

Clutch Drive System 4.8 SV Owner's Guide and Maintenance Log

HydraMaster
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Introduction

This Owner's Guide provides you with important Contact Information, Warnings and Precautions, Machine Specifications, Operating Instructions and Maintenance Logs. In the back inside cover of this guide you will also find a USB that contains the digital Owner's Manual.

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. Refer to the Owner's Manual when more detailed information is needed.

The Machine Maintenance Log is located in the Owner's Guide. It is wise to keep this Guide in a visible location near the truckmount 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 HydraMaster before any warranty is honored.**

The digital Owner's Manual contains information on everything from cleaning and chemicals to truckmount operation and maintenance. It also contains detailed machine parts lists as well as troubleshooting guides. You should become familiar with the material in the Owner's Manual as it contains information that is essential for safe operation and increased truckmount reliability.

This Owner's Guide contains the following sections:

- Machine Specifications
- Responsibilities
- Battery Relearn for Ford Van
- Local Water Precautions
- Waste Water Disposal Advisory
- **Operating Instructions**
- **Maintenance Logs**

CDS 4.8

CONTACT INFORMATION

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

To find a local distributor, please visit our website at <https://hydramaster.com/dealer-locator/>

If your question cannot be resolved by your distributor or by the information within this manual, you may contact HydraMaster direct using the following phone numbers.

HOURS	TELEPHONE NUMBERS	E-MAIL ADDRESSES
Monday-Friday 7:00 a.m. to 5:00 p.m.	Technical Support (425) 775-7275 FAX : (800) 426-4225	Technical Support techsupport@hydramaster.com
Pacific Time	Customer Service/Parts (425) 775-7276 FAX: (425) 771-7156	Customer Service/Parts parts@hydramaster.com

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

HydraMaster uses this WARNING symbol throughout this document 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.

Warnings and Cautions specific to the CDS 4.8 SV include:

⚠ WARNING

HOT SURFACES: During the operation of this equipment, many surfaces on the machine will become very hot. When near the van for any reason care must be taken not to touch any hot surface, such as the engine or the exhaust.

⚠ WARNING

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

⚠ WARNING

NO SMOKING: It is unsafe to smoke in or around the vehicle. Do not allow any open flames in or around the vehicle.

⚠ WARNING

CARBON MONOXIDE: This unit 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.

⚠ WARNING

TOXIC FUMES: Do not occupy the vehicle when the cleaning equipment is operating. Toxic fumes may accumulate inside a stationary vehicle.

⚠ WARNING

ENGINE EXHAUST: The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

⚠ WARNING

MOVING PARTS: Never touch any part of the machine that is in motion. Severe bodily injury may result.

CAUTION

The use of some chemicals through your mobile carpet cleaning plant can seriously damage the internal plumbing, high-pressure pump, chemical pump and heat exchangers. These harmful chemicals include concentrated acid (see the pH chart in Figure 2-1), solvents (including d-Limonene), and some paint, oil and grease removers with a high concentration of solvents.

CAUTION

THROUGH-FLOOR DRILLING: 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

LEVEL OPERATION: During operation, the vehicle must be parked on level ground not to exceed + or - 10 degrees. Failure to ensure proper leveling may prevent proper internal lubrication of engine, vacuum and/or high pressure components.

CAUTION

ACID RINSE AGENTS: Some acid rinse products can cause damage to internal machine components. Failure to take appropriate measures to prevent acidic corrosion can result in system failure and loss of warranty on affected parts.

CAUTION

HARD WATER PROTECTION: Failure to take appropriate measures to prevent scale build up can result in system failure and loss of warranty on affected parts. Test the water in your immediate and surrounding areas with hard water test strips. Assume all water obtained from wells is hard. If you are operating in a hard water area at 3.0 grains or more per gallon, use a water softening system.

CAUTION

FREEZE PROTECTION: Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts. Placing an electric heater in the vehicle or parking the vehicle indoors will help ensure against freezing, but should not be the primary method of freeze protection.

MACHINE SPECIFICATIONS

Frame		23" W x 41.5" H x 61.0" L
Weight		650 lbs (tank and console only)
Construction	Tank	Marine aluminum with baked-on epoxy finish
		Chassis steel with baked-on finish
		Cowling, fiberglass
Power Transfer	Electric clutch-driven shaft, key activated	
Vacuum Blower	Gardner-Denver 408 Tri-Lobe	
Water Pump	Plunger pump, 4.0 gpm (at high speed), 1,200 operating psi, electric clutch control	
Chemical System	Last-step chemical injection, meter controlled	
Heating System	Engine heat recovery, plate heat exchanger system, standard Salsa heat exchanger package	
Instruments		
	Main Panel	Electronic tachometer, 0-4,000 rpm
		Water temperature gauge, 0-250 degrees F
		Vacuum gauge, 0-30" hg
		Hour meter, machine run-time
		Keyed ignition, start/stop
		Electronic circuit protection breaker, resettable
		Machine status indicator lamps
		Chemical flowmeter, 0-10 gph
		Solution pressure gauge, liquid filled, 0-1,500 psi
	Side Panel	Water pressure adjustment
		Blower lubrication port
		Solution temperature control selector
		High pressure solution outlets, quick-disconnect
		Fresh water inlet fitting, quick-disconnect
		Water box drain valve
		Chemical controls

Recovery Tank	100 gallon aluminum
Cleaning Tool/ Wand	EVO Wand
	Replacement grip
	Rebuildable solution valve
High Pressure Hose	1/4" high temperature, lined, vinyl covered
	Hose rated to 2,200 psi, 250 degrees F
Standard Equipment	Power transfer package
	Component power pack
	Equipment cowling
	Vacuum recovery tank
	Control console
	Dual tool/wand hook-up
	HydraMaster heat exchanger system
	Freeze guard system
	Wheel chock set
	Carpet tool/wand
	150 ft x 1/4" solution hose
	150 ft, 2" vacuum hose
	10 ft. 1 1/2" whip hose
	50 ft, fresh water hose (garden hose)
	10 ft, 1 1/2" drain line
	5 gallon chemical jug
	Chemical jug holder
	Van finish package
	Van decal package
	Monogrammed jacket
Owner's Manual (on USB)	
Owner's Guide (paper copy)	

RESPONSIBILITIES

Prior to the arrival of the unit, the van that it will be installed in should be delivered to the installer.

