

Zerorez[®] Clutch Drive System Owner's Guide and Maintenance Logs

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1 - Introduction

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

NOTICE

Read the entire digital Owner's Manual and this 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. Refer to the Owner's Manual when more detailed information is needed.

The Machine Maintenance Log is located within the Owner's Guide. It is wise to keep the Owner's 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 assemblies and parts lists as well as a troubleshooting guide. 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.





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CONTACT INFORMATION

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

WARNINGS, CAUTIONS AND NOTICES

AWARNING

HydraMaster 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.





Warnings and Cautions specific to the Zerorez CDS include:

AWARNING

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

AWARNING

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 eight-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.

AWARNING

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

AWARNING

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.

AWARNING

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

AWARNING

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.

AWARNING

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





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

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

2017 ZEROREZ CDS Cleaning Unit (including blower and heat exchangers)

Frame	41.5" H x 6	1.0" L x 23" W						
Weight	900 lbs.							
Construction	Tank	Marine Aluminum with Baked-on Epoxy Finish						
Chassis	Powder Coa	ated Steel						
Cowling	Fiberglass	Fiberglass						
Power Transfer	Electric Clutch-driven Shaft, Key Activated							
Drive Type	Universal Drive Shaft							
Drive System	PolyChain o	on Power Pack						
Vacuum Blower	Gardner De	nver 408 TriFlow						
	Blower rpm	@ 14"Hg 3,600						
Water Pump	General Pu	mp, 4.0 gpm						
Heating System	Alpha Laval	Engine Coolant Heat Exchanger (1,200 psi)						
	Blower Exh	aust (Salsa) Heat Exchanger (1,200 psi)						

Instruments		
	Main Panel	
		Electronic Tachometer, 0-4,000 rpm
		Water Temperature Gauge, 0-320° F
		Vacuum Gauge, 0-30" Hg
		Hour Meter, Machine Run-Time
		Keyed Ignition, Start/Stop
		Electronic Circuit Protection Breaker, Re-settable
		Machine Status Indicator Lamps
		Water Pressure Gauge, Liquid Filled, 0-1,500 psi
		Dual Tool/Wand Hook-Up
	Side Panel	
		Water Pressure Adjustment
		Blower Lubrication Port
	_	Water Temperature Adjustment Knob
		High Pressure Outlets





Available Equipment										
Auxiliary Pump	uxiliary Pump Automatic Waster-Water Disposal System (AWDS)									
Out										
Cleaning Tool/	One 2" Evolution Stainless Steel Wand									
Wand	and One Pressure Wash Tool									
High Pressure	1/4" High Temperature, Lined, Vinyl Covered -									
Hose	Hose rated to 2,200 psi, 250° F									
Two Back Door Bir	ns for Extra Storage									
Wheel Chock Set										
Van Finish Packag	e									
Van Decal Packag	е									
Owner's Manual: N	MAN-47205									
Owner's Guide: Ma	AN-47206									





HydraCradle Fresh Water Tank

Tank Capacity	125 gallons						
Tank Construction	Rotomolded LLDPE *						
Mounting Components	Stainless Steel						
Dimensions	47¼" H x 65" L x 34"	W					
Dry Weight (without Vacuum Hose)	195 lbs						
38" Diameter Vacuum Hose Reel - Standard - (for 2" Diameter Hose)	Capacity***	250 ft.					
	Construction	Rotomolded LLDPE*					
	Electrical Operation	Power Retraction - Standard					
Blue Vacuum Hose	5 x 50 ft Sections; 2"	Diameter					
14" Diameter Solution Hose Reel **	Maximum Capacity	250 ft.					
	Construction	Rotomolded LLDPE					
Solution Hose	250 ft,1/4" Diameter						
Hose Reel Motor Fuse	30 Amp						

^{*} LLDPE = Linear Low Density Polyethylene

110 Gallon Fresh Water Tank

Tank Capacity	110 Gallons
Tank Construction	Polyethylene, Ultra Thick Wall
Dimensions	34" H x 60" L x 18" W
Weight	115 lbs

^{**} Hose reels are offered with optional configurations; see the next subsection.

^{***} The amount of hose that conveniently fits onto each reel can be affected by the diameter of the hose, the type and size of cuffs or connections, and the pliability of the hose itself.





