

ULTRASONIC WASHER MODEL UC-3216



ACCESSORIES INCLUDED / OPTIONAL

- ✓ Full Length Basket
- ✓ Soap & Cleaning Agents (optional)
- ✓ Heavy-Duty Gloves (optional)
- ✓ Instruction Manual

- Warranty
- Safety
- Operation
- Service Parts
- Accessory Information
- Registration Form

INSTRUCTION MANUAL

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SAFETY REQUIREMENTS

PLEASE NOTE

All personnel must read this user guide before attempting to install, operate, maintain or service the ISTpure Ultrasonic Cleaning Equipment.

HAZARDS

- High voltages are present, **ALWAYS** disconnect unit from power source before attempting any maintenance or service procedure.
- Hot water; do not place unprotected hands in tank. Use baskets with tongs or proper rubber gloves to insert or remove parts from tank.
- Read MSDS sheet for cleaning agents recommended for the system. Note the requirements for personal protection listed on the MSDS.
- Make sure equipment is installed in accordance with all electrical codes.
- Never operate this equipment in an ungrounded condition.
- Never attempt to perform maintenance when cleaning solution is hot.
- Never open equipment or attempt service/warranty related repairs without first contacting ISTpure for safe and proper procedures.

TECHNICAL SPECIFICATIONS

DESCRIPTION	DATA
Tank Capacity	31 gal
Overall Dimensions (L x W x H with open lid)	70" x 27" x 36"
Cleaning Tank Dimension (L X W X D)	32" x 16" x 14"
Overflow Tank Dimension (L X W X D)	16" x 8" x 14"
Ultrasonic Power	3,600 W peak / 1,800 W average
Heat Power	1,000 W
Electrical Requirements	208-240 V / 1 or 3 Φ

SAFE OPERATION

- Do not immerse hands or other body parts in the ultrasonic tank. Cleaning agents and contaminants can cause skin irritation and exposure to high intensity ultrasonic energy should be avoided.
- Do not operate system using volatile, explosive, combustible or acidic liquids (pH less than 7). Unauthorized cleaning agents, not approved by IST, will invalidate warranty and may cause damage to system.
- Do not rest parts on the bottom of tank. A basket that stands off the bottom of the tank is mandatory for all parts; noncompliance will result in severe tank erosion and void the warranty.
- Do not operate the system unless the tank is full of water (minimum liquid level line on back wall of tank, 2" below top of tank wall). Operating at less than full capacity may result in damage and void the warranty.
- Do not open up machine, generator, disassemble any part(s), move or remove any components or electrical devices.
- Do not connect the equipment to any other power supply than what is specified on the serial tag of the unit (208V-240V, 1Ø, 3 wires, 30 A).
- The generator contains high voltages and should be maintained in a clean, dry environment at all times.
- Do not move the cleaning system without draining the tank and disconnecting the unit from the power supply.
- Operating temperatures of the solution requires protective clothing and equipment to protect against the possibility of scalds following accidental spills.
- Make sure that the sound levels experienced in your environment are known, and wear hearing protection if necessary. Ultrasonic energy produced by the system is measurable by sound meters and OSHA sound restrictions may apply.
- Do not leave the ultrasound on or leave parts in the tank longer than necessary. This can result in erosion of the part surface and/or the bottom of the tank.
- Do not allow moisture to build up inside the unit or generator, this can cause electrical shorts and corrosion of the ultrasonic transducers.
- Do not run the "filtration" cycle while the ultrasonic cleaning cycle is running. Both should not run at the same time. Filter periodically, when water is calm, 2-3 times per day or as necessary.

