

# CTS 400 Flex Owner's Guide and Maintenance Logs

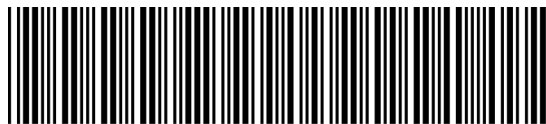
Manufactured Exclusively for 

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**HydraMaster**  
11015 47<sup>th</sup> Avenue West  
Mukilteo, Washington 98275

MAN-46690 Rev. A, Jan 20, 2016  
(P/N 000-182-406D)

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\*000-182-406D\*



Dear ChemDry CTS 400 Flex Owner,

Thank you for selecting HydraMaster carpet cleaning equipment. We take pride in the innovative design and quality of our machines, and want to congratulate you on your purchase. We look forward to a long relationship between you and HydraMaster.

In this package you will find a printed Owner's Guide and Maintenance Logs with safety information, a Truckmount Document Package with return envelope, and a digital Owner's Manual on CD. Important: The Truckmount Installation Documentation and Warranty Registration must be completed by you and the distributor and returned to HydraMaster to activate your warranty. Your warranty starts on the date of installation. Please ensure the form is filled out completely and returned to us in the pre-addressed envelope enclosed with this documentation.

Whether using a digital version or a printed copy, it is extremely important that you read the entire manual. The information contained in this manual is essential for safe operation and machine reliability.

Thank you again for choosing HydraMaster. We will continue, as we have for the last 4 decades to do everything possible to ensure that you remain a proud and satisfied HydraMaster owner.

Sincerely,

HydraMaster

11015 47th Avenue West  
Mukilteo, WA 98275  
800.426.1301

[www.hydramaster.com](http://www.hydramaster.com)



**HydraMaster**  
We've Got Your Back



# Introduction

This Owner's Guide provides you with important Contact Information, Warnings and Precautions, Operating Instructions and Maintenance Logs.

## NOTICE

Read the entire Owner's Guide before using this product. Failure to heed Warnings can result in serious injury or death; failure to heed Cautions can result in equipment failure.

### HOW TO USE THESE RESOURCES

**The Owner's Guide** is to be used for quick reference only and is not intended to be a comprehensive source of information.

**The Machine Maintenance and Logs** section is located within this Owner's Guide. It is wise to keep the Owner's Guide in a visible location near the CTS 400 Flex so that the log stays up to date. **Please note that records of maintenance must be kept and copies may be required to be furnished to Manufacturer before any warranty is honored.**

This Owner's Guide contains the following sections:

- Contact Information
- Warnings, Cautions and Notices
- Responsibilities
- Machine Specifications - CONSOLE
- Machine Specifications - Flex Assemblies
- High Altitude Operation
- Local Water Precautions
- **Operating Instructions**
- **Maintenance and Logs**
- Flex System Warranty
- Maintenance Logs
- Interval Hours Chart



**CTS 400**  
**FLEX**

**CONTACT INFORMATION**

If you have any questions regarding the operation, maintenance or repair of this machine, please contact your local distributor.

When calling your distributor, be sure to reference the serial number and date of purchase.

**FOR YOUR REFERENCE:**

Serial No. \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Purchased From (Distributor): \_\_\_\_\_

**WARNINGS, CAUTIONS AND NOTICES**

**⚠ WARNING**

The manufacturer uses this WARNING symbol throughout the guide to warn of possible injury or death.

**CAUTION**

This CAUTION symbol is used to warn of possible equipment damage.

**NOTICE**

This NOTICE symbol indicates that federal or state regulatory laws may apply, and also emphasizes supplemental information.

**⚠ WARNING**

During the operation of the truckmount many components are in motion. Never touch any part of the truckmount that is in motion. Serious injury may result.

**⚠ WARNING**

During the operation of the truckmount many surfaces will become extremely hot. Never touch hot surfaces. Serious injury may result.

**⚠ WARNING**

The operation of this truckmount can produce noise levels exceeding 85 decibels to a distance of 10 feet. The Occupational Safety and Health Administration (OSHA) recommends the use of hearing protective equipment if a person is exposed to an average of 85 decibels over an eight hour period. Check with local and state agencies concerning hearing conservation rules.

**⚠ WARNING**

During the operation of the truckmount carbon monoxide and other toxic fumes are produced. Position the vehicle so that any fumes produced will be directed away from inhabited areas and any points of building entry (doors, windows, air conditioning units, fans, etc.). Do not occupy the vehicle while the truckmount is in operation. Serious injury may result.

**⚠ WARNING**

During the operation of the truckmount chemicals known to the State of California to cause cancer, birth defects and other reproductive harm are produced by the engine exhaust.

**⚠ WARNING**

Never operate the truckmount with a portable gas container inside the vehicle. Doing so will increase the risk of fire and explosion. Serious injury or death may result.

**⚠ WARNING**

Transporting a vented fuel container that presently contains, or has ever contained in the past, a flammable liquid is strictly forbidden by HydraMaster and by federal and state regulations. Doing so will increase the risk of fire and explosion. Serious injury or death may result.



**⚠ WARNING**

Never smoke in or around the truckmount. Doing so will increase the risk of fire and explosion. Serious injury or death may result.

**CAUTION**

Be cautious when drilling holes through the van floor. Many vans have critical components mounted directly below the van floor that could be damaged by a misplaced drill bit.

**CAUTION**

During the operation of the truckmount the exhaust system will become extremely hot. Keep all flammable materials away from the truckmount exhaust system. Failure to do so will increase the risk of fire and explosion. Serious property damage may result.

**CAUTION**

Never operate the truckmount when the vehicle is tilted more than 10 degrees in any direction. Doing so will result in improper lubrication of the internal components, and will increase the risk serious component or engine damage.

**CAUTION**

Never perform cleaning operations when the truckmount engine is running at the IDLE throttle position. Failure to do so will increase the risk of serious component or engine damage.

**CAUTION**

Never operate the truckmount with the vehicle doors closed. Doing so results in extremely high temperatures inside the vehicle and will lead to serious component or engine damage.

**CAUTION**

Never use concentrated acids or solvents (including d-limonene) in the truckmount water system or chemical system. Use of these products will cause serious component damage.

**CAUTION**

Never operate the truckmount with a water hardness reading measuring 3.0 grains per gallon or higher. Using reading than 3.0 grains per gallon will cause scale to build up inside the truckmount water system. Scale build up causes serious component damage. Test all water prior to use and use water softening equipment if necessary.

**CAUTION**

Never allow water to freeze inside the truckmount. Serious component damage will occur. Perform all freeze guarding procedures outlined in the digital Owner's Manual.

**CAUTION**

Many vehicles have critical components mounted directly below the floor that can easily be damaged. Before drilling holes in the floor of the vehicle, inspect the underside of the vehicle for critical components. Failure to do so may result in damage to the vehicle.

**CAUTION**

During the operation of this equipment, surfaces will become hot. Do not allow components such as hoses to touch hot surfaces. Failure to heed this warning can result in equipment damage which is not covered by warranty.

## RESPONSIBILITIES

### The Purchaser's Responsibilities

Prior to purchasing a van, ensure that the payload is suitable for all of the equipment that will be installed and transported. This includes and is not limited to: the truckmount, recovery tanks, fresh water tanks and on-board water, hose reels, hoses, cleaning tools, chemicals, drying equipment, etc. Payload capacity information is available through the auto dealer, the manufacturer's web site, and is also located on the door pillar of the driver's side door.

Purchase a heavy duty Group 24 (550 CCA or better) battery for this truckmount. This is normally available from the installation dealer.

Prior to dropping your van off at the distributor for the truckmount to be installed, have a spray-on bed liner applied to the floor such as Rhino Lining® or Line-X®.

Prior to operating the truckmount read this manual in its entirety and familiarize yourself with the information contained here. Special attention should be paid to all cautions and warnings.

The distributor is responsible for the correct installation of the truckmount. The distributor is also responsible to train you in the correct and proper operation and maintenance of the truckmount.

## NOTICE

Any modification of the truckmount may void the warranty.

### The Distributor's Responsibility

#### **Acceptance of Shipment**

Before accepting the truckmount, check the following:

- The truckmount should be free from any damage during shipping. Do not sign the delivery receipt until you have closely inspected the truckmount and noted any damage on the delivery receipt. Hidden damage may be present even if the box looks okay. It is recommended that the box be opened before signing for the shipment.
- Check the packing list and verify that all items are accounted for.

### **Installation Responsibilities**

- Ensure proper payload capacity. It is the distributor's responsibility to verify that the equipment package does not exceed the vehicle capacity.
- Ensure installation of a safe fuel tap system and through-floor fittings as provided by HydraMaster.
- Proper placement of the truckmount, recovery tank, fresh water tank, and accessories in the vehicle and securing them with bolts and back up plates. The distributor should verify that the owner is in agreement with the layout.
- Ensure proper connection of the fuel lines.
- Ensure proper connection and installation of the battery. Verify that the battery is in accordance with HydraMaster's recommendation.
- Check the pump, vacuum blower and engine oil levels prior to starting the truckmount.
- Start and run the truckmount and check that all systems function properly.
- Test all hoses, wands, etc. for correct operation.
- Ensure timely return of the document package.

### **Training**

The distributor should provide a thorough review of the operation manual with the purchaser along with instruction and familiarization in:

- How all the truckmount's systems function.
- All safety precautions and their importance.
- How to correctly start and shut down the truckmount.
- How to correctly clean with the truckmount.
- Where and how often to check and change component oil levels.
- Freezing damage and how to avoid it. This includes explaining proper freeze guarding procedures.
- How to do basic troubleshooting of the truckmount.
- Hard water damage and how to avoid it. This includes how to determine if hard water exists in your area and the installation and use of water softening systems.
- The truckmount's warranty and warranty procedures.

**MACHINE SPECIFICATIONS - CONSOLE**

Frame Dimensions	24.0" W x 31" H x 36" D	
Weight	570 lbs	
Engine- Briggs and Stratton Vanguard 18HP	Oil Type	Synthetic 5W-30
	Capacity	Approx. 1 1/2 quarts (48 oz.) when changing oil and filter
	Engine rpm	3,150 rpm
	Fuel Consumption	1.0 gph
Ignition	Electric Key Start	
Vacuum Blower- Tuthill 3006 Competitor Plus SL (Dual Splash Lubrication)	Max. Vac.	12" Hg
	Oil Type	PneuLube or other ISO 100 rating
	Gear End Capacity	Approx. 7.0 oz.
	Drive End Capacity	Approx. 5.0 oz.
	Blower rpm	3,150 rpm
Water Pump	Oil Type	30W non-detergent
Electric Clutch	Capacity	Approx. 8.0 oz.
	Pump Rate	3.5 gallons per minute
	Pump rpm	1,750 rpm
Operating Pressure	0 - 1,000 psi	
Heating System	Stainless Steel and Copper Hybrid	

Standard Equipment	High Pressure Hose	1/4" High Temperature Lined/ Vinyl Cover - 100 ft.
	Vacuum Hose	2" Vacuum Hose- 100 ft.
		1-1/2" Wand Whip Line- 10 ft.
	Recovery Tank	65 gallon MaxAir Universal Tank
	Battery Box	
	Van Decal	
	Van Installation Kit	
	Owner's Manual (on CD)	
	Owner's Guide (paper copy)	
Optional Equipment	Flex System Tanks	35 gallon/15 gallon
	Flex System Tank	50 gallon
	Automatic Pump Out (APO)	Dura-Flow APO

**MACHINE SPECIFICATIONS - FLEX ASSEMBLIES**

50 Gallon Tank with Frame	Dimensions	12" W x 33" H x 60" L
	Weight	113 lbs
35/15 Gallon Tanks with Frame	Dimensions	12" W x 33" H x 53" L
	Weight	108 lbs
Construction	Frames	Steel
	Tanks	Polyethylene

## HIGH ALTITUDE OPERATION

Elevation plays a key role in how the truckmount will operate. Operation at high altitude (above 5,000 ft.) may require a high-altitude carburetor jet. Use of this jet at high altitude will improve power, reduce fuel consumption and help reduce excessive carbon build-up in the exhaust and heat exchanger systems.

