MOBIUS

MM20 & MM65 WASH SYSTEM

USER GUIDE v1.0

Introduction

This User Guide is a comprehensive manual covering the operation and maintenance of the Mobius MM20 and MM65 wash systems as of the date of publication. Eteros Technologies reserves the right to make updates to the machines from time to time. In the event of an update, this User Guide will remain appropriate for the safe operation and maintenance of your units. This User Guide, as well as any documentation supplied by component manufacturers, are to be considered the information package associated with these devices. Every operator must read and understand the User Guide. The manual should be located within easy access for periodic review.

Safety Message

To ensure operator safety while in use, this device includes decals, guarding, and other safety
features. Operators are encouraged to use caution and best judgment when using the equipment. Equipment should be serviced when required.

To avoid possible damage to the machines and risk of injury to the operator, consult with an Eteros Technologies representative to answer any questions.

This document refers to the Eteros Technologies hash washing machines, the MM20 and MM65. Careless or improper use may cause serious injury. Please read and understand these precautions thoroughly before using the machines.

All operators must read and understand this User Guide and be trained in the safe operation and use of the MM20 and MM65 wash systems. We recommend the owner of this equipment develop a standard operating procedure (SOP) specific to each worksite to address any local hazards or other conditions not outlined in this User Guide. The MM20 and MM65 wash systems must be inspected regularly for damage, component failure, and wear. The results of the inspection activity should be documented.

Eteros Technologies makes every effort to ensure the MM20 and MM65 wash systems are compliant with all current safety standards. It is the responsibility of the owner to ensure all municipal, provincial, state, county, territorial, federal codes, regulations, and standards have been met in each working location.

Do not lend or rent your machines without providing the User Guide. A first-time operator should receive practical instruction before using the machines.

These machines are not to be used for any purpose other than those expressly stated in the User Guide, advertising literature, or other Eteros Technologies written material pertaining to the MM20 and MM65 wash systems.

Operators must be in good physical condition and mental health to operate these devices. Under no circumstances should these devices be operated by any person under the influence of any substance, including drugs or alcohol, which might impair vision, dexterity, or judgment. Do not operate the MM20 and MM65 wash systems when fatigued. Be alert. If tired while operating these devices, take a break. Fatigue may result in loss of control. Working with any equipment can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating these devices.

Disclaimer

Eteros Technologies recognizes that the MM20 and MM65 wash systems are purpose-built machines for processing cannabis by licensed producers. Please check all municipal, provincial/state, and federal laws and regulations before using the MM20 and MM65 wash systems. Eteros Technologies does not promote or condone the use of processing equipment in any way that may be deemed illegal.

Eteros Technologies recognizes that our equipment can be used for processing herbs, hops, flowers, and many other products. It is not the responsibility of Eteros Technologies to confirm alternative applications for our equipment.

Warning Labels

Your safety and the safety of others are very important. We have provided important safety messages in this manual and on the Mobius MM20 and MM65. This information alerts you to potential hazards that could hurt you or others. Please read these messages carefully. Of course, it is not practical or possible to warn you about all the hazards associated with operating or maintaining a hash washer. You must use your own good judgment.

You will find important safety information in a variety of forms:

- **Safety Labels** - located on the hash washer.
- **Instructions** - how to use this hash washer correctly and safely.
- **Safety Messages** - preceded by a safety alert; a symbol and one of three signal words:

DANGER, WARNING, or CAUTION

DANGER:
Indicates a hazardous situation that, if not avoided, will result in serious injury and / or death. This signal word is to be limited to the most extreme situations; typically for machine components that, for functional purposes, cannot be guarded.

WARNING:
Indicates a potentially hazardous situation that, if not avoided, could result in serious injury and/or death. It includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION:
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Damage Prevention Messages - You will also see other important messages that are preceded by the word NOTICE. This word means:

NOTICE Your hash washer or other property can be damaged if you don't follow instructions.

Service and Repairs

Repairs must be carried out in consultation with Eteros Technologies' Technical Support department. Only original equipment manufacturer (OEM) Mobius parts are to be used for repairs.

Should the need arise, please notify us:

ETEROS TECHNOLOGIES
26 Industrial Ave.
Carleton Place, Ontario, Canada
K7C 3T2

www.eteros.com
www.mobiustrimmer.com
support@eteros.com
1-866-874-6244

Improper interfacing, improper repair, or unauthorized modification could result in void warranty claims.

Warranty

Thank you for your purchase of the Mobius MM20 or MM65.

The Mobius MM20 and MM65 are covered by our manufacturer's warranty as follows:

- No warranty on consumable parts, including micron bags;
- Warranty coverage for one (1) year or 1,000 operating hours, whichever occurs first, on motors, electrical components, and the remainder of machine components.

The warranty period begins upon confirmed delivery of the equipment to the customer, as verified by shipping records.

The above terms are valid if Mobius equipment is used and maintained as directed. If the equipment is modified in any way, all terms of this warranty are void. This warranty does not apply to cosmetic damage, such as scratches or general wear and tear.

Should you experience a technical problem with your equipment, please contact Eteros Technologies at the email or phone number outlined in the Service and Repairs section.

General Safety Precautions

KNOW THE SAFETY INFORMATION

Read and become familiar with the entire User Guide. Learn the equipment applications, limitations, and possible hazards.

KEEP GUARDS AND SHIELDS IN PLACE

Keep all guarding in place and in working order to protect both the device and the operator.

WORK IN A SAFE ENVIRONMENT

Do not use equipment in a dangerous environment or damp/wet locations. Never expose the control panel directly to rain or water. Keep the work area well-illuminated.

WORK AWAY FROM FLAMMABLE LIQUIDS OR GASES

Do not use the device in the presence of flammable liquids or gases.

KEEP THE WORK AREA CLEAN

Cluttered areas and workspaces invite accidents.

TRAINED OPERATORS ONLY

Keep children and bystanders away from the device. Visitors should be kept at a safe distance from the work area.

DON'T FORCE THE EQUIPMENT

It will operate optimally and safely at the rate for which it was designed.

USE THE RIGHT TOOL

Don't force the device to do a job for which it was not designed.

WEAR PROPER APPAREL

Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry that may get caught in moving parts. Non-slip footwear is recommended. Wear a protective hair covering to contain long hair.

ALWAYS OPERATE DEVICE IN A WELL-VENTILATED AREA

Dust generated from certain materials can be a health hazard. Use a dust collection system whenever possible.

WEAR A FACE MASK OR DUST MASK

This device may produce dust or operate near other dust-producing machines. If dust extraction is not considered, a dust mask must be worn.

POWER DOWN AND DISCONNECT

Power down and disconnect equipment before servicing and when changing any accessories, consumables, or other components.

CHECK FOR DAMAGED PARTS BEFORE OPERATION

The equipment should be inspected prior to use to ensure proper operation in performing its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. Any damaged part including guards should be properly repaired or replaced before any further use.