RESPONSIBILITIES

Sales Representative's Responsibility

Acceptance of Shipment

Before accepting the truckmount, check the following:

- 1. 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 fine. It is recommended that the box be opened before you sign for the shipment.
- 2. Check the packing list and verify that all items are present.

Installation Responsibilities

- Ensure proper payload capability. The 2017 Zerorez CDS must be installed into a vehicle with a payload capacity of 3,850 lbs or greater.
- Ensure proper placement of the CDS, fresh water tanks, and accessories in the vehicle, and check that they are secured with bolts and back up plates. The distributor should verify that the owner is in agreement with the layout.
- Ensure proper installation of the electrical wiring and the connections to the vehicle's battery.
- 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 and other accessories for correct operation.
- Ensure timely return of the document package.

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
- 9. A thorough review of the unit warranty and warranty procedures.

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.





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 that 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 is to use the Automatic Waste-Water Disposal System (AWDS). This system, available with the Zerorez CDS package, is designed to remove waste water from the extractor's recovery system and actively pump the water through hoses to a suitable disposal drain.

When properly configured, the AWDS 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.





FREEZE GUARD

When operating the 2017 Zerorez CDS during the colder months of the year, ensure that you properly freeze guard the system. No part of the 2017 Zerorez CDS System is covered by warranty if machine damage occurs because of freezing.

CAUTION

BE SURE YOUR MACHINE IS PROTECTED! Freezing will cause component damage.

The following precautions are recommended prior to and during cleaning jobs:

- 1. Run the machine before leaving for the first job to ensure nothing has frozen the night before, including hoses and tool/wand.
- 2. Insulate the solution hose from the cold ground by running it through an extra 1½" vacuum hose.
- 3. Leave vehicle doors closed until you begin cleaning; afterwards, open slightly.

NOTICE

In colder climates, insulating the vehicle walls and floor boards will help protect the unit.

- 4. Do not procrastinate during the cleaning operation or the hot water solution line will also freeze on the ground. The solution line should be insulated in extremely cold climates.
- 5. Whenever possible, store the van in a heated garage at night or over the weekend. If not possible, place a 1,500 Watt electric heater inside the vehicle, aimed directly at the machine.

AWARNING

Never use a propane heater. It causes excessive moisture on the vehicle ceiling and the possibility of it malfunctioning is therefore higher, which may cause bodily injury. If the machine and vehicle are left outside with a heater, drain water from the machine cleaning tools and hoses because they can be freeze-damaged.

6. If Machine and vehicle are left outside with a heater, drain water from the machine cleaning tools and hoses because they can be freeze-damaged.

To Drain the machine, open the Cradle Tank drain valve and drain the tanks thoroughly.





2 - Operating Instructions

This section of the manual contains the following instructions:

- Before Operating the 2017 Zerorez CDS
- 2017 Zerorez CDS Start Up
- Throttle Control Function
- 2017 Zerorez CDS Shut Down
- Zerorez Cradle Tank Daily Shut Down
- Zerorez Cradle Tank Shut Down for Extended Storage

CAUTION

When operating the HydraCradle Tank during the colder months of the year, ensure that you properly freeze guard the system. Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.

BEFORE OPERATING THE ZEROREZ - CDS

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

AWARNING

The 2017 Zerorez 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. Connect all required hoses. (See hose routing list in section 9)
- 5. 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.





ZEROREZ CDS START-UP

- 1. Make sure the vehicle's gear select lever is in the Park position and the emergency brake is set.
- 2. Start the vehicle's engine.
- 3. Manually unwind the vacuum hose a few feet off of the Cradle Tank's vacuum reel, and press on the foot switch to test for power retraction of the hose.
- 4. Power up the CDS by turning the key in the ignition switch (Figure 2-1)
- 5. Select the cleaning speed appropriate for the cleaning job.
- 6. Turn on the PUMP CLUTCH switch. Adjust cleaning pressure to desired level.

