SPRAY WASHER

OPERATING / SAFETY / MAINTENANCE MANUAL

INTRODUCING MACH CLEAN

Precision cleaning. Compact footprint.

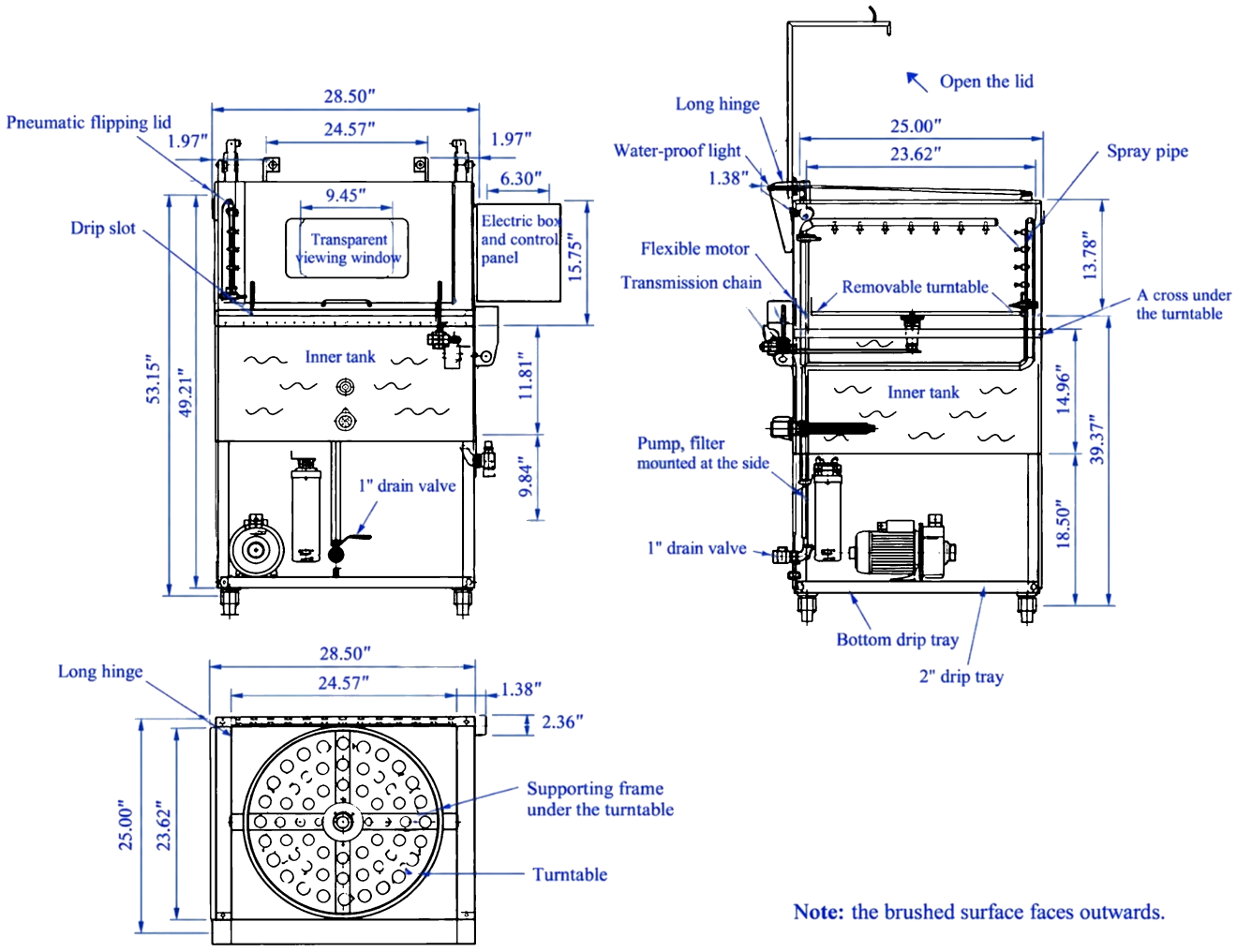
MACH CLEAN brings heated aqueous spray cleaning and a rotating turntable together in one versatile, enclosed parts washer. This manual explains how to set up the machine, operate its controls, care for the equipment, and work safely.

