUESTIONS:** Help us provide you with the fastest service. Please locate the enclosed warranty registration card and return it to register your machine. Contact your local **AUTHORIZED SERVICE DEALER** that you purchased from or call and ask for technical services if problems occur. **THERE ARE NO USER SERVICEABLE COMPONENTS ON THIS EQUIPMENT.**

**GETTING STARTED:** If your dealer has not prepared the machine for startup, you may need to connect the hoses and power supply lines on your system. Depending on the system purchased your machine may be 12vdc, 110vac, or the combination of 12vdc and 110vac, 110vac or 230vac. If you purchased a portable Hydro Loop recycler with a trailer and SC series washer, it is factory wired to the battery and GFCI 110v outlet of the SC Mobile Wash Skid. If the portable Hydro Loop recycler was ordered separately, the 12vdc and 110vac and should be wired to the battery and the auxiliary plug receptacle of the SC Mobile Wash Skid. Other brands of washers or aftermarket generators may not have enough 110v output, ground fault interrupter outlet, or enough 12v DC output to run a portable recycler. Portable generators must be rated for 2 to 3 times the total running wattage of the recycler to prevent electrical damage, see Tek Sheet for basic operation procedures and minimum electrical and tank requirements. If you purchased a stationary recycler, you will need to be sure a dedicated electrical outlet is installed near the unit that is rated for the proper voltage and amperage of the unit. After plugging in an electrical outlet be sure to push the reset button on the GFCI (ground fault interrupter).

## INTRODUCTION

1. Normal wears items such as hoses, o-rings, bag filters, pleated filters, absorption filters, pump impellers and tires.
2. Cost of regular maintenance or adjustments or damage from lack of maintenance.
3. Damage due to freezing, abrasive fluids, chemical deterioration.
4. Damage from fluctuation in electrical or water supply.
5. Any product or part which has been altered, modified, over pressurized, misused, or been in an accident.
6. Dealer installation or damage from improper installation of the machine or alteration by a dealer or promise of additional warranty form dealer.
7. Labor is not covered on Hydro Loop recycle systems.

### WARRANTY PROVIDED BY OTHERS:

The manufacturer of the pump warrants some electric motor driven pumps and their warranty is provided through the manufacturers service center.

### GENERAL CONDITIONS:

Our responsibility with respect to claims is limited to making the required repairs or replacements to the original retail user, and no claim of breach of warranty shall be cause for any cancellation or rescission of the contract of sale of any product. We reserve the right to change or improve the design of any of its products or illustrations without assuming any obligation to modify any product previously manufactured. This supersedes any and all previous warranty statements for products purchased after January 1, 2007. We are not liable for indirect, incidental or consequential damages including any cost of substitute equipment, loss of revenue, pecuniary expense or loss, or any damages whatsoever arising out of the use or inability to use a product. We disclaim all implied warranties, including those of merchantability and fitness for use for a particular purpose. Some states do not allow exclusions or limitations on how long an implied warranty lasts, so the above exclusions may not apply to you. It is the buyer's responsibility to ensure installation and use of these products conforms to local codes. Products exported outside the US and Canada are covered solely by the warranty of the local export dealer and this warranty does not apply.

# INTRODUCTION

## HOW TO OBTAIN WARRANTY SERVICE:

1. Write down your model # \_\_\_\_\_ and serial # \_\_\_\_\_ (on base plate of machine near the motor).
2. Contact your local service dealer and return the recycle system or part within the warranty period along with your sales receipt.
3. You may also ship the defective part freight prepaid directly to the factory if you contact technical services first and we will issue you a return goods authorization and then repair or replace under the conditions of warranty. We will pay the cost of returning it back to you by a method of our choice.
4. If the defective component is an engine or motor made by another manufacturer, your authorized dealer or we can help you obtain warranty service through the specific manufacturer's local authorized service center.

## ELECTRICAL PRECAUTIONS:

1. Observe all State, Local, and National codes for the installation of your electrically powered washer.
2. For a grounded product rated 250 volts, single phase, or less: This Product Is Provided With A Ground Fault Circuit Interrupter Built Into The Power Cord Plug. If Replacement Of The Plug Or Cord Is Needed, Use Only Identical Replacement Parts.

## 3. GROUNDING INSTRUCTIONS:

Cord Connected, Grounded Products:

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Danger - Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the product, do not cut off the ground pin - if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use any type of adaptor with this product.

4. To comply with the national electric code, this pressure washer should only be connected to a receptacle that is protected by a ground fault circuit interrupter (GFCI).

## 5. EXTENSION CORDS:

**Use of extension cords is not recommended.**

6. NEVER operate an electrically powered system after it has tripped a breaker or a ground fault device without having the reason for the trip determined by an authorized service engineer or competent electrician.
7. Use only in a dry area. Do not handle electrical cords and plugs when they are wet, when your hands are wet, or when standing in water. Do not spray high-pressure water on to the machine.
8. Disconnect power supply before making any repairs or adjustments.