Purchaser's Responsibility

If you are the purchaser, it is the your responsibility to read the Owner's Manual and to familiarize yourself with the information contained herein, paying special attention to all Warnings and Cautions.

Sales Representative's Responsibility

Acceptance of Shipment

1. If the unit shows any outward signs of damage, do not sign the delivery receipt until you have closely inspected the unit and noted any damage on the delivery receipt.
2. The sales representative from whom you purchased your unit is responsible for supervising the correct installation of the unit in your vehicle and thoroughly training you in its operation, maintenance and precautions.

Installation

- Correctly installing the unit and recovery tank in your vehicle and securing them with bolts and tie down washers.
- Checking the pump, vacuum blower and engine oil levels prior to starting the unit.
- Starting the unit to check the drive system and see that all other systems function normally.
- Checking all hoses, tools/wands and accessories for correct operation.

Training

- A thorough review of the Owner's Manual with the purchaser.
- Instruction in and familiarization with:
 1. How to correctly start up and shut down the unit
 2. How to correctly clean with the unit
 3. Where and how often to check and change component oil levels
 4. How the unit's systems work, how to troubleshoot the unit
 5. How to do basic repairs
 6. Safety precautions and their importance
 7. How to avoid freezing damage
 8. How to avoid hard water damage
- A thorough review of the unit warranty and warranty procedures.
- A thorough review of hard water precautions and warnings.
- How to determine hard water areas.
- Use of water softening systems.

ENGINE COMPUTER RELEARN

Because your vehicle's engine is electronically controlled by a computer, some control conditions are maintained by power from the battery. When the battery is disconnected or a new battery is installed, the engine must relearn its idle and fuel trim strategy for optimum driveability and performance. Flexible fuel vehicles (FFV) must also relearn the ethanol content of the fuel for optimum driveability and performance.

To begin this process:

1. With the vehicle at a complete stop, set the parking brake.
2. Put the gearshift in P (Park), turn off all accessories and start the engine.
3. Run the engine until it reaches normal operating temperature.
4. Allow the engine to idle for at least one minute.
5. Turn the A/C on and allow the engine to idle for at least one minute.
6. Release the parking brake. With your foot on the brake pedal and with the A/C on, put the vehicle in D (Drive) and allow the engine to idle for at least one minute.
7. Drive the vehicle to complete the relearning process.
 - The vehicle may need to be driven 10 miles (16 km) or more to relearn the idle and fuel trim strategy along with the ethanol content for flexible fuel vehicles.
 - If you do not allow the engine to relearn its idle trim, the idle quality of your vehicle may be adversely affected until the idle trim is eventually relearned.
 - For flexible fuel vehicles, if you are operating on E85, you may experience poor starts or an inability to start the engine and driveability problems until the fuel trim and ethanol content have been relearned.

If the battery has been disconnected or a new battery has been installed, the clock and radio settings must be reset once the battery is reconnected.

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 lower 48 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.

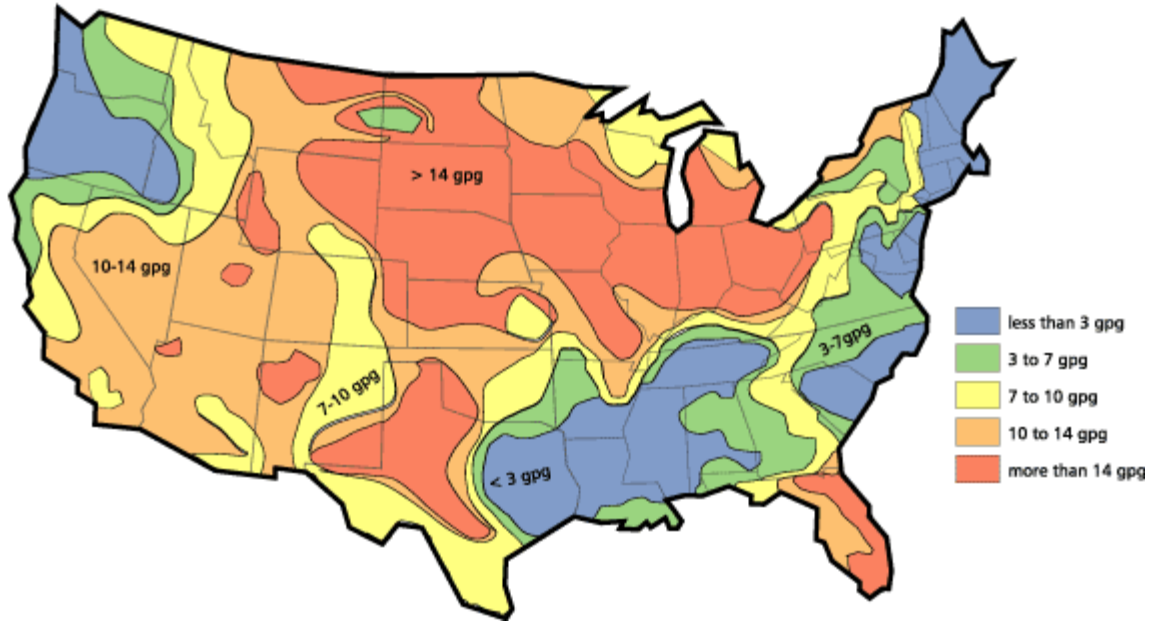


Figure 1. Hard Water Map of Mainland United States

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 CDS 4.8 SV machines in areas exceeding 3.0 grains per gallon (see Figure 2).