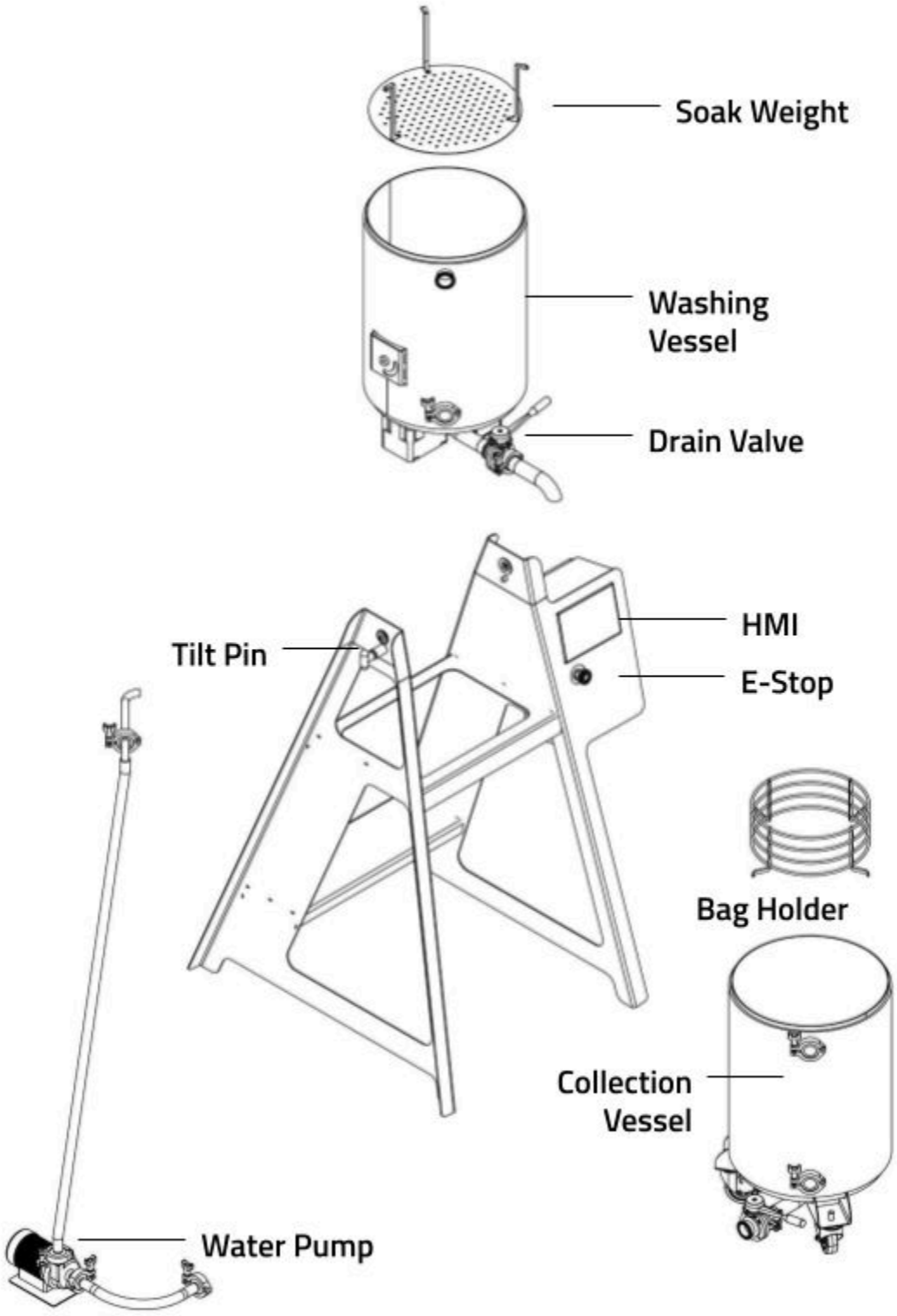
ALWAYS WEAR EYE PROTECTION

Safety goggles can protect your eyes from fast-moving debris.

ALWAYS WEAR EAR PROTECTION

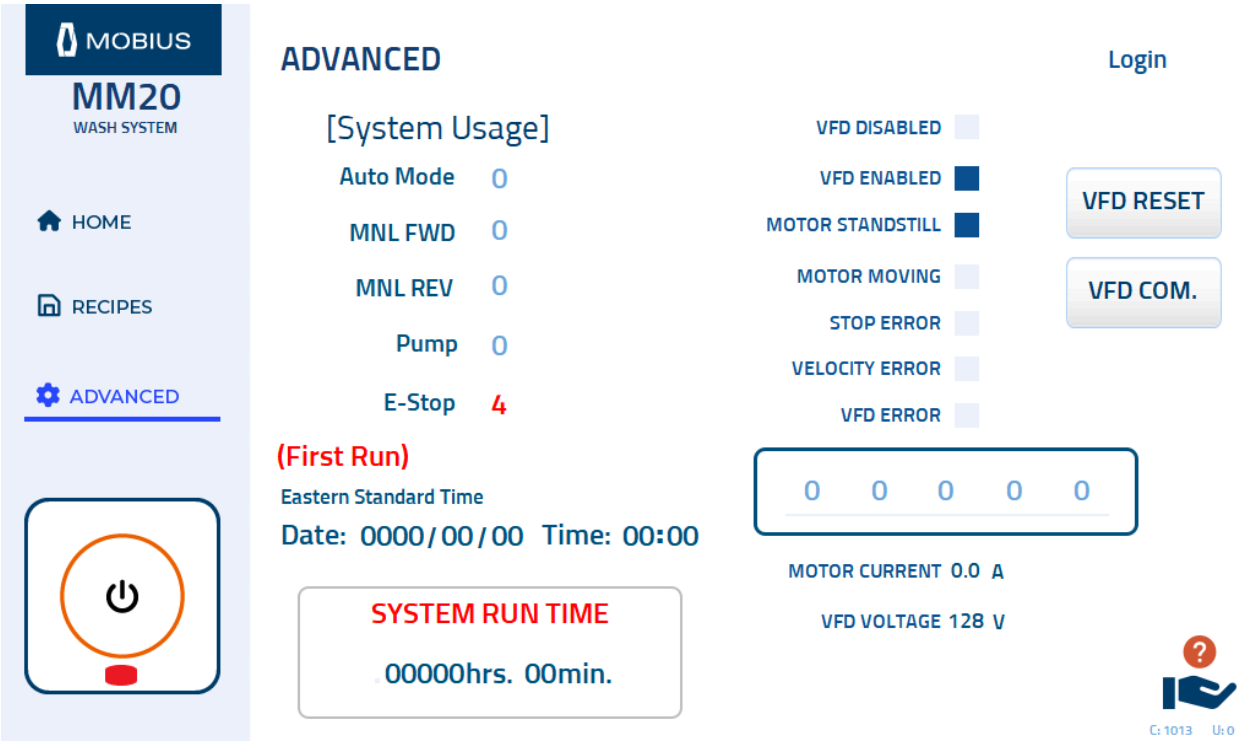
Wear ear muffs or earplugs when operating loud machinery.