## FIRE PRECAUTIONS:

1. DO NOT allow fuels, oils or solvents to enter the process stream in this equipment.
2. NEVER operate this equipment in the presence of flammable vapors, dust, gases, or other potentially combustible materials.

## VENTILATION PRECAUTIONS:

1. Gases such as chlorine residual and ozone, are an odorless deadly poison.
2. Observe all State, Local, and National codes providing for indoor use or installation of this unit.
3. Provide adequate ventilation to prevent motor overheating. (minimum 2' of air space).

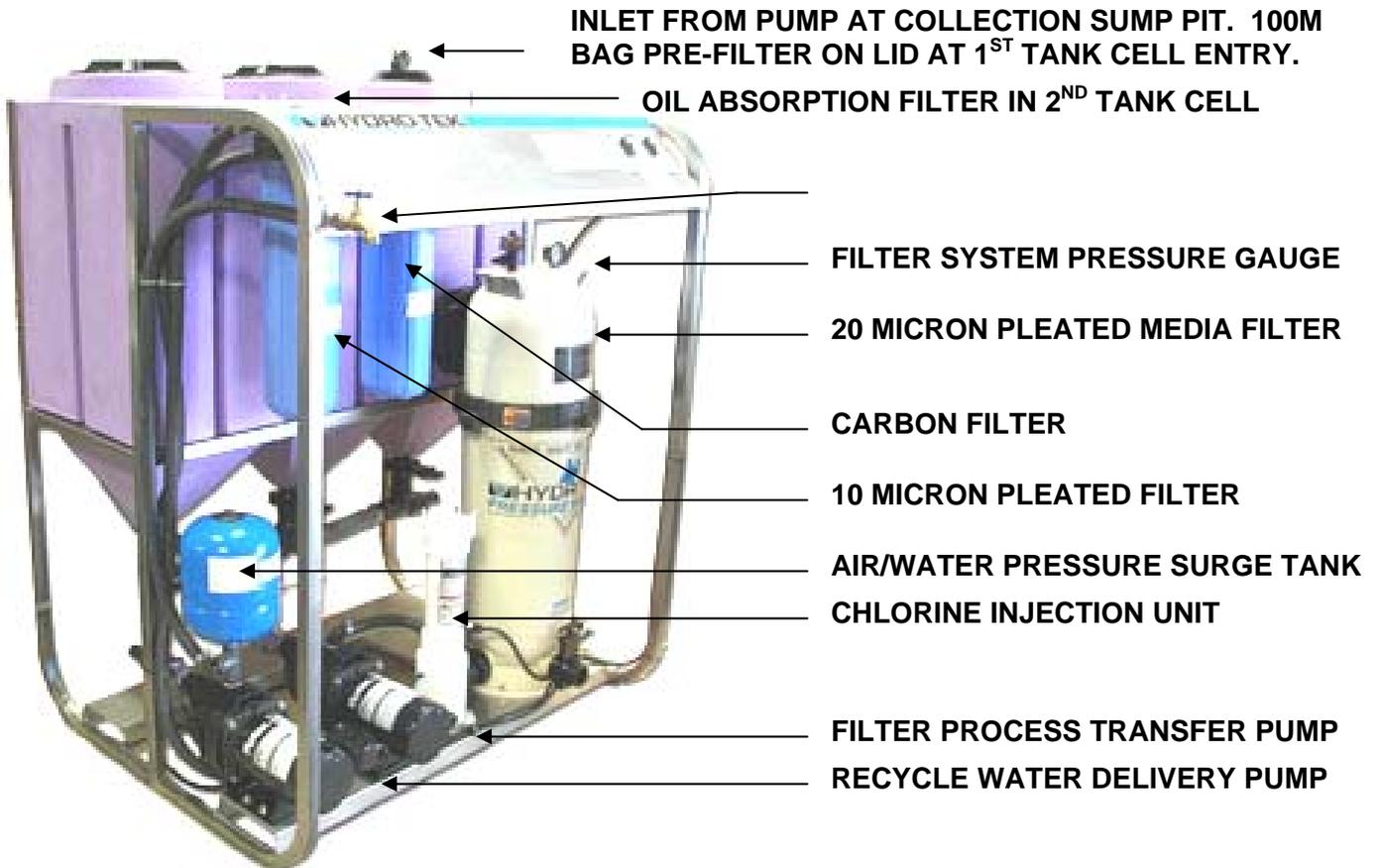
## SPRAY and WATER PRECAUTION:

1. WARNING – NON-POTABLE WATER: DO NOT DRINK. DO NOT direct discharge stream at persons. This machine is to be used by trained operators. Keep operating area clear of all persons. This system produces grey water only, which is usable for wash purposes only. DO NOT USE for sanitary purposes.
2. Always wear protective eye goggles when operating the equipment. Additional protective items such as a rubber suit and boots, gloves, and respirators are advisable.