Failure to use a water softener in these areas will invalidate the machine's warranty. Referring to the hard water area map shown Figure 1-1, 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 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.

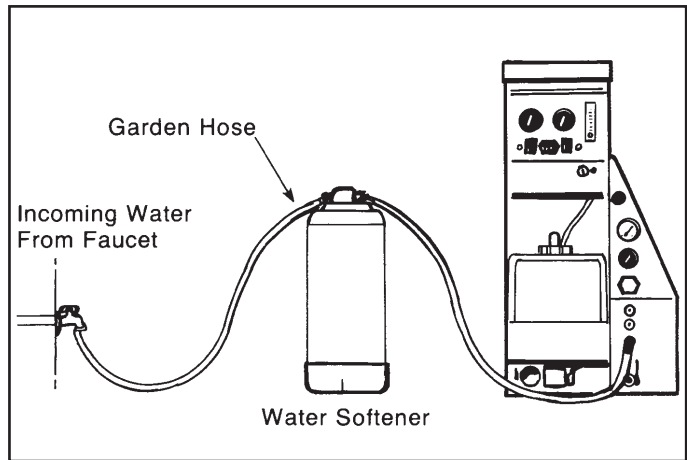


Figure 2. Configuration of Water Softener and CDS

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 service and regenerate 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 per 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 changed 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 CDS 4.8 SV with an Automatic Waste Disposal System (AWDS). 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 Automatic Wastewater Disposal System (AWDS) 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

This section of the manual contains the following instructions:

- Before Operating the CDS
- CDS Start Up
- CDS Flood Restoration Work
- CDS Shut Down
- 3 Speed Throttle Control Function

BEFORE OPERATING THE CDS

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

⚠ WARNING

The CDS unit 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.

2. Check the fuel tank to be certain there is adequate fuel to complete the job.
3. Position the wheel chocks on one of the rear tires.
4. If using a water supply hose which has not been used recently or if using a customer's hose, first connect the hose to the faucet and flush out any debris which may be in the hose. Afterwards connect the hose to the unit.
5. Check the chemical jug to see if you have enough concentrated chemical to finish the job. If not, mix and fill a 5 gallon chemical jug.
6. Connect all required hoses.
7. When connecting the pressure hose to the pressure outlet connections at the front of the unit, go to the farthest area to be cleaned and connect to the cleaning tool. This ensures that you have the proper length of hose required to perform the cleaning.

CDS START UP

1. Make sure the vehicle's gear select lever is in the Park position and the emergency brake is set. Also make sure all accessories are turned off (A/C, fan).
2. Start the vehicle's engine.
3. Turn key on the CDS dash.
4. Select the cleaning speed appropriate for the cleaning job.

NOTICE

Starting in the low position is recommended due to the lower stress on the clutch during start up.

5. Turn on the PUMP CLUTCH switch. Adjust cleaning pressure to desired level.
6. Turn on the PUMP IN switch (if equipped).
7. Turn the heat control valve to 'MAX' only if you will be using water. Do not activate the heat exchanger during flood extraction work.
8. Turn the CHEMICAL SYSTEM valve to the 'PRIME' position to purge any air from the system.

NOTICE

The prime hose is plumbed into the recovery tank. Leaving the valve in the 'PRIME' position will cause excessive chemical usage.

- a. When the chemical begins to flow through the flowmeter, with the flow indicator reading maximum flow and the PRIME line pulsing, turn the CHEMICAL SYSTEM valve to 'ON'. Cap off vacuum if necessary.
 - b. While spraying the solution from the cleaning tool, adjust the chemical flow by turning the CHEMICAL METERING CONTROL to the desired level.
9. Optional: Turn the AWDS switch 'ON' if using the Automatic Pump-Out feature.

NOTICE

The pump will not engage until the water level rises inside the recovery tank.

10. Now proceed with the cleaning operation.

NOTICE

The machine will automatically shut down when the recovery tank reaches its full capacity due to the float switch located inside the tank. When this occurs, turn the CDS key switch off and empty the recovery tank. Then, turn the unit back on and continue to clean.

CDS 4.8

CDS FLOOD RESTORATION WORK

When using equipment for flood damage, adjust the high pressure pump to zero. This will reduce the engine power load and save on fuel consumption.

CDS SHUT DOWN

1. Flush clear water through the chemical system for 10 seconds.
2. Open the water box drain and actuate the tool/wand valve to run fresh water through the water box, heat exchangers and cleaning tools.

NOTICE

If freeze guarding is necessary, perform the freeze guard procedure at this time. Draining the water box to ½ full or less is recommended to reduce spillage inside the vehicle.

NOTICE

Rinse the system with white vinegar on a weekly basis. Rinse the entire system with descaler each month.

3. Lay vacuum hoses out in order for all moisture to be removed from the hoses. This prevents spillage of any dirty solution in your vehicle when storing the hoses.
4. Disconnect the hoses and put them away.
5. If you are using an outside water source, turn the water supply faucet off. Bleed pressure out of the supply hose by loosening the hose at the water supply. Unhook the water supply hose and store it in the vehicle
6. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove all moisture from the vacuum pump.
7. Plug the vacuum inlets. Spray a Hydramaster-recommended lubricant (P/N 000-087-006) into the lube port for about 5 to 10 seconds while the unit is running. This will lubricate the vacuum pump and prevent it from rusting. (The lube port is located on the front panel above the pressure gauge).
8. Remove the inlet plugs, then turn the ignition 'OFF' before draining the recovery tank.
9. Turn the heat control valve to the 'OFF' position. This will help avoid engine overheat problems due to reduced coolant flow through the radiator.
10. Drain the recovery tank.

NOTICE

If your CDS is equipped with an AWDS, first connect a garden hose to the outlet on the front of the machine.