INSIDE THIS MANUAL

Machine drawing • Controls & timers • Heating • Maintenance • Troubleshooting

MACH CLEAN | MACHINE DRAWING

Dimensioned reference • front, side and top views • all dimensions in inches.



Machine dimensions at a glance

FEATURE	DIMENSION	FEATURE	DIMENSION
Overall width	28.50 in	Overall depth	25.00 in
Closed-lid height	53.15 in	Interior width	24.57 in
Interior depth	23.62 in	Spray chamber vertical ref.	13.78 in
Control box projection	6.30 in	Control box height	15.75 in
Drain valve	1 in	Bottom drip tray	2 in

Drawing and dimensions are based on the supplied mechanical reference. Allow overhead clearance for the raised lid.

CONTENTS

The large-format machine drawing is on page 2. Use the numbered sections below for operation and service.

SECTION	TOPIC
P2	Machine drawing and dimensions - large format
01	Read first: Safety essentials
02	Machine description and components
03	Dimensional references and installation clearances
04	Electrical and operating specifications
05	Control panel identification
06	Temperature controller and heating
07	Cycle timer and operating modes
08	Installation, utilities and setup
09	Pre-start inspection and first use
10	Automatic and manual cleaning
11	Shutdown, draining and chemical handling
12	Preventive maintenance and inspection
13	Pump, spray nozzles and filter service
14	Troubleshooting guide
15	Protective devices and electrical service
16	Operator service records
17	Product support and distributor information
18	Pre-release technical verification

Model identification

The document describes the MACH CLEAN spray washer shown in the supplied three-view drawing. Confirm the serial plate, controller part numbers and power wiring against the actual machine before printing product-specific labels.

01 | SAFETY ESSENTIALS

Use this washer only for its intended purpose: aqueous spray cleaning of parts that fit safely on the turntable. Unauthorized modifications and bypassed safeguards create serious hazards.

Personal protective equipment and hazards

HAZARD	REQUIRED PRECAUTION
Hot cleaning liquid	Wear chemical-resistant gloves, eye protection and appropriate work clothing. Treat the tank, lid, parts and piping as hot.
Rotating turntable	Keep hands and tools away until all movement has stopped. Never reach into an operating washer.
Spray and chemicals	Use only compatible, nonflammable aqueous cleaning agents. Review the SDS and chemical supplier directions.
Electrical shock	Connect only to a verified grounded supply. Keep the panel and electrical enclosure dry. Disconnect power before servicing.
Moving lid	Keep hands clear of hinge and lid travel. Do not rely on the pneumatic assist to hold an unsafe lid.

Critical rules

- Never operate the pump or heater with a tank level below the required operating mark.
- Never defeat or bridge the lid interlock, low-level device, overload protection or emergency stop.
- Never spray gasoline, alcohol, thinners, flammable solvents, or incompatible caustic/acid chemicals.
- Before opening the lid, stop spraying and rotation, allow the machinery to come to rest, and guard against hot steam.
- Apply lockout/tagout before opening electrical covers or reaching inside the pump, motor or turntable drive.

02 | MACHINE OVERVIEW

MACH CLEAN is a compact, enclosed parts washer that recirculates heated cleaning solution through spray piping while a removable turntable rotates the workpieces. Parts are washed inside a closed chamber to help contain spray.