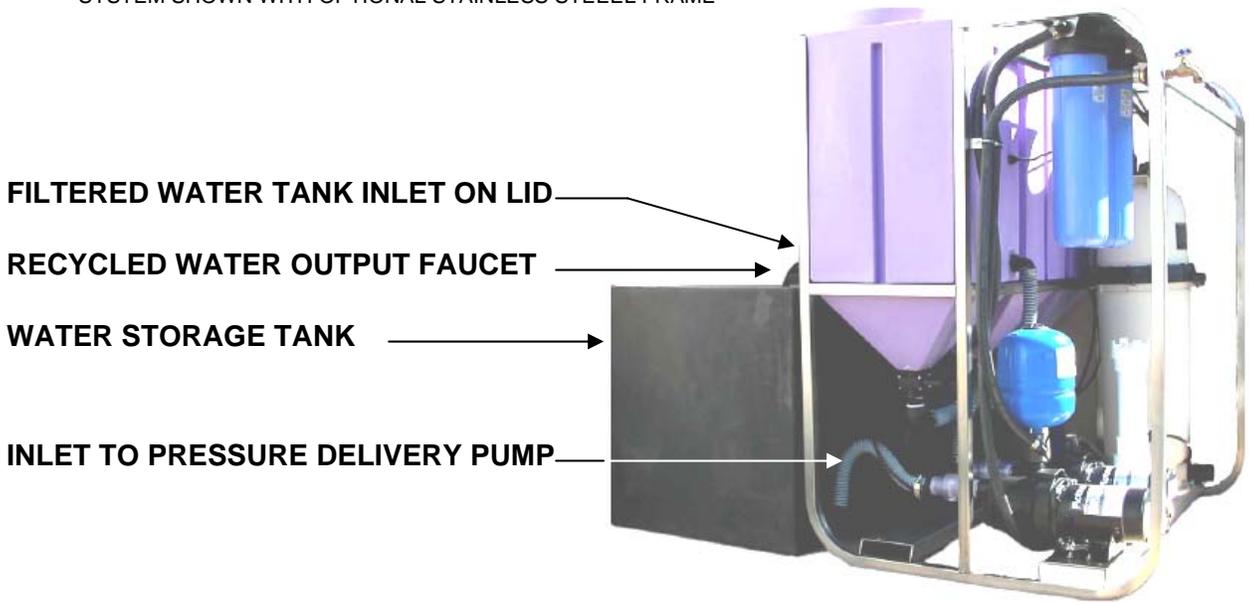
## PERSONAL HAZARD:

1. DO NOT remove belt guards or electrical covers while operating or when the power is connected.
2. DO NOT exceed recommended operating pressure or temperature.
3. KEEP HANDS CLEAR OF BELTS AND MOVING PARTS.
4. Do not operate the product when fatigued or under the influence of alcohol or drugs.

# IDENTIFICATION - KNOW THE SYSTEM FIRST



SYSTEM SHOWN WITH OPTIONAL STAINLESS STEEL FRAME



# INSTALLATION INSTRUCTIONS

**Please read the following completely before installing or operating the system.**

The HYDRO LOOP System is to be installed in accordance with the following procedures. A standard concrete wash pad area, and level equipment area, with electrical and water utilities, will need to be provided. Using a qualified general contractor is recommended. However, your distributor can usually provide these services at an additional cost or assist you in modifying your existing wash area.

If the System must be modified, in order to meet the requirements of updated local codes, the buyer will be required to pay the modification costs. Modification kits can be made at the factory.