Components


Soak Weight
Washing Vessel
Drain Valve
HMI
Tilt Pin
E-Stop
Bag Holder
Collection Vessel
Water Pump

Emergency Stop (E-Stop)

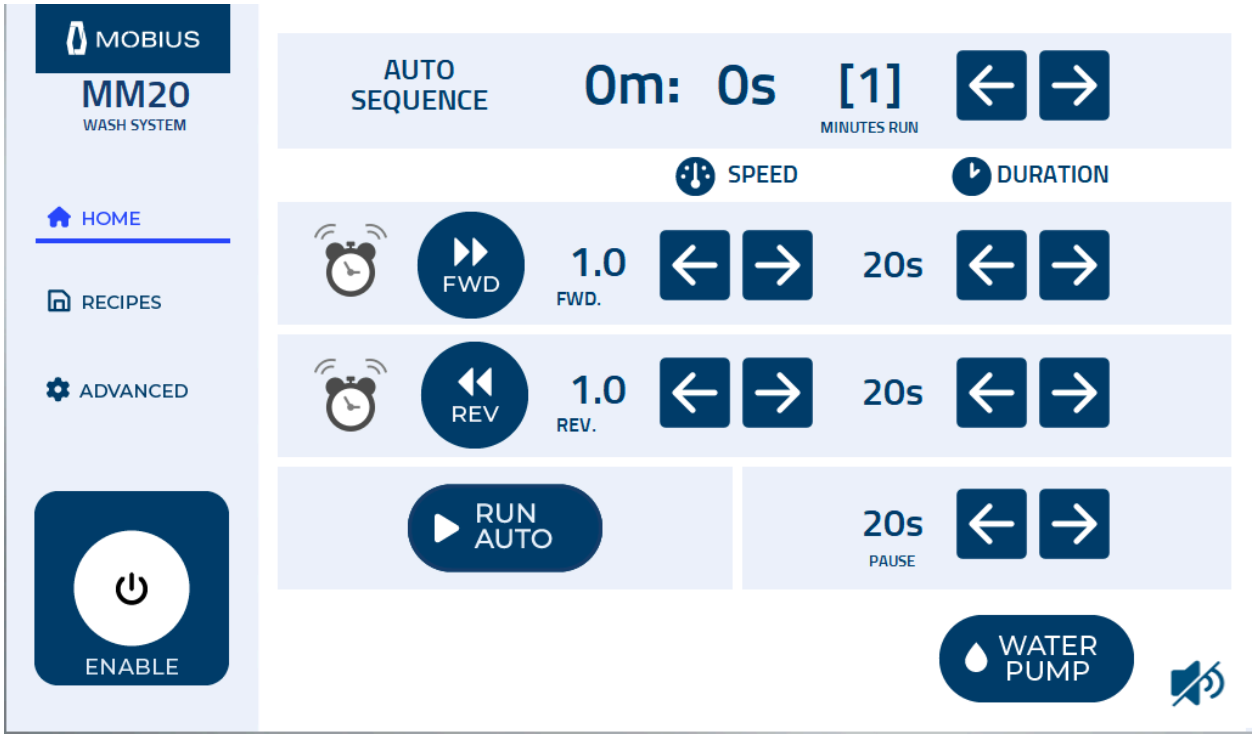
Pressing the emergency stop button will immediately shut down the machine, stopping the impeller and water pump. When the emergency stop button is depressed, a visual cue will be displayed on the HMI and the MM20 and MM65 will not run. To disengage the emergency stop button, rotate the button clockwise until it springs up. If the impeller was in use at the time of the shut down, there will likely be a VFD error that will need resolving before the machine can continue operating. To solve this, go to the “ADVANCED” menu and press the “VFD COM.” button followed by the “VFD RESET” button.



NOTICE **It is NOT recommended to use the emergency stop button to stop the machine in everyday operation.**

HMI Control Overview

HOME Screen



On this screen, you can control the speed and duration of a cycle during operation. This screen allows for two operating modes, manual and auto. To enter manual mode, select the “FWD” or “REV” buttons and this allows the unit to run indefinitely unless the timer function has been enabled. To enter auto mode, select the “RUN AUTO” button and this will have the machine run a cycle repeatedly until the auto sequence timer times out.

FORWARD

When selected, the unit will run in manual mode continuously at the set speed. Duration does not apply when running in manual mode unless the timer button has been selected. Speed can be adjusted while running and will take effect immediately. The “FWD” button will turn white with a light blue border and text when selected.

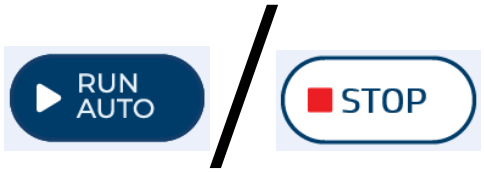
REVERSE

When selected, the unit will run in manual mode continuously at the set speed. Duration does not apply when running in manual mode unless the timer button has been selected. Speed can be adjusted while running and will take effect

immediately. The “REV” button will turn white with a light blue border and text when selected.


TIMER

When selected, the unit will run for a set duration in manual mode. The timer duration can be adjusted but only while the unit is not running. The timer button will turn light blue when selected.



RUN AUTO

When selected, the unit will run in auto mode. The cycle will alternate between forward and reverse at the set speed and duration (seconds) for both directions. Pause time (seconds) and duration (minutes) can be selected in the auto mode settings. Changes to duration and pause changes will take effect on the following cycle of forward or reverse. Auto runtime cannot be adjusted mid-cycle but speed can. The “RUN AUTO” button will turn white and display a red square with the word “STOP” inside it when selected.

ENABLE

This button acts as a master switch, toggling the MM20 and MM65 between the standby and operational modes. Both modes allow for changes to the speed and duration settings. In operational mode, the machine will run with all current settings. In standby mode, the machine will turn off the motor. Toggling between standby and operational modes will not change any unit settings. Hitting “ENABLE” will also pause the water pump.

The “ENABLE” button will be illuminated white during operational mode and blue during standby mode.

For normal day-to-day operations, the MM20 and MM65 should be turned off using the “ENABLE” button instead of the emergency stop.