If your CDS is equipped without an AWDS, drain the recovery tank through the tank drain valve (under the chemical jug tray).

NOTICE

Do not dump waste in any area which might violate local, state or federal law. If you have the optional AWDS, drain the recovery tank into a sanitary drain system.

1. When the recovery tank is drained, lift the recovery tank lid and remove the filter basket.
2. Clean out any accumulated debris.
3. Rinse and re-install.
4. Check the corrugated blower filter.
5. Clean out any accumulated debris.
6. Rinse and re-install.

NOTICE

When re-installing the blower filter, ensure that it is fully seated against its mount so that debris cannot pass under it and into the blower.

3 SPEED THROTTLE CONTROL FUNCTION

— For GM Vans —

The GM Throttle Controller must meet certain “Chassis Ready” conditions to elevate the engine rpm, which are as follows:

1. Parking Brake is set
2. Gear shift is in “Park”
3. Foot is off Service Brake (brake pedal)
4. Foot is off Accelerator Pedal
5. Vehicle is stationary (no speed)
6. Engine is started and idling
7. The A/C / Heater switch is in off position

NOTICE

The Throttle Controller must be initialized anytime the Data Link Cable (DLC) harness is disconnected from the Data Link Connector. To initialize the system switch ignition key to OFF position, plug in DLC harness, switch the ignition on, and then start the engine. This allows the Throttle Controller to read the PCM engine computer.

On the Throttle Controller, there are LED lights with corresponding labels to provide status and problem detection information (refer to Figure 3 and Table 1).

LED LIGHTS WITH LABELS

3 TRIM POTS

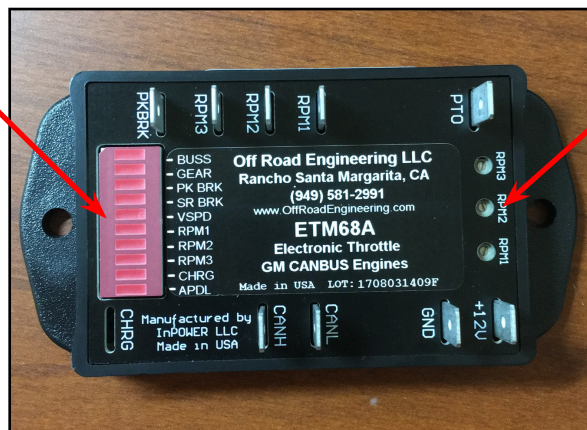


Figure 3. Location of Controller’s LED Lights with Labels and RPM Trim Potentiometers

Table 1. GM Throttle Controller LED Functions

LED	STATUS	INDICATION
BUSS	On Solid	Unit ON and functioning (harness connected to data link)
BUSS	Flashing	Unit ON, but a problem was detected
GEAR	On Solid	Transmission in PARK
GEAR	Flashing	Transmission NOT in Park
PK BRK	On Solid	Parking Brake Set
PK BRK	Flashing	Parking Brake is NOT set
SR BRK	On Solid	Service Brake is off (not being used)
SR BRK	Flashing	Service Brake is depressed
VSPEED	On Solid	Vehicle is stationary
VSPEED	Flashing	Vehicle is moving
RPM1	On Solid	RPM1 mode selected, engine at fast idle
RPM1	Flashing	RPM1 mode selected, engine not at fast idle
RPM2	On Solid	RPM2 mode selected, engine at fast idle
RPM2	Flashing	RPM2 mode selected, engine not at fast idle
RPM3	On Solid	RPM3 mode selected, engine at fast idle
RPM3	Flashing	RPM3 mode selected, engine not at fast idle

NOTICE

On GM gas engine vehicles, the PCM engine computer will cause the engine speed to momentarily speed up or increase or elevate and then drop back to normal idle speed every time the air conditioner pump cycles on or off. Make sure the operator of the CDS understands that the AC / HEAT switch needs to be in the OFF position before activating the CDS unit.

Maintenance Logs

To avoid costly repairs and down-time, it is imperative to develop and practice good maintenance procedures from the beginning. These procedures fall into daily, weekly, monthly, quarterly and yearly increments, and are outlined in this section. All recommended maintenance on the CDS must be performed by competent service personnel.

This section covers:

- Operational Maintenance
- Appearance Maintenance
- Long-Term Maintenance Schedule
- Drive Shaft Maintenance

NOTICE

Important: Record the date and machine hours on the maintenance log. Maintenance logs are provided for your convenience in this 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.

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

OPERATIONAL MAINTENANCE

This section contains recommendations for maintenance that will affect the service life of your unit.

NOTICE

HydraMaster recommends that you follow the vehicle maintenance schedule as stated by the manufacturer. All HydraMaster references to vehicle maintenance serve as general vehicle service reminders. If there are any questions regarding servicing of your vehicle, please contact your local vehicle dealership.

Daily

- Check engine oil level.
- Empty recovery tank inlet filter.
- Dump and clean the recovery tank.
- Inspect and clean garden hose screen.
- Visually inspect machine for loose wires, oil leaks, water leaks, etc.
- Inspect recovery tank stainless steel filter and anodes for clogging or damage; clean, repair or replace as needed.
- Inspect and clean the vacuum slot on the cleaning wand. Watch for sharp edges that may tear the carpet; remove any sharp edges as required.
- Lubricate blower with a HydraMaster-recommended spray lubricant (P/N 000-087-006) through blower lube port.
- Park the vehicle inside or turn on heater during freezing weather.

Weekly

- Check around vehicle and CDS unit for any evidence of oil/fluid leaks.

⚠ WARNING

Grease, oil, antifreeze, and debris build-up near hot equipment, such as the vehicle engine exhaust system or the CDS blower exhaust system, can present a fire hazard and can cause death or bodily injury.

Vehicle engine exhaust system or the CDS blower exhaust system, can present a fire hazard and can cause death or bodily injury.