INSTALLATION & INITIAL SETUP

- Receiving - Inspect packaging and unit carefully to ensure there has been no damage in shipping. If there is damage, contact the carrier immediately to process a claim.
- Place the unit in a well-ventilated area on a flat level surface and lock casters in place.
- If unit is equipped with a lid that opens to form a drain shelf, attach the bracket to the side of the unit using a 4mm hex. wrench and existing screws. Make sure the black rubber pads are facing up and insert metal stick under the bracket to support the shelf.
- Make sure drain valve is closed and then add water and cleaning agent (typically 3 gallons approved soap – general duty cleaning) to the tank until the level in the tank is 3” below the top of the tank.
- Make sure drain valves are closed and then add water and cleaning agent (typically 5 gallons approved soap for general purpose cleaning) to the main tank. When the main tank is full the water will cascade over the weir into the rear overflow tank; continue adding solution until the level in the overflow tank is ~3” below the top of the weir.
- Use only approved ISTpure cleaning agents and be sure you use the proper, recommended concentrations (5 gallons = general purpose cleaning).
- **CHECK YOUR POWER SUPPLY BEFORE CONNECTING UNIT.** The system is designed to operate from a 208-240V, 1 phase, 3 wires, 30 amp power supply. Blue/Brown wires = hot wires, Green/Yellow wire = Ground.
- Operating temperature is pre-set @ 160°F (70°C) on the **Temp Control**. To manually turn on heat turn the **Heater** switch to **Man** position (pointing right). Initial heat-up time using cold water is approximately two hours. For automatic heating see **7-day program** (page 6).
- When operating temperature 160°F is reached, set **Ultrasonic Timer** to 15 minutes and push green **Ultrasound ON** button. This process, known as degassing, will remove air from the bath, which is required for effective cleaning. During this degassing phase, some squeaking sounds may occur, this is normal.
- Generator have been tuned and preset at the factory, but you should double check the generator setting. When unit has reached operating temperature turn ultrasonics on and open the front, lower cabinet door using the special key provided. Use the Power Adjustment knob to fine tune the intensity to fit your application. For less intensity, for more sensitive materials, you can adjust the intensity down using the Power Adjustment knob on the generator (less LED lights = less aggressive action).
- Unit is now ready to clean parts, see NORMAL OPERATION procedures. (Page 8)
- Fill out WARRANTY REGISTRATION form, (page 12) (serial # plate located on side of unit) and send back to IST to ensure activation of your warranty

SYSTEM OPERATION

CONTROL PANEL (IN FRONT)



- Ⓐ **ON:** This button controls the main power into the unit, this button must be ON to operate any other functions of the unit.
- Ⓑ **OFF:** This button shuts OFF the power to all functions.
- ① **Ultrasonic On:** This button turns ultrasonics **On**
- ② **Ultrasonic Off:** This button turns ultrasonics **Off**
- ③ **Heat:** This switch turns heat manually **Man** (pointing to the right) and automatically **Auto** (pointing to the left)
- ⑤ **Ultrasonic Timer:** To change cleaning time, press the ◀ button, and then use the ▼▲ to set to set time (e.g. 10 minutes = 00:10).
- ⑥ **Temp Control:** Controls the temperature of the solution-operating temperature should be 140 °F - 160 °F. Factory set @ 160 °F, this setting is thermostatically maintained and should only need to be re-set if process or materials being cleaned change. To change temperature, press the ◀ button, and then use the ▼▲ to set.
- ⑦ **7-Day Program:** This control allows operator to program the on/off of the heating cycle to correspond to the work hours.

⑦ 7-DAY PROGRAM - HEATER

SETTING CURRENT TIME (MILITARY) & DAY:

- **Set Military Time:** Hold **CLOCK** and Press **HOURL** until correct hour appears, Hold **CLOCK** and Press **MIN** until the correct minute appears.
- **Set Day:** Hold **CLOCK** and Press **DAY** until correct day appears.

SETTING 7-DAY TIMER:

Heater ON

- Press **SET**, "1" appears with "**ON**" above (function 1 when heat will turn on).
- Press **DAY** until the correct day(s) that you want the heat on appears.
- **Example:** If you want the heat to come on at the same time Monday through Friday, Press **DAY** until the 5 days appear on the top of the screen, **MO/TU/WE/TH/FR**.
- **Example:** If you want the heat to come on everyday at the same time Press **DAY** until the 7 days appear on the top of the screen, **MO/TU/WE/TH/FR/SA/SU**
- **Example:** If you want the heat to come on Monday Press **DAY** until only **MO** appears at the top of the screen.
- Press **HOURL** to set the hour that the heater will start for the days displayed.
- Press **MIN** to set the minute that the heater will start for the days displayed.

⑦ 7-DAY PROGRAM - HEATER (CONT'D)

SETTING 7-DAY TIMER (CONT'D):

Heater OFF

- Press **SET**, "**OFF**" appears above the "1".
- Press **DAY** until the correct days that you want the heat off appears.
- Press **HOUR** to set the hour that the heater will shut off for the days displayed.
- Press **MIN** to set the minute that the heater will shut off for the days displayed.

Note: You have 8 functions that you can use to customize your heat schedule. Each function is programmed the same as above, select the day, select the heat ON time and select the heat OFF time.

Once you have completed your programming:

- Press **CLOCK** which returns you to the main screen.