WATER PUMP

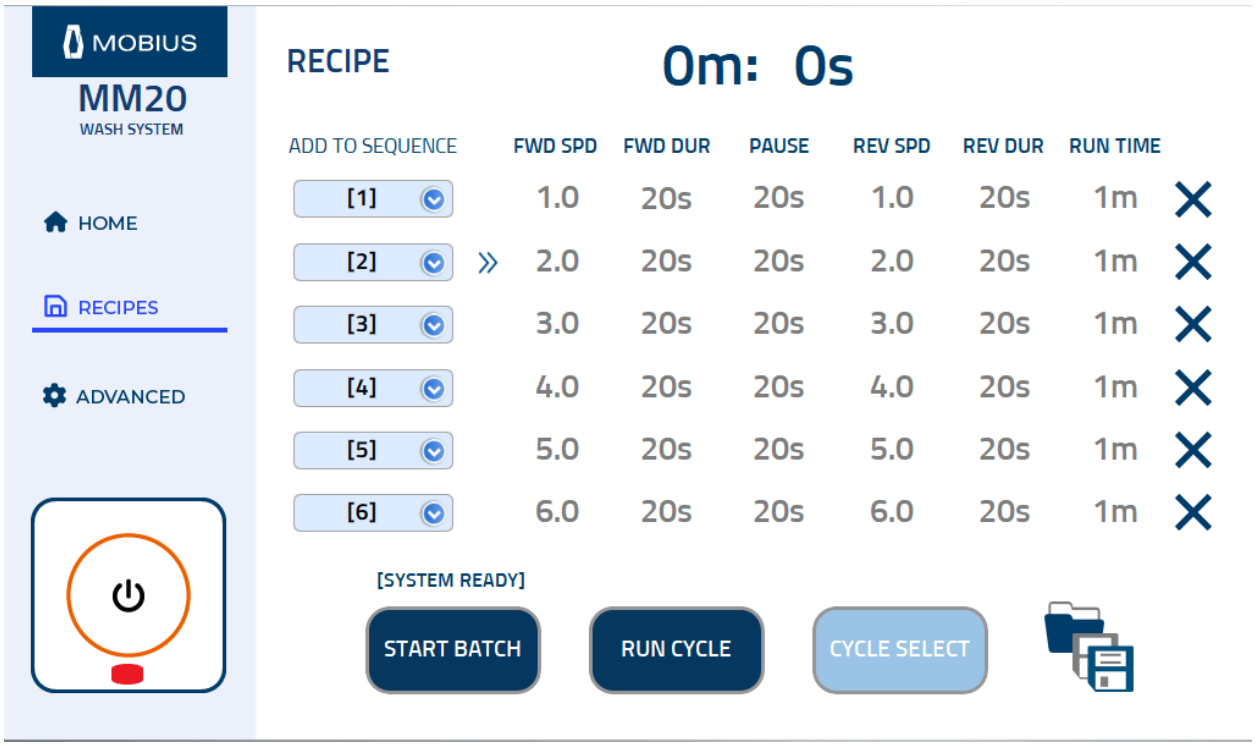
When selected, this button will energize the receptacle on the side of the control box. This will cause the pump to run until the “WATER PUMP” button is pressed again or the “ENABLE” button is pushed. The “WATER PUMP” button will turn white with a light blue border and text when selected.

NOTICE The power switch on the external water pump must be in the “on” position to run.

SOUND

This button toggles all sound from the unit on and off. When the sound is off, all functions on the unit will still operate normally but with no sound.

RECIPES Screen



On this screen, you can set up your batch sequence and run your batch. Under the “ADD TO SEQUENCE” column, there are drop downs that allow you to add the desired saved cycles to your batch. If the batch requires less than 6 different cycles then a cycle can be removed from the batch by selecting the blue “X” to the right of the cycle.

START BATCH

When selected, starts the batch from the currently selected cycle but waits for the run cycle button to be pressed before proceeding.

RUN CYCLE

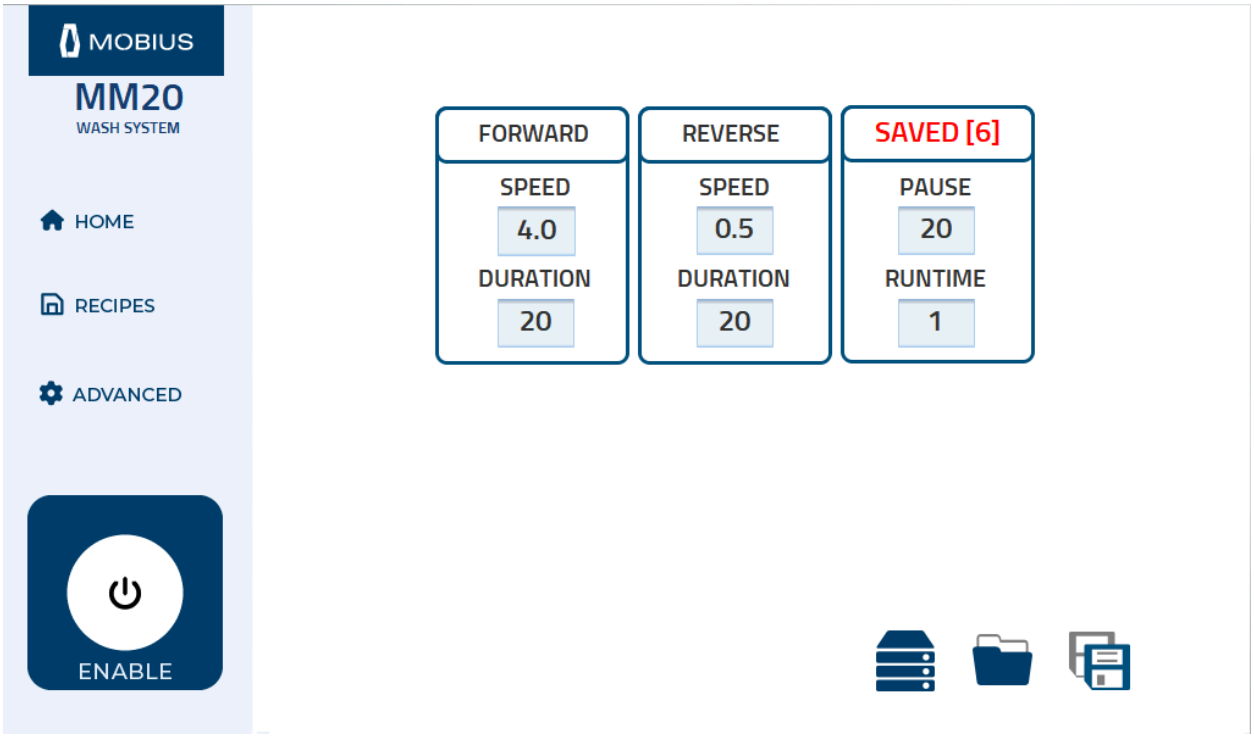
When selected, runs the next cycle in the batch. If needed, a cycle that is currently running in the batch can be modified in the “HOME” screen.

CYCLE SELECT

When the batch hasn’t been started yet and this button is selected, the cycle the batch starts on will drop to the next cycle down from the currently selected one. This button can be pressed repeatedly to continue down the list of cycles in the batch until it reaches the cycle at the bottom of the list which then goes back to the top cycle in the list.


