



INSTRUCTION MANUAL

DO NOT OPERATE YOUR ULTRASONIC CLEANER UNTIL YOU READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS.

ULTRASONIC CLEANING: Ultrasonic cleaning is the use of sound waves beyond the range of human audibility to perform scrubbing of a soiled part in a cleaning liquid. The transmission of these waves into the fluid causes the formation of millions of microscopic bubbles which collapse and release an intense amount of energy to literally “blast” the soils free from the external walls of the part being cleaned. This is known as “cavitation” and is the most modern, safe, gentle and thorough way of cleaning yet devised for most metallic and non-metallic parts.

An ultrasonic cleaning system consists of a “generator” which is an electronic device capable of generating electric energy at an ultrasonic frequency and a “transducerized tank” which holds liquid and parts. Together they create a “scrubbing action” in the liquid which results in thorough cleaning of the parts. The “S” systems are one piece consoles housing both the generator and transducerized tank in a rugged cabinet.

The SONICOR generators used in these systems are the most advanced in miniaturized solid-state technology. They consist of one or more modular type printed circuit board transistorized power packs. This modular concept simplifies maintenance, lowers initial operating costs and provides high operating efficiency.

OPERATION OF THE CLEANER: The “S” series cleaning systems are designed to be as foolproof as possible and to be simple enough to be operated without any special skill or training. The following suggestions should, however, assist in getting the most efficiency from them:

1. Select the desired cleaning solution (see SONICOR Chemical Data Sheets).
2. Fill the tank to the desired level with the solution. A minimum of two inches (heated systems must have three inches) of liquid should always be in the tank to prevent damage. Normally, the tank needs to be filled only enough to cover the parts being cleaned. **NEVER OPERATE THE UNIT WITHOUT LIQUID IN THE TANK.**
3. Plug the unit into an electrical outlet (110/120 volt, 50/60 cycle, 1 phase). Make certain a three prong (grounded) plug is used or that a separate ground is run to the unit.
4. Turn the unit “ON” using the amber colored switch (Timer equipped: turn to desired cleaning time cycle). The pilot light switch will glow and a characteristic buzzing noise will be heard in the tank. It is best to wait two to three minutes before cleaning when adding new liquid to permit the escape of entrapped air and other gasses (degassing) which would decrease cleaning efficiency. Some units are supplied with a toggle switch and a pilot light instead of the push button switch.
5. The model containing two switches is equipped with built-in heater system. These units must always be used with a minimum of 3” of cleaning solution. The amber switch is for ultrasonic cleaning ON/OFF and the red switch is for the heater ON/OFF. The heater system switch may be left on (providing there is always 3” of solution in the tank) thereby maintaining solution temperature and only activate the ultrasonic control when it is necessary to clean.
6. When the unit is “ON” you will be aware of the buzzing noise indicating ultrasonic activity in the tank. This will vary in intensity throughout the operation as will rippling of the surface. This variation has generally no bearing on the cleaning efficiency of the unit and may change considerably in intensity when work is introduced or as various aqueous and solvent cleaning solutions are used. Solvents must be warm before they operate properly.
7. Work to be cleaned should be positioned in the tank. In most cases, it may be desirable to use a rack or basket designed for ultrasonic use. Your SONICOR Applications Engineer or Technical Representative will be pleased to assist you in the selection of the best device to suit your needs.

8. "Cleaning time" will depend on the amount, location and type of soil to be removed. While most surface soils can be removed instantaneously, heavy soil embedded in the cracks, crevices and pores of the part may require several minutes. Loading the workbasket with heavily soiled parts that are touching will further increase the cleaning time. As mentioned before, selection of the proper cleaning chemical and handling devices is extremely important in getting maximum efficiency from your unit.
9. When the cleaning solution has become heavily contaminated, it will lose its efficiency and fresh solution should be added. The amount of solution will vary according to the type of chemical used, the amount of soil removed and frequency of use.
10. When it is necessary to use several solutions or a chemical not compatible with type 302 stainless steel to properly clean and rinse the soiled parts, the following simple procedure will permit your ultrasonic to be used efficiently: (a) fill tank to about 2" level with water and one ounce SONICOR #101; (b) Using glass, stainless steel, linear polyethylene beakers or tanks filled with the desired solutions, position them in the tank in contrast to the liquid so that there are no air bubbles under them. The ultrasonic energy will pass through the walls of these "inner tanks" and clean efficiently.