ACTIVATE AUTOMATIC HEAT CONTROL:

Move the **AUTO** switch to the **ON** position and back to the **AUTO** position. **Heater** switch should illuminate green in the **AUTO** position (pointed to the left).

RESETTING THE UNIT:

If the timer is not responding to your programming it may need to be **RESET**. Use an open paper clip and insert, push gently and release. This will fill the screen with numbers and your programming can proceed as normal.

MANUAL HEAT CONTROL:

At any time you can turn on heat manually by turning the green **Heater** switch to the **MAN** position (pointing to the right). Remember, the **Heater** switch needs to be in the **AUTO** position (pointing to the left) in order for the automatic heat to operate.

Note: The controller has a battery backup to ensure that your programming is unaffected by power outages or unplugging the unit. Pull out the plastic tape to activate battery backup.

CAUTION - Set the heating time approximately two hours before the desired time. For example, if you want to operate the washer at 7:00 a.m., set the warm-up time to 5:00 a.m.

NORMAL OPERATION

- Make sure solution is at operating temperature.
- Arrange parts in basket & lower basket into solution.
- Select time on **Ultrasonic Timer** & push green **Ultrasound On** button.
- Close lid when not loading/unloading parts.
- When ultrasound turns **OFF**, remove basket and place on drip tray (open lid).

NOTE: *Parts are hot, use proper protective equipment to prevent exposure.*

CAUTION: *Parts are hot, use appropriate protective equipment to avoid burns.*

GENERATOR

(LOCATED AT THE BOTTOM) (use the special key to open the trap )

- ① **Main Power ON/OFF switch:** Controls generator power on. Switch should be in “ON” position (push down) for ultrasonics to run
- ② **Power Control:** Ultrasonic output power, can be adjusted to suit cleaning objectives
- ③ **Power Level (red LED display):** Direct visual reference of ultrasonic power output
- ④ **Time (-, +):** Not applicable, time controlled by digital timer on control panel
- ⑤ **Mode:** Diagnostic program to check functions of the generator
- ⑥ **Overload, Amp, Scan, Time, kHz:** Call tech services for specific instructions/use, displays the value in kiloHertz (kHz).
- ⑦ **Start /Stop:** Not applicable, start/stop controlled by digital timer on control panel



MAINTENANCE

- **Preventive** - There is a minimum of preventive maintenance required. The overall environment around the tank and generator needs to be kept clean, dry and dust free.
- **Heating elements (2) and Low Level Sensors (2) need to be checked quarterly to ensure no leakage :**
 - Disconnect machine from power source
 - Remove upper side panels and check for leakage around heating elements (one of each side) and LLS (one in each tank).
 - If necessary, tighten bolts to snug, do not over tighten.
- **Daily** – Water level in overflow tank should be checked and added to in order to maintain proper level (~3" below weir).
- **Routine** - Both Filter Elements should be replaced when the pressure gauge indicates an increase in pressure or the flow from the spray bar located in the front of the main tank is slowed. Most users regularly replace their filters each month to avoid any decrease of flow. Solution should be replaced regularly to avoid a drop in cleaning performance that will result from too many contaminants in the solution.

NOTE: Consult your IST representative for recommended schedule for solution change based on your application.

EQUIPMENT CLEANING

- Push all control buttons **OFF**.
- Turn off main power switch on back of machine.
- **DISCONNECT UNIT FROM POWER SUPPLY, all lights should be off.**
- Wait a minimum of 15 minutes before draining contaminated solution from the tank (this enables heating element to cool and prevent damage).
- Drain tank, **NOTE:** Solution is hot and may be contaminated; protective clothing and equipment should be used to prevent any exposure.

NOTE: Solution is hot and contaminated, protective clothing and equipment should be used to prevent any exposure.

- Rinse the inside of the tank with clean, clear water.
- Wipe off heating elements to ensure that contamination and corrosion do not build up on surface, decreasing effectiveness and life expectancy.
- Wipe down the inside of tank with a clean, soft cloth. Do not use any abrasive pads or cleaners. These kinds of cleaners can scratch the tank surface and void warranty.
- Wipe work and outside surfaces with a dry, clean, soft cloth.
- When discarding contaminated solution follow all local, state and federal environmental and regulatory requirements.
- Follow installation instructions listed earlier for refilling and start up procedures.

