

Cyclone CY5500SK V1

OPERATOR'S MANUAL

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EQUIPMENT



PARTS



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SERVICE



SUPPLIES

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I. INTRODUCTION

OPERATOR MANUAL PURPOSE

This manual is a technical resource that Cyclone Technology provides for operating a CY5500SK. If while operating, you experience technical difficulties a call to Cyclone Technology technical support may be needed to alert the factory to potential issues and/or provide the customer with an acceptable level of service. Contact Cyclone Technology Technical Support at **1.800.335.9695** or **info@cycloneclean**.

GENERAL MACHINE DESCRIPTION

The CY5500SK is a truck mounted hard surface cleaning system intended to work in conjunction with a CY210. The CY210 is a high-pressure walk behind Cyclone cleaning head with dual spray tips and instant water recovery. The CY5500SK uses the truck engine with hydrostatic capabilities and a high-pressure pump as well as the multistage water recycling system. It is fitted with a deck to both transport the CY210 and contain all the necessary components for the CY210 to operate.



WARNING!

The CY5500SK uses a combination of high pressure water and heat, to achieve a deep, long lasting clean. To avoid premature wear of critical components, such as the pressure pump and water recycling system, the CY5500SK should never be used in combination with any acids, alkalines, or abrasive fluids. The use of acids, alkalines, or abrasive fluids within the CY5500SK may result in permanent damage to critical components and could void the manufacturer's warranty. Before introducing any chemicals to the CY5500SK contact your local Cyclone Technology authorized dealer for further information.

PARTS AND SERVICE

Repairs should be performed by an Authorized Cyclone Technology Service Center that employs factory-trained service personnel and maintains an inventory of Cyclone Technology original replacement parts and accessories.

II. UNIT IDENTIFICATION

The Model Number and Serial Number of the machine are shown on the nameplate, see pictures below.

Copy the model number as well as the serial number in the provided space to reference when ordering parts through Cyclone Technology Technical Support.

CY5500SK SERIAL NUMBER _____

CY210 SERIAL NUMBER _____

This information is required when ordering repair parts for the machine or contacting Cyclone Technology Technical Support.



III. GENERAL INFORMATION

RECEIVING THE MACHINE

Upon receiving the machine inspect the machine and all components for damages caused by transit. If damage has occurred, please contact Cyclone Technology customer service department.

GENERAL SAFETY INSTRUCTIONS

Specific Cautions and Warnings are included to warn you of potential danger of machine damage or bodily harm.

READ ALL INSTRUCTIONS BEFORE SERVICING

CAUTION AND WARNING SYMBOLS

Cyclone Technology uses the symbols below to signal potentially dangerous conditions. Always read this information carefully and take the necessary steps to protect personnel and property.



DANGER!

THIS SYMBOL IS USED TO WARN OF IMMEDIATE HAZARDS THAT CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

- This machine emits exhaust gases (carbon monoxide) that can cause serious injury or death; always provide adequate ventilation when using machine.



WARNING!

THIS SYMBOL IS USED TO CALL ATTENTION TO A SITUATION THAT COULD CAUSE SEVERE PERSONAL INJURY.

- This machine shall be used only by properly trained and authorized persons.
- High speed operation is designed only for use on level surfaces.
- Turn the key switch off (O) and disconnect the batteries before servicing electrical components.
- Never work under a machine without safety blocks or stands to support the machine.
- Do not dispense flammable cleaning agents, operate the machine on or near these agents, or operate in areas where flammable liquids exist.
- Ear plugs or other hearing protection devices are mandatory to avoid hearing damage or loss.



CAUTION!

THIS SYMBOL IS USED TO CALL ATTENTION TO A SITUATION THAT COULD CAUSE PERSONAL INJURY OR DAMAGE TO THE MACHINE OR OTHER PROPERTY.

- This machine is only approved for hard surface use.
- When operating this machine, ensure that third parties are not endangered.
- Before performing any service function, carefully read all instructions pertaining to that function.
- Do not leave the machine unattended without first turning the key switch off (O), removing the key and chocking the wheels.
- Turn the key switch off (O) and remove the key before opening the electrical control box.
- Take precautions to prevent hair, jewelry, or loose clothing from becoming caught in moving parts.
- Before use, all hoses and drain plugs must be secure.

NOTES:

- Pay attention to all decals and labels on this machine.
- If you have any questions, contact your supervisor or your local Cyclone Technology Dealer.
- Should your machine malfunction, do not attempt to correct the problem without proper authorization.
Only a trained company mechanic or an authorized Cyclone Technology dealer service person shall make repairs to this equipment.
- Reference the separately provided engine manufacturer's maintenance and operator manuals for more detailed engine specification and service data.

IV. SAFETY RECOMENDATIONS

STANDARD PRACTICES AND PROCEDURES

This information was prepared to aid in the identification of potentially unsafe conditions when using high-pressure washing equipment. These practices describe how to use high-pressure water jets for cleaning hard surfaces. These practices do NOT replace the training necessary to operate and maintain high-pressure water jet systems. It should be noted that other potential hazards might exist which have not been mentioned in this manual.

BEFORE OPERATING EQUIPMENT

Before operation of this equipment, it is important that you read the Operator's/ Owner's Manual for each of the component parts installed in your machine. It is especially important to read and understand the safety information included in the manuals. Failure to do so could result in damage to the equipment, serious injury or death to the operator and may void all warranties associated with this equipment.



WARNING!

This equipment has:
MOVING PARTS at HIGH RATES OF SPEED
VERY HOT WATER
HIGH PRESSURE WATER
DIESEL FUEL
PINCH POINTS



In all cases, Cyclone Technology products are sold with the understanding that the purchaser agrees to **THOROUGHLY TRAIN ALL OPERATING AND MAINTENANCE PERSONNEL IN THE CORRECT AND SAFE OPERATION AND MAINTENANCE OF THE CYCLONE SYSTEM.**

Do **NOT** attempt to change Original Equipment Manufacturer (OEM) parts or equipment. Use of non-OEM parts could result in damage to the equipment, serious injury or death to the operator and may void all warranties associated with this equipment.

EQUIPMENT & CLOTHING

1. Ear plugs, or other hearing protection devices are mandatory. The engines, pumps, and Cyclone Cleaning Head all produce noise levels high enough to cause hearing damage or loss.
2. Leather gloves should always be worn during operation. The water heater components of the Cyclone system use 160°F water. High-pressure and return hoses and couplings can get hot enough to burn you.
3. Safety glasses should be worn when operating the Cyclone System.
4. Long pants are recommended when operating the Cyclone System.

STANDARD PRACTICES AND PROCEDURES

1. Never leave the CY5500SK/CY210 engine running unattended.
2. A strong vacuum is formed from the rotation of the Cyclone cleaning head. Therefore, all surface plates such as manhole covers, utility access covers and large debris must be secured, removed or avoided during the cleaning process.
3. All surfaces should be swept of loose debris prior to operating the CY210, hard surface cleaner, the CY210 is not designed to pick up particulates.