Main assemblies

ASSEMBLY	DESCRIPTION / PURPOSE
Enclosed wash chamber	Lid, viewing window, waterproof work light, spray distribution pipe and contained cleaning area.
Turntable and support frame	Removable perforated platform and underlying support structure for supporting and rotating parts.
Spray pump	Draws solution from the tank and circulates it to the spray piping and nozzles.
Filter assembly	Protects the recirculation system from debris and particulates.
Heating system	Immersion-type electric heater and digital temperature controller.
Rotating drive	Adjustable-speed drive assembly / motor and transmission chain.
Control enclosure	Main power, heater, spray switch, turntable/governor switch, speed control, timer, buzzer and emergency stop.
Service connections	Tank, drain valve, lower catch/drip tray and accessible plumbing.

Operating principle

The operator loads compatible parts, sets the temperature and cycle duration, closes the lid, and selects pump and rotation operating modes. Spray is directed onto parts while the turntable presents different surfaces to the nozzles.

Design features shown in the drawing

Pneumatic-assisted flipping lid; long hinge; transparent viewing window; spray pipe and nozzles; turntable and support crossbar; side-mounted pump/filter; lower drip tray; 1-inch drain valve; separate control enclosure.

03 | DIMENSIONS & INSTALLATION CLEARANCES

The full-size, three-view dimensional drawing appears on page 2. Refer to that drawing before locating the machine, positioning utilities, or transporting the unit. Dimensions below are the nominal dimensions provided in the drawing, not measured installation clearances.

Principal physical dimensions

MEASUREMENT	DRAWING VALUE
Cabinet width (not including control panel)	28.50 in
Cabinet depth	25.00 in
Height with lid closed	53.15 in
Internal chamber width	24.57 in
Internal chamber depth	23.62 in
Spray chamber height reference	13.78 in
Side control-panel projection	6.30 in
Control-panel height	15.75 in
Drawn liquid tank / lower frame height references	See page 2 drawing
Drain valve nominal connection	1 in
Bottom drip tray depth reference	2 in

Site-planning considerations

- Verify the floor is level and can support the filled machine plus the maximum approved part load.
- Leave clear space on the right side for the projecting electrical panel and safe access.
- Leave sufficient overhead space to open the hinged lid fully without striking anything above it.
- Keep the drain valve accessible to an approved fluid collection container.
- Provide room for pump, filter, motor, and electrical maintenance with power isolated.

Use measured values for construction and electrical layout

Actual cabinet tolerance, open-lid height, operating weight, electrical inlet location, and tank capacity were not supplied. Measure and verify the delivered machine before preparing a fixed installation.

04 | TECHNICAL SPECIFICATIONS

Values below distinguish documented drawing information from user-provided configuration information. Any unverified item must be confirmed on the completed equipment.