Contact the local Briggs and Stratton dealer or HydraMaster to obtain the proper jet size. Your local Briggs and Stratton dealer can be located at <http://www.briggsandstratton.com/us/en/support/dealerlocator>.

## LOCAL WATER PRECAUTIONS

The quality of water varies greatly. Many areas have an excess of minerals in the water which results in what is commonly called “hard water.” These minerals tend to adhere to the insides of heater coils and other parts of the machines causing damage and a loss of cleaning effectiveness. This influences the reliability and efficiency of equipment in direct proportion to the level of hardness.

### Hard Water Advisory

HydraMaster recognizes that any hard water deposits which might occur within the water system of our truckmounts is a serious problem. The precision technology of truckmount heat exchanger systems is intolerant of any foreign material. Hard water deposits will ultimately decrease the performance of the system and are expected to seriously lower the reliability of the machine.

To validate a machine’s warranty, HydraMaster requires that all machines operating in designated “Hard Water Areas” (3.0 grains or more per gallon) be fitted with a water softening system, or a properly installed magnetic-type descaler must be used and maintained. Periodic descaling or acid-rinsing alone is not adequate in these areas. HydraMaster does not recommend any particular type or brand; however, the relative effectiveness of some types of magnetic descalers or softeners may require additional periodic use of descaling agents.

HydraMaster also recommends, in the strongest possible terms, that machines in all areas be fitted with a water softening system for improved operation and reliability.

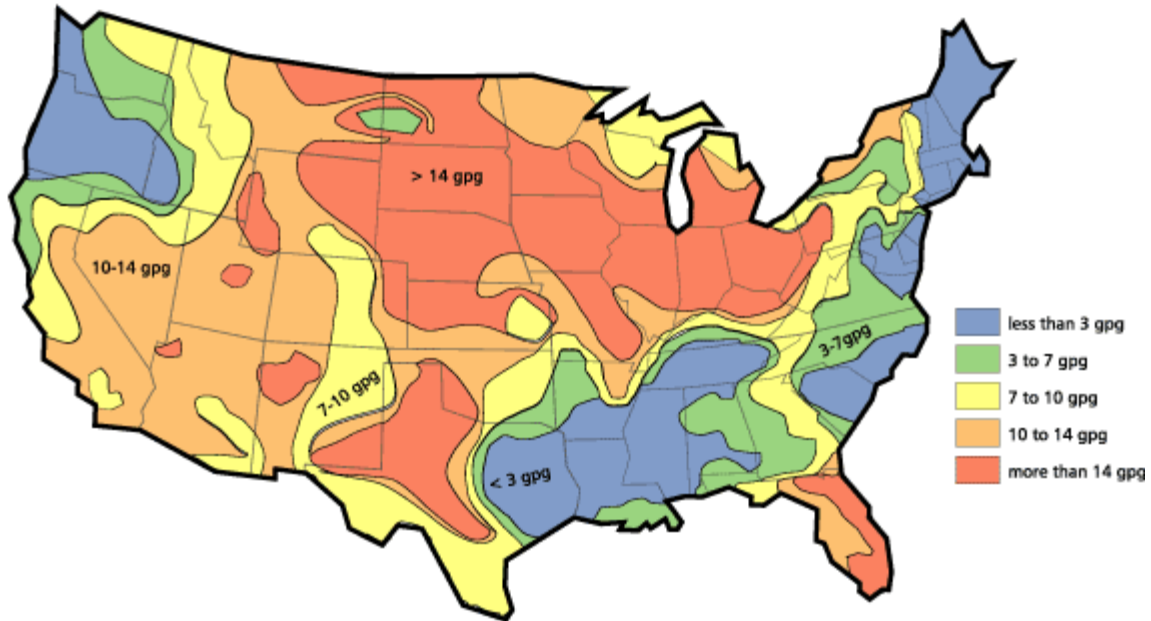
## **CAUTION**

Failure to take appropriate measures to prevent scale build up can result in system failure and loss of warranty on affected parts.



**Hard Water Area Map**

The hard water map, shown in Figure 1 defines hard water areas in the continental United States which compromise fluid related components such as hoses, fittings, heaters, pumps, valves and water-cooled engines. For other countries, hard water area maps can be obtained from geological societies.



**Figure 1. Hard Water Map of Mainland United States**

**NOTICE**

The map shown in Figure 1 is provided for general reference only. Water hardness in your geographical location should be confirmed by testing.

### **Water Softener**

Cleaning efficiency and equipment life is increased, chemical use decreased, and the appearance of cleaned carpets enhanced when water softeners are incorporated in hard water areas. HydraMaster strongly urges the use of water softener units with the CTS 400 Flex in areas exceeding 3.0 grains per gallon.

Failure to use a water softener in these areas will invalidate the machine's warranty. Referring to the hard water area map shown Figure 1, determine the quality of water in your area and take immediate action if the water hardness exceeds 3.0 grains per gallon.

The relatively low cost of a water softener service is more than made up for by an increased life of machine parts, reduced chemical costs and continued cleaning efficiency. The water softener will also increase the effectiveness of the cleaning chemicals, therefore less chemical will be needed.

Contact a water softener distributor in your area for information on the rental of a simple water treatment unit to carry in your truck. Be sure to charge the water softener in accordance with the capability of the softener.

For example: If the softener will treat 900 gallons of water and the machine uses an average of 30 gallons/hour, for an average of 5 hours a day, this equals 150 gallons per day). In 6 days the machine would use 900 gallons of water. Therefore, the softener would need to be charged every 6 working days for maximum softening.

**Waste Water Disposal Advisory**

There are laws in most communities prohibiting the dumping of recovered “gray” water from carpet cleaning in any place but a sanitary treatment system.

The cleaning rinse water, recovered into your unit’s vacuum tank, contains materials such as detergents, and must be safely processed before entering streams, rivers and reservoirs.

In most cases, an acceptable method of waste water disposal is to discharge into a municipal sewage treatment system after first filtering out solid material such as carpet fiber. Access to the sanitary system can be obtained through a toilet, laundry drain, RV dump, etc. Permission should first be obtained from any concerned party or agency.

One disposal method which usually complies with the law is to accumulate the waste water and haul it to an appropriate dump site. Another solution to the disposal problem is to equip your CTS 400 Flex with an Automatic Pump-Out System (APO). These systems are designed to remove waste water from the extractor’s recovery system and actively pump the water through hoses to a suitable disposal drain.

HydraMaster makes an APO System which can be ordered with new equipment or installed later.

When properly configured, the systems will continuously monitor the level of waste water and pump it out simultaneously with the cleaning operation. The hidden benefit of this process is that the technician does not have to stop his/her cleaning to empty the recovery tank.

**NOTICE**

IN ACCORDANCE WITH EPA, STATE AND LOCAL LAWS, DO NOT DISPOSE OF WASTE WATER INTO GUTTERS, STORM DRAINS, STREAMS, RESERVOIRS, ETC.

The penalties for non-compliance can be serious. Always check local laws and regulations to be sure you are in compliance.



# Operating Instructions

## BEFORE OPERATING THE CTS 400 FLEX

1. Locate the van and equipment in a well-ventilated area.

### **⚠ WARNING**

The CTS 400 Flex generates toxic fumes. Position the vehicle so that the fumes will be directed away from the job site. Do not park where exhaust fumes can enter a building through open doors, windows, air conditioning units or kitchen fans. If this warning is not heeded, personal injury and death can result.

2. Check the fuel tank to be certain there is adequate fuel to complete the job.
3. Connect the solution hose to the quick connect Carpet/Uph. Cleaning Solution Outlet (see Figure 2).
4. Connect the vacuum hose to the vacuum inlet.

### **NOTICE**

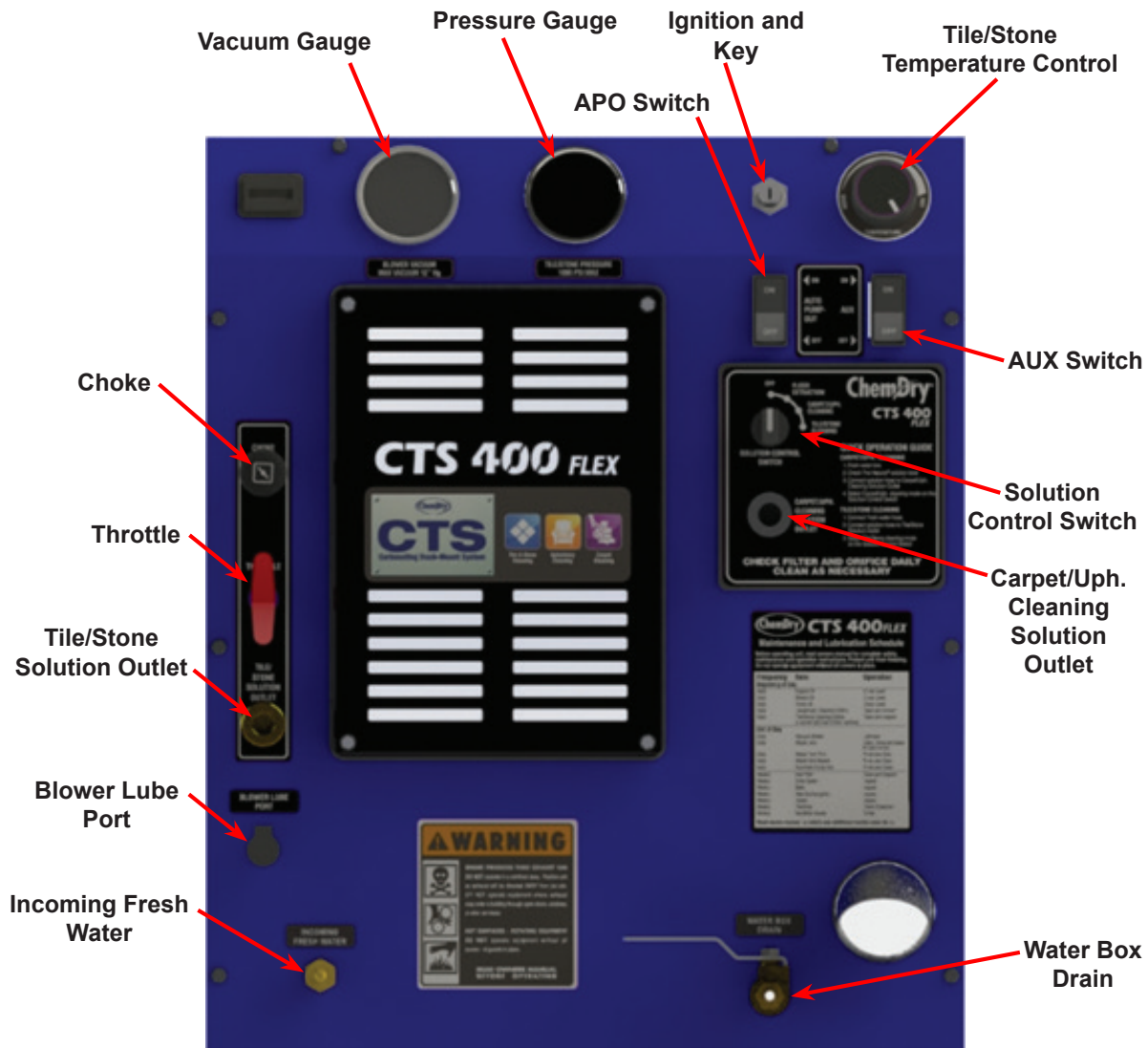
Make sure the recovery tank drain valve is closed when operating the machine.