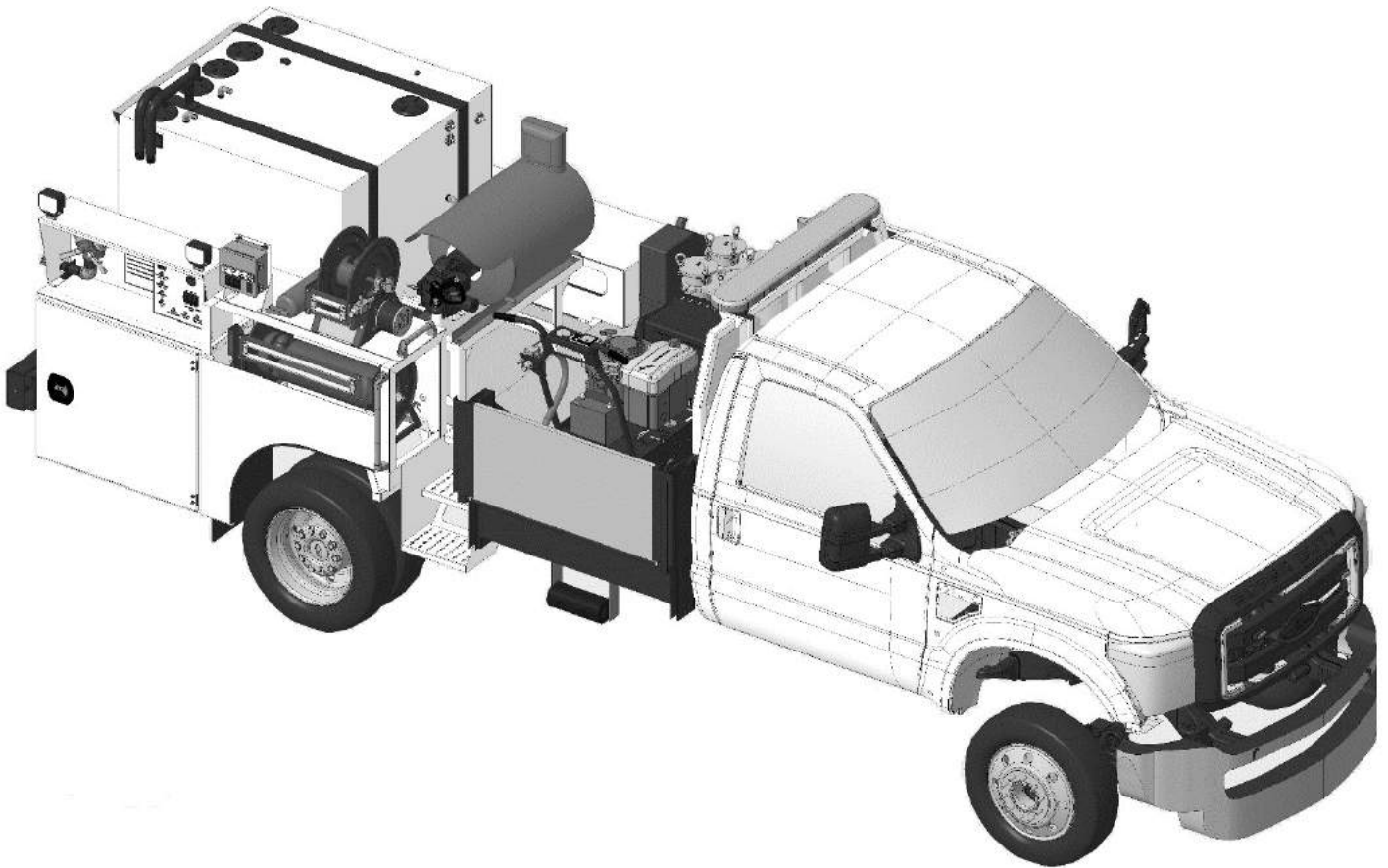
WARNING!

These items could cause extensive and costly damage to the blades and spray bars and serious injury or death to the operator.

1. Always turn off the engine before fueling.
2. Never point the hand-held spray gun at yourself or another person. Water coming out of the gun is at a high enough pressure to cause injury or death.
3. This equipment should not be used without consulting all applicable standards, guidelines, or recommendations of the United States Occupational Safety and Health Administration (OSHA), the American Society of Testing Materials (ASTM), the National Standards Institute (ANSI), and the instructions, recommendations and standards of Cyclone Technology. Cyclone Technology does not guarantee that the practices described, and the recommendations contained in this manual will prevent harm or injury, even when such equipment is properly used in conformity with the recommended practices. In the event of bodily injury, nothing in this manual should substitute for proper medical care.

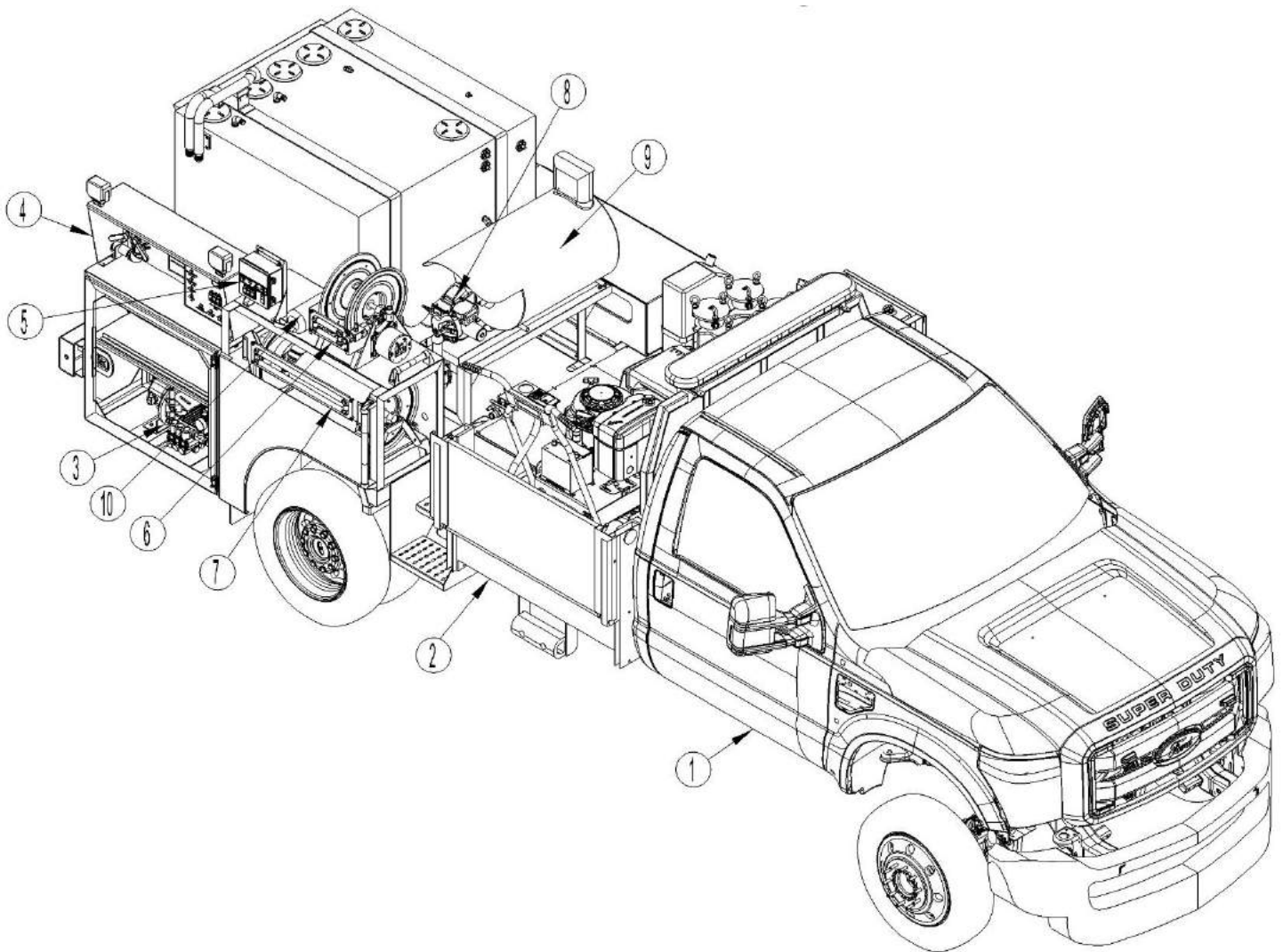
V. KNOW YOUR MACHINE

As you read through this manual, you will occasionally run across a bold number or letter in parenthesis, i.e. **(2)**. These numbers refer to an item shown on these pages unless otherwise noted. Refer to these pages whenever necessary to pinpoint the location of an item mentioned in the text. **NOTE:** Refer to the service section of this manual for detailed explanations of each item illustrated on these pages.