- Clean and inspect float switches.
- Flush water and chemical system with 50/50 white vinegar solution.
- Change pump oil after first 50 hours; every 300 hours thereafter.
- Check pump oil. Add as necessary.
- Check pump drive belt for wear.
- Check pump pulleys for wear.
- Check CDS blower mounting fasteners, drive shaft clamping collar fasteners, and CDS front end component fasteners, tighten as needed.
- Check internal machine high pressure water lines for wear or chafing.
- Remove and clean chemical container.
- Clean and inspect recovery tank inlet filter.
- Inspect and clean vacuum relief valve.
- Inspect all external solution hoses, vacuum hoses, and quick connects for wear or damage that may cause premature failure, replace as needed.
- Clean recovery tank thoroughly with high pressure washer.
- Check vehicle engine rpm on van tachometer:
 - Speed 1 = 1,600
 - Speed 2 = 1,500
 - Speed 3 = 1,400

Monthly

- Check engine air cleaner filter. Clean as necessary.
- Check blower drive belt.
- Clean and inspect battery connections as needed.
- Change blower oil after first 100 hours.

Quarterly

- Check chemical pump, chemical pump valves and diaphragm.
- Change oil in blower every 250 hours.
- Change oil in pump every 300 hours. Replace pump drive belt (P/N 000-010-065) every 300 hours.
- Check the CDS wiring harness for any chafing or wear, especially in the vehicle engine compartment or near any rotating parts.
- Check the vehicle wiring harness for any chafing or wear, especially in the vehicle engine compartment or near any rotating parts.
- Grease the power pack pillow block bearings.

Every 500 Hours

- Grease drive shaft U-joints, splines and zerks.
- Clean and inspect Salsa Heat exchanger

Yearly

- Give van complete vehicle service.
- Flush the van's cooling system. Add new anti-freeze.
- Change the van's transmission fluid.

Change engine oil and filter after every 2,000 miles.

PERFORM DESCALING AS 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, excessive chemical use or improper chemicals. The frequency with which descaling procedures are required will vary. If your area has particularly hard water or you see evidence of deposits in the water system, you may have to descale monthly.

To descale your system:

1. Add an appropriate descaler chemical to your water box.
2. Circulate it through the heating system. Let it stand.
3. Flush and repeat as necessary.
4. Clean all screens and strainers, and check them frequently following descaling.

NOTICE

If you are circulating a descaler through the flowmeter, make sure to run clean water through the flowmeter after you perform this procedure.

APPEARANCE MAINTENANCE

Maintaining the original appearance of your unit is important for two reasons:

1. It represents a big dollar investment for your cleaning business and its appearance should reflect that fact. A dirty machine does not look professional.
2. Maintenance, troubleshooting and repair is much easier to accomplish on a clean, well-maintained unit. Regular cleaning of the machine offers you an opportunity to visually inspect all parts of the machine and spot potential problems before they occur.

The following maintenance is recommended by the manufacturer at the frequency indicated:

Daily

- Wipe machine down thoroughly with a damp cloth.
- Flush recovery tank out thoroughly.
- Clean wand to maintain original appearance.
- Wipe down vacuum and high pressure hoses as needed.
- Visually inspect hoses for cuts, etc.

Weekly

- Wipe down entire unit as needed.
- Apply good coat of auto wax to all painted surfaces inside and out.
- Thoroughly clean wand and inspect for clogged jet, debris in vacuum slot and leaking fittings at valve.
- Apply light coat of auto wax to wand. Thoroughly clean vacuum and high pressure hoses including hose cuffs.

LONG-TERM MAINTENANCE SCHEDULE

The following components or systems should be serviced or replaced at the specified intervals.

Component	Interval (Machine hours / months of service)
High pressure water pump rebuild	2,000 / 24
Vehicle engine thermostat	2,000 / 24
Vehicle engine accessory drive belt	2,000 / 24
CDS clutch	3,000 / 36
CDS drive shaft	3,000 / 36
CDS blower silencer and exhaust plumbing	4,000 / 48
CDS and vehicle heater hoses	4,000 / 48
CDS wire harness	4,000 / 48
CDS clutch housing drive bearings	4,000 / 48

DRIVE SHAFT MAINTENANCE

Every 500 operating hours, apply lubricant to the drive shaft's zerk fittings at clutch and blower flange U-joints, in hot climates (conditions above 95° F) lubricate the drive shaft every 250 operating hours. (see Figure 4).