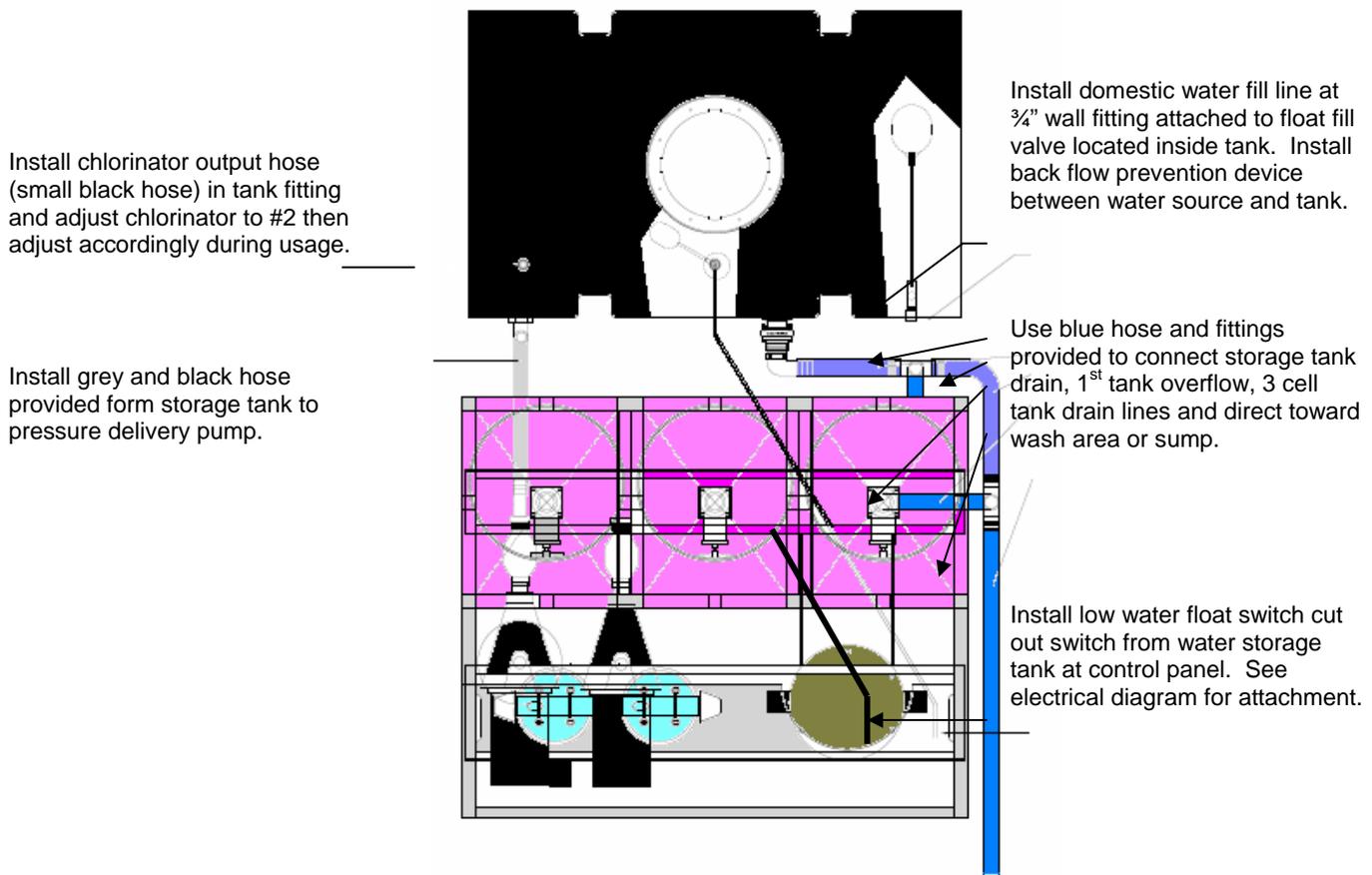
The buyer is generally responsible for supplying the required utilities (water & electricity) to the system and connects them in accordance with local codes.

Upon buyers completion of all the above, a field service representative is usually furnished by the Distributor. He will provide installation checkout, testing and training at no additional charge.

# INSTALLATION PROCEDURE

## CLEANING PAD w/LIFT STATION REQUIREMENTS

1. Set the HYDRO LOOP System in place on the leveling pad or equipment area. The HYDRO LOOP Recycle Process Unit System is skid mounted and should be leveled within a 1/4" all around. After setting the system in place and leveling, mounting the system to the pad may be done utilizing the 4 outer holes in the base plates if desired.
2. Install the Water Storage Tank, supplied, directly behind the system. Attach plumbing fitting, hoses and drain lines as shown in diagram. Install low water float switch wire to the control switch box on the recycle system. If installing to the side the system you may need additional materials other than provided with the system.
3. Attach all plumbing to the system and the water storage tank at this time corresponding to there marking and the illustration. All Utilities should be installed to the Skid Unit at this time. The RPFSE1 is provided with a GFCI cord and plug assembly, which must be used to power the machine. The HYDRO LOOP system is factory pre-wired for 115 Volt, single-phase and should have one (1) 20 Amp service receptacle connection, which is dedicated to the system only.



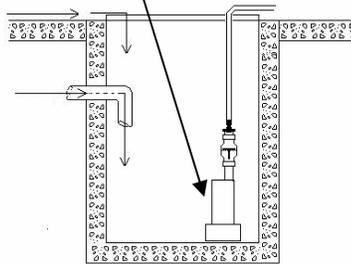
## INSTALLATION PROCEDURE (contd)

- Since the HYDRO LOOP System is skid mounted and set above ground, the sump, interceptor and drain lines will be lower. A Lift Station/Sump Pump (provided with most models) will be required and is to be installed between the wash pad collection sump and the RPFSE1 System. The Hydro Loop system submersible pumps supplied are pre-wired for 110 Volt, single phase operation and should have one (1) 15 Amp main service breaker connection, which is dedicated to this pump only.
- To reduce surges from the lift station into the System, the lift station pump should be set to cycle often. Also, it will be necessary to install a 1-1/4" flow control check valve, (provided) with the lift station pump assembly. See specification drawing for the lift station pump installation.

Plug sump pump plug into float switch plug and plug into power receptacle.



Install 1/4" check valve on sump pump outlet. Install 1/4" x 3/4" bushing in check valve outlet. Install 3/4" hose barb into bushing and route 3/4" line to 1<sup>st</sup> cell tank on system.