i. CURBSIDE OVERVIEW

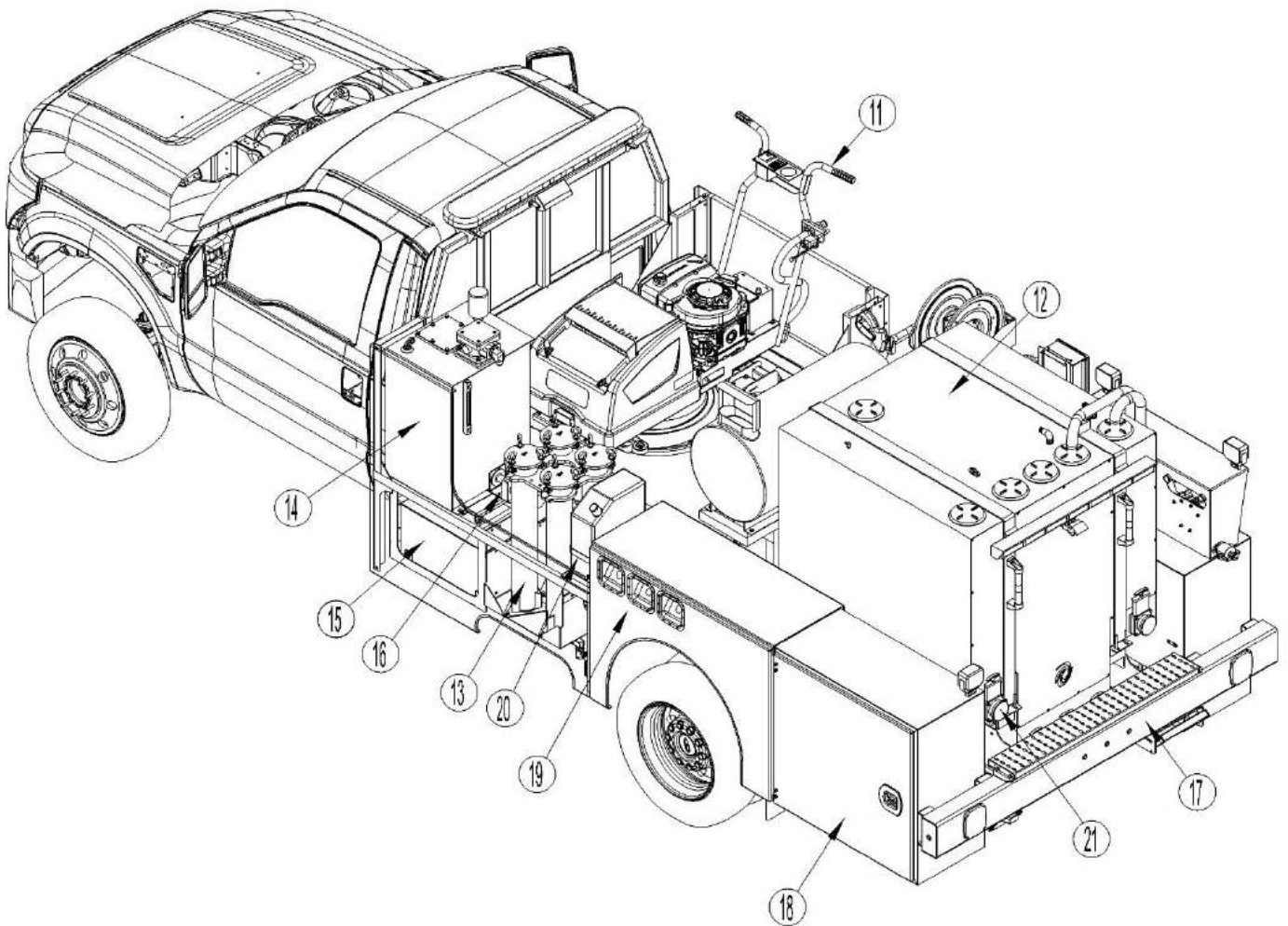
1. Ford F-450
2. Liftgate Ramp
3. Water Pump Assembly
4. Main Operation Controls
5. Auxiliary Controls
6. High Pressure Supply Hose Reel
7. Low Pressure Return Hose Reel
8. Diesel Fired Burner
9. Burner Coil
10. Fire Extinguisher



ii. ROADSIDE OVERVIEW

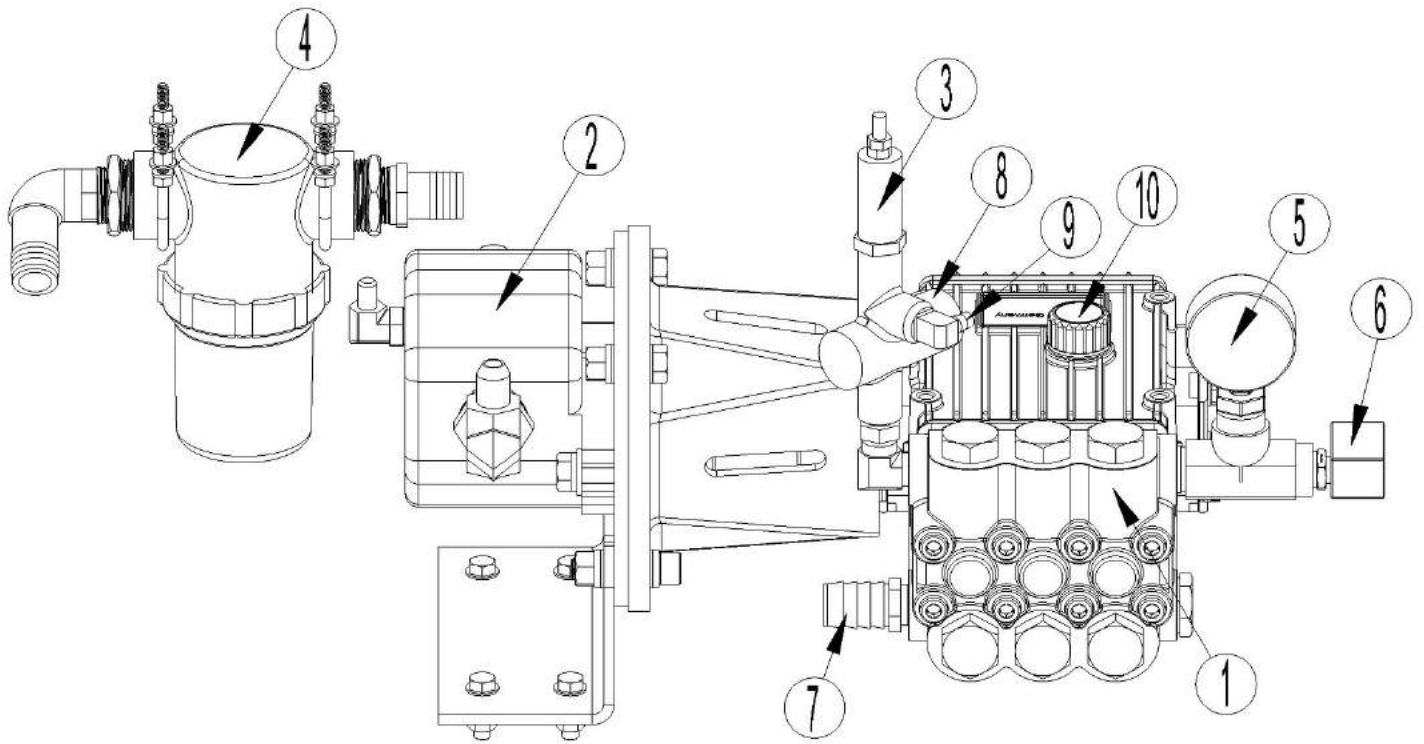
- 11. CY210 Walk Behind Cleaning Unit
- 12. Fresh/ Reclaim Water Tank
- 13. 30/75 Micron Filter Array
- 14. Hydraulic Tank
- 15. Auxiliary Diesel Fuel Tank
- 16. Cable Winch

- 17. Rear Bumper
- 18. Roadside Storage Box
- 19. Fuel Fill Location
- 20. Portable Diesel Fuel Tank
- 21. Drain Valves