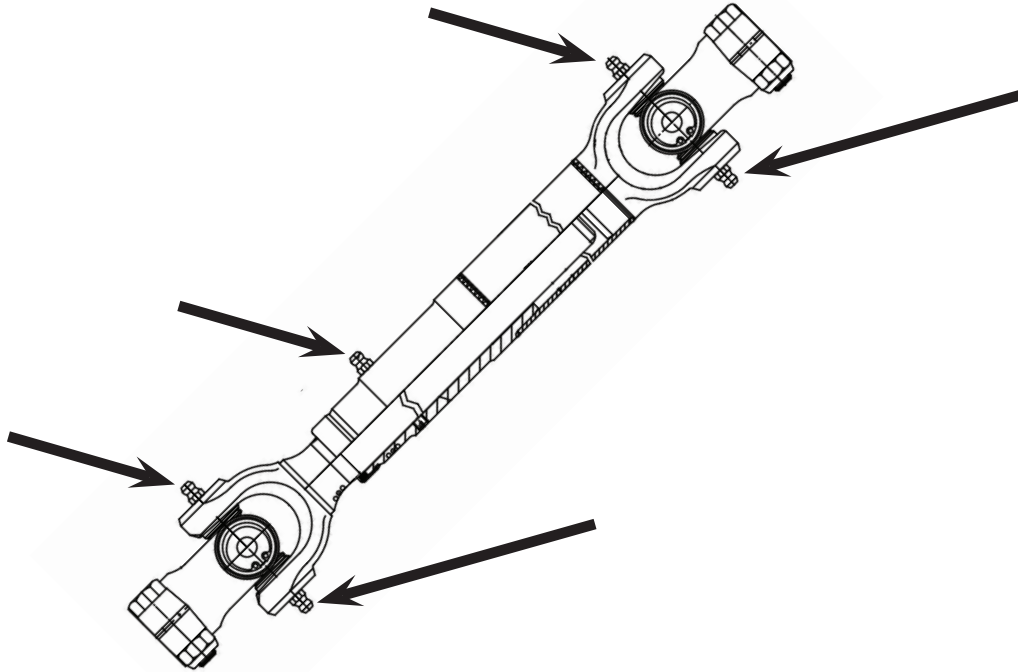


Figure 4. Zerk Fittings on Drive Shaft - Chevy

The drive shaft splines should also be lubricated with a bearing grease with an application temperature range of -4° F to +347° F; the drive shaft manufacturer recommends Mobil Delvac Xtreme Service™ grease as the lubricant.

MAINTENANCE LOGS

	Weekly Maintenance							
	Date							
	Hour Meter Reading							
Technician Initials								
Vehicle/CDS - check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump oil - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and pulleys - check for wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High pressure lines-internal - check for chafing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank inlet filter - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank - clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical container - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vac. relief valve - inspect, clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine rpm - check with CDS unit operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Float switches - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and quick connects; check for wear; 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"/>

ATTENTION: Additional break-in period maintenance required!

One time change of pump oil after 50 hours of operation; every 300 hours thereafter.	<input type="checkbox"/>
Blower oil - change after first 100 hours of use.	<input type="checkbox"/>

Monthly Maintenance

Flush chemical system with vinegar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All fasteners; tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine air cleaner - inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals - clean as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower drive belt - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quarterly Maintenance (250 Hours, unless indicated otherwise)		
Chemical pump valves and diaphragm - check	<input type="checkbox"/>	
Chemical pump - inspect	<input type="checkbox"/>	
Vehicle fuel lines - check for chaffing or wear	<input type="checkbox"/>	
CDS wiring harness - check for chafing or wear	<input type="checkbox"/>	
Bearings/power pack pillow block - grease	<input type="checkbox"/>	
Vehicle wiring harness - check for chafing or wear	<input type="checkbox"/>	
Pump drive belt - replace (every 300 hours)		<input type="checkbox"/>
Pump oil - change (every 300 hours)		<input type="checkbox"/>
Blower oil - change (every 250 hours)		<input type="checkbox"/>
Every 500 Hours		
Drive shaft U-joints, splines, zerks (use Mobile DelVac Extreme)	<input type="checkbox"/>	<input type="checkbox"/>
Salsa and Plate Heat Exchanger - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>
Yearly Maintenance (or Every 1,000 Hours, Whichever Comes First)		
Vehicle - complete service	<input type="checkbox"/>	
Cooling system - flush	<input type="checkbox"/>	
Transmission fluid - change	<input type="checkbox"/>	

Weekly Maintenance

	Date							
Hour Meter Reading								
Technician Initials								
Vehicle/CDS - check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump oil - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and pulleys - check for wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High pressure lines-internal - check for chafing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank inlet filter - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank - clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical container - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vac. relief valve - inspect, clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine rpm - check with CDS unit operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Float switches - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and quick connects; check for wear; 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"/>

ATTENTION: Additional break-in period maintenance required!

One time change of pump oil after 50 hours of operation; every 300 hours thereafter.	<input type="checkbox"/>
Blower oil - change after first 100 hours of use.	<input type="checkbox"/>

Monthly Maintenance

Flush chemical system with vinegar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All fasteners; tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine air cleaner - inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals - clean as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower drive belt - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quarterly Maintenance (250 Hours, unless indicated otherwise)		
Chemical pump valves and diaphragm - check	<input type="checkbox"/>	
Chemical pump - inspect	<input type="checkbox"/>	
Vehicle fuel lines - check for chaffing or wear	<input type="checkbox"/>	
CDS wiring harness - check for chafing or wear	<input type="checkbox"/>	
Bearings/power pack pillow block - grease	<input type="checkbox"/>	
Vehicle wiring harness - check for chafing or wear	<input type="checkbox"/>	
Pump drive belt - replace (every 300 hours)		<input type="checkbox"/>
Pump oil - change (every 300 hours)		<input type="checkbox"/>
Blower oil - change (every 250 hours)		<input type="checkbox"/>
Every 500 Hours		
Drive shaft U-joints, splines, zerks (use Mobile DelVac Extreme)	<input type="checkbox"/>	<input type="checkbox"/>
Salsa and Plate Heat Exchanger - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>
Yearly Maintenance (or Every 1,000 Hours, Whichever Comes First)		
Vehicle - complete service	<input type="checkbox"/>	
Cooling system - flush	<input type="checkbox"/>	
Transmission fluid - change	<input type="checkbox"/>	

Weekly Maintenance

	Date							
Hour Meter Reading								
Technician Initials								
Vehicle/CDS - check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump oil - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and pulleys - check for wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High pressure lines-internal - check for chafing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank inlet filter - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank - clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical container - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vac. relief valve - inspect, clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine rpm - check with CDS unit operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Float switches - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and quick connects; check for wear; 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"/>

ATTENTION: Additional break-in period maintenance required!