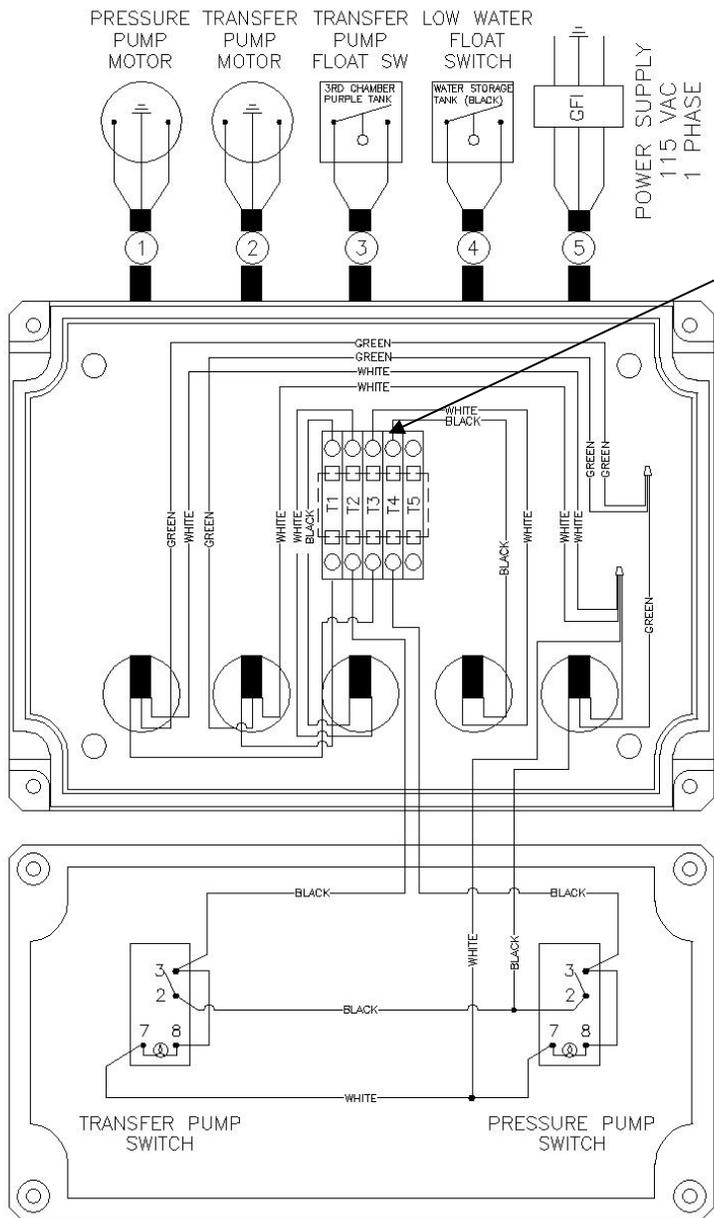
Route 3/4" hose from submersible pump to the 1<sup>st</sup> tank cell lid.

Submersible sump pump, 115V with check valve and hose adapter fittings installed in collection pit.

A LIFT STATION DETAIL

- If not pre-installed during construction of the wash area a return pipe should be used to direct all return, overflow and drain lines to the interceptor or sump for continuous flow from the solids removal collection tank. The system is provided with a drain line hose assembly, approximately 10', to divert drain wastewater away from the system.
- All electrical hook-up requirements to the Systems skid unit and lift station shall be wired per local codes by owner(s) or user.

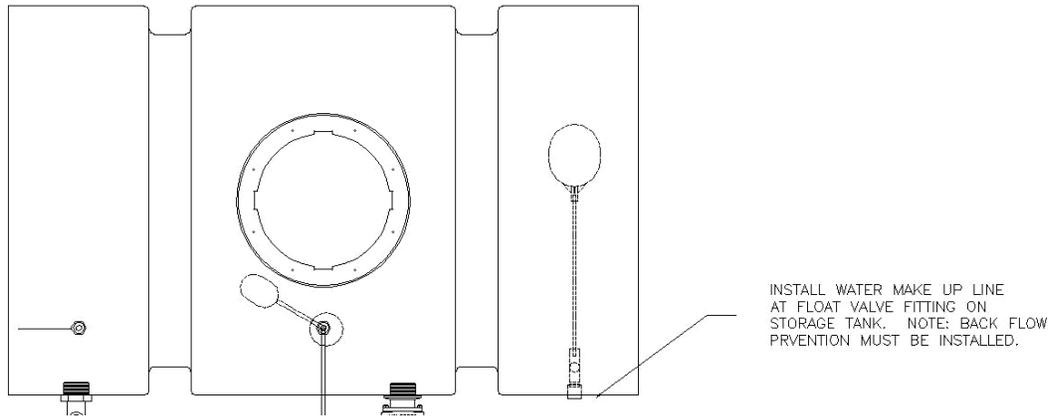
# INSTALLATION PROCEDURE (contd)



Remove temporary test lead at terminal T3 & T4 and install leads low water float switch installed in the water storage tank.

## INSTALLATION PROCEDURE (contd)

- The make-up water supply pipeline shall be installed to the unit at this time at the 3/4" fitting provided at the front side of the storage tank per local codes. This line should be equipped with a back flow safety valve, not provided.



