



OPERATIONAL & INSTRUCTION MANUAL

**Model: 2400FA
(120v 1Ø)**

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SAFETY REQUIREMENTS

All personnel must read this user guide before attempting to operate, maintain, or service the UltraSonic LLC 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 lifting mechanism 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 properly 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 UltraSonic LLC for safe and proper procedures.

SAFE OPERATION

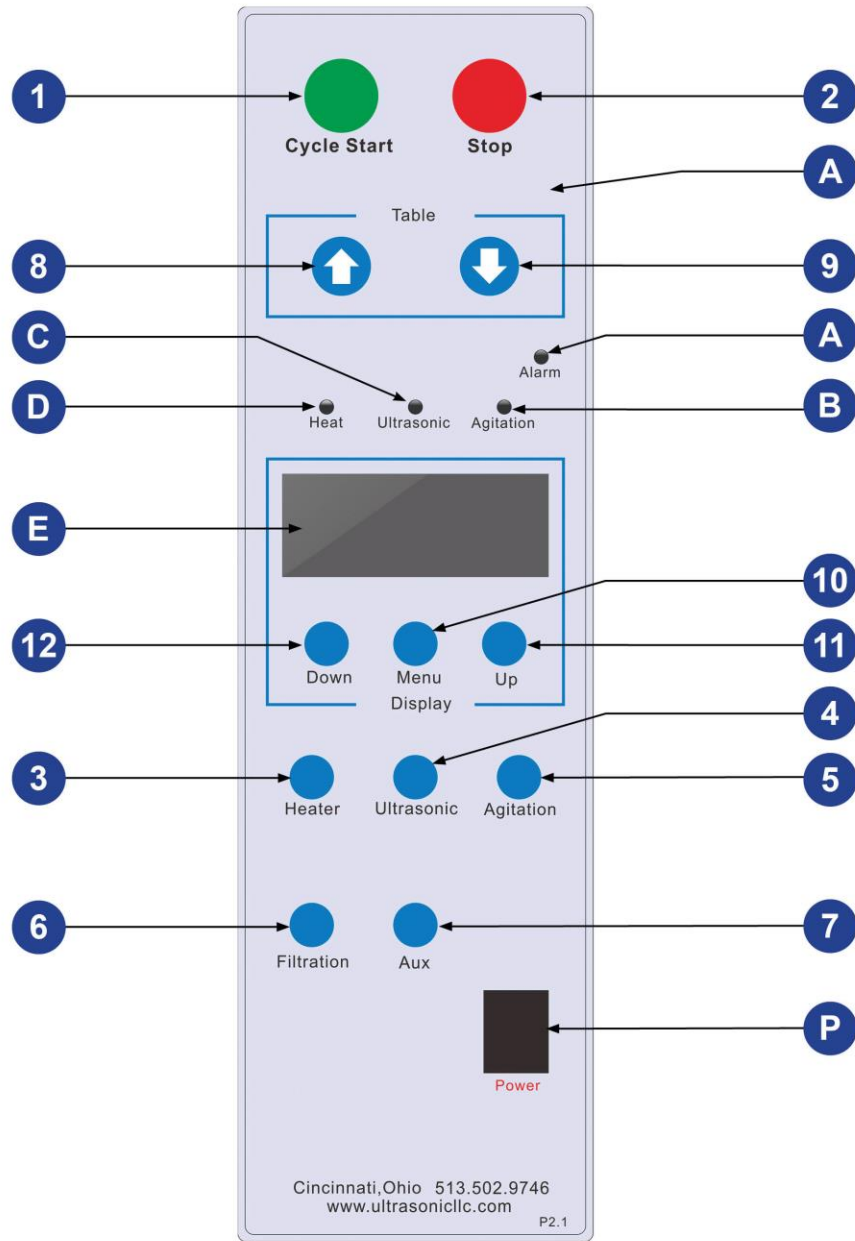
- * Do not immerse hands or other body parts in the ultrasonic tank. Cleaning agents and contaminants can cause skin irritation and exposure to high intensity ultrasonic energy should be avoided.
- * Do not operate system using volatile, explosive, combustible or acidic liquids (pH less than 7). Unauthorized cleaning agents, not approved by UltraSonic LLC, will invalidate warranty and may cause damage to system.
- * **Parts may be gently rested on the rack on the bottom of the tank. Avoid dropping parts on this which may result in tank damage and void your warranty.**
- * Do not operate the system unless the tank is full. Operating at less than full capacity may result in damage and void the warranty.
- * Do not open up machine, 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.**
- * The generators contain 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, this can cause electrical shorts and corrosion of the ultrasonic transducers.