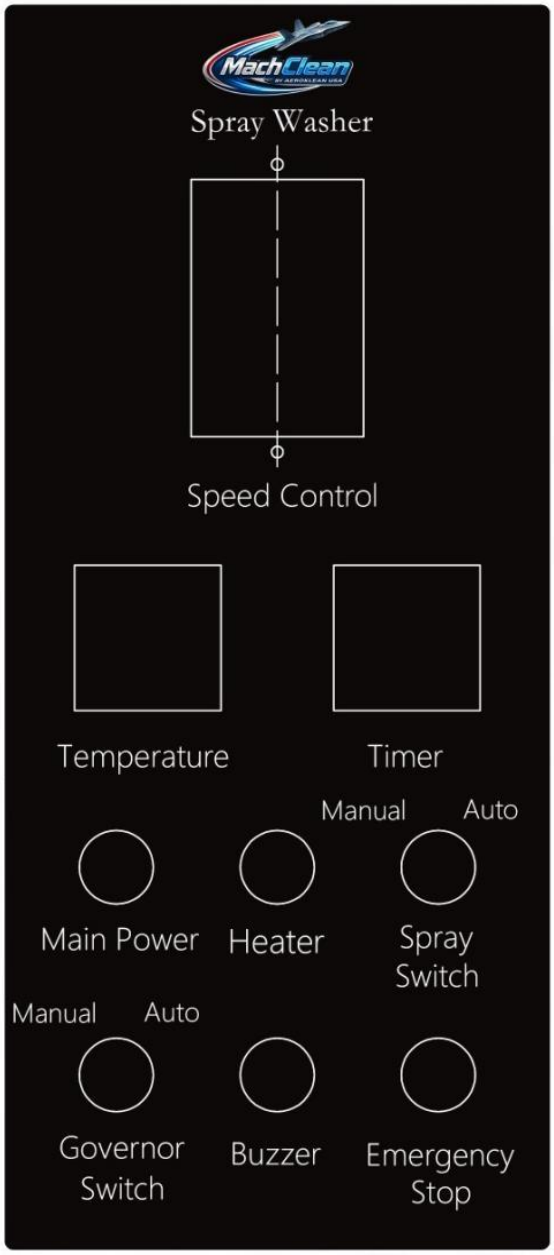
ITEM	VALUE / STATUS
Product	MACH CLEAN aqueous spray washer with rotating turntable.
Cabinet dimensions	Approx. 28.50 in wide x 25.00 in deep x 53.15 in high (lid closed; drawing dimensions).
Nominal electrical supply	120 V AC, 60 Hz, single-phase - reported product configuration; verify on final nameplate.
Reported operating current	Approx. 18.6 A - customer-supplied target; final measured rating required.
Plug	20 A grounded plug design reported; final plug, cord, protection and branch-circuit selection must be confirmed by a qualified electrician.
Heater	1,000 W configuration reported. Verify heater identification, thermostat sensing and independent high-limit cutout.
Temperature setting	Adjustable digital controller with PV (measured) and SV (setpoint) displays.
Cycle timing	Adjustable H / M / S digital timer; timer applies in automatic mode.
Wash mechanism	Spray circulation pump and rotating turntable.
Drain	1 in drain valve shown on drawing.
Filter	Accessible recirculation filter assembly; cartridge specification not provided.
Construction	Stainless construction reported; grade, thickness and wetted-parts compatibility require nameplate or bill-of-material confirmation.
Tank fill capacity	Not provided in source documents; follow marked minimum/maximum levels.
Maximum load capacity	Not provided; obtain verified rated limit before use.
Pump pressure and flow	Not provided; obtain actual pump specifications before publication.

Electrical load review required

An 18.6 A load is above the usual 16 A continuous-load level for a standard 20 A branch circuit. Confirm applicable circuit requirements, actual duty cycle and approved configuration with a qualified electrician before release.

05 | CONTROL PANEL

The control identifiers below follow the panel graphic included in the original manufacturer manual. Exact button locations can vary between builds.



CONTROL	FUNCTION
Main Power	Turns the control system on or off.
Heater	Enables or disables solution heating.
Temperature PV/SV	Measured temperature and selected setpoint.
Timer	Automatic cycle duration in hours, minutes or seconds.
Speed Control	Changes turntable rotation speed.
Spray Switch	Manual / Off / Automatic selection for spray pump.
Governor Switch	Manual / Off / Automatic selection for turntable.
Buzzer	Signals cycle complete or an alert.
Emergency Stop	Stops motion or the machine in an emergency; test before use.

Control behavior

The supplier manual describes three-position mode switches: left Manual, middle Off, right Auto. Validate the actual knob directions against the installed control-panel legend before use.

06 | TEMPERATURE CONTROL & HEATING

How the digital controller works

PV shows the actual measured tank temperature. SV shows the target or set temperature. The original manufacturer manual describes SET and increase/decrease keys for adjustment.

1. With the pump and heater switches off, verify the tank is filled to the required level and the temperature probe is immersed as designed.
2. Turn on Main Power. Read the actual temperature (PV).
3. Press SET to adjust the setpoint (SV); use the up/down arrow keys to choose the required value. Confirm/save according to the installed controller faceplate.
4. Confirm that the cleaning chemical is rated for the selected temperature. Enable the Heater switch.
5. Observe the rising PV reading and confirm that the heater switches off or cycles at the desired temperature.
6. If PV rises above the limit, the sensor fails, or the heater does not stop, turn off power and remove the washer from service.