SAVE/LOAD CYCLE

When selected, it will open a screen (see below) where you can set the conditions of the cycles you wish to use for the batch as well as save and load these cycles.



SAVE CYCLE

This button allows for individual cycles used in the batch to be saved to one of ten designated save slots. Once saved, cycles can then be added to the batch by using the drop downs located under the “ADD TO SEQUENCE” column of the recipes screen and selecting the save slot number of the desired cycle.

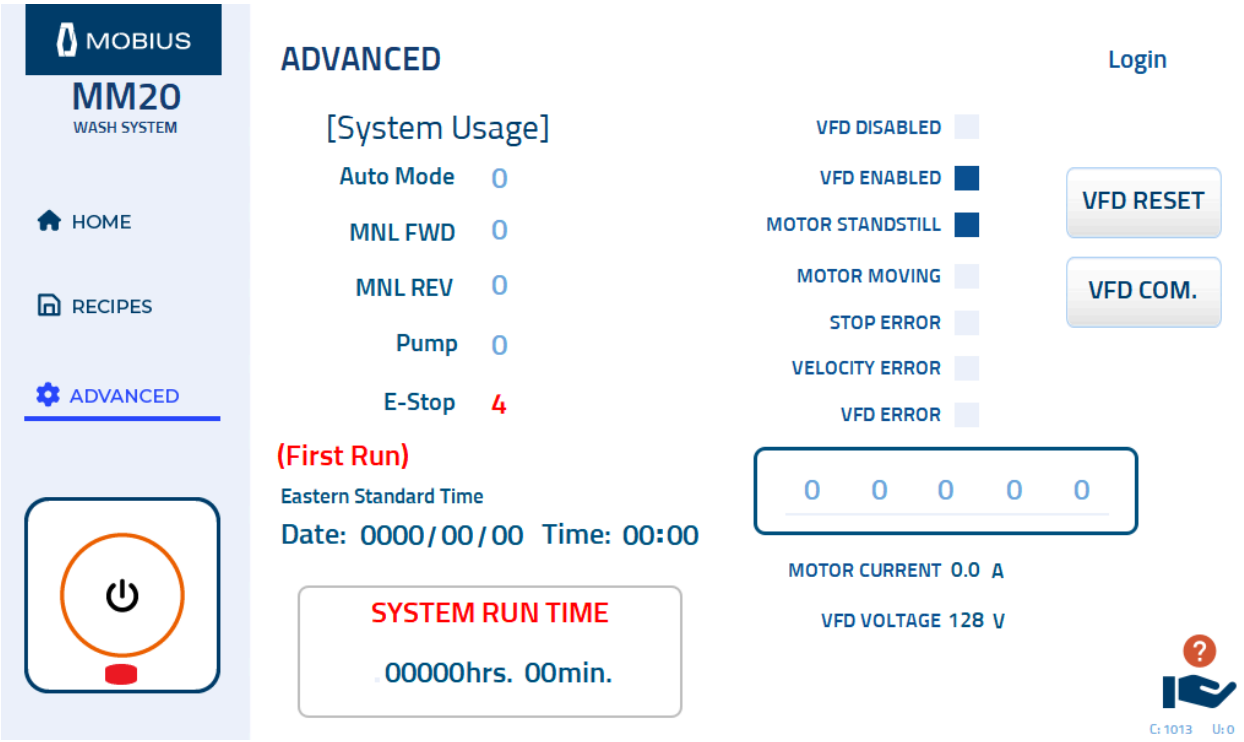
LOAD CYCLE

This button allows for the saved cycles to be loaded for easy modification if the cycle needs to be tweaked. This button is only accessible while the impeller is not in use, if the currently running cycle needs to be modified in the middle of a cycle then select the “HOME” screen and it can be done there.

VIEW BATCH

This button will bring the screen back to the “RECIPES” screen.

ADVANCED Screen



This screen shows the system usage and run time. If there are any errors with the unit, this is where it will show as well.

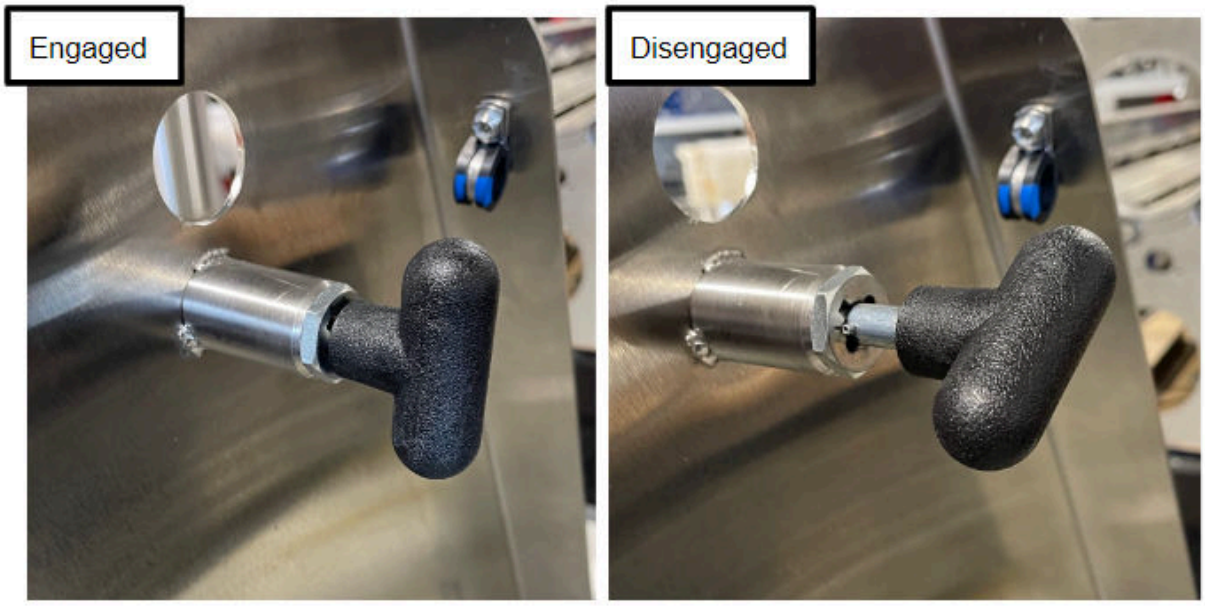
VFD COM. VFD COMMUNICATION
When selected, resets the communication from the PLC to the VFD in the event of an error or unexpected shut down during operation.

VFD RESET VFD RESET
When selected, resets the VFD in the event of a VFD error.

HELP
When selected, a window will display a breakdown of the different settings available on the “HOME” screen.