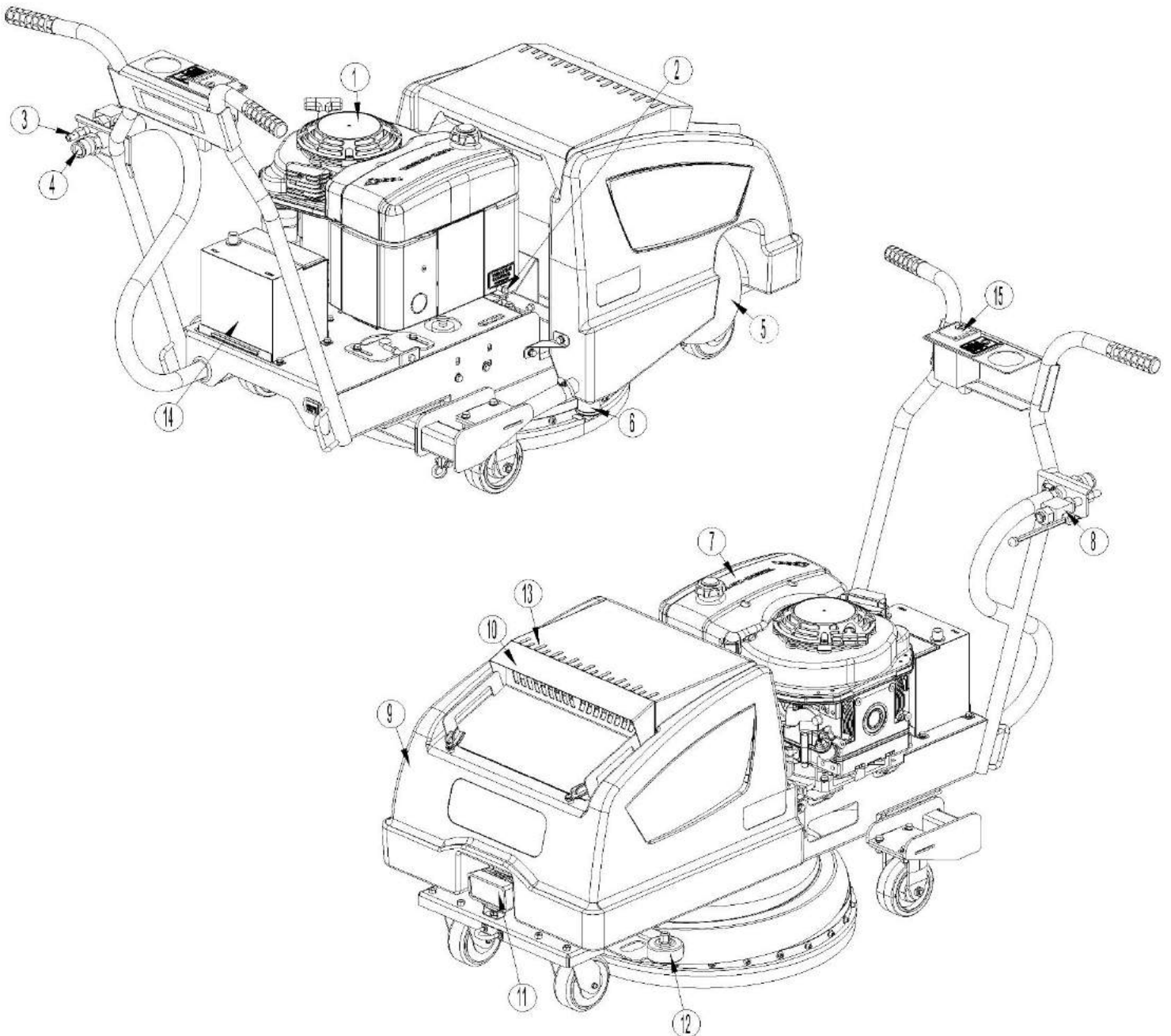
iii. WATER PUMP ASSEMBLY

- | | |
|-----------------------------|---------------------------------------|
| 1. High Pressure Water Pump | 6. Pressure Switch for Heater Control |
| 2. Hydraulic Motor | 7. Low Pressure Supply Line Input |
| 3. Unloader Valve | 8. High Pressure Output |
| 4. Pre-Filter Assembly | 9. Unloader Bypass Outlet |
| 5. Analog Pressure Gauge | 10. Oil Fill Cap/Dip Stick |



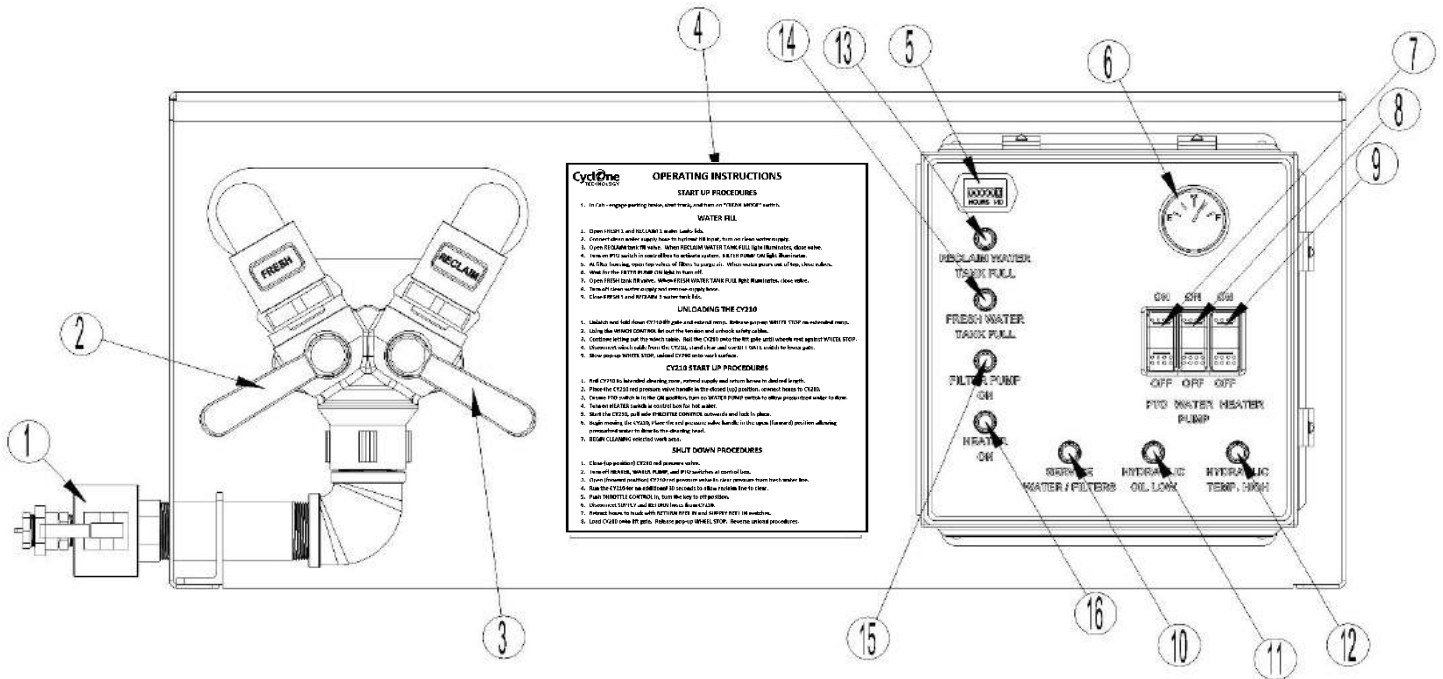
iv. CY210 WALK BEHIND CLEANING UNIT

1. Hatz 1B50V Diesel Engine
2. Throttle Control
3. High Pressure Input
4. Water Recovery Return Line
5. Recovery Port Tube
6. Recovery Tank Drain Plug
7. Fuel Tank
8. High Pressure Ball Valve
9. Recovery Tank
10. Large Debris Basket
11. Headlight
12. Cyclone Protective Roller
13. Path Aligning Decal
14. Battery
15. Engine Controls



v. MAIN OPERATION CONTROLS

The main control box located on the curbside rear of the truck is the location for controlling the pressure washing components of the system. The inlet wye valve is used to divert the flow of the water source to either fill the fresh or reclaim tanks. The operating procedures (center) is a simplistic step by step guide on how to begin operating the machine when the truck has arrived at the cleaning location. The switch cluster is used to turn major components of the system on and off, the system cannot be used without the CLEAN MODE switch being turned on inside of the cab. The indicators lights will give the operators precise information, from the initial filling sequence of the machine up to operation and warnings of the system.



1. Water Inlet Port- Port where the water tank can be filled from a fresh water source. This port accepts a hose with either ¾" male garden fitting or a 2" female cam-lock fitting. **DO NOT USE TAINTED OR DIRTY WATER TO FILL THE CY5500SK OR THE SYSTEM'S HIGH-PRESSURE WATER CIRCUIT CAN BE DAMAGED.**
2. Fresh Fill Valve – The fresh fill valve fills both Fresh #1 and #2 tanks.
3. Reclaim Fill Valve - The fresh fill valve fills all reclaim tanks in order from #1 to #3.
4. Operating Instructions – The operating instructions decal is a convenient reminder of how to operate the CY5500SK
5. Hour Meter – The hour meter displays the number of hours that the machine's PTO circuit is on.
6. Auxiliary Fuel Tank Level – This gauge shows the fuel level in the auxiliary diesel tank used by the burner.

7. PTO Control Switch –Switch that enables the system to function by commanding the truck to go into PTO mode and start powering the hydraulics that run the machine's cleaning system.
8. Water Pump Control Switch –Switch that turns on the high-pressure pump (if all other fail-safes will allow).
9. Heater Control Switch – Switch that turns on the water heater burner (if all other fail-safes will allow)
10. Service Water/ Filters Light – This light lets the user know if the water in the fresh water supply tanks is low or if the water in Reclaim #3 is too high.
 - Low Fresh Water – Water level for the high-pressure pump is insufficient.
 - Reclaim #3 Water – Machine is unable to filter water faster than it is picking it up. Filters must be cleaned.
11. Hydraulic Oil Low Light – Level of hydraulic oil level in tank is low.
12. Hydraulic Temperature High Light – Temperature of hydraulic oil in tank is too high.
13. Reclaim Water Tank Full Light – Water level in Reclaim tanks has reached filling capacity.
14. Fresh Water Tank Full Light - Water level in Fresh tanks has reached filling capacity.
15. Filter Pump ON Light – Light shows the filter pump hydraulic command circuit it on; filter pump is running.
16. Heater ON Light – Light shows that the water heater is being commanded to turn on; burner running.