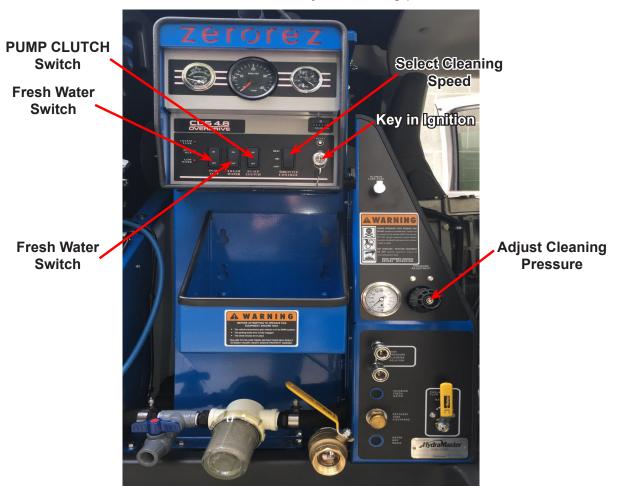


Figure 1. Front View of 2017 Zerorez CDS

7. (If applicable) Connect the AWDS to a dump hose (the length of a garden hose), route the hose to an appropriate waste site and turn the PUMP OUT switch 'ON'.

NOTICE

Do not dump waste or wastewater in any area which might violate local, state or federal law. Drain the recovery tank into a sanitary drain system.





NOTICE

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

8. 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.





ZEROREZ DAILY SHUT DOWN

NOTICE

If Freeze guarding is necessary, perform the freeze guard procedure at this time as outlined in Vacuum Freeze Guard Kit Instructions for P/N 000-078-078.

- 1. Turn off the CDS fresh water switch.
- 2. Turn off the outdoor faucet
- 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. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove all moisture from the vacuum pump.
- 6. Plug the vacuum inlets.
- 7. 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

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

- 11. When the recovery tank is drained, lift the recovery tank lid and remove the filter basket.
- 12. Clean out any accumulated debris.
- Rinse and re-install.
- 14. Check the corrugated blower filter.
- Clean out any accumulated debris.
- 16. 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.

HYDRACRADLE TANK DAILY SHUT DOWN

To shut down the HydraCradle Tank after daily use:

- Clean out the vacuum hose and, pressing on the switch, rewind the vacuum hose onto its reel.
- 2. Rewind the other solution hose.
- 3. Place cleaning tools/wands in the tank's storage area.

HYDRACRADLE TANK SHUT DOWN FOR EXTENDED STORAGE

If you want to shut down and store the HydraCradle Tank for an extended period of time:

- 1. Drain the remainder of the water in the tank.
- 2. Manually unwind the vacuum hose and remove it from the reel, rinse the hose with clean water and allow it to drain before rewinding it on the reel.
- 3. Unwind the solution hose, detach from the reel and completely drain the hose before rewinding it onto the reel.

CAUTION

Failure to take appropriate measures to prevent equipment damage due to freezing can result in system failure and loss of warranty on affected parts.





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3 - Maintenance and Troubleshooting

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 and quarterly increments, and are outlined in this section. All recommended maintenance on the Zerorez CDS must be performed by competent service personnel.

This section is divided into these parts:

- 2017 Zerorez CDS Maintenance and Troubleshooting
 - Operational Maintenance
 - Appearance Maintenance
 - Drive Shaft Maintenance
 - Troubleshooting
- Cradle Tank Maintenance and Troubleshooting
 - Operational Maintenance
 - Appearance Maintenance
 - Troubleshooting

NOTICE

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





2017 ZEROREZ CDS MAINTENANCE AND TROUBLESHOOTING

DAILY

- 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.
- 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 blower lube port.
- Park the vehicle inside or turn on heater during freezing weather, and perform freeze guard procedure as weather dictates.

Weekly

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

AWARNING

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.
- Remove the stainless steel blower inlet filter inside the recovery tank and thoroughly clean, removing all lint build-up. Inspect for damage and re-install.
- · Inspect and clean vacuum relief valve. Clean and lubricate as necessary.

CDS 4.8"



- Inspect all external solution hoses, vacuum hoses, and quick connects for wear or damage that may cause premature failure, replace as needed.
- Check magnesium anodes in recovery tank and replace as necessary.
- Clean recovery tank thoroughly with high pressure washer.
- Check vehicle engine rpm on CDS tachometer:

Speed 1 = 1,600

Speed 2 = 1,400

Speed 3 = 1.200

<u>Monthly</u>

- Change engine oil.
- · Check engine air cleaner filter. Clean as necessary.
- · Check blower drive belt.
- Clean and inspect battery connections as needed.
- Grease drive shaft U-joints (Drive Shaft Maintenance, Figure 2). Inspect for wear.
- · Change blower oil after first 100 hours.