- Fill the System and storage tank 1/2 full with water and check all tanks, lines and fittings for leaks.
- (All HYDRO LOOP Systems are checked at the factory but unseen damage or loosening may occur during shipping.)

# START UP PROCEDURE

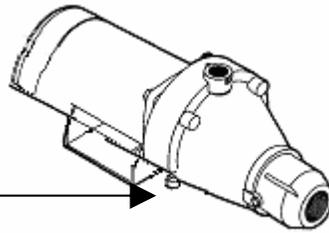
## 1) **Pumps cannot start dry!!!!**

Prior to starting any pump in the system...you flood the pump cavity full of water. This must be done to prime the pump and prevent pump failure. Failure to perform this act will void all pump warranty.

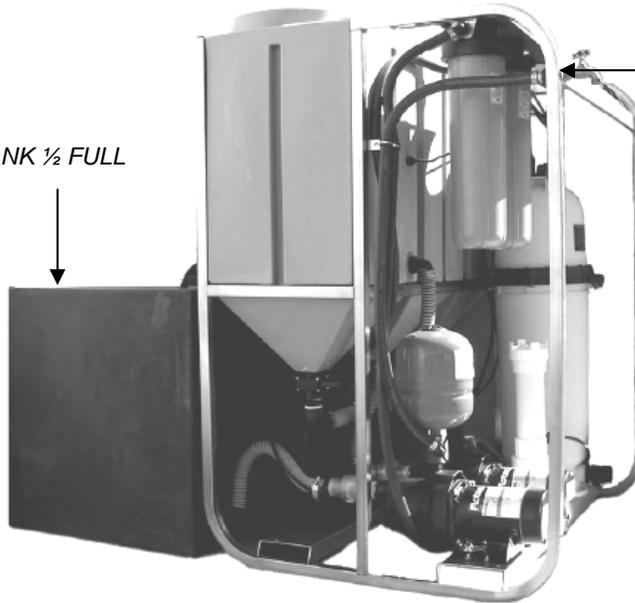
**a)** The transfer pump can be flooded by removing the ¼" plug on the lower side of the pump housing assembly and allowing water to flow from the 3<sup>rd</sup> cell tank removing all trapped air. 1<sup>st</sup> Fill the 3<sup>rd</sup> cell tank ½ full of water. After adequate water is flowing Teflon tape the plug and re-insert and tighten.

**b)** The pressure delivery pump can be flooded by opening the output spigot, on the front of the system, allowing trapped air to vent from the output lines. You must 1<sup>st</sup> fill the storage tank ½ full of water. You should begin to see water flow from the storage tank through the check valve assembly. After adequate water is flowing through the check valve turn on the pressure delivery pump switch. Water should continue to flow through the check valve. (If no water flows through fill the storage tank ¾ full and try again.) After water begins to discharge from the hose spigot turn off the spigot and let the pump continue to run until the pressure demand switch turns the pump off automatically.

Transfer pump must be primed by removing ¼" plug in lower pump housing side. Follow directions as stated in 1 a) above to prime this pump.



FILL WATER STORAGE TANK ½ FULL WITH WATER.



Open recycle water outlet spigot to vent trapped air. Water should begin to fill pump cavity as trapped air is displaced. Follow instructions in 1 b) above.

## START UP PROCEDURE (contd)

- 2) Sump Pump / Lift Station - This unit will start after adequate flow of water is seen. The pump provided with the RPFSE1 has a float level switch attached to the pump. When water level is adequate in the sump pit this switch will start the pump. Activate pump by plugging into power source. This pump has a double plug assembly to operate properly. Plug in the float switch plug first then plug the submersible pump plug into the float switch plug.
- 3) 3-Cell Conical V-Bottom Separation Tank System - Should begin filling with water automatically when the Lift Station Pump is activated and adequate water is available to pump. These tanks should be ½ full to start from prior filling. Tank 1 will fill from the submersible pump and tank 2 and 3 will gravity fill from tank 1 and 2 respectively.
- 4) Breaker Circuit and Power Switching– Before applying power to the unit be sure all switches are off. Turn on the Main Breaker Switch to provide power to the system plug receptacle. Plug in the GFCI cord and set the GFCI switch to the “ON” position.
- 5) Transfer Pump - the system control panel automatically controls this pump. When the separation tank system is full the float level switch located in the 3<sup>rd</sup> cell tank will start the pump. As water begins to transfer check gauges and lines to and from the Filters for leaks. Tighten any loose fittings or clamps if needed.
- 6) Recycled Water Valve (Hose Bib) - Turn valve to open (on) position to de-pressurize from the priming procedure. Then attach hose for pressure washer feed or float tank fill.
- 7) Pressure Jet Pump - The jet pump will come on when power is activated at the control panel and the water level is operable at the storage tank. This pump will not activate until ample water is supplied to the storage tank. The Jet pump is activated at 30 PSI and deactivated @ approximately 50 PSI by a pressure demand switch.
- 8) Pressure gauges - Check for operation. Any pressure exceeding 25 psi is indicating filter blinding or flow failure. Filters should be removed and cleaned or replaced.
- 9) Solids Clean Out Valves - Open all valves full for drainage of solids collection and drain down.
- 10) Chlorine Injector – Adjust the chlorine injector valve to the #2 setting to start. After the first day of washing check the storage tank water with test strips to determine chlorine value. You should have a reading of 2-3 ppm on the strip. Adjust setting accordingly.