IN ACCORDANCE WITH EPA, STATE AND LOCAL LAWS, DO NOT DISPOSE OF WASTE WATER INTO GUTTERS, STORM DRAINS, STREAMS, RESERVOIRS, ETC.

The penalties for non-compliance can be serious. Always check local laws and regulations to be sure you are in compliance.

**START-UP PROCEDURE (ALL MODES)**

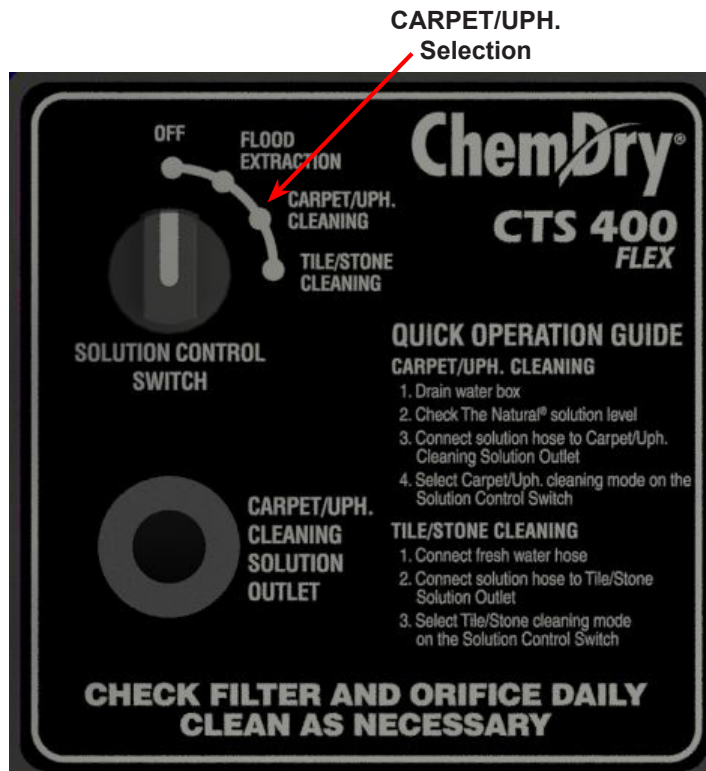
1. Perform all daily and periodic maintenance as specified in this Owner's Guide.
2. Ensure the Solution Control switch is in the "OFF" position.
3. Connect all cleaning tools to the length of hose required to perform the cleaning job.
4. Turn the key to the "ON" position. Pull the choke and start the truckmount with the throttle cable fully depressed ("IDLE" position – see Figure 2).
5. After the engine starts, push the choke in and allow the truckmount to run in "IDLE" for 2 to 3 minutes to warm up.
6. Pull the throttle cable to full extension and twist the handle clockwise to lock.



**Figure 2. CTS 440 Flex Dash Assembly**

**CARPET/UPHOLSTERY PROCEDURE**

1. Ensure the Flex tank(s) is full.
2. Connect all solution and vacuum hoses, and the APO hose (if equipped).
3. Drain the water box by opening the water box drain valve on the dash.
4. Select “CARPET/UPH.” on the Solution Control switch (see Figure 3).



**Figure 3. Select “CARPET/UPH.” on Solution Control Switch**

5. Optional: Press the Auto Pump Out (APO) switch to the “ON” position.

**NOTICE**

The PUMP OUT system will not engage until the water level rises inside the recovery tank.

6. Now proceed with the cleaning operation.

**NOTICE**

The machine will automatically shut down when it reaches its full capacity due to the float switch located inside the recovery tank. When this occurs, turn the Solution Control switch to “OFF” and empty the recovery tank. Then, turn the unit back on and continue to clean.

**SHUT-DOWN PROCEDURE**

1. Turn the Solution Control switch to “OFF”.
2. Remove solution and vacuum hose.
3. Lubricate the blower to prevent it from rusting internally.
  - a. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove moisture from the blower.
  - b. Cap off the inlet to the vacuum tank.
  - c. Spray a HydraMaster-recommended spray lubricant into the blower lube port for about 5 to 7 seconds while the unit is running (see Figure 2).
  - d. Allow the machine to run an additional 2 to 5 minutes under load to flush off lubricant.
  - e. Uncap the inlet and run the unit for another minute to allow the blower to cool down.
4. If freeze guarding is necessary perform the procedure at this time. See page 35 Freeze Guarding, in this Owner’s Guide.
5. Return the engine throttle to the “IDLE” position.
6. Turn the key to “OFF”
7. Drain the water box using the valve.
8. Drain the vacuum tank in an appropriate location.

**NOTICE**

In accordance with the EPA, state and local laws, do not dispose of water into gutters, storm drains, streams, reservoirs, etc.

9. Perform daily maintenance as specified starting on page 25.



**TILE/STONE CLEANING PROCEDURE**

1. Follow the start-up procedure.
2. Connect a garden hose to the truckmount. If a pump in pump is used, turn the AUX switch to the “ON” position (see Figure 2).

**NOTICE**

The water box must be full prior to starting the truckmount.

3. Connect all solution and vacuum hoses, and the APO hose (if equipped).
4. Select “TILE/STONE CLEANING” on the Solution Control switch (see Figure 4).

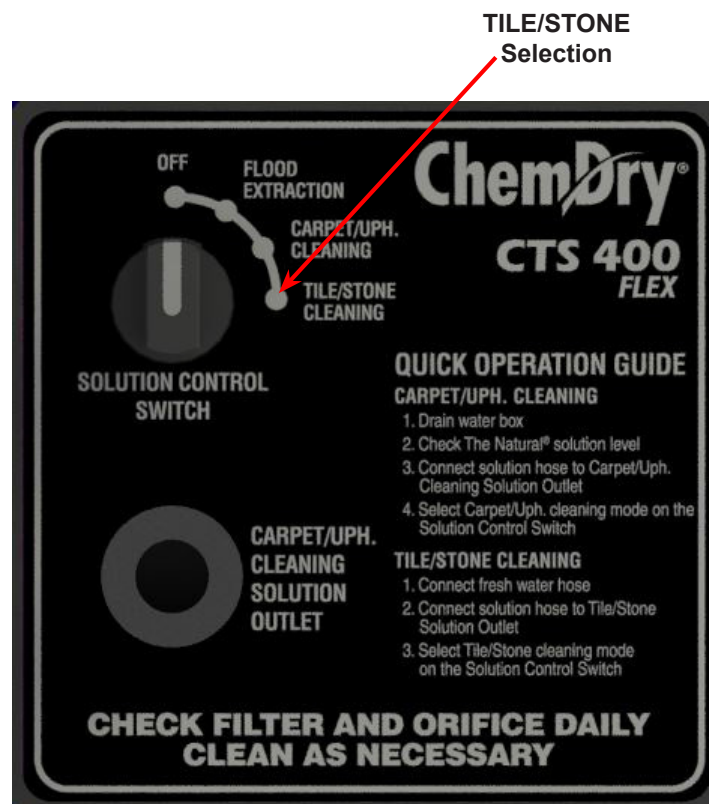


Figure 4. Select “TILE/STONE” on Solution Control Switch

5. Set the temperature to the desired level on the “TILE/STONE TEMPERATURE” control knob.
6. Adjust the “PRESSURE REGULATOR” located on the left hand side of the machine (see Figure 5), to the desired cleaning pressure level.

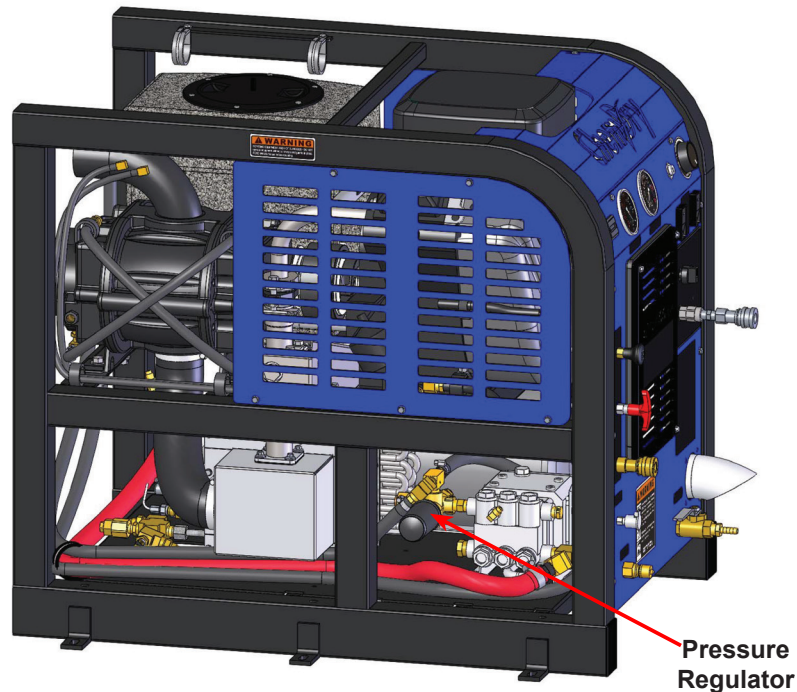


Figure 5. Side View of CTS 400 Flex Console

7. Optional: Press the Auto Pump Out (APO) switch to the “ON” position.

### NOTICE

The PUMP OUT system will not engage until the water level rises inside the recovery tank.

8. Now proceed with cleaning operation.

### CAUTION

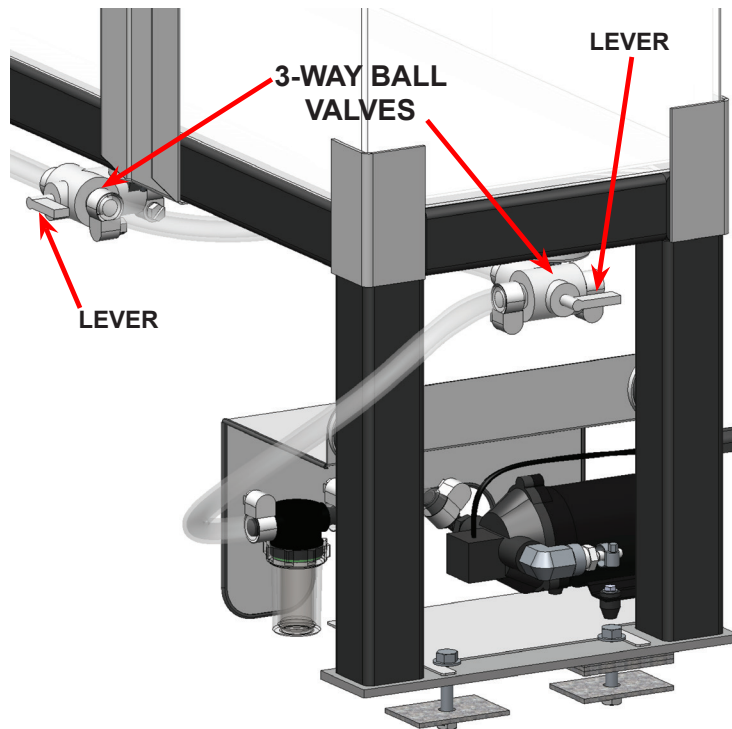
Never perform cleaning operations when the truckmount engine is running at IDLE throttle position. Failure to follow this caution will increase the risk of serious component or engine damage.