Quarterly

- Change oil in blower every 600 hours/or every three months which ever comes first.
- Change oil in pump every 300 hours. Replace pump drive belt (P/N 000-010-065) every 300 hours.
- Check the vehicle fuel lines for any chafing or wear, especially in the engine compartment or near any rotating parts.
- 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 Drive shaft spline if so equipped.
- Grease the power pack pillow block bearings.

Yearly

- Give van complete vehicle service.
- Flush the van's cooling system. Add new anti-freeze.
- Change the van's transmission fluid.
- Clean and inspect Salsa Heat exchanger (if equipped).

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

Refer to the Interval Hours Maintenance chart in the Owner's Guide.





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.
- 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:

<u>Daily</u>

- · 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 hose including hose cuffs.





Drive Shaft Maintenance

Every 300 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 2).

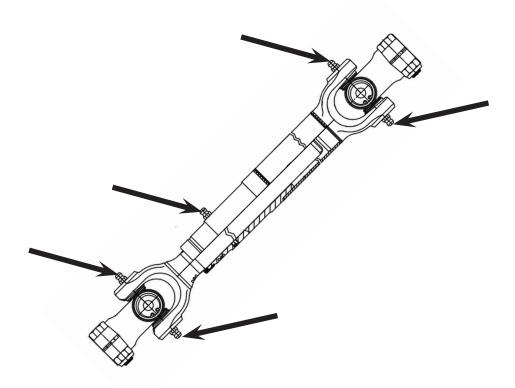


Figure 2. Zerk Fittings on Drive Shaft

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.





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





CRADLE TANK MAINTENANCE AND TROUBLESHOOTING

This section is divided into the following topics:

- Operational Maintenance
- Appearance Maintenance

Operational Maintenance

This section contains recommendations for maintenance that will affect the service life of your Cradle Tank. HydraMaster recommends that you follow maintenance schedules as stated.

Belt Tension

Each month, check the tension on the V belt by:

- 1. Removing power from the Cradle Tank by detaching the Tank's battery cables from the 12 V battery.
- 2. Removing the screws and washers that secure the belt cover to the Cradle Tank frame and then remove the belt cover.
- 3. Pressing in on the V belt to test the tension. If the belt can be pressed in more than 1" 1 1/2", it needs to be tightened.
- 4. After checking and/or adjusting the belt, re-attach the belt cover frame and re-apply power.





Appearance Maintenance

Maintaining the original appearance of your Cradle Tank 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 tank offers you an opportunity to visually inspect all parts of the tank and spot potential problems before they occur.

The following maintenance is recommended at the frequency indicated:

Daily

- · Wipe tank thoroughly with a damp cloth.
- · Wipe down hoses as needed.

Weekly

- Visually inspect hoses for cuts and abrasions.
- · Thoroughly clean hoses.
- Remove large debris which may have accumulated under the vacuum hose, at the bottom of the tank, and wipe away any remaining smaller debris.

Date								
Hour Meter Reading		<u> </u>						
Technician Initials			ļ					
Vehicle/CDS/HydraCradle - check for leaks	_	_		_	_			
Pump oil - check								
Belts (including HydraCradle) and pulleys - check for wear		0		0	0			
High pressure lines-internal - check for chafing								
Blower inlet filter - remove and clean								
Recovery tank magnesium anodes - check and replace as necessary								
Vac. relief valve - inspect, clean, lube						_		
Recovery tank - clean								
Engine rpm- check with CDS unit operating								
Float switches and filters - check for debris								
Hoses and quick connects; check for wear; replace as needed								
CDS fasteners - check blower, drive shaft, front end								
ATTENTION: Additiona	l break-iı	n period	mainten	ance req	uired!			
One time change of pump oil after 50 hours of operation; every 300 hours thereafter.								
Blower oil - change after first 100 hours of use.								
Ma	onthly Ma	intenanc	e					
Engine oil - change								
Engine air cleaner - inspect								
Battery terminals - clean as needed								
Blower drive belt - check								
Quarterly Maintenance (or 400 Hours,	Whichev	ver Come	s First,	Unless S	pecified	Otherv	vise)	
Blower oil - change (600 hours)								
Pump oil - change (every 300 hours)								
Vehicle fuel lines - check for chaffing or wear.								
CDS wiring harness - check for chafing or wear								
Vehicle wiring harness - check for chafing or wear								
Drive shaft U-joints, splines, zerks every 300 Hours (use Mobile DelVac Extreme) in hot climates (conditions above 95° F) lubricate the drive shaft every 250 hrs.								0
Bearings/power pack pillow block - grease								
Salsa heat exchanger - clean and inspect								
Yearly Maintenance (or E	very 1,00	0 Hours,	Whiche	ver Com	es First)			
Vehicle - complete service								
Cooling system - flush					1			
Transmission fluid - change					l			