Temperature guidance

For some aqueous cleaning processes, an example target is 135-140 °F; this is a process example, not a verified manufacturer limit or mandatory operating point. Use only the temperature approved for the specific detergent, workpiece, seals and equipment.

IF YOU SEE	ACTION
PV below SV	Heating may be active if all permissives and the heater switch are enabled.
PV matches/exceeds SV	The controller should stop calling for heat; it may cycle to maintain temperature.
No PV reading / sensor error	Stop heating and have the sensing circuit evaluated.
Heater remains on above setpoint	Stop the machine; investigate relay, contactor and high-limit protection.

Independent high-temperature protection

A separate manual-reset over-temperature cutoff is strongly recommended for the final machine. The original manual does not prove that such an independent high limit is installed.

07 | CYCLE TIMER & MODES

The factory instructions describe a timer for spray and turntable functions when both are selected in Automatic mode. The timer is not expected to stop functions that are intentionally left in Manual mode.

Setting an automatic cycle

1. Confirm correct solution level and that the lid can close without contacting workpieces.
2. Set the desired wash duration using the timer arrow keys. H = hours, M = minutes, S = seconds.
3. Place the Spray and Governor selectors in Auto.
4. Close and latch the lid as designed. The supplier manual describes automatic operation after the lid is shut.
5. Observe spray and turntable rotation through the viewing window. Confirm the first cycle behaves as intended.
6. At the end of the cycle, spray and rotation should stop and the buzzer should sound; inspect that all motion stops before opening.

Mode comparison

SELECTOR	MANUAL	OFF	AUTOMATIC
Spray	Runs until turned off or lid interlock stops it.	Pump off.	Operates through timed cycle with lid closed.
Governor / turntable	Rotates until turned off or lid interlock stops it.	Turntable off.	Rotates through timed cycle with lid closed.

Mode verification

Switch positions and their effect on pump, motor, buzzer and interlocks must be tested on the finished unit. Do not leave the washer operating unattended in Manual mode.

08 | INSTALLATION & UTILITIES

Site selection

- Locate on a level, load-bearing floor with convenient access to the lid, tank, filter, drain and electrical control box.
- Provide ventilation and room to fully open the pneumatic-assisted lid. Protect the electrical panel from splashing and corrosive vapors.
- Keep clear access around the machine for safe operation and service. Confirm the installation envelope with the supplied dimensions.

Electrical connection - final rating verification required

1. Confirm that equipment nameplate voltage and frequency match the available supply before connecting.
2. Use only a correctly grounded receptacle, plug and cord selected for the verified measured current and duty cycle.
3. Have a qualified electrician determine required branch-circuit size, GFCI protection where applicable, conductor size and overcurrent protection.
4. Do not use extension cords, unapproved adapters or altered plug prongs.
5. Test emergency stop and lid/level interlocks before production use.

Fluid preparation

Inspect the drain valve, filter housing, pump and hoses for secure connections. Close the drain. Add an approved, correctly diluted water-based cleaning solution to the marked level. Do not guess tank capacity or chemical concentration.

Commissioning hold point

The supplied 12-page manual contained a 380 V three-phase requirement that conflicts with the reported MACH CLEAN 120 V design. The three-phase language has been removed; the 120 V electrical system requires final verification by a qualified technician.

09 | PRE-START INSPECTION

Required before every shift

CHECK	OPERATOR CONFIRMATION
Electrical	No damaged cord, plug, enclosure or exposed wiring. Proper supply available.
Fluid	Correct aqueous cleaner, dilution and safe solution level.
Leaks	Drain closed; pump, filter, tank and piping free of active leaks.
Workpieces	Within verified load/size limit and supported evenly on the turntable.
Spray path	Nozzles clear; hose and spray bar connections secure.
Lid	Lid hinge, assist and latch work normally; window intact.
Safety devices	Emergency stop, lid interlock and low-level protections tested as required.
Rotation	Turntable turns freely by hand only while machine is isolated and safe.