Washing Vessel Tilt

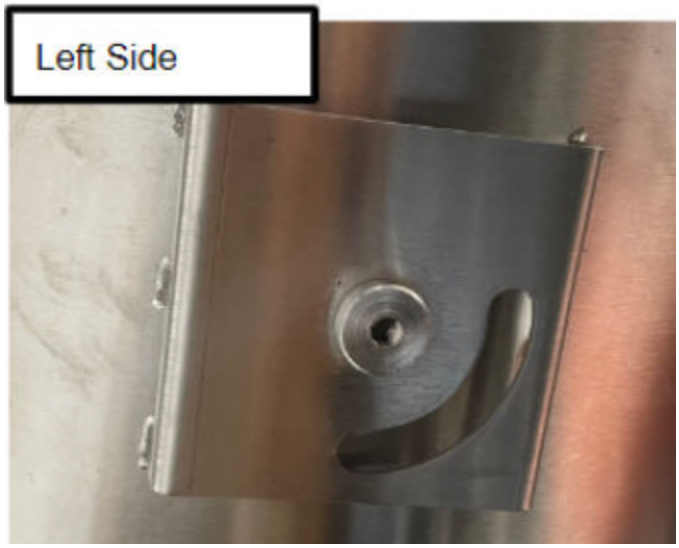
The pin can be turned to disengage the spring and allow the tank to turn freely. During normal use, only the pin on the controller side (right side) should be used to adjust the position of the washing vessel.



NOTICE **Ensure pins are engaged during transport and operation.**

The controller side (right side) can lock the pin at 0, 45, and 90 degrees.

The non-controller side (left side) can free spin so as to tilt backward or more than 90 degrees.



Drain Valves

Used to control the flow of water from the washing vessel to the collection vessel and from the
collection vessel to the water pump. When the handle is parallel to the spout, the valve will be open and is closed when perpendicular. To switch between positions the black knob must be pulled outwards.

Soak Weight

If you want to rehydrate material you can use the rehydrating plate by placing it over the
material/water to submerge it and allow the dry material to rehydrate for approximately 20 minutes.

NOTICE Remove plate before washing.

Bag Holder

The bag holder sits on top of the collection vessel. Roll micron bag tops over the top of the bag holder. Multiple bags can be nested inside each other. Be sure to sinch each bag's drawstring snug to prevent it from falling into the vessel.

Setup

Operating Conditions

Location	Indoor or covered outdoor Altitude
Altitude	0-2000 m (0-6500 ft) above sea level
Temperature (Ambient)	5°C - 40°C (40°F - 105°F)
Maximum Relative Humidity	Humidity 80% at 31°C (88°F), decreasing linearly to 50% at 40°C (105°F)
Voltage and Current Rating	**60 Hz:** 120 V, 16 A | **50 Hz:** 240 V, 8 A
Overvoltage Category	II

Environment: While the MM20 and MM65 can be used in a variety of conditions, the best results are achieved in spaces with low humidity and cool temperatures.

NOTICE **This machine should not be operated in conditions or orientations where accessing the emergency stop would be difficult or impossible. Always ensure that any operators have clear access to the power off and e-stop buttons.**

NOTICE **If this equipment is used in conditions outside the specified operating conditions, Eteros Technologies cannot guarantee that the built-in safety functions of the Mobius MM20 and MM65 will function as intended.**

Uncrating The MM20 And MM65

Your Mobius MM20 or MM65 will arrive with the primary assemblies ready for operation.

1. Remove screws to open the front and rear of the shipping crate.
2. Release the ratchet straps from the collection vessel. Then remove 2x4 crosser boards to release all components.
3. With the help of another person, lift the collection vessel from the crate. The stand assembly with the mixing tank can now be removed using a forklift beneath the upper cross member.
4. Remove all packaging materials and refer to the **Components** page to ensure all parts arrive in good condition and begin assembly.

Assembly/Disassembly

Impeller Removal/Installation

The impeller sits on the bottom of the wash tank just above the false bottom. To remove the impeller, remove the hexbolt on top of the impeller and then lift the impeller off. To reinstall, repeat the process in reverse.

NOTICE: When tightening the impeller hexbolt, do not over tighten the bolt as it should be snug but still removable in case it needs to come off again in the future.

False Bottom Removal/Installation

To remove the false bottom, the impeller must be removed first. Once that is done, remove the socket head cap screw in the center of the false bottom. The false bottom should now be free and easy to remove. To reinstall, repeat the process but in reverse ensuring that the opening for the impeller shaft is positioned correctly so that the false bottom sits flush on the bottom of the vessel when the cap screw is tightened.

NOTICE If there is debris trapped in the false bottom, it might not come off easily in which case some wiggling may be required to free the false bottom.

Drain Valve(s) Installation / Removal

To facilitate regular cleaning, the drain valves are designed to allow for quick, tool-free removal.

REMOVAL

1. Make sure the machine is powered off and all motors have stopped turning.
2. Unplug the power cords.
3. Use the thumb screw to loosen the hose clamp.
4. While holding the valve in one hand swing the screw away from the clamp and open it up.
5. Remove the clamp valve and gasket from the MM20 or MM65.

INSTALLATION

The drain valves can be re-installed by following the above steps in reverse order.

NOTICE Ensure that the gasket is in place between the vessel and spout before tightening the clamp.

Water Pump Installation/Removal

WATER PUMP INSTALLATION

1. Ensure that the motor is placed on the floor beside the MM20 or MM65.

2. Connect the shorter hose between the collection vessel and pump inlet using the provided
hose clamps.

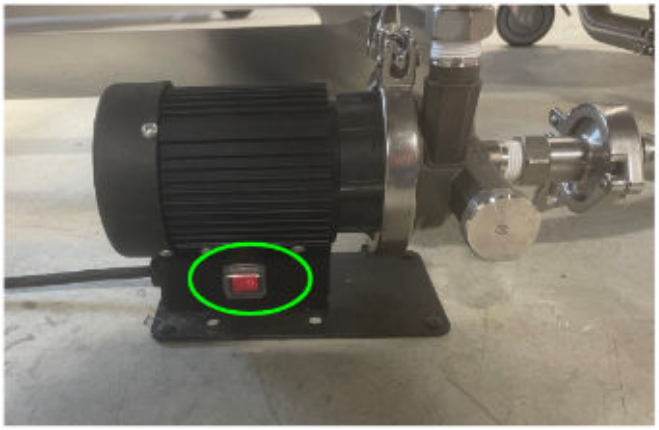
NOTICE Ensure that the O-ring is in place between the vessel/pump and hose.

3. Connect the longer hose between the pump outlet and washing vessel using the provided
hose clamps.

NOTICE Ensure that the O-ring is in place between the vessel/pump and hose.

4. Plug the pump into the power receptacle on the side of the MM20 or MM65 control box.

NOTICE The power switch on the external water pump must be in the "ON" position to run.



WATER PUMP REMOVAL

Repeat the installation instructions in reverse order.


Pump to Washing Tank
Collection to Pump

Thermometer Removal / Installation

The thermometer can be removed to provide access for cleaning.