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Belts (including HydraCradle) and pulleys - check for wear								
High pressure lines-internal - check for chafing								
Blower inlet filter - remove and clean								
Recovery tank magnesium anodes - check and replace as necessary								
Vac. relief valve - inspect, clean, lube								
Recovery tank - clean								
Engine rpm- check with CDS unit operating			_	_	_	_	_	_
Float switches and filters - check for debris				_	_	_		
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Mc	nthly Ma	intenanc	e					
Engine oil - change								
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Battery terminals - clean as needed								
Blower drive belt - check				_				
Quarterly Maintenance (or 400 Hours,	Whichev	er Come	s First,	Unless S	pecified	Otherv	vise)	
Blower oil - change (600 hours)								
Pump oil - change (every 300 hours)								
Vehicle fuel lines - check for chaffing or wear.								
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Salsa heat exchanger - clean and inspect								_
Yearly Maintenance (or Ev	ery 1,000	0 Hours,	Whiche	ver Com	es First)			
Vehicle - complete service					I			
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Clean and inspect pump strainer in saturated salt feeder Check engine oil level

Empty recovery tank inlet filter

Visually inspect machine for loose wires, oil leaks, water leaks, etc

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

																				INT	ERV	AL IN	HOU
Engine oil and filter																							
Pump oil *																							0
Blower oil **																							С
SERVICE	8	25	50	75																_			
Float switch, filters		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	Γ ′	Γ'	Γ'	Γ '	Γ'	Γ '	ſ '	Γ'	Γ'	Γ.	Γ'	Γ.	Γ '	Γ'	Γ '	ſ '	ſ '	ſ '	Γ'	Γ '	Γ '	ſ '	$\lceil \ \ $
CDS for evidence of oil/fluid	1 '	1 '	СН	СН	СН	CH	CH	CH	СН	СН	СН	СН	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
leaks	۱ <u></u> '	 '	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'	l'	l'	1'	1′	1'	1'	 '	1′	1′	1'	1/
All belts (including																							
HydraCradle) and pulleys			СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН
(check for wear)				4						4													
High pressure lines - internal	$\overline{}'$		Λ <u>.</u>	<u>~</u> п	<u>~</u> ц	ΛΠ	~u	~L	Λ <u>.</u>	<u>~</u> п	<u>~</u> ц	~L	~ L	Δ"	\sim	\sim	~u		<u>~</u> п	ΩL	ΩL	~ I	СН
(check for chafing)	1 _'	1 _'	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	CH	СН	СН	СН	СН	СН	СН	СН	СН	Cri
Recovery tank (clean																							
thoroughly with high pressure			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
washer)			4						4													'	
Blower inlet filter inside			C/I	C/I	C/I		C//	C/I	C/I	C/I		0/1	<u>~</u> "	<u>~</u> "				C/I	~//	C/I	C/I	C/I	
recovery tank	1 '	'	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			СН	CH	CH	СН	CH	СН	СН	CH	CH	CH	CH	CH	CH	CH	CH	СН	CH	СН	СН	CH	CH
Hoses and quick connects;																							
check for wear; replace as	1 '	'	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН
needed	1 '	'	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	'	'	1 '	1 1	1	'	1 '	1 '	'	1 7
* Pump oil, GP series 100			R	СН	CH	СН	CH	СН	СН	СН	CH	СН	R	СН	СН	СН	СН	СН	СН	СН	СН	CH	CH
Vacuum Relief Valve - inspect,		2//					1 1															1 1	
clean and lubricate	1 '	C/L	. C/L	C/L	. C/L	C/L	C/L	C/L		C/L		C/L	C/L	. C/L	C/L		C/L	C/L	. C/L		C/L	C/L	C/L
SERVICE	8	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550
Recovery tank magnesium																							
anodes (P/N 000-108-022);	1 '	'	СН	1 '	СН	1 '	СН	1 '	СН	1 '	СН	1 '	СН	'	СН	1 '	СН	1	СН	1 '	СН	'	СН