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.
- * Both filter elements are already in their designated canisters. To change filter elements, a 15/16" wrench is required. (Not provided).
- * Make sure drain valves are closed and then add water and cleaning agent (typically 10% of approved soap per tank volume for general purpose cleaning) to the main tank. When the main tank is full the water will cascade into the weir tank; continue adding solution until the level in the overflow tank is 3" above the low water control switch.
- * Use only UltraSonic LLC approved cleaning agents and be sure you use the proper, recommended concentrations (typically 10% of approved soap per tank volume for general purpose cleaning).
- Check your power supply before connecting unit. The system is designed to operate on (120v 1Ø) Have certified electrician connect power supply.

- **Do Not Plug in Machine until unit is full of water and cleaning solution, doing so may cause damage to your UltraSonic tank and Void warranty**
- * Flip rocker switch **POWER ON/up** button, **Heater Control & Ultrasonic** lights will display green.
- * Operating temperature is pre-set @ 150°F on the **TEMP CONTROL**. Initial heat-up time using cold water is approximately two hours. For automatic heating see **Programmer – Heat**
- * When operating temperature of 150°F is reached, set **Ultrasonic Timer** to 15 minutes and push green **Cycle start** 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.
- * Unit is now ready to clean parts, see **NORMAL OPERATION** procedures.
- * Fill out **WARRANTY REGISTRATION** form, page 15 (serial # plate located on back panel of unit) and send back to UltraSonic LLC to ensure activation of your warranty.



Control Panel Functions

Machine Power:

P. Machine On/Off Power

Navigation Functions:

1. **Cycle Start** – Starts Pre-set Timers for Ultrasonic and Agitation
2. **Stop** – Stops Ultrasonic and Agitation
3. **Heater** – Manual Start/Stop (Overrides 7-Day Temperature Timer)
4. **Ultrasonic** – Manual Start/Stop Ultrasonic Timer
5. **Agitation** – Manual Start/Stop Agitation Timer
6. **Filtration**- Manual Start/Stop Filtration Timer
7. **Auxiliary**- Manual Start/Stop Timer
8. **Up** – Agitation Table
9. **Down** – Agitation Table
10. **Menu** – Machine Timers and Settings (See Program Settings)
11. **Up** – Navigation for Programing
12. **Down** – Navigation for Programing

Light Functions:

- A. **Alarm** – Red Light Indicates Low Water or Overload
- B. **Agitation** – Green Light Indicates Activation
- C. **UltraSonic** – Green Light Indicates Activation
- D. **Heat** – Green Light Indicates Activation only when Heating Element is Working
- E. **Display Panel** – Shows Machine Functions

Operation Instructions

Control Panel Button/Light Functions:

- **Cycle Start Button:** After pressed Starts the UltraSonic and Agitation timers and Will run according to timer settings (Green Lamp), when Finished the Filtration timer will run according to timer Setting (Yellow Lamp), when cycle is complete or in rest (Red Lamp).
- **Stop Button:** After pressed Stops Ultrasonic, Agitation and Filtration Operation and resets Timers
- **Arrow UP Button:** Moves Agitation to Up Position
- **Arrow DOWN Button:** Moves Agitation to Down Position
- **Alarm Light:** Indicates Low Water or Over Load (Press Menu Button to reset)
- **Heat Light:** Indicates when Water Heater is ON.
- **Ultrasonic Light:** Indicates when Ultrasonic is ON.
- **Agitation Light:** Indicates when Agitation is ON.
- **Heat Button:** Manual Start/Stop Heating
- **Ultrasonic Button:** Manual Start/Stop Ultrasonic Operation
- **Agitation Button:** Manual Start/Stop Agitation Operation
- **Filtration Button:** Manual Start/Stop filtration Operation
- **Aux Button:** Manual Start/Stop Auxiliary Operation
- **Menu Button:** Menu select and Save Setting
- **Menu Down Button:** Reduce Value/Move back in Menu
- **Menu Up Button:** Increase Value/Move forward in Menu