### NOTICE

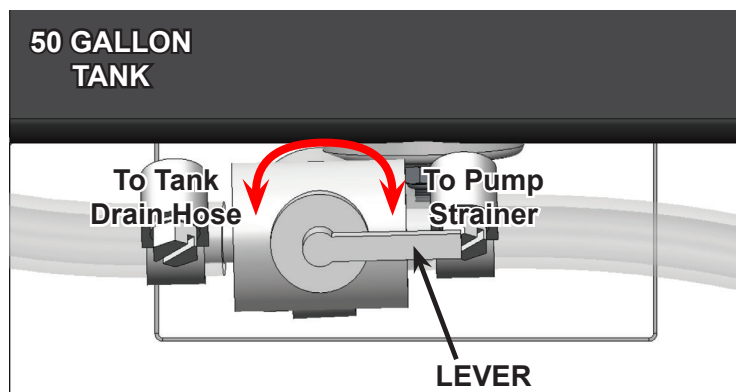
The machine will automatically shut down when it reaches its full capacity due to the float switch located inside the recovery tank. When this occurs, turn the Solution Control switch to “OFF” and empty the recovery tank. Then, turn the unit back on and continue to clean.

**FLEX TANK OPERATION**

1. Make sure the 3-way ball valve levers are all in the downward or vertical position (see Figure 6). The levers on the Flex pumps control the direction of the chemical flow. When the levers are in the vertical position, the flow is turned “OFF”.



**Figure 6. Flex Pump Levers**

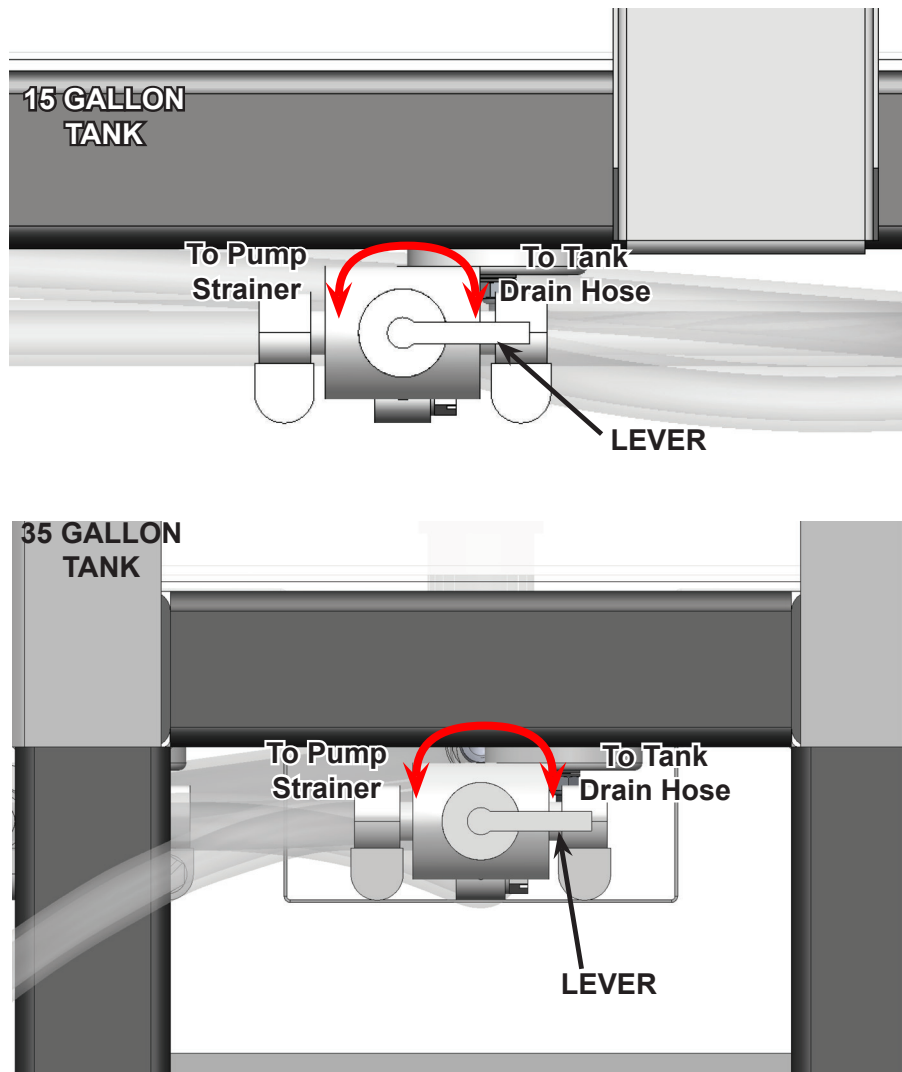


**Figure 7. For 50 Gallon/Tank Assembly:  
Turn Lever to Tank Drain Hose or in Direction of Pump Strainer**

2. Open the Flex chemical tank lid(s) and fill the chemical tank(s) with appropriate ChemDry chemical until the chemical levels off below the tank vent hose hole.

There are 2 levers on the 35 Gallon/15 Gallon Tank Assembly, one for each tank (see Figure 6). There is 1 lever located on the 3-way ball valve on the 50 Gallon Tank Assembly (see Figure 7).

Before operating the Flex System, turn the appropriate lever toward the direction of the flow (toward the hose connected to the pump strainer - see Figure 7 and Figure 8).



**Figure 8. For 35 Gallon/15 Gallon Tank Assembly:  
Turn Levers in Direction of Pump Strainer or to Tank Drain Hose**

To drain the pumps, turn the lever away from the flow.

To turn the flow off, turn the levers downward or in the vertical position.

# Maintenance and Logs

To avoid costly repairs and downtime, it is imperative to develop and practice good maintenance procedures. All maintenance must be performed by qualified service personnel.

This section covers:

- Operational Maintenance
- High Pressure Pump Maintenance
- Vacuum System Maintenance
- Descaling Procedure (Required)
- Freeze Guarding
- Tensioning the Pump Drive Belt
- Descaling Flex System as Required
- Pump Tuning Instructions
- Clean QC Filter and Orifice
- Flex System Warranty - Addendum to the HydraMaster Standard Limited Warranty

This section also includes a maintenance schedule and maintenance logs which must be correctly and completely filled out (see page 45 - page 52. An Interval Hours Maintenance Chart is on page 55 and page 56.

The manufacturer may request to inspect the logs before a warranty claim is honored.

## NOTICE

Record the date and machine hours on the maintenance log provided for your convenience in this Owner's Guide. Records of maintenance must be kept and copies may be required to be furnished to HydraMaster before the warranty is honored. It is recommended that you affix a copy of the log on the vehicle door near your unit for convenience and to serve as a maintenance reminder.

## NOTICE

Please feel free to photocopy any of the logs on the following pages should you need more copies.

## **OPERATIONAL MAINTENANCE**

### **Daily Maintenance**

- Check the engine oil level. Add oil if needed.
- Check the high pressure pump oil. Add oil if needed.
- Inspect and rinse the recovery tank.
- Inspect and clean the recovery tank filters.
- Inspect and clean the orifices and filters.
- Inspect and clean the garden hose screen.
- Inspect the truckmount for water and oil leaks, loose electrical connections, etc. and repair as needed.
- Lubricate the blower lube port with HydraMaster-recommended spray lubricant.

### **Weekly Maintenance**

- Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.
- Inspect the vacuum relief valve. Clean and lubricate as necessary.
- Clean the recovery tank thoroughly with pressure washer.
- Check the oil level in the blower. Add oil if needed.
- Check the pump drive belt for wear and proper tension. Tighten as needed.
- Check all the hoses and wiring for wear and chafing. Secure as needed.
- Flush the water and chemical systems with solution of equal parts white vinegar and water.
- Check all the nuts and bolts. Tighten as needed.
- One time change of the high pressure pump oil after 50 hours of operation. (Every 500 hours thereafter.)
- One time change of the engine oil after 8 hours of operation.
- Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil change.

### **Monthly Maintenance**

- Check the engine air filter. Clean or replace as necessary.
- Check the water level in battery. Fill as needed.
- Clean the battery terminals as needed.
- Change the blower oil after first 100 hours of use.
- Clean the QC filter and orifice with water.
- Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).

### **Quarterly Maintenance**

- Check the fuel lines. Repair or replace as needed.
- Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible.
- Change the fuel filter.
- Change pump drive belt.

**250 Hours**

- Check coupler element (rubber insert) for cracks or wear. Replace as necessary.

**500 Hours**

- Change the blower oil.
- Change the high pressure pump oil.
- Check the engine valve clearance (intake and exhaust 0.004" - 0.006")
- Change the fuel filter.
- Check coupler element (rubber insert) for cracks or wear. Replace as necessary.

**1000 Hours**

- Change air filters.
- Check carburetor. Clean or replace as necessary.
- Clean the heat exchanger core.
- Replace coupler element (rubber insert) for cracks or wear.

**NOTICE**

Refer to the Interval Hours Maintenance chart on page 55 and page 56.

## HIGH PRESSURE PUMP MAINTENANCE

### Daily

Check the oil level and the condition of the oil. The oil level should be up to the center of the sight glass on the rear of the pump or between the “MIN” and “MAX” lines on the dipstick. The dipstick may be found by removing the oil cap.

### Periodically

Change the oil after the initial 50 hours of operation and every 500 hours after that. It may be necessary to replace the pump seals and check valves at 500 hours if the truckmount has been running in high ambient temperatures.

### **CAUTION**

If the oil becomes discolored or contaminated one of the oil seals may be damaged. Do not operate the pump if the crankcase oil has become contaminated. Do not rotate the drive shaft without oil in the crankcase reservoir.

### **CAUTION**

The pump should never be run dry. Running the pump dry will cause premature wear on the seals, packing and plungers. Running the pump dry for a prolonged period of time may cause damage that cannot be repaired and voids warranty.

### **CAUTION**

Do not run the pump with frozen water in the manifold. If there is a risk of freezing, freeze guard the truckmount. See page 35 of this section for freeze guarding information.

### Service

The next few pages explain how to disassemble and inspect all user serviceable parts of the pump.