First-run acceptance checks

- Run an attended first cycle with a small, balanced load and the approved solution.
- Check pump priming, nozzle spray pattern, smooth rotation, timer stop and buzzer.
- Confirm heater setpoint response and that spray and rotation stop when the lid is opened, using an approved no-exposure test procedure.
- Document any unexpected vibration, noise, leaks or overheating and remove the machine from service until corrected.

No dry running

Do not energize the spray pump or heater with the tank empty or below safe operating level. An inadequate fill can damage the pump, heater and seals.

10 | STANDARD OPERATING PROCEDURE

Automatic cleaning sequence

1. Wear required PPE and complete the pre-start inspection.
2. Confirm approved cleaning chemistry and fill level, then turn on Main Power.
3. Set the temperature. Enable the heater only when adequate liquid covers the heater and all heat controls are functioning.
4. Allow solution to reach the process temperature appropriate for the selected chemistry.
5. Open the lid, place workpieces evenly on the removable turntable, and secure unstable items as appropriate.
6. Set the timer. Select Auto for the spray and governor switches.
7. Close the lid fully. Observe startup and confirm proper spray and turntable operation through the viewing window.
8. When the timer expires, verify the pump and turntable stop. Allow dripping to subside before carefully opening.
9. Remove clean parts with appropriate heat/chemical protection and allow draining or rinsing as required by the process.

Manual operation - supervised use only

Select Manual for the required function and leave all other selectors in Off unless needed. Manual mode is not controlled by the timer according to the original manual. Monitor the washer continuously; return selectors to Off immediately when complete.

Electrical load sequencing

Whether the heater is intentionally disabled whenever the spray pump operates must be verified from the completed electrical controls. Do not assume the machine has a power-sharing interlock unless it has been functionally tested.

11 | SHUTDOWN & CHEMICAL HANDLING

Routine shutdown

1. Switch Spray and Governor to Off. Verify all motion has stopped.
2. Turn the Heater Off and allow solution to cool before draining, handling or servicing.
3. Switch Main Power Off. Isolate power if cleaning or maintenance will follow.
4. Wipe external splash areas and inspect the tank for debris or contamination.
5. Follow the approved cleaning-fluid change schedule. Never discharge spent solutions into drains without checking local requirements and SDS guidance.

Drain procedure

- Wear splash-protective gloves and eye/face protection. Use a suitable receiving container with sufficient capacity.
- Only open the 1-inch drain valve when the liquid has cooled and all moving equipment is off and isolated.
- Open slowly, control splashes, and close fully when empty.
- Inspect the drain fitting and pan/tray after completion.

Chemical compatibility

Use detergents intended for stainless-steel aqueous washer systems, while also verifying compatibility with the pump, seals, hose, filter and any plated parts. Do not mix dissimilar products. Maintain SDS and dilution records.

Avoid harmful cleaners

Do not use gasoline, combustible solvents or unknown chemical mixtures. Strong acids/alkalis must not be used without a written compatibility assessment for all wetted components.

12 | PREVENTIVE MAINTENANCE

Intervals below are a practical preventive-maintenance program, adapted from the original manufacturer tables and common equipment-care practices. Adjust according to actual usage, solution loading and verified component manuals.