Display panel:

- **SONIC:** Display Ultrasonic Timer
- **AGIT:** Display Agitation Timer
- **FILT:** Display Filtration Timer
- **TEMP:** Display Actual Temperature/Set Temperature

Menu Operation:

- **Press Menu Button:** To select different Menu option press up button until desired Menu. To return back to a Menu selection press down button to return. To select desired Menu Option press Menu Button until edit position is reached then use Up and Down Buttons to edit selection, press Menu button to save settings.
- **Temperature Set:** Press Menu Button until Temp Control, Press Menu Button again until Temp Set, press Up/Down Buttons to set Temperature, press Menu Button to Save. Press UP Button to move to next setting.

- **Ultrasonic Timer Set:** In Menu Press UP Button until Ultrasonic Set press Menu Button until Timer use Up/Down Buttons to set time, press Menu Button to Save. Press UP Button to move to next setting.
- **Agitation Control Set:** In Menu Press UP Button until Agitation Control press Menu Button until Timer On/Off use Up/Down Buttons to set ON or OFF, Press Menu Button to reach Timer and use Up/Down Buttons to set time, press Menu Button to Save. Press UP Button to move to next setting.
- **Filtration Control Set:** In Menu Press UP Button until Filtration Control press Menu Button until Timer On/Off use Up/Down Buttons to set ON or OFF, Press Menu Button to reach Timer and use Up/Down Buttons to set time, press Menu Button to Save. Press UP Button to move to next setting.
- **Auxiliary Control Set:** In Menu Press UP Button until Auxiliary Control press Menu Button until Timer On/Off use Up/Down Buttons to set ON or OFF, Press Menu Button to reach Timer and use Up/Down Buttons to set time, press Menu Button to Save. Press UP Button to move to next setting.
- **Day TEMP Control Set:** In Menu Press UP Button until Day Temp Control press Menu Button until Day Time On/Off use Up/Down Buttons to set ON or OFF, Press Menu Button to reach Day Set press Menu button again to set Days use Up/Down Buttons to set days, check box to select day and exit, press Menu Button to Time Set press Up/Down to set start time, press Menu Button to set finish time, press Menu Button to Save. Press UP Button to move to next setting.
- **Day AUX Control Set:** In Menu Press UP Button until Day AUX Control press Menu Button until Day Time On/Off use Up/Down Buttons to set ON or OFF, Press Menu Button to reach Day Set press Menu button again to set Days use Up/Down Buttons to set days, check box to select day and exit, press Menu Button to Time Set press Up/Down to set start time, press Menu Button to set finish time, press Menu Button to Save. Press UP Button to move to next setting.
- **Factory Settings:** Factory Settings. Press UP Button to move to next setting.
- **System Time Set:** In Menu Press UP Button until System Time press Menu

Button until Time Setting use Up/Down Buttons to set Year press Menu Button to save press Up/Down Buttons to set Month, press Menu Button to save press Up/Down Buttons to set Day, press Menu Button to save press Up/Down Buttons to set Hour, press Menu Button to save press Up/Down Buttons to set Minute, press Menu Button to save press Up/Down Buttons to set Seconds, press Menu Button to save press Up/Down Buttons to set Day, press Menu Button to Save. Press UP Button to move to next setting.

- **Exit:** Press menu key to Exit

NORMAL OPERATION

- * Make sure solution is at operating temperature.
- * Arrange parts in baskets & lower basket into solution.
- * Push green **Cycle Start** button on the front of the machine.
- * Close lid when not loading/unloading parts.
- * When ultrasound turns OFF, **Filtration will turn on** automatically to skim off any surface oils & contaminants into the weir tank.
- * Remove basket. **NOTE:** Parts are hot, use proper protective equipment to prevent exposure.
- * **Do Not Plug in Machine until unit is full of water and cleaning solution, doing so may cause damage to your UltraSonic tank and Void warranty**

MAINTENANCE

- * Preventative - There is a minimum of preventive maintenance required. The overall environment around the unit needs to be kept clean, dry and dust free.
- * Routine - *Filter Element* should be replaced when the pressure gauge indicates rise in pressure or the flow from the spray bar located in the front of the main tank is slowed. Most users regularly replace their filter 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:** Canister and solution are hot and may be contaminated; protective clothing and equipment should be used to prevent any exposure. To change filter elements, remove solution from front/cleaning tank until water level is below spray bar. Remove cover in back of machine to access filter canister using a 15/16" wrench to loosen and remove canister.