## OPERATING CAUTION NOTES

1. BEFORE OPERATING THE PRESSURE WASHER - Be sure recycled water valve is turned on ... otherwise the Pressure Washer may run dry and cause major damage.
2. FILTERS - DO NOT operate the system when the filter is blinded...this is indicated by excessive pressure gauge differential. If you do, oil will enter the storage tank, which will require draining and cleaning.
3. DISCHARGE WATER - Do not discharge water from the system to ground, storm drain or sewer without checking with local authorities.
4. ELECTRICAL POWER - Be sure to disconnect all electrical power to the System before performing maintenance on the Systems equipment.
5. RELIEVE PRESSURE - (For filter vessels) By shutting down all pumps and opening all line outlets
6. FLOW METERS – If installed, Never make any calibration adjustments to any of the electronic controlled devices, i.e., water meters, sensors, probes, etc. Call factory if a failure in these devices is noticed.

## ROUTINE MAINTENANCE

**WASH PAD** - ALWAYS SWEEP UP DEBRIS AND DIRT FALL OFF FROM WASH PAD. AFTER SWEEPING TURN ON HOSE AND CLEAN WASH PAD. *DO NOT HOSE HEAVY DIRT AND DEBRIS INTO THE INTERCEPTOR. Never dump oil into the interceptor, clarifier, or lift station sump or on the wash pad. The system is for wash water processing not oil recovery.*

**SUMP PUMP** - Should be inspected and cleaned as needed. Check impeller inlet screen for debris. Turn power before servicing.

**STORAGE TANK** - Drain valves should be used to drain sediment to the interceptor. Clean Tank by opening drain valve fully for 1 minute, then close to normal operating positions.

**OIL COALESCING AERATION BIOSPHERES** - Should be inspected monthly and cleaned as necessary. Do not use hot water to clean. Use cold water pressure only. Before cleaning open drain valve and drain compartment then clean. After cleaning close valve to operating position. You'll need to turn off the lift station pump while performing this task.

**FILTERS** - Check gauges daily. When the gauge reaches a difference of 40 PSI or more this indicates that the filters need cleaning or replacement is needed. Ensure power supply is OFF and pressure is relieved or possible damage may occur.

**JET PUMP** - None required. Check inlet and outlet plumbing for leaks.

**TRANSFER PUMP** - None required. Check inlet and outlet plumbing for leaks.

**PRESSURE TANK** - None required.

**DRAIN BACK & RETURN LINES** - Valves connected to drain back and return line should be fully opened at least once weekly to flush-out any build up of solids that can plug the lines.

# TROUBLESHOOTING

## LIFT STATION PUMP

SITUATION: Pump won't start or run:

1. Water level too low...not activating float switch.
2. Blown fuse or breaker...check and replace or reset.
3. Low line voltage...check wiring gauge and voltage (110v)
4. Defective motor...contact your Aquacycle Dealer for replacement.
5. Impeller jammed...check and clean debris.
6. Tether too long...should be between 3-31/2" long.
7. Float obstructed...check and clear obstruction or relocate float.

SITUATION: Pump starts and stops too often:

1. Back flow of water from piping...check valve not working.
2. Faulty float switch...check or replace.

SITUATION: Pump won't shut off:

1. Defective float switch...check continuity, replace if needed.
2. Restricted discharge (rag or obstacle)...remove pump and remove obstruction.
3. Tether too long...Shorten tether to 3-31/2".
4. Float obstructed...Check for obstruction and remove.

SITUATION: Pump operates, but delivers little or no water:

1. Low line voltage...check wiring size and voltage.
2. Something caught in impeller...Remove and clean.
3. Worn or defective impeller...Contact Aquacycle dealer and replace.

# TROUBLESHOOTING

## PRESSURE JET PUMP

SITUATION: If motor will not start:

1. Check to see if the motor has power. Be sure the switch is on and the breaker is not tripped.
2. Check all wiring connections to see if they are tight.
3. Check to see if motor is warm to touch. If it is, more than likely the external protection in the motor has been tripped.
4. If the motor is cold to touch and power is available; the motor may be defective. Contact your AQUACYCLE dealer for replacement components.
5. Check the pressure switch contacts. The contacts may be stuck open or dirty. Extreme CAUTION is advised. Disconnect power before cleaning.
6. If motor hums, disconnect power and try to rotate shaft. The shaft should rotate freely. If it doesn't -- call your AQUACYCLE dealer.

SITUATION: If pump runs, but does not deliver water or pressure:

1. Be sure inlet water valve is open.
2. Be sure pump is completely primed.
3. Be sure check valve is not plugged.
4. Check for leaks in suction piping.
5. Check piping for blockage or clogs.