THERMOMETER REMOVAL

1. Loosen off the screw on the hose clamp.
2. Remove the thermometer from the tank, make sure not to lose the O-ring.

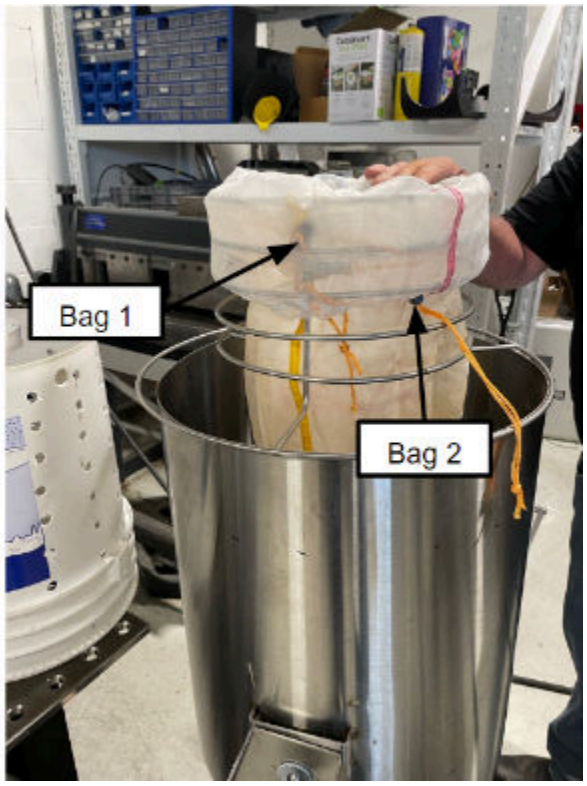
THERMOMETER INSTALLATION

1. Ensure O-ring is installed between the thermometer and washing vessel.
2. Secure in place by tightening the screw on the hose clamp.

Wash Bag Holder Installation

The bag holder is used with the washing vessels to hold the washing bags in place.

1. Place the wash bag holder centered on top of the washing vessel.
2. Install the smallest micron-size bag through the rings and secure with the drawstring around
the lowest ring of the holder.
3. Repeat this process with increasing bag sizes and moving up one ring per bag.



Soak Weight Installation

When washing dried material, it may be desirable to rehydrate it first. To do so, the soak weight can be used to submerge dried material prior to washing.

1. Insert the soak weight into the top of the washing vessel, making sure it sits below the elbow
for water return from the pump.
2. Ensure that the hooks are sitting along the upper edge of the washing vessel.

NOTICE Remove the soak weight prior to washing.

Operation

Before You Start

SAFETY CHECK

NOTICE Please take the following steps to confirm the MM20 or MM65 is ready to operate:

- **Complete a thorough inspection of the equipment to ensure no damage occurred during shipment.**
- **Confirm the power cords are in good condition.**
- **Ensure the false bottom is properly seated and that the impeller is installed and locked into place. (See Drain Valve Installation).**

Machine Start-Up Sequence

1. CONNECT TO POWER SOURCE

- Plug in the machine to a standard 120 volts, 15 amp wall outlet. This will power up the HMI.
- Plug in the water pump to the outlet on the MM20 or MM65 control box.

NOTICE Water pump must be connected to the MM20 or MM65 control box to be controlled by the HMI.

2. TURN THE PUMP SWITCH TO THE “ON” POSITION

The pump should not start running until you press the “WATER PUMP” button on the HMI.

NOTICE Ensure that the water pump is plugged into the outlet on the MM20 or MM65 control box.

NOTICE Ensure that the switch on the water pump is in the “ON” position.

NOTICE Do not run the water pump when the collection vessel is dry/empty.

Machine Stop Sequence

1. POWER DOWN

All motors can be stopped at once by pressing the “ENABLE” button on the HMI. Alternatively, the water pump can be stopped individually under normal circumstances by toggling the “WATER PUMP” button on the HMI.

2. DISCONNECT

With the motors stopped, disconnect the power cords.

Washing Plant Material

With the MM20 or MM65 turned off and the washing vessel in the upright position, ensure that the drain valves are closed.

1. LOAD THE WASHING VESSEL
Very dependent on user preferences

Option 1 (Fresh Frozen)
- Fill halfway with ice
- Add material to be washed
- Cover with more ice
- Fill remainder of tank with cold water to approximately 6 inches from the top of the washing tank
- Some people will wash immediately, others will wait for material to reach 32°F/0°C

Option 2 (Fresh Frozen)
- Fill tank 2/3 - 3/4 with ice and cold water
- Leave enough room for material
- Before adding material water should reach approx 32°F or 0°C
    - The colder the water the better the results
- Add material to chilled water

Option 3 (Dry Material)
- You can follow the same steps as options 1-2
- If you want to rehydrate material you can use the rehydrating plate by placing it over
the material/water to submerge it and allow the dry material to rehydrate for approximately 20 minutes
- Remove plate before washing

2. RUN A WASH CYCLE (PULL)
- Run a wash cycle at the desired setting

Be careful not to put your hand inside the washing vessel while running

NOTICE **Never start the impeller with the soak weight installed.**

3. DRAIN TO COLLECTION VESSEL

● Ensure that the collection vessel is positioned correctly below the drain valve of the washing vessel and that the required bubble bags are installed correctly on the bag holder
● Open valve and allow water to drain into collection vessel
● Close the valve once fully drained

4. COLLECT BUBBLE HASH
● Rinse sides of micron bag and slowly pull it up until almost flat at the top
    ○ This allows the hash to collect in the center of the bags
● Scoop out the collected hash and place in an appropriate container for drying
● Repeat this process for each bag

5. RECIRCULATE TO WASHING VESSEL
● You can start another wash cycle and allow it to run while collecting the hash from your first wash cycle
● Open the drain valve of the washing tank and press the “WATER PUMP” button on the HMI to
recirculate the water back into the washing vessel

● Close the collection tank drain valve once the water has been drained from it
● Add ice if necessary

6. START NEXT WASH CYCLE
● Repeat the washing cycle once the water has been recirculated to the washing vessel

7. REPEAT AS DESIRED
● Perform as many wash cycles as desired

Washing Tips

● For best efficiency, run large batches of similar material through the machine. Each plant's properties are different, so duration and settings may need to be adjusted.

● Use multiple bubble bags for better separation and to isolate different grades of hash.

● The highest quality hash typically comes from the second through fourth washings. Washings 1 and 5 typically have more broken trichrome heads and are of lesser quality.

    ○ First/largest micron bag will have plant matter in it and is not viable.

● A cold spoon (stored in a freezer) can be used to easily collect the hash and help prevent sticking.

● The collected hash will need to be dried to avoid contamination issues. The preferred method is by freeze-drying.

● Use high-quality cannabis material. If using dried cannabis, ensure that it has been properly cured.

● Maintain precise control over water and ice temperatures during extraction.

Pre-Loaded Settings

The MM20 and MM65 will come with pre-loaded wash recipes on the main screen that will populate on startup. The recipe settings and names can be overwritten as needed.