One time change of pump oil after 50 hours of operation; every 300 hours thereafter.	<input type="checkbox"/>
Blower oil - change after first 100 hours of use.	<input type="checkbox"/>

Monthly Maintenance

Flush chemical system with vinegar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All fasteners; tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine air cleaner - inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals - clean as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower drive belt - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quarterly Maintenance (250 Hours, unless indicated otherwise)		
Chemical pump valves and diaphragm - check	<input type="checkbox"/>	
Chemical pump - inspect	<input type="checkbox"/>	
Vehicle fuel lines - check for chaffing or wear	<input type="checkbox"/>	
CDS wiring harness - check for chafing or wear	<input type="checkbox"/>	
Bearings/power pack pillow block - grease	<input type="checkbox"/>	
Vehicle wiring harness - check for chafing or wear	<input type="checkbox"/>	
Pump drive belt - replace (every 300 hours)		<input type="checkbox"/>
Pump oil - change (every 300 hours)		<input type="checkbox"/>
Blower oil - change (every 250 hours)		<input type="checkbox"/>
Every 500 Hours		
Drive shaft U-joints, splines, zerks (use Mobile DelVac Extreme)	<input type="checkbox"/>	<input type="checkbox"/>
Salsa and Plate Heat Exchanger - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>
Yearly Maintenance (or Every 1,000 Hours, Whichever Comes First)		
Vehicle - complete service	<input type="checkbox"/>	
Cooling system - flush	<input type="checkbox"/>	
Transmission fluid - change	<input type="checkbox"/>	

Weekly Maintenance

	Date							
Hour Meter Reading								
Technician Initials								
Vehicle/CDS - check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump oil - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and pulleys - check for wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High pressure lines-internal - check for chafing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank inlet filter - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank - clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical container - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vac. relief valve - inspect, clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine rpm - check with CDS unit operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Float switches - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and quick connects; check for wear; 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"/>

ATTENTION: Additional break-in period maintenance required!

One time change of pump oil after 50 hours of operation; every 300 hours thereafter.	<input type="checkbox"/>
Blower oil - change after first 100 hours of use.	<input type="checkbox"/>

Monthly Maintenance

Flush chemical system with vinegar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All fasteners; tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine air cleaner - inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals - clean as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower drive belt - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quarterly Maintenance (250 Hours, unless indicated otherwise)		
Chemical pump valves and diaphragm - check	<input type="checkbox"/>	
Chemical pump - inspect	<input type="checkbox"/>	
Vehicle fuel lines - check for chaffing or wear	<input type="checkbox"/>	
CDS wiring harness - check for chafing or wear	<input type="checkbox"/>	
Bearings/power pack pillow block - grease	<input type="checkbox"/>	
Vehicle wiring harness - check for chafing or wear	<input type="checkbox"/>	
Pump drive belt - replace (every 300 hours)		<input type="checkbox"/>
Pump oil - change (every 300 hours)		<input type="checkbox"/>
Blower oil - change (every 250 hours)		<input type="checkbox"/>
Every 500 Hours		
Drive shaft U-joints, splines, zerks (use Mobile DelVac Extreme)	<input type="checkbox"/>	<input type="checkbox"/>
Salsa and Plate Heat Exchanger - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>
Yearly Maintenance (or Every 1,000 Hours, Whichever Comes First)		
Vehicle - complete service	<input type="checkbox"/>	
Cooling system - flush	<input type="checkbox"/>	
Transmission fluid - change	<input type="checkbox"/>	

Weekly Maintenance

	Date							
Hour Meter Reading								
Technician Initials								
Vehicle/CDS - check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pump oil - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Belts and pulleys - check for wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High pressure lines-internal - check for chafing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank inlet filter - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery tank - clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical container - remove and clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vac. relief valve - inspect, clean	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine rpm - check with CDS unit operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Float switches - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and quick connects; check for wear; 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"/>

ATTENTION: Additional break-in period maintenance required!

One time change of pump oil after 50 hours of operation; every 300 hours thereafter.	<input type="checkbox"/>
Blower oil - change after first 100 hours of use.	<input type="checkbox"/>

Monthly Maintenance

Flush chemical system with vinegar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All fasteners; tighten as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engine air cleaner - inspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery terminals - clean as needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blower drive belt - check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quarterly Maintenance (250 Hours, unless indicated otherwise)		
Chemical pump valves and diaphragm - check	<input type="checkbox"/>	
Chemical pump - inspect	<input type="checkbox"/>	
Vehicle fuel lines - check for chaffing or wear	<input type="checkbox"/>	
CDS wiring harness - check for chafing or wear	<input type="checkbox"/>	
Bearings/power pack pillow block - grease	<input type="checkbox"/>	
Vehicle wiring harness - check for chafing or wear	<input type="checkbox"/>	
Pump drive belt - replace (every 300 hours)		<input type="checkbox"/>
Pump oil - change (every 300 hours)		<input type="checkbox"/>
Blower oil - change (every 250 hours)		<input type="checkbox"/>
Every 500 Hours		
Drive shaft U-joints, splines, zerks (use Mobile DelVac Extreme)	<input type="checkbox"/>	<input type="checkbox"/>
Salsa and Plate Heat Exchanger - clean and inspect	<input type="checkbox"/>	<input type="checkbox"/>
Yearly Maintenance (or Every 1,000 Hours, Whichever Comes First)		
Vehicle - complete service	<input type="checkbox"/>	
Cooling system - flush	<input type="checkbox"/>	
Transmission fluid - change	<input type="checkbox"/>	