SITUATION: Pump will not shut off

1. Check pressure switch for proper settings.
2. Check outlet piping from pump for leaks.
3. Check port of pressure switch -- it may be clogged or blocked. To clean, turn off power, remove power lead, and remove switch and clean port or tube.
4. Check for leaks on suction line.
5. Check water level in supply tank.

SITUATION: If pump starts and stops too often:

1. Check air tank. (precharged to 40 PSI)
2. Check for leaks in piping

# TROUBLESHOOTING

## TRANSFER PUMP

SITUATION: Motor will not start:

1. Check to see if the motor has power. Be sure the switch is on and the breaker is not tripped.
2. Check all wiring connections to see if they are tight.
3. Check to see if motor is warm to touch. If it is, more than likely the external protection in the motor has been tripped.
4. If the motor is cold to touch and power is available; the motor may be defective. Contact your AQUACYCLE dealer for replacement components.
5. If motor hums, disconnect power and try to rotate shaft. The shaft should rotate freely. If it doesn't -- call your AQUACYCLE dealer.

SITUATION: Pump runs, but does not deliver water or pressure:

1. Be sure inlet water valve is open.
2. Be sure pump is completely primed.
3. Be sure check valve is not plugged.
4. Check for leaks in suction piping.
5. Check piping for blockage or clogs.

SITUATION: Pump will not shut off:

1. Check float switch for proper settings.
2. Check outlet piping from pump for leaks.
3. Check for leaks on suction line.
4. Check water level in supply tank.

SITUATION: Pump starts and stops too often:

1. Check for leaks in piping.
2. Check inlet check valve

# TROUBLESHOOTING

## SYSTEM FLOW

SITUATION: Lack of water flow or no water flow at outlet

1. Flow control valve not turn on...Check and turn to recycled water.
2. Blown Fuse or tripped breaker...Check breaker or fuse and reset or replace.
3. Check low water safety ...If activated wait for system to balance and restart.
4. Check filter pressure...manually backwash if needed.
5. If the above don't resolve the problem contact your Aquacycle dealer.

SITUATION: Frequent low water alert

1. Checks filter and clean...replace if heavy soiling remains.
2. Check float switch in clarifier tank...Check with continuity meter.
3. Check transfer pump...If not working replaces.
4. Check flow control valve and piping for obstruction...remove obstruction.

SITUATION: Storage tank overflows

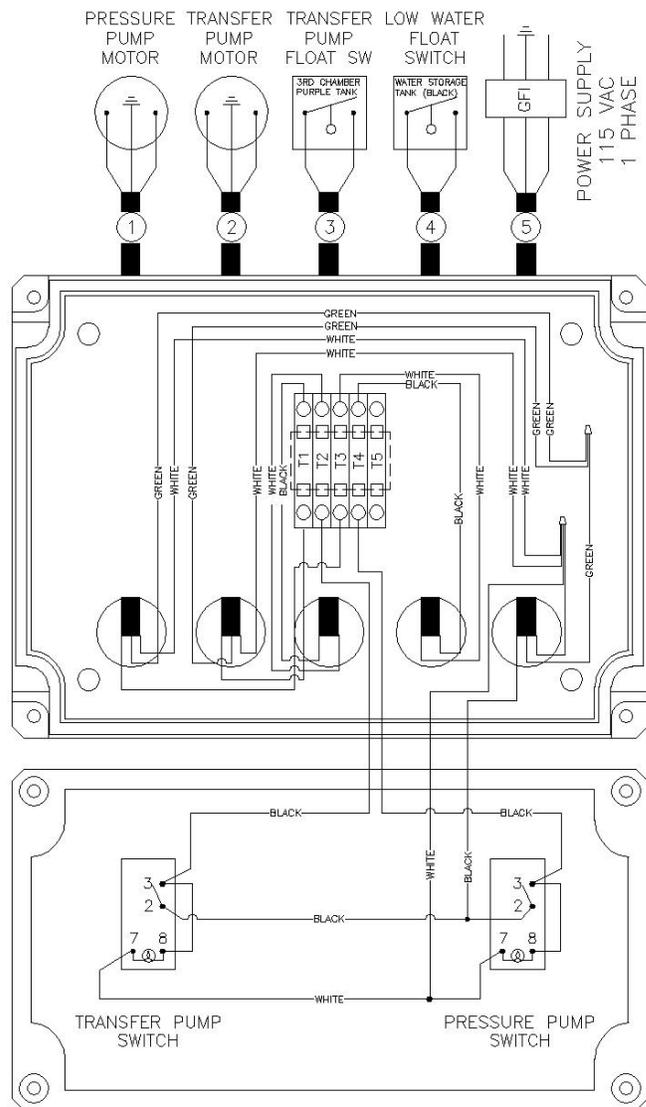
1. System over full with water. Drain down.
2. Incorrect flow rates.

SITUATION: Clarifier tank overflows

1. Follow trouble shooting directions for above.

Do Not Discharge Water To The Ground or Storm Drain To Remove...A Water Test Must Be Done First To Guarantee A Safe Discharge.

# WIRING DIAGRAM



# PARTS LIST