Cleaning The MM20 And MM65

The tool-less disassembly of the machine allows for easy breakdown and cleaning. With the exception of the control panel, impeller motor, and water pump, the machine can be pressure washed.

NOTICE After the final washing you do not have to recover the water into the washing tank.

1. POWER DOWN
Shut off motors. Unplug power cords.

2. DRAIN COLLECTION VESSEL
Disconnect hose from collection vessel and open valve to drain water. Reconnect the hose
once completed.

3. EMPTY WASHING VESSEL
Tilt washing tank forwards and scoop out used material into garbage. Rinse any residual waste from the tank and allow it to drain.

4. WASH INTERIOR OF VESSELS

1. Fill the washing vessel with a mixture of cleaner such as GMP Solutions Step Cleaner and hot water and allow a wash cycle to run.

2. Once the cycle is complete, drain the solution into the collection vessel and allow it to sit.

3. The water pump can then be engaged to recirculate the solution to the wash vessel.

4. Disconnect the hose from the wash vessel and allow it to drain completely while rinsing with water. Reconnect the hose.

5. Fill the wash vessel with clean water and repeat steps 1-3 from this section.

6. Remove all hoses, the impeller, and false bottom, and rinse all components one final time.

7. Allow to air dry.

5. WASH EXTERIOR OF VESSELS
Using a pressure washer with no more than 1800 PSI, lightly spray all components (EXCEPT for the HMI, impeller motor, and water pump assembly) with soap or degreaser, such as GMP Solutions Step 1 Cleaner.

6. RINSE
Using a pressure washer with no more than 1800 PSI rinse the degreaser from all components (EXCEPT for the HMI, impeller motor, and water pump assembly).

NOTICE For best results, use hot water whenever possible. Be careful when selecting the degreaser to ensure it will not damage the painted components of the MM20 and MM65. Always follow the operating instructions provided with the pressure washer.

Hand-Cleaning The Impeller Motor And Water Pump

1. PRE-SOAK
Cover with a cleaner, such as Step 1 Cleaner, and follow cleaner's instructions for proper use.

2. HAND WASH
Using warm/hot water and a scrubber, clean the impeller motor and water pump.

3. RINSE
Remove the soap residue with a damp cloth and let the components air dry.

Hand-Cleaning The HMI

Wipe the HMI screen with a damp cloth soaked in cleaner, such as Step 1 Cleaner. Remove the soap residue with a damp cloth and let it air dry.

Maintenance

Servicing The MM20 and MM65

Proper maintenance is essential for safe, economical, and trouble-free operation. To properly care for your MM20 or MM65 wash system, follow the maintenance schedule.

To ensure the best quality and reliability, use only new, Mobius genuine parts or their equivalents for repair and replacement.

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task. Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed. Always follow the procedures and precautions in this User Guide.

Safety Precautions

Make sure all motors are off and power cords are unplugged before you begin any maintenance or repairs. Read the instructions before you begin, and make sure you have the tools and skills required.

Breakers/Fuses

The MM20 and MM65 are equipped with a reset breaker and replaceable fuse to protect operators and the equipment from potentially dangerous conditions. In the unlikely event of a breaker tripping or fuse blowing, allow the MM20 or MM65 to cool down and investigate for any potential causes. Reset the breaker or replace the fuse to restore operation.

The breaker and fuse are located inside the control box. If there is no power to just the HMI, then the 3 amp fuse will need to be replaced. If there is no power to the entire unit, then the breaker should be reset.

Removing Obstructions

If the MM20 or MM65 becomes restricted or clogged:

Be sure the machine is off and disconnected from a power source before attempting to clear any obstruction.

1. Press the emergency stop.
2. Make sure that all rotating parts have come to a complete stop.
3. Disconnect the MM20 or MM65's power cord.
4. Remove the impeller and false bottom to inspect for obstructions.
5. Disconnect the valves/hoses and inspect for obstructions.
6. Clear any obstruction(s).
7. Check all components for damage. Repair/replace them as required.

NOTICE Be careful not to bend or break any parts with excess force when clearing obstructions.

Maintenance Schedule

BEFORE EACH USE	Inspect all electrical cords for damage and replace as required. Never use a damaged or frayed power cord. Ensure the false bottom, impeller, thermometer, hoses, and drain valves are installed correctly.
DURING EACH USE	Monitor impeller, false bottom, and hoses for product build-up and remove build-up as required. Listen for and recognize significant changes to the sound of the machine during use as this usually indicates a problem. Locate and address the source of the noise before proceeding.
AFTER EACH USE	Remove all loose material. Clean all machine components.
EVERY 10 HOURS OF OPERATIONS	Inspect the impeller and hoses for excessive wear. Check for loose fasteners and tighten as required.

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTION
NO POWER TO HMI OR BLANK SCREEN	No electric power from the outlet	Plug MM20 or MM65 into a functional electrical outlet.
	Blown fuse	Assess fuse inside of the control box, replace if required (3 Amp).
	Tripped internal breaker	Assess breaker inside of control box and reset as necessary.
	Outlet is overloaded	Check that the breaker on your main electrical panel is not overloaded and has not tripped. If tripped, switch plug to a different circuit.
	Overcurrent circuit has been exceeded	Determine the cause of the excessive circuit resistance which may include: overloaded outlet, faulty extension cord, bad outlet, underrated generator, excessively dirty machine, or an obstruction in the machine.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
IMPELLER MOTOR WILL NOT START OR HAS LOW POWER	No electric power from the outlet	Plug MM20 or MM65 into a functional electrical outlet.
	Outlet is overloaded	Check that the breaker is not overloaded and has not tripped. If tripped, switch the plug to a different circuit.
	Extension cord is faulty	Check that extension cord, if used, is rated appropriately for the distance and current. Do NOT use a longer cord unless the wire size is larger. Undersized extension cords may cause an undervoltage, over-current condition that could damage or destroy the drive motor and void the motor warranty.
	Overcurrent circuit has been exceeded	Determine the cause of the excessive circuit resistance which may include: overloaded outlet, faulty extension cord, bad outlet, underrated generator, excessively dirty machine, or an obstruction in the machine.
	Impeller may be obstructed	Remove the impeller from the drive shaft and inspect for obstructions and clear as required.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
WATER PUMP WILL NOT RUN	Not plugged into control box	Ensure it is plugged into the outlet on the side of the control box.
	Not selected on HMI	Ensure the “WATER PUMP” button has been selected, it will turn white when active.
	Power switch is in the OFF position	Ensure the power switch on the pump is in the “ON” position.

SYMPTOM	POSSIBLE CAUSE	CORRECTION
VESSELS WILL NOT DRAIN	Obstruction in valve or hose	Clear the obstruction.
	Water pump not on	Ensure that the water pump is plugged into the outlet on the control panel. Ensure the switch on the pump is in the “ON” position. Ensure the “WATER PUMP” button is selected.