Insert filter element into the canister. Carefully reattach canister to housing (be careful not to damage O-rings), hand tighten the canister in place to ensure a tight fit, use wrench to snug canister, do not over tighten.

NOTE: Consult your UltraSonic LLC representative for recommended schedule for filter and solution changes based on your application.

EQUIPMENT CLEANING

- * Push **Power OFF** button (all control lights should be OFF).
- * **DISCONNECT UNIT FROM POWER SUPPLY.**
- * Wait a minimum of 30 minutes before draining contaminated solution from the tanks (this enables heating element to cool and prevent damage)
- * Drain both tanks, **NOTE:** Solution is hot and may be contaminated; protective clothing and equipment should be used to prevent any exposure.
- * Remove and clean filter housings located in rear tank.
- * Rinse the inside of the tanks with clean, clear water.
- * **Do Not Plug in Machine until unit is full of water and cleaning solution, doing so may cause damage to your UltraSonic tank and Void warranty**
- * Wipe down the inside of tanks 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 and filters 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 150°F.

Temperatures 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 UltraSonic LLC recommended 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 procedure in 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 ULTRASONIC LLC (513) 502-9746.

SPECIAL NOTE: PLEASE RETAIN ORIGINAL SHIPPING CRATE

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

SUPPLIES AND SPARE PARTS

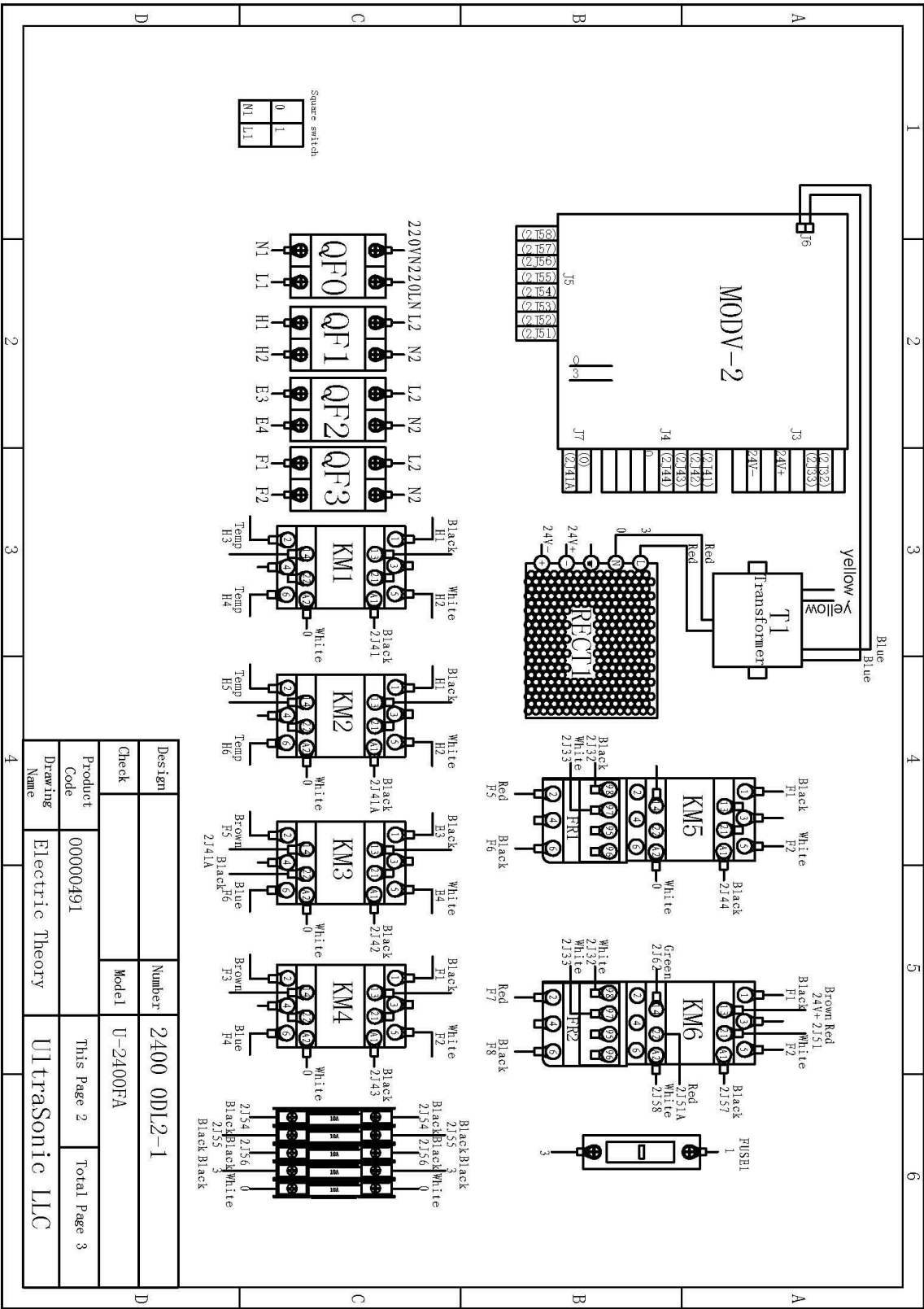
For ordering supplies, accessories, or spare parts:

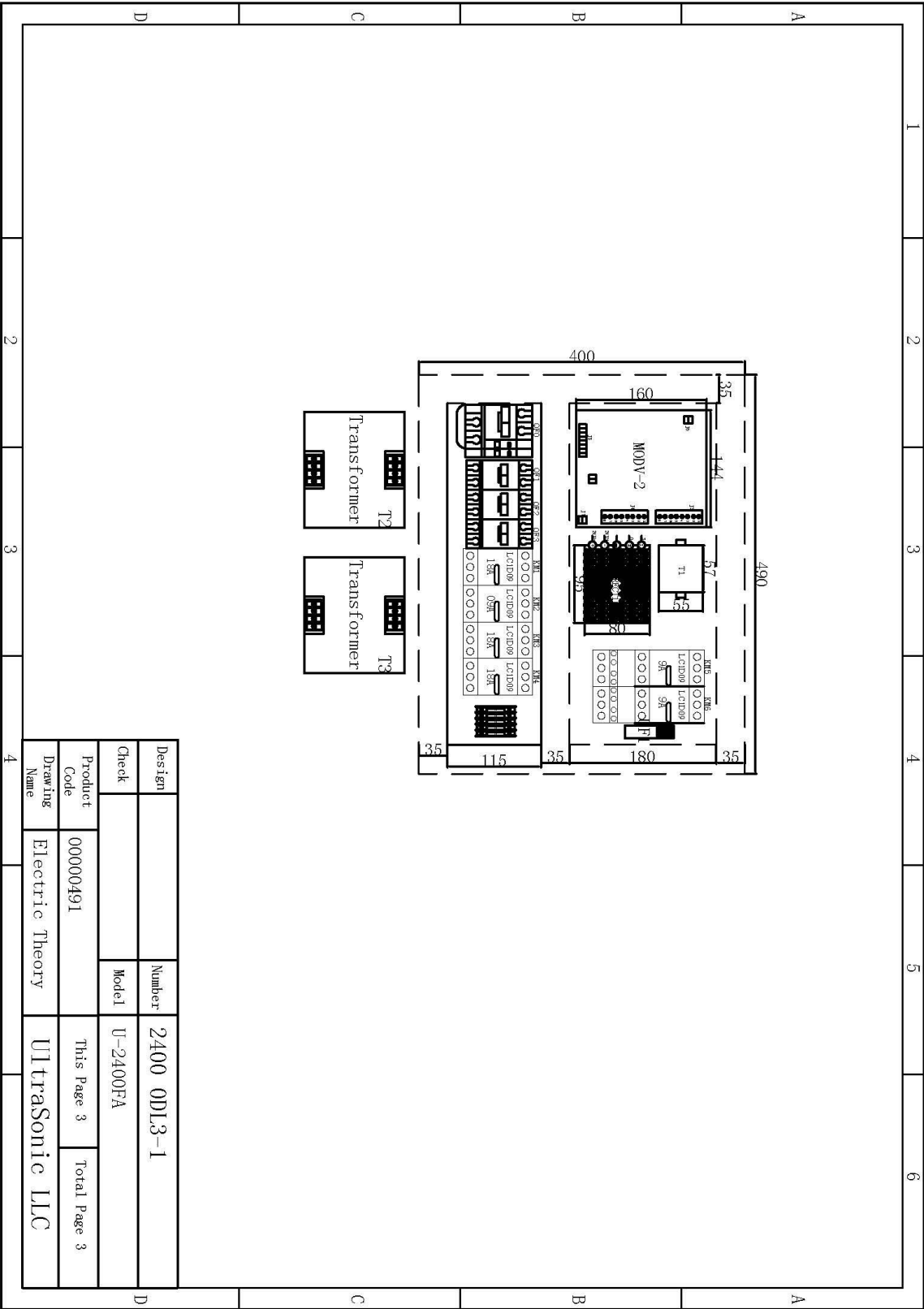
- * Visit our website, www.ultrasonicllc.com
- * Call to place your order, 513-502-9746.