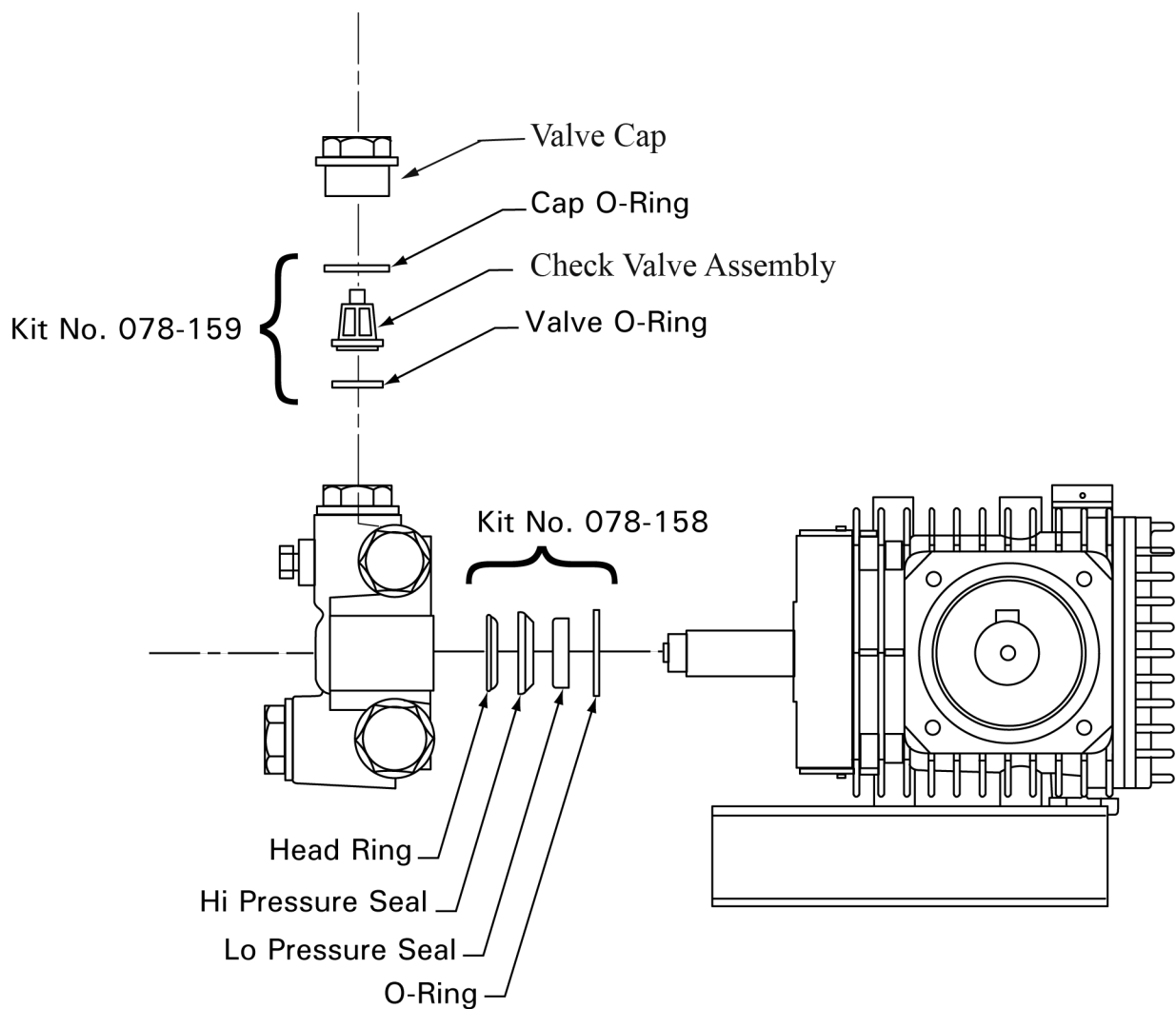
### **CAUTION**

Do not disassemble the pump unless you are a skilled mechanic. For assistance, contact your distributor.



Valve Maintenance (See Figure 9)

1. Using a 22-mm wrench or socket, remove all six valve caps on the manifold of the pump.
2. Examine each valve cap O-ring for cuts or distortions and replace if worn.
3. Using needle nose pliers, remove the suction and delivery check valves. The valve assembly usually stays together when removing. If the valve comes apart, use the needle nose pliers or reverse pliers to remove the remaining parts.
4. Inspect each suction and delivery check valve assembly for wear and pitting, and replace if necessary. The valve assembly consists of the plastic cage, spring, valve seat, poppet and O-ring. One valve kit is needed for complete valve change of one pump.



**Figure 9. Servicing the Valves**

5. Replace old valves with new valves by placing the assembly in the valve chamber. Press down firmly on the top of the valve assembly.
6. Replace valve caps by applying LOCTITE® 243 to valve cap and torque to 33 ft-lbs.

#### Removing and Replacing Pump Manifold

1. Remove the manifold of the pump by taking a 5-mm Allen head wrench and removing the eight head bolts.
2. With the pump firmly secured, take a medium sized flat head screwdriver and apply pressure to the manifold by prying between the crankcase and manifold. Work around from all sides of the manifold evenly until it comes off of the pistons. Keep the manifold properly aligned with the pistons to prevent damage to the seals and pistons.
3. When replacing the manifold, turn the crankshaft of pump until the top of the pistons are closely aligned. Lubricate the pistons and cylinders with grease and evenly press the manifold toward crankcase until flush.

#### Seals and V-Packing Maintenance

1. Remove the manifold as previously described. It is possible that the seal and brass retainer ring assembly will stay on the piston or will remain in the manifold when removing it.
2. Carefully remove the brass retainer ring/seal stack. Remove the low-pressure seal using needle nose pliers. Discard the old seal.
3. Remove the outer O-ring by taking a small flat head screwdriver and working it under the O-ring. Simply roll off the old O-ring and discard.
4. The old V-packing stack can be taken apart by hand and discarded.

#### Seals and V-Packing Reassembly

1. Generously lubricate parts with grease when reassembling. Examine all brass components for any damage or water residue build-up. Clean or replace as needed.
2. Insert a new low pressure seal by working it in by hand.
3. Install the new outer O-ring by simply starting on one side and working it into the groove.
4. Stack the new V-packing in the correct order and firmly press the assembly into the manifold.
5. Install a new low pressure oil seal by laying the seal into the opening and evenly pressing it into place.
6. Re-install the manifold onto the pump as previously described.

### Plunger Maintenance

1. Remove the manifold as previously described. Remove the packing retainers if they remain on the pistons after removing the manifold.
2. Remove the nut and washer on the end of the piston using a 13-mm wrench or socket.
3. Slide the ceramic plunger and the remaining washer from the piston guide. Inspect the ceramic piston, O-ring and washers for wear. Replace if necessary.

### Plunger Re-assembly

1. Generously grease the piston guide. Replace the O-ring making sure it does not twist or roll.
2. Slide the lower washer and ceramic bushing onto the piston guide.
3. Place a small amount of LOCTITE 243™ on the piston guide threads. Replace the old washer and thread the nut onto the piston guide. Torque to 4.5 ft-lbs.

### Servicing the Crankcase

1. While the manifold and plungers are removed, rotate the crankshaft by hand. Closely examine the crankcase oil seals for drying, cracking or leaking.
2. Consult the local HydraMaster distributor if crankcase servicing is necessary.

## VACUUM SYSTEM MAINTENANCE

The vacuum pump in this machine is commonly referred to as a “rotary positive displacement blower” or “blower” for short. The performance and life of the truckmount is greatly dependent on the care and proper maintenance it receives. Review the blower’s owner’s manual, which has been included, for a better understanding of this piece of machinery.

To protect the blower from overloading and damaging itself, a vacuum relief system is installed on the recovery tank. When the recovery tank inlet is completely sealed off, a maximum of 12” Hg will be attained.

### Adjusting the Vacuum Relief Valve

1. Turn the two brass knurled nuts opposite directions so the inside nut turns freely. (Two brass knurled nuts are located on the side of the recovery tank - see Figure 10.)
2. Increase the vacuum of the system by turning the nut clockwise (tightening).
3. Decrease the vacuum of the system by turning the nut counter-clockwise (loosening).
4. Once the tank is set to the proper level, turn the two brass nuts toward each other to lock them down.
5. Always verify the final setting before locking adjusting nut.

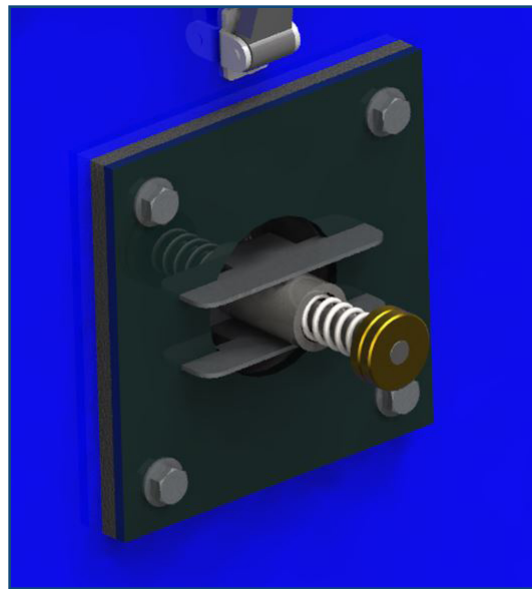


Figure 10. Adjusting Vacuum Relief Valve

### **CAUTION**

Solid objects entering the blower will cause serious damage to the internal components of the blower. Extreme caution should be used when the truckmount is being run for test purposes with the inlet to the blower open to the atmosphere.

### **CAUTION**

Foam passing through the blower can lead to serious problems with the truckmount. It is important to keep the recovery tank free of foam. The tank is protected from overflowing by a float kill switch; however, this switch is not activated by foam.

**Daily**

At the end of each day the internal components of the blower need to be lubricated. This helps to prevent rust deposits and prolongs the life of the truckmount.

Lubricate the blower to prevent it from rusting internally by:

1. Allowing the unit to run for a few minutes with the vacuum hose disconnected in order to remove moisture from the blower.
2. Capping off the inlet(s) to the recovery tank.
3. Spraying a HydraMaster-recommended spray lubricant into the “BLOWER LUBE PORT” for about 5 to 7 seconds while the unit is running.
4. Uncapping the inlet(s) and run the unit for another minute to allow the blower to cool down.

**Periodically**

Change the oil in both ends of the blower after the initial 100 hours of use. Change the oil each 500 hours of use thereafter.

**DESCALING PROCEDURE (REQUIRED)**

Scale deposits on the interior of the heating system can cause a noticeable loss in heating performance. Deposits of this kind result from hard water deposits. The frequency with which descaling procedures are required will vary. If the area has particularly hard water, you may have to descale often.

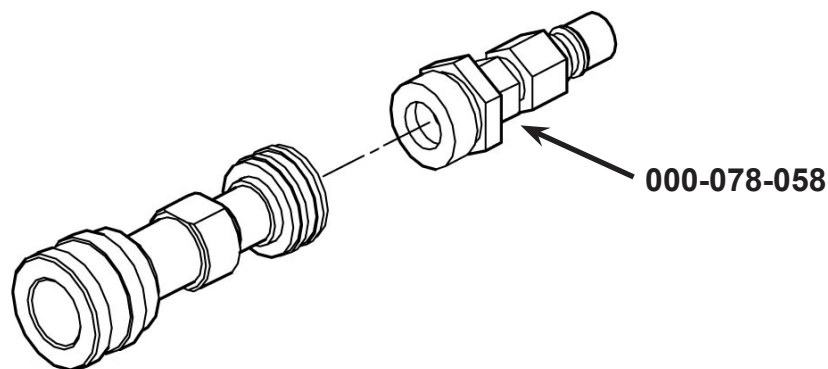
To descale the system, add an appropriate descaler chemical to the water box. Circulate it through the system. Let it stand. Flush and repeat as necessary. Clean all screens and strainers, and check them frequently following descaling.

**NOTICE**

If using TM DeScaler™ through the flow meter, make sure to run clean water through the flow meter after this procedure.