FREQUENCY	TASK
Each use / shift	Check fluid level, leaks, pump noise, spray effectiveness, motor operation, lid, drain valve and safety controls.
Daily	Inspect visible filter condition, tank debris, spray nozzles and cleaning performance; wipe cabinet and control panel dry.
Weekly	Inspect fasteners, lid hinge/support, drain plumbing, filter seals and turntable cleanliness.
Monthly	Inspect rotating support mechanism, chain guard, mechanical drive wear and accessible electrical controls (power isolated).
Every 3 months	Technician inspection: wiring condition, protective ground, terminal discoloration, thermal overload, temperature sensor and switch function.
Every 4-6 months	Service bearings/chain only using the specified lubricant and OEM procedure; do not contaminate the wash tank.
Annually	Qualified technician review of electrical protection, pump condition, drive components, heater and all safety devices.

Maintenance log requirements

- Record date, machine serial number, process hours (if available), fluid condition, inspection results, parts replaced and responsible technician.
- Tag the machine out of service for defective safety controls, unusual overheating, exposed wiring, serious leaks or abnormal noise.

Source limitation

The original manual included guidance referencing unrelated ultrasonic lines and gearboxes. Those items are excluded unless the actual MACH CLEAN build contains and identifies those components.

13 | PUMP, NOZZLES & FILTER SERVICE

Before any mechanical service

Place mode switches Off. Turn off Main Power, disconnect from the supply, lock out the energy source where required, allow solution to cool, and verify that moving parts have stopped.

Filter inspection / cleaning

1. Allow pressure to dissipate and drain/contain solution below the opened filter connection.
2. Open the filter according to the installed housing and gasket design. The supplied source describes a removable element.
3. Remove captured debris; clean or replace the element with an approved matching part.
4. Inspect the O-ring, filter housing and sealing faces. Reassemble without overtightening.
5. Refill and test for leaks with the lid closed and an attended cycle.

Spray-nozzle care

- Inspect for reduced flow or uneven spray. Flush debris with compatible cleaning solution while the machine is isolated.
- Do not enlarge nozzle orifices with sharp metal tools. Replace damaged or heavily eroded nozzles.

Pump and turntable drive

- Listen for rattling, cavitation, stalled motor, vibration or unusual heat. Do not continue to run an unprimed pump.
- Check suction blockage and correct fluid level before replacing pump components.
- Inspect drive chain, bearings and turntable coupling only after energy isolation.

Parts identification

The source does not provide pump model, pressure, flow rate, filter cartridge number, motor model, chain size or bearing specification. Read the actual component labels before ordering replacements.

14 | TROUBLESHOOTING

Perform only operator-level checks shown below. Electrical tests, internal wiring changes, heater replacement and mechanical repairs require a qualified technician and isolated power.

SYMPTOM	CHECK / CORRECTIVE ACTION
Machine will not power on	Check supply availability, plug seating, emergency stop state and overcurrent protection. If protection trips again, stop; call a technician.
Heater does not heat	Confirm safe liquid level, heater switch, temperature setting (SV vs PV) and thermal protection. Technician checks heater, sensor and control relay.
Temperature exceeds setpoint	Turn heater off. Stop use until controller, probe, contactor/relay and independent high limit have been evaluated.
Pump hums but no spray	Stop pump. Check fill level, blocked suction, clogged filter, air entry, drain leakage or pump failure. Do not dry-run.
Weak or uneven spray	Inspect chemical solution level, strainer/filter, nozzles, leaks and pump condition.
Turntable will not rotate	Check switch mode, interlock, obstruction/overload and load balance. Have motor/drive diagnosed if needed.
Cycle does not end	Ensure switches are in Auto rather than Manual and timer is configured properly.
Buzzer/alarm active	Check whether a timed cycle finished or protective device detected an abnormal condition; refer to installed alarm indication.
Liquid leaking	Stop use; isolate and cool. Inspect drain, seal, fittings, pump body, filter and lid gasket.

Do not repeatedly reset a tripped overload

Overcurrent or thermal overload can indicate motor failure, incorrect power supply, mechanical binding, wet electrical parts or excessive load. Determine the cause before re-energizing.