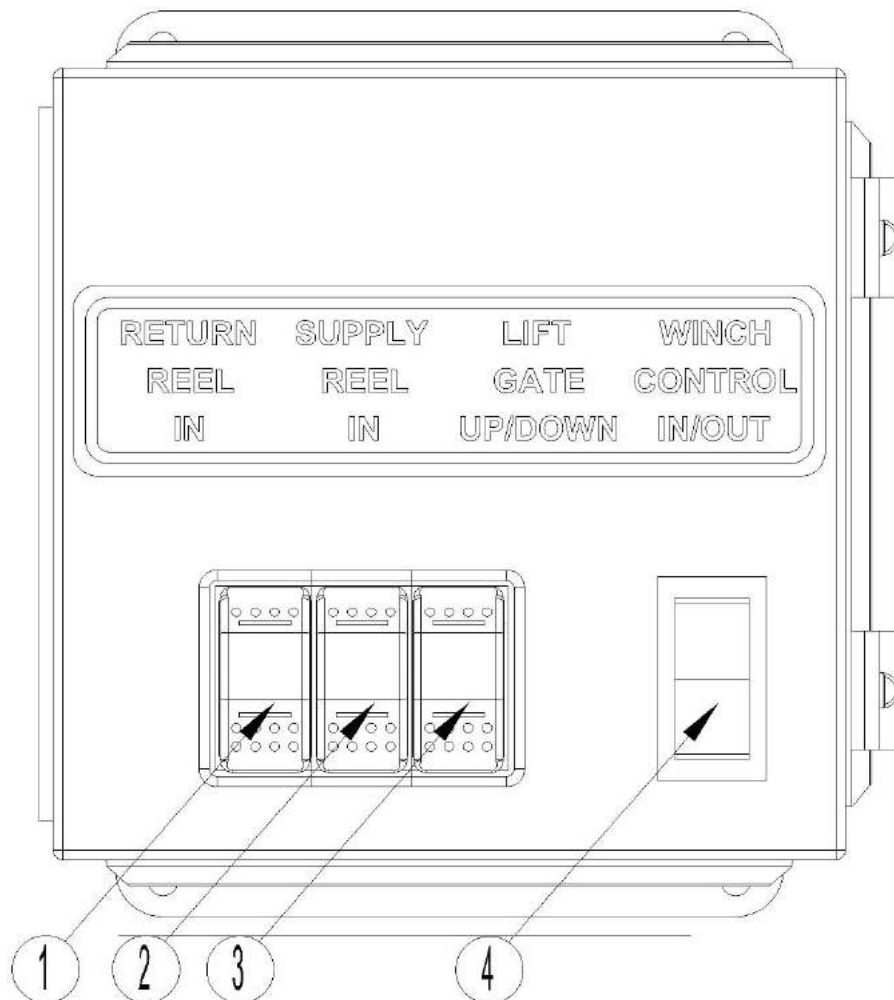
vi. AUXILIARY CONTROLS

The auxiliary control box is used for controlling the return of both hose reels, the liftgate and the winch. The switchbox is powered whenever the truck's ignition is turned on.

-When using the return and supply reel, be sure to guide the hose with the opposite hand onto the reel in an even manner. Always wear gloves when guiding the hose onto the reel.

-When raising or lowering the lift gate, be sure that no other person is nearby the lifting mechanism or the ramp itself. Consider the area around the liftgate to be a hazardous area.

1. Return Reel IN (single position momentary switch)
2. Supply Reel IN (single position momentary switch)
3. Liftgate UP/DOWN (dual position momentary switch)
4. Winch Control IN/OUT (dual position momentary switch)



VI. CY5500SK OPERATIONS

i. FUELING THE CY5500SK

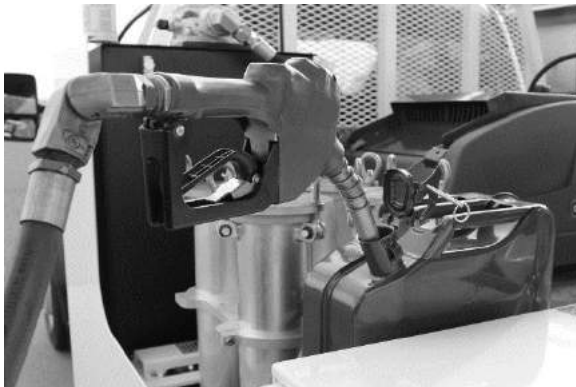
The CY5500SK is equipped with 3 separate fuel tanks. One tank is used for providing fuel for the truck engine, one is used for providing fuel for the water heating burner and the last is used for mobile refueling of the CY210 unit. All fuel tanks use ULTRA LOW SULFUR DIESEL FUEL ONLY. The fuel gauge of the truck is found on the dashboard, the fuel gauge of the auxiliary tank is found on the operational control box.



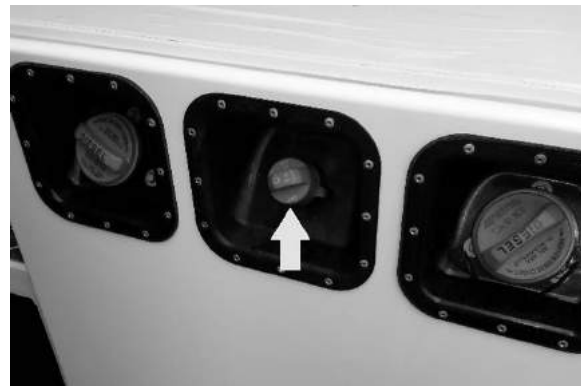
Truck Diesel Filler Location



Water Heater Burner Location



CY210 Fuel Can



Truck DEF Fill Port Location

ii. DIESEL EXHAUST FLUID

The Ford truck's modern diesel catalyst system requires the use diesel exhaust fluid (DEF) for the truck's engine to run properly. The DEF fluid fill point (blue cap) is located between the two diesel tank filler necks. The DEF tank holds approximately 7.2 gallons and the level is monitored by the truck's computer. When the tank gets low the operator/driver will be notified by a warning light in the cab. Please note that if this tank is run dry, the truck's engine will retard and only allow the driver to travel at a reduced speed.

ii. FILLING FRESH/RECLAIM WATER TANK

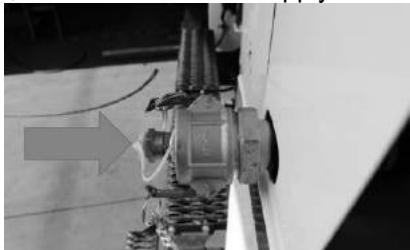
1. In Cab - **engage parking brake**, start truck, and turn on “CLEAN MODE” switch.



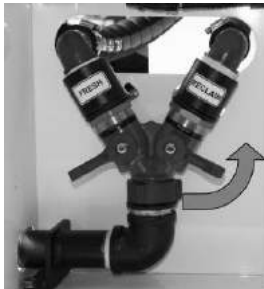
2. Open FRESH 1 and RECLAIM 1 water tank lids.



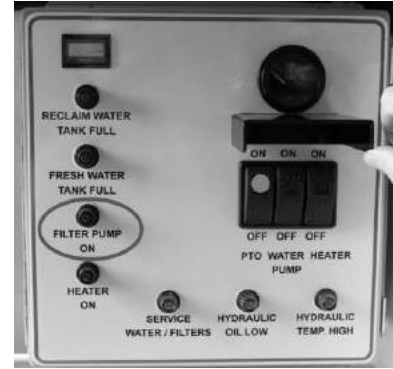
3. Connect clean water supply hose to hydrant fill input, turn on clean water supply.



4. Open RECLAIM tank fill valve. When RECLAIM WATER TANK FULL light illuminates, close valve.



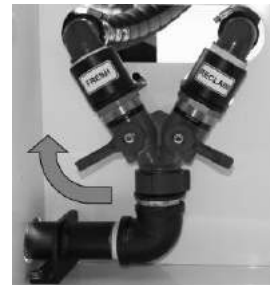
5. Turn on PTO switch in control box to activate system. FILTER PUMP ON light illuminates.



6. At filter housing, open top valves of filters to purge air. When water pours out of top, close valves.



7. Wait for the FILTER PUMP ON light to turn off.
8. Open FRESH tank fill valve. When FRESH WATER TANK FULL light illuminates, close valve.



9. Turn off clean water supply and remove supply hose.
10. Close FRESH 1 and RECLAIM 1 water tank lids.



CAUTION!

ONLY USE A CLEAR FRESH WATER SOURCE TO FILL THE WATER TANKS. TAINTED/DIRTY WATER CAN DAMAGE THE HIGH-PRESSURE PUMP AND CAUSE OTHER SYSTEM MALFUNCTIONS. ALWAYS LET HYDRANTS AND INFREQUENTLY USED WATER VALVES TO “RUN CLEAR” BEFORE USING THEM TO FILL THE MACHINE.