Electrical Controls

FUS 1	Main Power Fuse
KM 1	Heater Contactor
KM 2	UltraSonic Generator Contactor

KM 3	Agitation Motor Contactor
QF 0	Main Ground Fault Breaker
QF 1	Heater Circuit Breaker
QF 2	UltraSonic Circuit Breaker
QF 3	Agitation Circuit Breaker with overload
RECT 1	24v Power Supply
T 1	Transformer 120v
MODV-01	PCB Control Board
MODV-02	Control Board





WARRANTY

UltraSonic LLC Cleaning Equipment is guaranteed to be free from defects in materials and workmanship for one (1) year from the date of shipment under normal use and operating conditions.

UltraSonic LLC shall repair or replace, at its option, any component covered by this warranty which is determined by UltraSonic LLC to be defective in material or workmanship within the one (1) year warranty period.

This warranty is limited to the original purchaser and is not transferable. Freight charges for equipment returned are the responsibility of the user.

Total liability for any reason whatsoever, shall not in any case exceed the cost of repair or replacement of the defective part. Such repair or replacement shall be the exclusive remedy available in connection with this warranty. In no case shall UltraSonic LLC be responsible for any incidental or consequential damages.

This warranty does not apply to:

- * Equipment or components subjected to misuse, improper installation, alteration, modification, neglect or accident.
- * Use of unauthorized cleaning agents, not approved by UltraSonic LLC.
- * Normal wear such as cavitation erosion of tank and transducer surfaces.
- * Non-compliance with all procedures as outlined in the Operational & Instruction Manual.
- * Parts having a useful life less than one (1) year, e.g. bulbs, fuses or similar parts.
- * Claims or estimates of performance and production specifications.
- * Applicability of use for a particular purpose unless specifically contained in writing by UltraSonic LLC.

Except as specifically provided herein; UltraSonic LLC grants no other warranty, either expressed or implied. UltraSonic LLC shall in no event be liable for damages of any kind as a result of or relating to the sale or use of the products whether such damages are direct, indirect, special, incidental or consequential

WARRANTY REGISTRATION

UltraSonic LLC Cleaning Equipment
Model - Ultra 2400FA

Customer _____

Address _____

Telephone (_____) _____

Serial Number _____ Delivery Date: _____

Voltage Supply to Machine:

L1 to L2: _____

L1 to Ground: _____ **L2 to Ground:** _____

Voltage Supply to Machine with heaters on:

L1 to L2: _____

L1 to Ground: _____ **L2 to Ground:** _____

I have received a copy of the Operational & Instruction Manual. I am aware that all personnel attempting to operate, maintain, or service the UltraSonic LLC Cleaning Equipment are required to read & understand the Operational & Instruction Manual.

Signed _____

Print Name _____ Title _____

INSTRUCTIONS: Fill out information, sign, email (info@ultrasonicllc.com) or fax form to UltraSonic LLC (513-436-1527). This registers your warranty and is **mandatory** to ensure proper administration of your warranty.