MAXIMIZING ULTRASONIC PERFORMANCE

○ **Temperature**

Temperature has a dramatic effect on the cleaning performance and time needed to clean a part. The recommended temperature range is 140°F to 160°F (70°C). Temperatures below or above can decrease the ultrasonic action. Consideration needs to be given to the cleaning agent used when determining the proper temperature.

NOTE: Always check the MSDS for the cleaning agent and note its boiling point or flash point. Operation near or above the boiling point/flash point is hazardous and can cause noxious fumes.

○ **Cleaning Agent**

Cleaning agents can enhance or decrease the performance of the ultrasonic action and speed of cleaning. Always use IST approved cleaning agents at their proper concentrations.

○ **Degassing**

Liquids containing air and dissolved gases can interfere with the formation of cavitation bubbles necessary for ultrasonic cleaning. Follow the installation section to ensure liquid is ready for cleaning.

○ **Part Exposure**

In order for a surface to be cleaned, it must be exposed to the liquid. This requires proper placement of the parts in the parts basket. Do not overload baskets with small parts that prevent the middle layers from getting proper exposure to the liquid. Also, improper placement of parts with blind holes or cavities can result in air pockets, where no cleaning action occurs. In general, clean large numbers of parts a few at a time using shorter cleaning cycles.

○ **Contaminated Solution**

As contaminants build up in the solution the ultrasonic performance drops. The cavitation bubbles waste their energy imploding on the contaminants and not on the part surface. It is important that you change the solution on a regular basis.

○ **Parts Materials and Contamination**

Certain materials absorb ultrasonic energy, generally these are soft materials like rubber, fabric, gaskets and heavy grease. Ultrasonics is extremely effective with a hard surface to impact against. Therefore, parts contaminated with heavy amounts of grease or soft materials should be pre-cleaned prior to exposure to the ultrasonic tank.

SERVICE & WARRANTY PROCEDURES

NOTE: DO NOT OPEN EQUIPMENT OR ATTEMPT ANY SERVICE OR WARRANTY RELATED WORK BEFORE CALLING IST

Our service tech will help troubleshoot any problem and instruct user on the safe and proper procedures for repairs.

SUPPLIES AND SPARE PARTS

For ordering supplies, accessories, or spare parts:

Visit our website, istsurface.com

Call to place your order: 1 877 629-8202 or email: info@istsurface.com

ISTPURE LIMITED WARRANTY

IST warrants all equipment led in this manual which is manufactured by IST and bearing its name, to be free from defects in material and workmanship on the date of sale by an authorized IST distributor to the original purchaser for use. Notwithstanding any special, extended or limited warranty published by IST will, for a period of TWELVE (12) months from the date of sale, repair or replace any part of the equipment determined by IST to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with IST's written recommendations.

This warranty does not cover, and IST shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-IST component parts. Nor shall IST be liable for malfunction, damage or wear caused by the incompatibility with IST equipment with structures, accessories, equipment or materials not supplied by IST, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by IST.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized IST distributor for verification of the claimed defect. If the claimed defect is verified, IST will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser, transportation prepaid. If the inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

IST's sole obligation and the buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought forward within one (1) year of the date of sale.

IST MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY IST. These items sold, but not manufactured by IST (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. IST will provide the purchaser with reasonable assistance in making any claim for breach of these warranties.

LIMITATION OF LIABILITY

In no event will IST be liable for indirect, incidental, special or consequential damages resulting from IST supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of IST, or otherwise.

Report all accidents or "near misses" which involve IST products to :
- Technical Assistance

The following items are not covered under the IST warranty policy :
- Parts or chassis replacement due to normal wears.

Report all accidents or negligence involving IST products to our Service Department :

1 877 629-8202

ABOUT THE COMPANY

WHO WE ARE

IST is a leading manufacturer of equipment for the surface treatment industry and the solvent recycling industry. Our extensive line of equipment includes batch units and automated machines designed to achieve the highest manufacturing standards.

MISSION

IST works tightly with their customers to transform industrial processes to improve their quality, productivity, and environmental footprint.

OUR SERVICES

- Custom Design & Fabrication
- Installation & Startup
- Preventative Maintenance Program
- Private Labels
- Testing Lab
- 24/7 Technical Support

INDUSTRIES WE SERVE

- Aerospace & Aviation
- Aluminium Smelters
- Automotive
- Construction & Civil Engineering
- Flexography (labelling) & Lithography
- Foundry & Forge
- General Manufacturing
- Military
- Power & Energy
- Rail & Mass Transit
- Shipyards
- Wood finishing