CAUTION

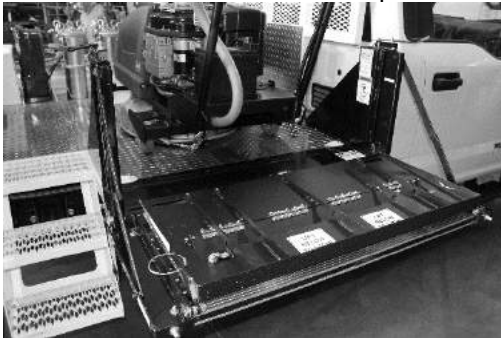
CY5500SK SHOULD NEVER BE USED IN COMBINATION WITH ANY ACIDS, ALKALINES, OR ABRASIVE FLUIDS. THE USE OF ACIDS, ALKALINES, OR ABRASIVE FLUIDS WITHIN THE CY5500SK MAY RESULT IN PERMANENT DAMAGE TO CRITICAL COMPONENTS AND MAY VOID THE MANUFACTURER’S WARRANTY. BEFORE INTRODUCING ANY CHEMICALS TO THE CY5500SK CONTACT YOUR LOCAL CYCLONE TECHNOLOGY AUTHORIZED DEALER FOR FURTHER INFORMATION. CYCLONE TECHNOLOGY TECHNICAL SUPPORT **1-800-335-9695** OR **INFO@CYCLONECLEAN.**

iii. UNLOADING THE CY210 CLEANING UNIT



BE AWARE AND ATTENTIVE WHEN UNLOADING THE CY210. PROCESS ONLY TO BE COMPLETED WITH 2 PEOPLE. NOT FOLLOWING WRITTEN INSTRUCTION CAN LEAD TO DEATH OR INJURY. ALWAYS INSURE CY210 UNIT IS CONNECTED TO A SAFETY POINT UNTIL UNIT REACHES THE GROUND. PAY ATTENTION TO ALL DECALS AND LABELS ON LIFTGATE MECHANISM.

1. Unlatch and fold down CY210 lift gate and extend ramp. Release pop-up WHEEL STOP on extended ramp.



2. Using the WINCH CONTROL let out the tension and unhook safety cables.



3. Continue letting out the winch cable. Roll the CY210 onto the lift gate until wheels rest against WHEEL STOP. Connect safety cables to ramp outer loop once resting against wheel stop.



4. Disconnect winch cable from the CY210, stand clear and use LIFT GATE switch to lower gate.



5. Connect safety chains to rear of unit, stow pop-up WHEEL STOP, and unload CY210 onto work surface.




iv. PREPARING TO CLEAN & STARTUP

1. When positioned in your desired cleaning area, manually unreel desired length of both the high-pressure hose and the return hose from the hose reels. Extend both hoses in a straight line, doing so will both maximize your cleaning space and efficiency. Remember always work away from the hosing.
2. Connect the high-pressure line using the quick connect fitting to the CY210 cleaning unit.
3. Connect the return line using the cam lock fitting to the CY210 cleaning unit and install cotter pins.
4. Start the CY210 cleaning unit by turning the key, located on handle bars, hold key in start position until engine begins running, up to 30 seconds. If the engine has trouble starting, make sure that the throttle is in the idle position.
5. Once the engine is started and warmed up, pull and lock throttle lever to high position.
6. Engage the WATER PUMP switch to begin the flow of high pressurized water. If heated water is desired, engage the switch labeled HEATER.
7. Begin moving the cleaning unit, push the ball valve controlling the flow of the pressurized water to the walk behind cleaning unit all the way forward, making sure to open it completely.



You are now cleaning.

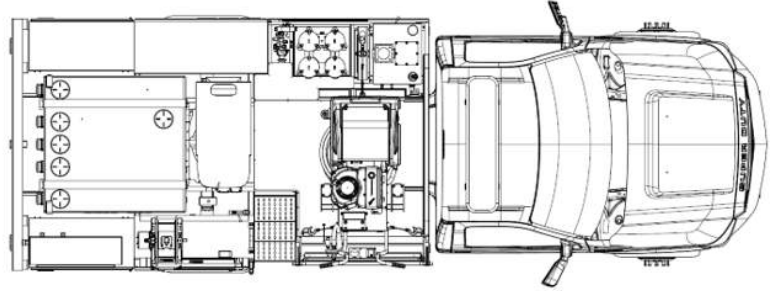
WARNING! 

DURING OPERATION OF THE CY210 **HEARING PROTECTION IS REQUIRED.** THE ENGINE, PUMPS, AND CYCLONE CLEANING HEAD ALL PRODUCE NOISE LEVELS HIGH ENOUGH TO CAUSE HEARING DAMAGE OR LOSS.

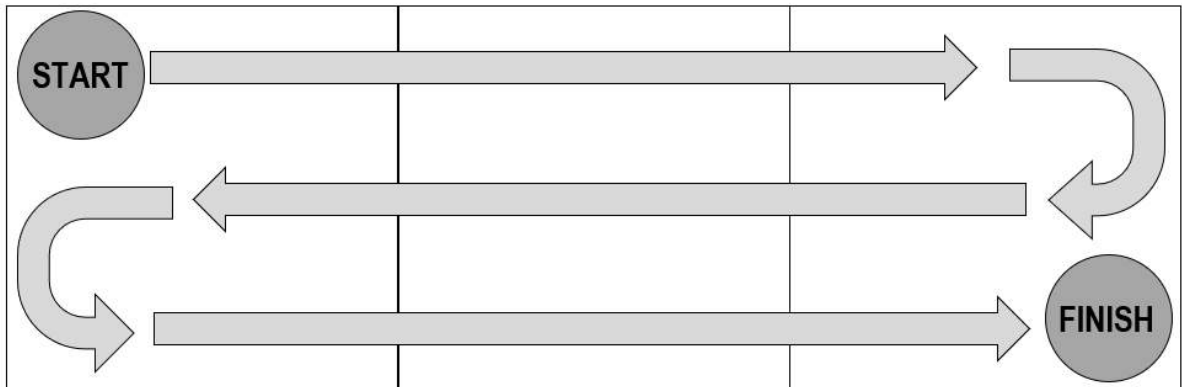
CAUTION
HEARING
PROTECTION
REQUIRED
DURING
OPERATION



v. RECOMMENDED CLEANING PATH



SIDEWALK ENLARGED TO SHOW DETAIL



CLEANING SUGGESTIONS:

- Slower movement of the CY210 will result in a better clean.
- Use a team system, one person operating the walk behind unit and the other guiding the hoses
- Work away from the CY5500SK, start at one end and work back and forth



WARNING!

CONTINUOUSLY MOVE THE CLEANING HEAD WHILE SPRAYING HIGH PRESSURE WATER. IF STOPPED MOVING, IMMEDIATELY CLOSE THE BALL VALVE STOPPING THE FLOW OF HIGH PRESSURE WATER!



WARNING!

DO NOT ALLOW THE CY210 UNIT TO RUN FOR EXTENDED PERIOD OF TIME (30s+) WITHOUT SPRAYING WATER. THIS CAN CAUSE THE ROTATING UNION INSIDE THE MACHINE TO FAIL PREMATURELY.

vi. SHUT DOWN AND LOADING PROCEDURE

1. Close (up position) CY210 red pressure valve.



2. Turn off HEATER, WATER PUMP, and PTO switches at control box.
3. Open (forward position) CY210 red pressure valve to clear pressure from fresh water line.
4. Run the CY210 for an additional 30 seconds to allow reclaim line to clear.
5. Unlatch and return THROTTLE CONTROL to idle position, turn key to off position.



6. Disconnect SUPPLY and RETURN hoses from CY210. Cap the RETURN line
7. Retract hoses to truck with RETURN REEL IN and SUPPLY REEL IN switches.

8. Unfold the CY210 liftgate and ramp, lower to position where end of ramp contacts surface and then stop lowering.



9. Release pop up WHEEL STOP, roll CY210 onto stowed position on ramps, then attach securing chains to ramp's safety cables.



10. Raise liftgate until the ramps have reached maximum height.
11. Attach winch to front of CY210 unit and disconnect safety chains on ramp.
12. Using the WINCH CONTROL switch, move CY210 onto truck deck until safety chains can be connected to deck D-rings, once connected, continue until winch pulls the unit tightly in a bind.
13. Pull backwards on CY210 to ensure it is secure in place, close pop up WHEEL STOP and fold ramp and liftgate ramps back to vertical position on truck. Ensure both upper ramp release points are properly secure.
14. Turn off CLEAN MODE switch inside cab.



DANGER!

BE AWARE AND ATTENTIVE WHEN LOADING THE CY210. PROCESS ONLY TO BE COMPLETED WITH 2 PEOPLE. NOT FOLLOWING WRITTEN INSTRUCTION CAN LEAD TO DEATH OR INJURY. ALWAYS INSURE CY210 UNIT IS CONNECTED TO A SAFETY POINT UNTIL UNIT REACHES THE GROUND. PAY ATTENTION TO ALL DECALS AND LABELS ON LIFTGATE MECHANISM.