replace as necessary	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	l _'	l _'	1 _'	1 _'	1 _'	1 _ '	l _'	1 _'	1 _'	1 _'	1 _/
All fasteners; tighten as					СН		CU								Cu'				СН		CU		
needed ***			СН		Cn		СН		СН	4	СН		СН		СН		СН		Cn		СН		СН
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-	┌ ′	·	<u> </u>	<u> </u>	СН		<u> </u>		СН	<u> </u>	<u> </u>		СН	Γ,		<u> </u>	СН				СН		$\bigcap I$
139)	ا'	l'	1'	1'	U⊓,	1'	1'	1'	Cn,	1'	1'	1'	CFI	l'	1'	1′	Сп	1	 '	1'	CFi	1'	1
** Blower oil (AEON PD-XD)					R																	_ '	
000-087-350				4	K					4											$4 \perp \!\!\! \perp'$		
Vehicle fuel lines (chafing or	<i></i> ′	'					<u> </u>				СН			1	_ '				—		ΩL	 '	
wear)	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	1 _'	Cn.	1 _'	l _'	l _'	1 _'	1 _'	1 _'	1 _ '	l _'	1 _'	СН	1 <u>'</u> '	1 _!
All wiring harnesses (chafing											СН										СН		
or wear)			4				4		4														
SERVICE	8	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550
Drive shaft U-joints, splines,																							
zerks (use Mobile DelVac			4						4													'	
Extreme). In hot climates			4						4												(, '	'	
(conditions above 95° F)			4						4												L /	'	
lubricate the drive shaft every			4						4													'	
250 hrs.			4						4													'	
Salsa Heat Exchanger														1		· ·					C/I	—	
			47	47			47		47	47												Pf	erforn
Van's cooling system; add																							
new anti-freeze	1 '	'	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	1 '	'	'	'	1 '	1 '	1	1 '	1 '	1 '	1 '	I = I
						-			-			_	_	_	_	-	-	_	_	-	-	-	-

^{*} Refers to pump oil

Van's transmission fluid

^{***} Check blower, drive shaft, front end fasteners

Adjust	Α
Check	СН
Clean and Inspect	C/I
Clean and Lubricate	C/L
Flush	F
Lubricate	L
Replace	R

^{**} Refers to blower oil

NCE	2017	ZR CI	DS																						
	017 Z																								
	ange je afte																								
	e afte																								
	600	625				725					850	875			950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
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	C/I
СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	O	0	0	0	0	0	0	0	0
	011					011	011	011		011	011	011				011	011	011	011	011	011	011	011	011	<u> </u>
СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	CH	СН						
СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН
CII	CII	CII	CII	CII	CII	Cii	CIT	CII	CII	CII	CII	CII	CII	CII	CII	Cii	CIT	CIT	CIT	CIT	CIT	CIT	CIT	CIT	CII
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	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	C/I	C/I
СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН
СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	CH	CH	CH	CH	CH	CH	CH	CH	СН
СН	R	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	R	СН	СН	СН	СН	СН	СН	CH	СН	СН	СН	СН	R
C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L		C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L	C/L
575									800		850			925				1025	1050	1075	1100		1150	1175	1200
373	000	023	030	0/3	700	125	730	775	000	023	050	0/3	300	323	330	3/3	1000	1023	1030	1075	1100	1123	1130	1173	1200
	СН		СН		СН		СН		СН		СН		СН		СН		CH		СН		СН		СН		СН
	СН		СН		СН		СН		СН		СН		СН		СН		СН		СН		CH		СН		CH
	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
	СН				СН				СН				СН				R				СН				СН
	R																								R
							СП										CH								
							СН										СН								
							СН										СН								
575	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
																	L								
																	C/I								
n con	plete	vehic	le ma	ainten	ance	vearl	V	<u> </u>					I		l		C/I								<u> </u>