To descale using the recirculation kit (P/N 000-078-058), start with an empty water box.

1. Fill a third of the water box with TM DeScaler. Follow the recommendations on the TM DeScaler label for proportions. Verify that the float is not lying horizontal, but floats below.
2. Attach the recirculation fitting provided in the kit to the garden hose quick connect (see Figure 11) and this combination to the front of the truckmount.
3. Attach one section of the solution hose to the outgoing solution fitting on the front of the truckmount and the other end to the garden hose and recirculation fitting combination that is attached to the front of the truckmount. Additional hoses may be attached inline if descaling of hoses is needed.
4. Start the truckmount and allow it to run for 3 - 5 minutes. Do not leave the TM DeScaler solution in the system. Flush the system with clean water and turn the truckmount OFF.



**Figure 11. Recirculation Fitting**

**FREEZE GUARDING**

To avoid permanent damage to the truckmount, it is imperative to follow the freeze guard procedure whenever the possibility of freezing temperatures exists.

**CAUTION**

When disposing of antifreeze follow local laws and regulations. Do not discard into storm sewers, septic systems, or onto the ground.

**⚠ WARNING**

Antifreeze is harmful or fatal if swallowed. Do not store in open or unlabeled containers. Keep out of reach of children and animals.

**Freeze Guard Procedure**

1. With the truckmount turned off and the incoming water line disconnected, open the water box drain valve on the front of the truckmount. Allow the system to fully drain.
2. Add 2 gallons of 50/50 antifreeze and water mix to the water box.
3. Attach a section of solution hose to the outgoing solution fitting on the front of the machine. Attach the opposite end to the recirculation fitting. (If more sections of hose are to be freeze guarded attach those inline.)
4. Start the truckmount and allow it to run for 2 to 3 minutes. This will distribute antifreeze solution throughout the truckmount.

**NOTICE**

If using the recirculation kit, skip ahead to step 6.

5. Remove the quick connect from the truckmount.
6. Spray the antifreeze and water mix out of the truckmount and into a container to reclaim the solution. Run the truckmount until there is no more solution coming from the truckmount.
7. The truckmount is now freeze guarded. Remember to flush antifreeze from the system prior to carpet cleaning. See the following procedure.

**NOTICE**

The reclaimed antifreeze solution may be used three times before being discarded.

## NOTICE

To freeze guard the hoses and wand perform step 6 with the items to be freeze guarded attached.

### Recovering Antifreeze for Re-Use

1. Attach all hoses and wands which have been freeze guarded to the truckmount.
2. Attach the incoming water source to the front of the truckmount.
3. Start the truckmount.
4. Spray the solution through the hoses and wands into a sealable container until all signs of antifreeze are gone.

### Freeze Protection of the Pump-In System

1. Drain the fresh water tank.
2. Remove the garden hose adapter from the pump-in pump hose and position the hose so it is pointing outside the van.
3. Turn on the pump-in pump and run for 1-2 minutes until all the water is purged from the hose.

## NOTICE

The next time the truckmount is used it may take a few minutes before the water box begins to fill.



### TENSIONING THE PUMP DRIVE BELT

1. Remove the CTS 400 Flex grill to gain access to the idler pulley.
2. Loosen but **do not remove** the 2 ¼" long bolt (P/N 000-143-041) on the idler pulley. See Owner's Manual.
3. Remove the right cover of the machine to gain access to the tensioning screw.
4. Adjust the tension of the belt by turning the 4" long screw (P/N 000-143-376).
5. After the proper belt tension is achieved, tighten the ½" bolt on the idler pulley.

### **CAUTION**

Ensure there is no contact between idler assembly (including belt) and no other part of the truckmount. Contact between the parts could result in damage to the truckmount.

6. Replace the right cover and grill.

**DESCALING FLEX SYSTEM AS REQUIRED**

1. Connect a solution hose to the Carpet/Uph. Cleaning Solution Outlet.
2. Route the other end of the solution hose to the Flex tank.
3. Attach an open quick connect to the other end of the hose.

**NOTICE**

The descaler will drain from the female QC fitting assembly/hose quickly. Have extra buckets ready to swap out because each bucket should fill quickly.

4. Pour 5 gallons of descaler solution into each of the Flex tanks.
5. Turn the ignition switch to the “ON” position.
6. Select “CARPET/UPH.” on the Solution Control switch.
7. Add water to the Flex tank to flush all descaler out of the solution line.
8. Select “OFF” on the Solution Control switch.

## PUMP TUNING INSTRUCTIONS

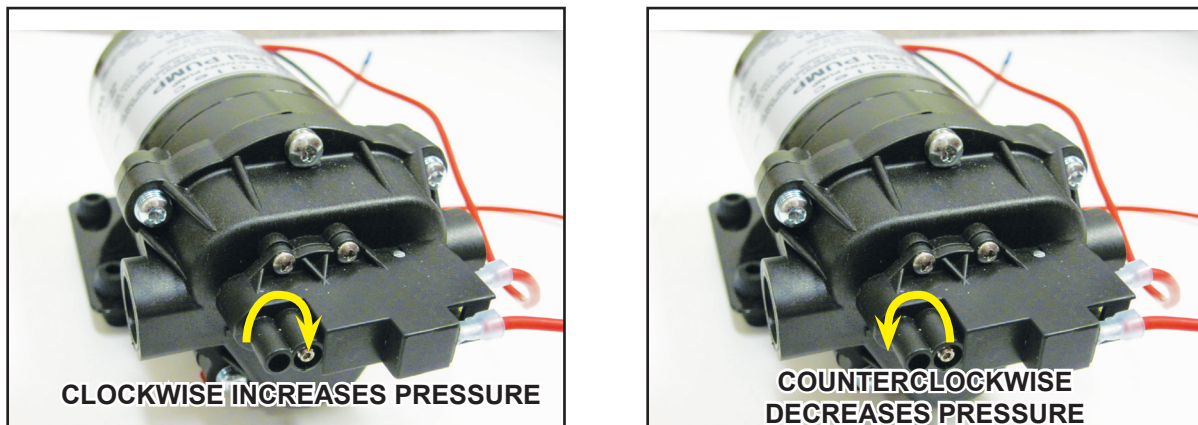
Pump tuning for the CTS 400 Flex allows the pump pressure switch to turn off when there is no flow out of the tool. This reduces the pump operating temperatures and increases the pump durability.

### NOTICE

Pump tuning should be performed every 60 days.

The pump pressure setting adjustment is performed by turning the hex screw, which is close to the center of the pump head, with a hex L-key, provided in the Flex Installation Kit - (see Figure 12).

- Clockwise increases the pressure
- Counterclockwise decreases the pressure.



**Figure 12. Location of Pump's Hex Screw**

Tools required include:

- 1/16" hex L-key (one is provided with each pump for your convenience in Installation Kit, P/N 000-078-934).
- Solution hose
- Cleaning tool (upholstery tool/ wand/ rotary cleaning tool) to allow solution to flow out
- Container to collect solution flowing out of the tool.

**Start-up Pump Tuning Procedure**

1. Connect the tool's solution hose to the quick disconnect.
2. Turn the ignition switch to the "ON" position.

**NOTICE**

You do not need to start the unit since vacuum is not needed for this procedure.

3. Select "CARPET/UPH." on the Solution Control switch.
4. With the pump still on, disconnect the solution hose from the Flex unit.

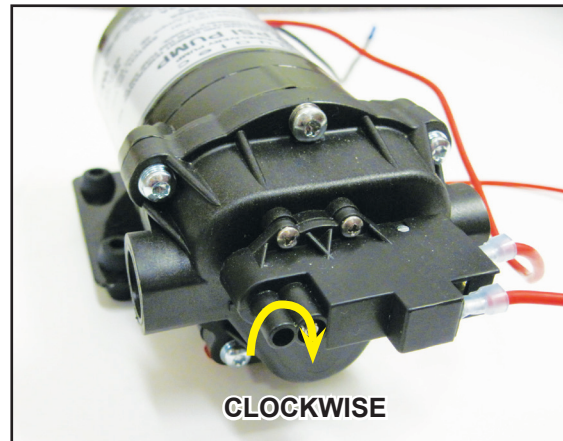
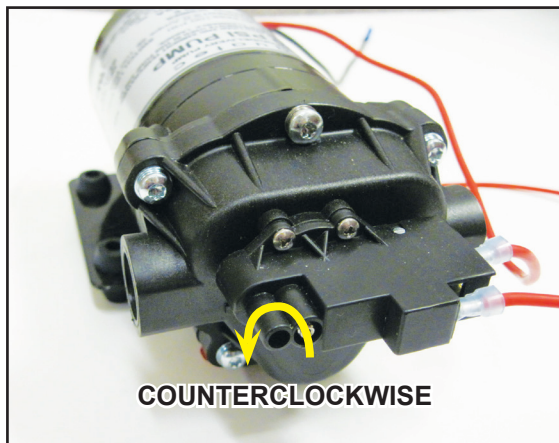
The pump should run for about 3 to 5 seconds and then switch off.

5. Leave the hose disconnected.

Continue on to the Adjustment procedure (page 41).

**Adjustment**

1. If the pump continues to run for longer than 3 to 5 seconds, turn the screw counterclockwise until the pump switches off (see Figure 13).
2. If the pump switches off as soon as the hose is disconnected (less than 3 to 5 seconds), turn the pump screw clockwise one complete turn.
3. With the pump still on, reconnect the solution hose onto the Flex unit (see Figure 12).



**Figure 13. Insert Hex L-Key and Turn It Counterclockwise/Clockwise**

The pump should switch on.

4. Repeat steps 1 through 3 on this page until the pump switches off within 3 to 5 seconds after the hose is disconnected.

### CLEAN QC FILTER AND ORIFICE

Clean and inspect the in-line quick connect filter and orifice every 100 hours.

1. Remove the quick connect assembly on the Carpet/Uph. Cleaning Solution Outlet (see Figure 14).
2. Hold the hex closest to the panel using a 11/16" open end wrench and turn the hex assembly for the quick connect with a 13/16" open end wrench.
3. Remove the assembly from the dash; the orifice plate will remain in the assembly.



**Figure 14. Remove Quick Connect Assembly**

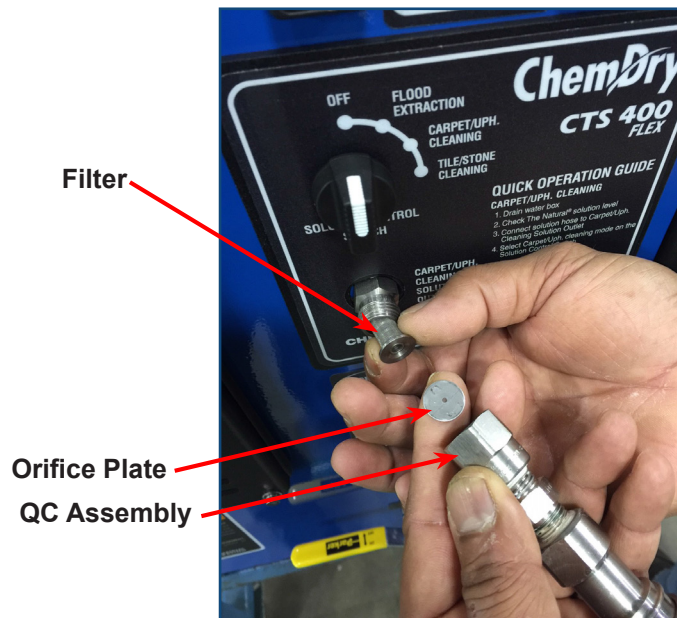
4. Remove the filter and orifice (see Figure 15).
5. Clean with a wire brush. Descale if necessary.
6. Re-install the assembly.
7. Tighten the assembly.