15 | PROTECTIVE DEVICES & SERVICE

Required protective functions to verify

DEVICE	WHAT TO VERIFY
Lid / door interlock	Spray and turntable stop safely upon lid opening. Never bypass for production.
Emergency stop	Stops hazardous machine movement as designed; restart requires deliberate operator action.
Low-liquid-level protection	Disables heater and pump before damage/unsafe exposure can occur.
Thermal overload	Motor and/or pump overload disconnects when abnormal current or temperature occurs.
Temperature control	Setpoint controls heater and does not exceed the allowed process range.
Independent over-temp high limit	Separate cutoff installed and independently capable of stopping heating (verify).
Grounding/bonding	Continuity and grounding verified by a qualified electrical technician.

Lockout/tagout service protocol

1. Notify affected personnel and stop the washer normally.
2. Turn off Main Power and unplug or otherwise isolate the electrical supply.
3. Apply lock and tag when required and control all stored energy (hot water, pressure, lid assist and mechanical movement).
4. Verify isolation before beginning work.
5. Reinstall all guards, covers and connections, then inspect and test after restoring power.

Actual safety certification

This manual does not claim UL, ETL, OSHA or other approval of the completed product. Such claims require documented testing, labeling and certification where applicable.

16 | OPERATOR & SERVICE RECORDS

Maintain a copy of this form with the machine. Expand or photocopy as needed.

EQUIPMENT IDENTIFICATION	VALUE
MACH CLEAN model / configuration	_____
Serial number	_____
Facility / department	_____
Installation date	_____
Voltage and nameplate current	_____
Approved wash chemistry	_____
Verified maximum load	_____

Inspection record

DATE / HOURS	ITEM CHECKED	RESULT / ACTION	INITIALS
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Fluid change / chemical record

Date: _____ Product / concentration: _____

Changed by: _____ Notes: _____

17 | PRODUCT SUPPORT & DISTRIBUTOR

For product assistance, replacement components and industrial cleaning applications, contact the entities listed below.

Product information and support

AEROKLEAN USA

Technical support: 877-255-8525

Mention the MACH CLEAN spray washer, serial number, and the component or control requiring assistance.

Distributor information

Company name: _____

Contact: _____

Phone: _____

Email / website: _____

Record this information before contacting support

Provide the machine serial number, electrical nameplate values, the fault description, controller display reading, wash temperature, chemistry and photographs of the relevant component when safe to obtain.

Document control

DOCUMENT	REVISION	DATE
MACH CLEAN Operating, Safety & Maintenance Manual	1.1	October 26, 2026

English language edition; inch-based dimensional references. Original manufacturer material reviewed and adapted for the reported MACH CLEAN equipment configuration.

18 | PRE-RELEASE VERIFICATION CHECKLIST

The following information could not be conclusively established from the supplied drawing and source manual. Confirm these values against the finished machine and the actual installed components before treating this manual as a final certified product specification.

CHECK BEFORE PUBLIC RELEASE	SIGN-OFF / VERIFIED VALUE
Electrical nameplate: V, Hz, rated amps	_____
Plug configuration, cord rating, branch circuit and GFCI	_____
Measure running current in all permitted operating modes	_____
Confirm heater wattage (reported: 1,000 W)	_____
Confirm heater/pump interlock and startup sequencing	_____
Verify independent overtemperature cutoff	_____
Verify lid interlock and restart behavior	_____
Verify low-level heater and pump cutoff	_____
Confirm max permissible tank temperature	_____
Confirm tank minimum fill, maximum fill and working volume	_____
Confirm maximum turntable load / part dimensions	_____
Confirm pump flow, pressure and materials	_____
Confirm nozzles, filter media and replacement part numbers	_____
Confirm final electrical drawing and wire labels	_____
Confirm warranty, certification marks and compliance labels	_____

Technical status - field verification pending

The source PDF is a generic supplier manual with mismatched references. This edition improves the operator instructions but does not substitute for an equipment-specific electrical schematic, bill of materials, qualified testing or a manufacturer-certified safety assessment.