MAINTENANCE CHART - 8 TO 575 HOURS

DAILY MAINTENANCE CDS 4.8 SV																									
Check engine oil level																									
Empty recovery tank inlet filter																									
Inspect and clean garden hose screen																									
Visually inspect machine for loose wires, oil leaks, water leaks, etc																									
Dump and clean the recovery tank at the end of each day																									
Inspect recovery tank stainless steel filter for clogging or damage; clean, repair or replace as needed																									
Inspect and clean the vacuum slot on the cleaning wand. Watch for sharp edges that may tear the carpet; remove any sharp edges as required																									
Lubricate blower with a HydraMaster-recommended spray lubricant (P/N 000-087-006) through lube port																									
INTERVAL IN HOURS CDS 4.8 SV																									
Engine oil and filter	Change every 2,000 miles.																								
Pump oil *	Change after first 50 hours of use																								
Blower oil **	Change after first 100 hours of use																								
SERVICE	8	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	
Float switches	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 around vehicle and CDS for evidence of oil/fluid leaks			CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	
All belts and pulleys (check for wear)			CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	
High pressure lines - internal (check for chafing)			CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	
Recovery tank (clean thoroughly with high 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	
Chemical container - remove and clean			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	
Blower inlet filter inside recovery tank			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	
Vehicle engine rpm on CDS			CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	
Hoses and quick connects; check for wear; 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	
* Pump oil, GP series 100			R	CH	CH	CH	CH	CH	CH	CH	CH	CH	R	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	
Vacuum Relief Valve - inspect, clean			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	
SERVICE	8	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	
Recovery tank magnesium anodes (P/N 000-108-022); replace as necessary			CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		
Flush Chemical System With White Vinegar			F		F		F		F		F		F		F		F		F		F		F		
All fasteners; tighten as needed ***			CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		
Engine air cleaner filter					C/I				C/I				C/I				C/I				C/I				
Battery connections					C/I				C/I				C/I				C/I				C/I				
Blower drive belt (P/N 000-010-139)					CH				CH				CH				CH				CH				
Chemical pump valves and diaphragm												CH									CH				
Chemical pump												CH									CH				
Vehicle fuel lines (chafing or wear)												CH									CH				
All wiring harnesses (chafing or wear)												CH									CH				
Power pack pillow block bearings												L									L				
** Blower Oil (AEON PD-XD) PN: 000-087-350					R																R				
SERVICE	8	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	
Drive shaft U-joints, splines, zerks, in hot climates (conditions above 95° F) lubricate the drive shaft every 250 operating hours (Use Mobile DelVac Extreme)																						L			
Salsa Heat Exchanger																						C/I			
Plate Heat Exchanger																						C/I			
Perform complete vehicle maintenance yearly																									
Van's cooling system; add new anti-freeze																									
Van's transmission fluid																									

* Refers to pump oil
 ** Refers to blower oil
 *** Check blower, drive shaft, front end fasteners

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

MAINTENANCE CHART - 600 TO 1200 HOURS

DAILY MAINTENANCE CDS 4.8 SV																									
Check engine oil level																									
Empty recovery tank inlet filter																									
Inspect and clean garden hose screen																									
Visually inspect machine for loose wires, oil leaks, water leaks, etc																									
Dump and clean the recovery tank at the end of each day																									
Inspect recovery tank stainless steel filter for clogging or damage; clean, repair or replace as needed																									
Inspect and clean the vacuum slot on the cleaning wand. Watch for sharp edges that may tear the carpet; remove any sharp edges as required																									
Lubricate blower with a HydraMaster-recommended spray lubricant (P/N 000-087-006) through lube port																									
INTERVAL IN HOURS CDS 4.8 SV																									
Engine oil and filter	Change every 2,000 miles.																								
Pump oil *	Change after first 50 hours of use																								
Blower oil **	Change after first 100 hours of use																								
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
Float switches	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 around vehicle and CDS for evidence of oil/fluid leaks	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
All belts and pulleys (check for wear)	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
High pressure lines - internal (check for chafing)	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
Recovery tank (clean thoroughly with high 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
Chemical container - remove and clean	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
Blower inlet filter inside recovery tank	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
Vehicle engine rpm on CDS	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
Hoses and quick connects; check for wear; 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
* Pump oil, GP series 100	R	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	R	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	R
Vacuum Relief Valve - inspect, clean	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
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
Recovery tank magnesium anodes (P/N 000-108-022); replace as necessary	CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH
Flush Chemical System With White Vinegar	F		F		F		F		F		F		F		F		F		F		F		F		F
All fasteners; tighten as needed ***	CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH		CH
Engine air cleaner filter	C/I				C/I				C/I				C/I				C/I				C/I				C/I
Battery connections	C/I				C/I				C/I				C/I				C/I				C/I				C/I
Blower drive belt (P/N 000-010-139)	CH				CH				CH				CH				R				CH				CH
Chemical pump valves and diaphragm								CH									CH								
Chemical pump								CH									CH								
Vehicle fuel lines (chafing or wear)								CH									CH								
All wiring harnesses (chafing or wear)								CH									CH								
Power pack pillow block bearings								L									L								
** Blower Oil (AEON PD-XD) PN: 000-087-350	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
Drive shaft U-joints, splines, zerks, in hot climates (conditions above 95° F) lubricate the drive shaft every 250 operating hours (Use Mobile DelVac Extreme)																	L								
Salsa Heat Exchanger																	C/I								
Plate Heat Exchanger																	C/I								
Perform complete vehicle maintenance yearly																									
Van's cooling system; add new anti-freeze																	F								
Van's transmission fluid																	R								

- * Refers to pump oil
- ** Refers to blower oil
- *** Check blower, drive shaft, front end fasteners

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

CDS 4.8 SV

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 ^{1,2}	Labor ²
Frame	3 Years	3 Years
Covers	3 Years	3 Years
Vacuum Recovery Tank (Structural only)	3 Years	3 Years
Vacuum Pump – see Note 3	3 Years	3 Years
Chemical Systems	3 Years	3 Years
Hoses, Internal Machine	3 Years	3 Years
Hoses, External Machine	3 Years	3 Years
Valve, High pressure bypass	3 Years	3 Years
Water Heating System	3 Years	3 Years
Pump, High pressure water	3 Years	3 Years
Fittings, internal machine	3 Years	3 Years
Filter Screens	3 Years	3 Years
Gauges	3 Years	3 Years
Electrical Components	3 Years	3 Years
Belts	1 Year	1 Year
Accessories and Fresh Water Tanks	1 Year	1 Year
Replacement Parts- see Note 4	90 Days	NA
NOTES: 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: O-rings, seals, paint, labels, and other cosmetic parts are 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.

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