### NOTICE

The amount of torque may vary. Run the pump to verify there are no leaks. Re-tighten as required.

### NOTICE

The assembly may move in the dash during removal and installation. This is normal; using the 11/16" wrench will minimize the movement.



**Figure 15. Remove Filter and Orifice**

## HYDRAMASTER® STANDARD SLIDE-IN LIMITED WARRANTY

HydraMaster warrants to the original end user, each new machine, new accessories and genuine replacement parts against defects in material and workmanship under normal use and service. Our obligation under this warranty is limited to repair or replacement of the defective item at our factory or by an Authorized Service Center. Warranty coverage shall begin on the date of purchase by the original end user (as evidenced by your invoice from the factory or Authorized Dealer) or six (6) months from the date the machine was shipped from the factory, whichever is earlier. The warranty registration card must be completed and returned within 30 days of purchase. The warranty coverage period is specified below.

GROUP	Parts <sup>1,2</sup>	Labor <sup>2</sup>
Frame	3 Years	2 Years
Covers	3 Years	2 Years
Vacuum Recovery Tank (Structural only)	3 Years	2 Years
Vacuum Pump – see Note 3	2 Years	2 Years
Chemical Systems	2 Years	2 Years
Hoses, Internal Machine	2 Years	2 Years
Hoses, External Machine	2 Years	2 Years
Valve, High pressure bypass	2 Years	2 Years
Water Heating System	2 Years	2 Years
Pump, High pressure water	2 Years	2 Years
Belts	2 Years	2 Years
Fittings, internal machine	2 Years	2 Years
Filter Screens	2 Years	2 Years
Gauges	2 Years	2 Years
Electrical Components	2 Years	2 Years
Engine	See Note 3	2 Years
Accessories and Fresh Water Tanks	1 Year	1 Year
Replacement Parts – see Note 4	90 Days	NA
<b>NOTES:</b>		
1-Parts repaired or replaced are guaranteed for the remainder of the original machine warranty period.		
2-Coverage only applicable to products sold and used in the United States and Canada.		
3-As provided by the original Manufacturer.		
4-Applies to replacement parts only after machine warranty coverage has expired.		

This warranty shall not apply to repairs resulting from accidents or misuse, damage in transit, overloading the capacity of the machine, failure due to lack of proper maintenance or care as described in the operating and maintenance instructions. Freezing of any water or chemical related component will VOID all warranties on water or chemical related components, internal or external. Corrosion, deposits and/or build-up in the water, chemical, recovery or heating systems due to hardness in the water used or chemicals which result in deposits, will VOID all warranties on affected components. The use or application of any chemical, including but not limited to acids or solvents, which results in damage to metal, rubber, plastic, or painted parts will VOID all warranties on those parts. Minor adjustments, such as tightening of screws or bolts not connected with the replacement of parts, are not covered. Replacement of expendable wear items including, but not limited to paint, labels and other cosmetic parts are also not covered. Repairs or alterations by an organization other than the factory or an Authorized Service Center are not covered and will void any HydraMaster warranty as to the parts or systems repaired or altered by a non-authorized organization.

**THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION OF THE LIMITED WARRANTIES STATED WITHIN. NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE EXCEPT AS EXPRESSLY STATED HEREIN. ANY STATUTORY IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, THAT ARE IMPOSED BY LAW DESPITE THE EXPRESS LIMITATION OR WARRANTIES ABOVE, ARE EXPRESSLY LIMITED TO THE DURATION OF THE WRITTEN WARRANTY. BUYER UNDERSTANDS, ACKNOWLEDGES AND AGREES THAT THE REMEDIES PROVIDED UNDER THIS LIMITED WARRANTY ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE TO THE BUYER. HYDRAMASTER WILL NOT BE LIABLE FOR ANY OTHER OR ADDITIONAL DAMAGES, INCLUDING BUT NOT LIMITED TO INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE FURNISHING, PERFORMANCE, USE OF OR INABILITY TO USE THE MACHINE. ANY EXTENSIONS OF OR MODIFICATIONS MADE TO THIS WARRANTY BY A DEALER/DISTRIBUTOR OF HYDRAMASTER ARE THE SOLE RESPONSIBILITY OF THE DEALER/DISTRIBUTOR.**

HydraMaster will pay all freight and transportation charges within the United States, via normal ground shipping means, for replacement of parts covered under this warranty. All material must be properly authorized by HydraMaster prior to being returned. When returning, please provide an explanation of the problem and include the serial number of the machine as well as the name of the selling organization. All defective material must be returned to HydraMaster within 60 days of authorization. The Technical Service department of the authorized Dealer Service Center or the factory will investigate and then contact you.

Transportation of hazardous waste or contaminated equipment is subject to various laws and regulations. In returning machines, parts, or accessories under this limited warranty, the end user must certify in writing that the machines, parts or accessories being returned have not been used for handling, clean up, or disposal of hazardous waste or hazardous materials including but not limited to such things as asbestos, anthrax etc. or if the machines, parts or accessories being returned have been used for handling, clean up, or disposal of hazardous waste or hazardous materials, then the end user must have the machines, parts or accessories decontaminated by licensed and qualified decontamination professionals and provide written certification of this decontamination signed by the decontamination professionals. These machines, parts or accessories are to be returned only to the local HydraMaster Authorized Service Center for Warranty service along with decontamination certification.

HydraMaster reserves the right to change its warranty policy without notice.

HydraMaster is a Nilfisk, Inc. brand.

Rev 3-23-2015-KGO  
CS-46247 Rev. A

**FLEX SYSTEM WARRANTY - ADDENDUM TO THE HYDRAMASTER STANDARD LIMITED WARRANTY**

Flex System items which are not included in HydraMaster Standard Limited Warranty:

- Flex tank assemblies
- Flex diaphragm pumps
- Strainers

These listed items are covered for one (1) year only.



**Weekly Maintenance**

Date								
Hour Meter Reading								
Technician Initials								
Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect the vacuum relief valve. Clean and lubricate as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean the recovery tank thoroughly with pressure washer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the oil level in the blower. Add oil if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the pump drive belt for wear and proper tension. Tighten as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the hoses and wiring for wear and chafing. Secure as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flush the water and chemical systems with solution of equal parts white vinegar and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the nuts and bolts. Tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ATTENTION Special Maintenance**

Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	<input type="checkbox"/>
Perform Flex pump tuning procedure every 60 days.	<input type="checkbox"/>
Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>

**Monthly Maintenance**

Check the engine air filter. Clean or replace as necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Check the water level in battery. Fill as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the battery terminals as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the QC filter and orifice with water.	<input type="checkbox"/>	<input type="checkbox"/>
Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).	<input type="checkbox"/>	<input type="checkbox"/>

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**Quarterly Maintenance**


---

- |  |                          |
|--|--------------------------|
| Check the fuel lines. Repair or replace as needed.                             | <input type="checkbox"/> |
| Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible. | <input type="checkbox"/> |
| Change the fuel filter.  | <input type="checkbox"/> |
| Change pump drive belt.  | <input type="checkbox"/> |

---

**250 Hours Maintenance**


---

- |   |                          |
|---|--------------------------|
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |
|---|--------------------------|

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**500 Hours Maintenance**


---

- |   |                          |
|---|--------------------------|
| Change the blower oil.  | <input type="checkbox"/> |
| Change the high pressure pump oil   | <input type="checkbox"/> |
| Check the engine valve clearance (intake and exhaust 0.004" - 0.006")           | <input type="checkbox"/> |
| Change the fuel filter.   | <input type="checkbox"/> |
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |

---

**1000 Hours Maintenance**


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- |  |                          |
|--|--------------------------|
| Change air filters.                                      | <input type="checkbox"/> |
| Check carburetor. Clean or replace as necessary.         | <input type="checkbox"/> |
| Clean the heat exchanger core.                           | <input type="checkbox"/> |
| Replace coupler element (rubber insert) for cracks or we | <input type="checkbox"/> |
-

**Weekly Maintenance**

Date								
Hour Meter Reading								
Technician Initials								
Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect the vacuum relief valve. Clean and lubricate as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean the recovery tank thoroughly with pressure washer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the oil level in the blower. Add oil if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the pump drive belt for wear and proper tension. Tighten as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the hoses and wiring for wear and chafing. Secure as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flush the water and chemical systems with solution of equal parts white vinegar and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the nuts and bolts. Tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ATTENTION Special Maintenance**

Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	<input type="checkbox"/>
Perform Flex pump tuning procedure every 60 days.	<input type="checkbox"/>
Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>

**Monthly Maintenance**

Check the engine air filter. Clean or replace as necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Check the water level in battery. Fill as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the battery terminals as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the QC filter and orifice with water.	<input type="checkbox"/>	<input type="checkbox"/>
Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).	<input type="checkbox"/>	<input type="checkbox"/>

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**Quarterly Maintenance**


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- |  |                          |
|--|--------------------------|
| Check the fuel lines. Repair or replace as needed.                             | <input type="checkbox"/> |
| Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible. | <input type="checkbox"/> |
| Change the fuel filter.  | <input type="checkbox"/> |
| Change pump drive belt.  | <input type="checkbox"/> |

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**250 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |
|---|--------------------------|

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**500 Hours Maintenance**


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|---|--------------------------|
| Change the blower oil.  | <input type="checkbox"/> |
| Change the high pressure pump oil   | <input type="checkbox"/> |
| Check the engine valve clearance (intake and exhaust 0.004" - 0.006")           | <input type="checkbox"/> |
| Change the fuel filter.   | <input type="checkbox"/> |
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |

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**1000 Hours Maintenance**


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|--|--------------------------|
| Change air filters.                                      | <input type="checkbox"/> |
| Check carburetor. Clean or replace as necessary.         | <input type="checkbox"/> |
| Clean the heat exchanger core.                           | <input type="checkbox"/> |
| Replace coupler element (rubber insert) for cracks or we | <input type="checkbox"/> |
-

**Weekly Maintenance**

Date								
Hour Meter Reading								
Technician Initials								
Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect the vacuum relief valve. Clean and lubricate as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean the recovery tank thoroughly with pressure washer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the oil level in the blower. Add oil if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the pump drive belt for wear and proper tension. Tighten as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the hoses and wiring for wear and chafing. Secure as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flush the water and chemical systems with solution of equal parts white vinegar and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the nuts and bolts. Tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ATTENTION Special Maintenance**

Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	<input type="checkbox"/>
Perform Flex pump tuning procedure every 60 days.	<input type="checkbox"/>
Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>

**Monthly Maintenance**

Check the engine air filter. Clean or replace as necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Check the water level in battery. Fill as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the battery terminals as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the QC filter and orifice with water.	<input type="checkbox"/>	<input type="checkbox"/>
Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).	<input type="checkbox"/>	<input type="checkbox"/>

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**Quarterly Maintenance**


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|--|--------------------------|
| Check the fuel lines. Repair or replace as needed.                             | <input type="checkbox"/> |
| Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible. | <input type="checkbox"/> |
| Change the fuel filter.  | <input type="checkbox"/> |
| Change pump drive belt.  | <input type="checkbox"/> |

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**250 Hours Maintenance**


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|---|--------------------------|
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |
|---|--------------------------|