VII. END OF SHIFT CLEANING PROCEDURE

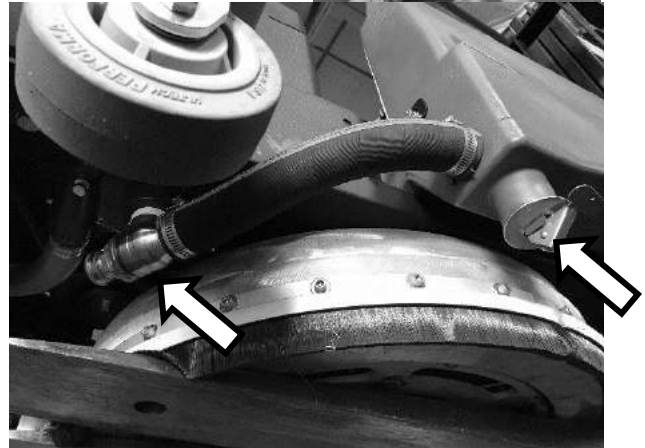


CAUTION!

IT IS EXTREMELY IMPORTANT TO THOROUGHLY CLEAN THE CY210 CLEANING UNIT AND THE CY5500SK AFTER EVERY USE! FAILURE TO PROPERLY CLEAN THE MACHINE PER THE FOLLOWING PROCEDURE, CAN LEAD TO POOR PERFORMANCE, FAILURE OF CRITICAL COMPONENTS AND CAN VOID THE MANUFACTURER'S WARRANTY.

i. CY210 WALK BEHIND CLEANING HEAD

1. Once finished cleaning remove the large debris basket from the CY210 recovery tank and thoroughly clean it out using a standard garden hose.
2. Remove the recovery tank plug and recovery pump cap, to allow water and trapped sediment to drain out of the CY210 walk behind unit.
3. Flush out the CY210 recovery tubes, recovery pump as well as the recovery tank with a standard garden hose. Scoop out any sediment which may be left in the CY210 recovery tank.
4. When the recovery tank is thoroughly cleaned out, place the large debris basket back into the recovery tank, replace tank plug, and recovery pump cap. When replacing the recovery tank basket make sure to line up the screen hole with the port tube and push the debris basket all the way forward in the recovery tank.
5. Once the CY210 cleaning unit has been serviced properly and reassembled, return the unit to the storage deck on the CY5500SK. See page 23

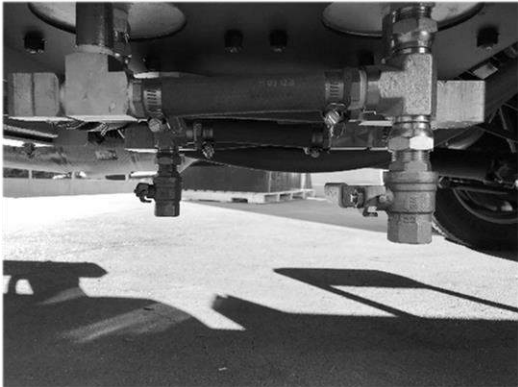


ii. CY5500SK WATER TANK, FILTERS AND HOSES

1. Remove the caps and pull up on the T-handles on the drain valves to drain the **reclaim tanks only**. Fill fresh water tanks at least half full.



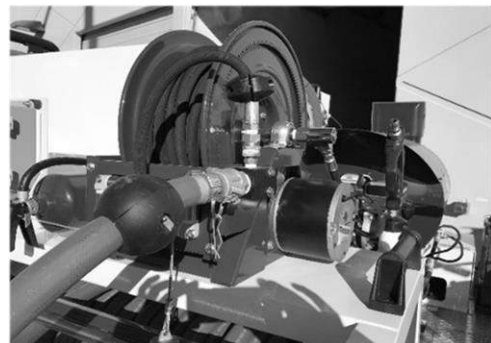
2. Open both downward pointing ball valves on the bottom side of filters. This will drain both the 75 and 30-micron filter housings.



3. Loosen the eye nuts securing the filter housing lids. Remove the lids and set aside. Remove the stainless-steel filter elements from the filter housings and rinse the filter housings thoroughly



4. Remove the cleaning wand from its storage holster located next to the maintenance stairs and connect the high-pressure water line.
5. After making sure the truck's parking brake and CLEAN mode switches in the cab are on, also turn on PTO, WATER PUMP and HEATER switches on the main control panel.
6. Using the cleaning wand, thoroughly clean the stainless-steel filter elements.
7. Once you have cleaned the filter elements, return them to their proper filter housing making sure to replace the 30 micron and 75 micron filters in the correct filter housings, secure the lids and tightening the eye nuts. Make sure O-rings are in place.
8. Turn off the WATER PUMP and HEATER switch and clear the cleaning wand of any pressurized water before unhooking the high-pressure water line. Connect pressure and reclaim lines to cleanout manifold located on the side of the high-pressure reel. Return the cleaning wand to storage tube.



9. Turn on the WATER PUMP SWITCH and allow water to backflow into reclaim 1 tank until water runs clear,

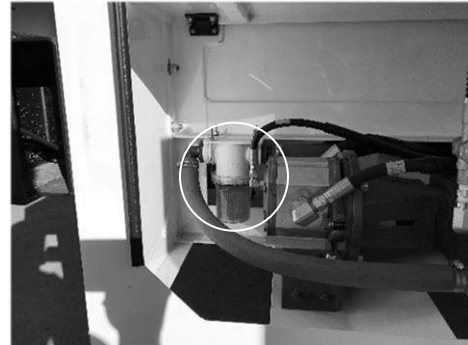
approximately 2 minutes.

10. You may now drain off all remaining water in the fresh water tanks by removing the caps and pulling up on the T-handles of the drain valves.



11. Using a standard garden hose rinse the reclaim and fresh water tanks of any residual debris that may be left in the tanks.

12. Remove and clean both small mesh filter elements, located on the filter pump and inside the passenger side tool box next to the high-pressure pump.



13. Once the water tank has been properly serviced you may replace all caps and close all valves for storage.

VIII. OPERATIONAL TROUBLESHOOTING

Troubleshooting of the CY5500SK and CY210 walk behind unit is important to insure proper pressure washing and proper reclaiming of the system.

i. RECLAIM HOSE PLUGGING

The reclaim hose transfers collected debris and water back from the CY210 into the recycling water tank. Occasionally, this hose will become plugged and the system will not be able to pump the water and debris back into the water tank.

1. WHAT TO LOOK FOR

If the cleaning head is not picking up, it may be a result of a debris plug somewhere between the return pump on the CY210 and the inlet to reclaim tank #1 OR it may be caused by the return pump breather line being plugged. To narrow down where the potential plug is located, the cleanout manifold mounted on the side of the high-pressure hose reel can be very useful.

2. BREATHER LINE ON THE RETURN PUMP

The breather line on the CY210's return pump is vital to keep water flowing into it. If the breather line or fitting is plugged, the pump will back up water into the recovery tank and overflow. This symptom is often misdiagnosed as a plug somewhere in the reclaim line. Before looking for a reclaim line plug always first check to see if the breather hose or breather hose fittings are clear.



3. COMMON LOCATIONS FOR PLUGGED HOSE

The common locations for plugs in the reclaim hose are:

- 90 fitting at the inlet of the return pump on the CY210.
- 90 swivel fitting on the outlet of the return hose reel.
- 90 fitting on the top of the reclaim tank #1.

4. HOW TO USE THE CLEANOUT MANIFOLD TO LOCATE PLUGS

- Connect the high-pressure line from the pump to the top fitting on the cleanout manifold.
- Next pull all the reclaim line off the hose reel and detach the female cam lock fitting from the hose reel spindle.
- Connect this fitting end to the cleanout manifold.
- Connect the other end of the reclaim hose to the CY210 and remove the tank drain plug from the CY210's recovery tank.
- Turn on the high-pressure water pump by turning on the PTO and WATER PUMP switches on the main control box.

- Wait about 20-30 seconds to see if water comes out of the CY210's drain plug or if it comes out of the pressure relief valve on the cleanout manifold.
- If water comes out of the drain plug, then the line running to the CY210 through its return pump, are free. Thus, the plug must be between hose reel input and the 90-degree fitting on the top of reclaim tank #1.
- If water comes out of the relief valve then the plug is either in the drain line running to the CY210, in the return pump or in the hose running from the CY210's recovery tank sump to the return pump.

5. HOW TO ALLEVIATE THE PROBLEM

- Obstructions in the reclaim hose can be cleared by pounding out the plug with a mallet or other dull striking object. Obstructions in the fittings can be cleared by using a screwdriver or heavy gauge piece of wire.
- After clearing the obstruction, always flush the entire reclaim hose system with fresh water by using the cleanout manifold.
- Please note that flushing out the reclaim line after every use is an important practice to avoid plugging.

ii. LOSS OF OUTLET PRESSURE

The CY5500SK is designed to operate at a consistent water pressure, varying between 2000 and 3600psi depending on spray tips used by the CY210 and cleaning wand. If the pressure rapidly drops below the consistent pressure use the following steps to isolate the cause.