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**500 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Change the blower oil.  | <input type="checkbox"/> |
| Change the high pressure pump oil   | <input type="checkbox"/> |
| Check the engine valve clearance (intake and exhaust 0.004" - 0.006")           | <input type="checkbox"/> |
| Change the fuel filter.   | <input type="checkbox"/> |
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |

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**1000 Hours Maintenance**


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- |  |                          |
|--|--------------------------|
| Change air filters.                                      | <input type="checkbox"/> |
| Check carburetor. Clean or replace as necessary.         | <input type="checkbox"/> |
| Clean the heat exchanger core.                           | <input type="checkbox"/> |
| Replace coupler element (rubber insert) for cracks or we | <input type="checkbox"/> |
-

**Weekly Maintenance**

Date								
Hour Meter Reading								
Technician Initials								
Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect the vacuum relief valve. Clean and lubricate as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean the recovery tank thoroughly with pressure washer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the oil level in the blower. Add oil if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the pump drive belt for wear and proper tension. Tighten as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the hoses and wiring for wear and chafing. Secure as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flush the water and chemical systems with solution of equal parts white vinegar and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the nuts and bolts. Tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ATTENTION Special Maintenance**

Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	<input type="checkbox"/>
Perform Flex pump tuning procedure every 60 days.	<input type="checkbox"/>
Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>

**Monthly Maintenance**

Check the engine air filter. Clean or replace as necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Check the water level in battery. Fill as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the battery terminals as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the QC filter and orifice with water.	<input type="checkbox"/>	<input type="checkbox"/>
Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).	<input type="checkbox"/>	<input type="checkbox"/>

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**Quarterly Maintenance**


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- |  |                          |
|--|--------------------------|
| Check the fuel lines. Repair or replace as needed.                             | <input type="checkbox"/> |
| Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible. | <input type="checkbox"/> |
| Change the fuel filter.  | <input type="checkbox"/> |
| Change pump drive belt.  | <input type="checkbox"/> |

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**250 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |
|---|--------------------------|

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**500 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Change the blower oil.  | <input type="checkbox"/> |
| Change the high pressure pump oil   | <input type="checkbox"/> |
| Check the engine valve clearance (intake and exhaust 0.004" - 0.006")           | <input type="checkbox"/> |
| Change the fuel filter.   | <input type="checkbox"/> |
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |

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**1000 Hours Maintenance**


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- |  |                          |
|--|--------------------------|
| Change air filters.                                      | <input type="checkbox"/> |
| Check carburetor. Clean or replace as necessary.         | <input type="checkbox"/> |
| Clean the heat exchanger core.                           | <input type="checkbox"/> |
| Replace coupler element (rubber insert) for cracks or we | <input type="checkbox"/> |
-



**Weekly Maintenance**

Date								
Hour Meter Reading								
Technician Initials								
Inspect the recovery tank filters for tears, holes, etc. Repair or replace as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspect the vacuum relief valve. Clean and lubricate as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clean the recovery tank thoroughly with pressure washer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the oil level in the blower. Add oil if needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check the pump drive belt for wear and proper tension. Tighten as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the hoses and wiring for wear and chafing. Secure as needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flush the water and chemical systems with solution of equal parts white vinegar and water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Check all the nuts and bolts. Tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Change the engine oil every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.) Change oil filter every oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**ATTENTION Special Maintenance**

Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	<input type="checkbox"/>
Perform Flex pump tuning procedure every 60 days.	<input type="checkbox"/>
Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>

**Monthly Maintenance**

Check the engine air filter. Clean or replace as necessary.	<input type="checkbox"/>	<input type="checkbox"/>
Check the water level in battery. Fill as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the battery terminals as needed.	<input type="checkbox"/>	<input type="checkbox"/>
Change the blower oil after first 100 hours of use.	<input type="checkbox"/>	<input type="checkbox"/>
Clean the QC filter and orifice with water.	<input type="checkbox"/>	<input type="checkbox"/>
Check and lube inlet valve with Super Lube grease #92003 or equivalent (or every 100 hours).	<input type="checkbox"/>	<input type="checkbox"/>

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**Quarterly Maintenance**


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- |  |                          |
|--|--------------------------|
| Check the fuel lines. Repair or replace as needed.                             | <input type="checkbox"/> |
| Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible. | <input type="checkbox"/> |
| Change the fuel filter.  | <input type="checkbox"/> |
| Change pump drive belt.  | <input type="checkbox"/> |

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**250 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |
|---|--------------------------|

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**500 Hours Maintenance**


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- |   |                          |
|---|--------------------------|
| Change the blower oil.  | <input type="checkbox"/> |
| Change the high pressure pump oil   | <input type="checkbox"/> |
| Check the engine valve clearance (intake and exhaust 0.004" - 0.006")           | <input type="checkbox"/> |
| Change the fuel filter.   | <input type="checkbox"/> |
| Check coupler element (rubber insert) for cracks or wear. Replace as necessary. | <input type="checkbox"/> |

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**1000 Hours Maintenance**


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- |  |                          |
|--|--------------------------|
| Change air filters.                                      | <input type="checkbox"/> |
| Check carburetor. Clean or replace as necessary.         | <input type="checkbox"/> |
| Clean the heat exchanger core.                           | <input type="checkbox"/> |
| Replace coupler element (rubber insert) for cracks or we | <input type="checkbox"/> |
-

## INTERVAL HOURS - 25 TO 575

DAILY MAINTENANCE CTS 400																							
Check the engine oil level. Add oil if needed.																							
Check the high pressure pump oil. Add oil if needed.																							
Inspect and clean the recovery tank filters.																							
Inspect and rinse the recovery tank.																							
Inspect and clean the orifices and filters.																							
Inspect and clean the garden hose screen.																							
Inspect the truck/mount for water and oil leaks, loose electrical connections, etc. and repair as needed.																							
Lubricate the blower lube port with HydraMaster-recommended spray lubricant.																							
INTERVAL IN HOURS CTS 400																							
Engine oil and filter	Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours.																						
Blower oil	Change the blower oil after first 100 hours of use.																						
High pressure pump oil	Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)																						
Low pressure pump tuning	Perform Flex pump tuning procedure every 60 days																						
SERVICE	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575
Inspect recovery tank filters for tears, noises, etc. Repair or replace as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Inspect the vacuum relief valve. Clean and lubricate as necessary.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Clean the recovery tank thoroughly with pressure washer.	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I
Check the oil level in the blower. Add oil if needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Check the pump drive belt for wear and proper tension. Tighten as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Check all the hoses and wiring for wear and chafing. Secure as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Flush the water and chemical systems with solution of equal parts white vinegar and water.	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Check all the nuts and bolts. Tighten as needed.*	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)		R		R		R		R		R		R		R		R		R		R		R	
SERVICE	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575
Check the engine air filter. Clean or replace as necessary.				CH				CH				CH				CH				CH			
Check the water level in battery. Fill as needed.				CH				CH				CH				CH				CH			
Clean QC filter and orifice with water				C/I				C/I				C/I				C/I				C/I			
Clean the battery terminals as needed.				C/I				C/I				C/I				C/I				C/I			
Lubricate inlet float plunger with SuperLube O-ring grease #92003 or equivalent.				C/L				C/L				C/L				C/L				C/L			
SERVICE	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575
Check the coupler element (rubber insert) for cracks or wear. Replace as necessary.										CH											CH		
Check the fuel lines. Repair or replace as needed.												CH											
Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible.												C/I											
Change the fuel filter.												R											
Change pump drive belt.												R											
SERVICE	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575
Change the blower oil.																					R		
Change the high pressure pump oil.																					R		
Check the engine valve clearance (intake and exhaust 0.004" - 0.006")																					CH		
Change the fuel filter.																					R		
SERVICE	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575
Change air filters.																							
Check carburetor. Clean or replace as necessary.																							
Replace the coupler element (rubber insert) for cracks or wear. Replace as necessary.																							
Clean the heat exchanger core.																							

\* Check engine and blower mounting bolts, coupler retaining bolts, exhaust fasteners, etc.

Adjust	A
Check	CH
Clean and inspect	C/I
Clean and Lubricate	C/L
Flush	F
Replace	R

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**INTERVAL HOURS - 600 TO 1200**

DAILY MAINTENANCE CTS 400																									
Check the engine oil level. Add oil if needed.																									
Check the high pressure pump oil. Add oil if needed.																									
Inspect and clean the recovery tank filters.																									
Inspect and rinse the recovery tank.																									
Inspect and clean the orifices and filters.																									
Inspect and clean the garden hose screen.																									
Inspect the truckmount for water and oil leaks, loose electrical connections, etc. and repair as needed.																									
Lubricate the blower lube port with HydraMaster-recommended spray lubricant.																									
INTERVAL IN HOURS CTS 400																									
Engine oil and filter	Change engine oil and filter after first 8 hours; afterwards, change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)																								
Blower oil	Change the blower oil after first 100 hours of use.																								
High pressure pump oil	Change high pressure pump oil after first 50 hours of operation. (Every 500 hours thereafter.)																								
Low pressure pump tuning	Perform Flex pump tuning procedure every 60 days																								
SERVICE	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
Inspect recovery tank filters for tears, holes, etc. Repair or replace as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Inspect the vacuum relief valve. Clean and lubricate as necessary.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Clean the recovery tank thoroughly with pressure washer.	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I	C/I
Check the oil level in the blower. Add oil if needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Check the pump drive belt for wear and proper tension. Tighten as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Check all the hoses and wiring for wear and chafing. Secure as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Flush the water and chemical systems with solution of equal parts white vinegar and water.	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Check all the nuts and bolts. Tighten as needed.	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
Change the engine oil and filter every 50 hours. (Every 25 hours if operating in high ambient temperatures or heavy use conditions.)	R		R		R		R		R		R		R		R		R		R		R		R		R
SERVICE	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
Check the engine air filter. Clean or replace as necessary.	CH			CH					CH				CH				CH				CH				CH
Check the water level in battery. Fill as needed.	CH			CH					CH				CH				CH				CH				CH
Clean QC filter and orifice with water	C/I			C/I					C/I				C/I				C/I				C/I				C/I
Clean the battery terminals as needed.	C/I			C/I					C/I				C/I				C/I				C/I				C/I
Lubricate inlet float plunger with SuperLube O-ring grease #92003 or equivalent.	C/L			C/L					C/L				C/L				C/L				C/L				C/L
SERVICE	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
Check the coupler element (rubber insert) for cracks or wear. Replace as necessary.							CH										CH								
Check the fuel lines. Repair or replace as needed.	CH												CH												CH
Gap the spark plugs to 0.030". Replace if excessive carbon buildup is visible.	C/I												C/I												C/I
Change the fuel filter.	R												R												R
Change pump drive belt.	R												R												R
SERVICE	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
Change the blower oil.																	R								
Change the high pressure pump oil.																	R								
Check the engine valve clearance (intake and exhaust 0.004" - 0.006")																	CH								
Change the fuel filter.																	R								
SERVICE	600	625	650	675	700	725	750	775	800	825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
Change air filters.																	R								
Check carburetor. Clean or replace as necessary.																	CH								
Replace the coupler element (rubber insert) for cracks or wear. Replace as necessary.																	R								
Clean the heat exchanger core.																	C/I								

\* Check engine and blower mounting bolts, coupler retaining bolts, exhaust fasteners, etc.

Adjust	A
Check	CH
Clean and inspect	C/I
Clean and Lubricate	C/L
Flush	F
Replace	R