1. Replace the spray tips, inspect for increased jet size at bottom of spray tip.
2. Inspect the rotating union for any leaks, replace seals if necessary (see service manual for instructions).
3. Inspect all the high-pressure hose and fittings, looking for any damage and water tightness. Fittings and hoses connect pressure pump, burner coil and high-pressure hose reel.

Once you have ruled out the pressure tips, rotating union, and pressure lines you may begin to inspect the pressure pump. The pressure pump is made up of a series of chambers containing seals, check valves and plungers. The damage to, or failure of, any one of these components could result in a drop-in pressure. See service manual for instructions for replacing these components.

iii. WATER LEAKING FROM PUMP

Even a small water leak in the pressurized water system of the CY5500SK can result in a significant drop in pressure. If there is water leaking between the brass head of the pump and the case of the pump, it is most likely the result of a failure in the pump seals. See service manual for instructions for replacing these components.

iv. SPIKE IN PRESSURE

If the pressure rapidly spikes above the consistent pressure use the following steps to isolate the cause.

1. Replace the spray tips, inspect for blockage of the outlet jet. The CY5500SK is designed to operate with specific spray tips for the intended system pressure. When replacing tips be sure to wrap the threads of the spray tip with a minimum of 5 wraps of Teflon tape. Refer to page 32 of this manual for detailed instructions on changing the spray tips in the CY210.
2. Inspect the rotating union for any blockages, replace seals if necessary (see service manual for instructions).
3. Inspect all the high-pressure hose and fittings, looking for corrosion or blockages. Fittings and hoses connect pressure pump, burner coil and high-pressure hose reel.

IX. Maintenance

Keep the machine in top condition by following the maintenance schedule closely. Maintenance intervals given are for average operating conditions. Machines used in severe environments may require service more often. In general:

1. Keep the fuel tank filled (diesel). This helps to reduce condensation and moisture entering the fuel system.
2. Be aware of the high/low water level amber service indicator light.
3. Clean your filtration system as well as your CY210 cleaning unit after every use to maximize your cleaning ability.
4. Reference the diesel fired burner, water pump and diesel engine service manuals for recommended engine service intervals and procedures.

i. RECOMMENDED SERVICE MATERIALS

1. Engine Oil (10W 30); reference engine manual for extreme weather applications
2. Full synthetic oil for pressure pump (20W 50)
3. Multipurpose bearing grease
4. Teflon tape type thread sealant in the appropriate grades
5. Never-Seez® (or equivalent) anti-seize compound

ii. CY210 CLEANING UNIT MAINTENANCE CHART

CY210 CLEANING UNIT	AS NEEDED	16 HOURS	40 HOURS	200 HOURS
CYCLONE BELT TENSION AND CONDITION			✓	
GREASE LUBRICATION POINTS			✓	
CYCLONE BRUSH CONDITION			✓	
CYCLONE PRESSURE TIPS	✓			
CYCLONE HARDWARE		✓		
CYCLONE DECK CASTERS				✓
INSPECT CYCLONE BLADES AND BARS			✓	
ENGINE MOUNT BOLTS			✓	
SERVICE BATTERY CONNECTION				✓

iii. CHANGING SPRAY TIPS

The spray tips used inside the CY210 and with the hand wand will determine the output pressure of a properly functioning CY5500SK. The following table gives examples of expected output water pressure vs. the size of the spray tips used:

CY210 (two of each tip)		Wand Tip (single tip)	
Tip Size (GPM)	Approx. Resulting Pressure (psi)	Tip Size (GPM)	Approx. Resulting Pressure (psi)
3.0	3600	6	3600
3.5	2700	6.5	3100
4.0	2000	7	2700
4.5	1600	7.5	2300
5.0	1300	8	2000
5.5	1100	8.5	1800
6	900	9	1600

If the tips are worn, blocked, etc., the expected output pressure of the high-pressure water system will be affected. If the tips are suspected of being the cause of a possible loss in pressure, use the following information to properly change them.

1. Cyclone Technology recommends 40-degree size spray tips for use in the CY210 walk behind.
2. Spray tips **(1)** can be expected to be changed every 8-16 pump hours. A loss in pressure is an indicator that the spray tips may need changing.
3. Use a 9/16" shallow well socket to remove the spray tips from the spray bars **(2)**. This can be done without removing the protective disc **(3)**.
4. Wrap the threads of the new pressure tips with a minimum of 5 wraps of Teflon tape and replace into the spray bar. Be sure to line up the slot in the pressure tip parallel with the spar bar, this is essential in making sure that the high-pressure water completely covers the surface being cleaned.
5. When changing tips, be sure to inspect the CY210 hardware and turbine blades **(4)** for damage/severe signs of erosion.

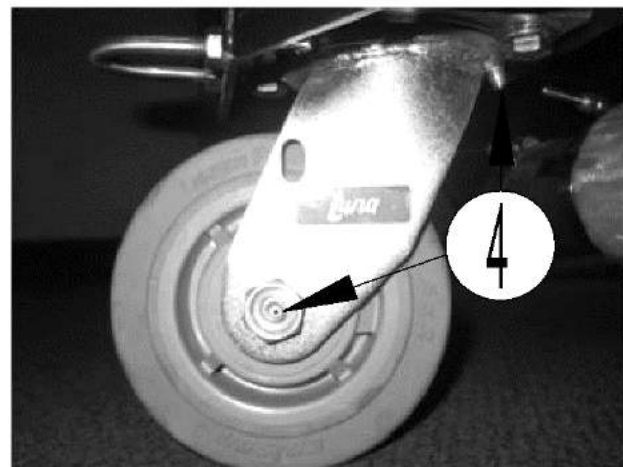
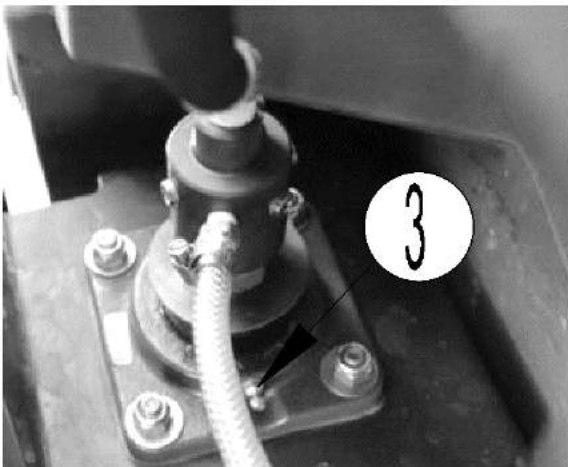
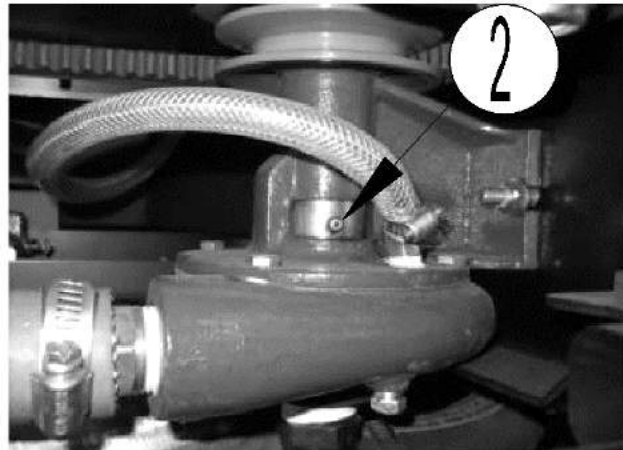


WARNING!

ALWAYS SUPPORT THE CYCLONE HEAD PRIOR TO WORKING BENEATH THE DECK. WHEN INSTALLING NEW SPRAY TIPS, THEY MUST HAVE A MINIMUM OF 5 WRAPS OF TEFLON TAPE TO ENSURE THE STAINLESS-STEEL THREADS ON THE TIP DO NOT CONTACT THE THREADS OF THE STAINLESS-STEEL SPRAY BAR. CONTACT BETWEEN THE TWO CAN CAUSE THE TIP TO SEIZE INSIDE THE SPRAY BAR, RESULTING IN THE SPRAY BAR HAVING TO BE REPLACED.

iv. GREASING LUBRICATION POINTS

It is recommended that you are diligent in greasing the lubrication points on the CY210 regularly. There are four components on the CY210 which require greasing, they are located on the lower spindle bearing (1), at the front of the cleaning head on the recovery pump (2), and in the center of the CY210 unit at the rotating assembly (3), which supplies pressurized water to the cleaning head. Also, the front caster needs to be greased regularly (4). When greasing these points always use multipurpose bearing grease, and it is recommended that you grease these points after every 40 hours of operation points 1, 3 & 4 every 40 hours. The grease point on the return pump should only be greased every 800-1000 hours (1 pump only).



X. WATER FLOW CHART