GENERAL PRECAUTIONS

1. Never immerse your cleaner in water. When you are finished using the tank, rinse it thoroughly and wipe dry.
2. **NEVER OPERATE THE TANK WITHOUT AT LEAST TWO INCHES OF WATER IN IT.**
3. Do not overload the tank or place heavy objects on the tank bottom as this will decrease cleaning efficiency.
4. Never use volatile, toxic or inflammable solvents, as the use of ultrasonics tends to increase the evaporation rate and cause additional hazards.
5. When cleaning a new part, it is best to experiment on a sample before proceeding with a batch load.
6. Always rinse the parts after proper cleaning procedure.
7. Metal objects should always be lubricated after cleaning to prevent oxidation.
8. To avoid discomfort, do not place your fingers in the tank while it is in operation.
9. **NEVER USE ANY CHEMICAL SOLUTION THAT WILL ATTACK STAINLESS STEEL ACCESSORIES.** A complete line of accessories is available for the Sonicor "SC" series. Please refer to your data sheets for more information.

CLEANING CHEMICALS: A complete line of cleaning chemicals is available from Sonicor and your distributor.

GUARANTEE INSTRUCTION: Your system has passed rigid factory inspection at each stage of assembly and has been life-tested under actual conditions prior to shipment. Defects in material and workmanship will be corrected without charge for parts and labor for one year after purchase. Cavitation erosion is a normal occurrence and develops with use of equipment and, therefore, not included as a part of the guarantee. A defective unit must be returned **PREPAID** to the factory. Collect shipments to the factory will not be accepted unless previously authorized. Service or parts supplied by unauthorized sources will nullify the guarantee. During the guarantee period, there will be a handling charge for repairs described above. The charge is \$25.00 for S-30, S-50, S-100 and S-101 units. The handling charge for S-150, S-200 and S-211 is \$35.00. For S-300 and S-400, S-401, S-550, S-650 \$45.00. For all MSC-units, \$50.00. Repairs necessitated for reasons beyond normal usage of the equipment will be billed at prevailing rates.

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GUARANTEE

Your equipment has passed rigid quality controlled inspection at each stage of assembly. It has been life-tested under actual working conditions prior to shipment. The factory guarantees the equipment for one (1) year after date of purchase against failures due to defective material and/or workmanship. During the guarantee period, the factory will replace and/or repair any defective parts or defect in workmanship which may appear during normal and proper use of the equipment. Service and parts supplied by unauthorized sources will void the guarantee. During the guarantee period, there will be a handling charge only for repairs described above. Defective equipment must be returned prepaid to the factory. Collect shipments to the factory will not be accepted unless previously authorized.

The factory does not guarantee assemblies such as pumps and refrigeration units purchased from other manufacturers. The factory will honor the specific guarantee of the individual manufacturer involved.

There is no guarantee against cavitation erosion of Tank and Transducer surfaces, which is a normal occurrence and develops as a function of time in the operation of Ultrasonic Cleaning Equipment.

The factory does not honor the guarantee on equipment subjected to misuse, improper installation, alteration, neglect or accident.

No warranties, expressed or implied, have been made other than those stated herein. Seller hereby disclaims any warranty of merchantability or warranty of fitness for a particular purpose.

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SoniChem Ultrasonic Cleaning Chemicals

Selecting the proper chemical to use in your ultrasonic cleaner is an important part of every successful ultrasonic cleaning application. Unlike many industrial cleaning agents that address specific contaminants and substrate materials, but may have components that actually inhibit ultrasonic cavitation, our **SoniChem** ultrasonic cleaning agents are specially formulated to enhance the ultrasonic activity in any ultrasonic cleaner. There's a **SoniChem** product for almost every ultrasonic cleaning application, and our Sonicor applications engineers are always ready to discuss your application and recommend the appropriate **SoniChem** product.



NO.	Name/Description	pH	Application/Compatibility	Contaminants	Use
101	All Purpose Detergent Liquid, all purpose cleaner, ceramics, glass	13.0	All metals except aluminum, plastics, ceramics, glass, graphite	Light oils, grease, dust , dirt, fingerprints	Conc.- 1-4 oz./gallon of water Temperature – 120° -150°F
102	Ammoniated Detergent Liquid, ammoniated special purpose cleaner	12.6-13.3	All metals except aluminum, plastics, ceramics, glass, graphite	Dust, Dirt, Buffing compounds	Conc: 1 part to 10 parts water Temperature – 70° -160°F
103	Aqueous Degreaser Liquid, Alkaline solvent cleaner	12.8	All metals except aluminum, plastics, ceramics, glass, graphite	Oils	Conc.- 10-16 oz./gallon of water Temperature – 120° -160°F
104	Copper Cleaner Liquid, acidic oxidation remover/cleaner	2.0-3.0	Copper, Copper alloys, plastics, ceramics, glass, graphite	Tarnish, light oils, grease, dust , dirt,	Conc.- 1 part to 8 parts water Temperature – 100° -120°F
105	Surgical Instrument Cleaner Liquid, mildly alkaline cleaner, disinfectant, sanitizer	10.0-10.5	Surgical Instruments, dental instruments	Blood, tissue, microorganisms	Conc.- 1-4 oz./gallon of water Temperature – 120° -140°F
106	Jewelry Cleaner Liquid, ammoniated special purpose cleaner	12.6-13.3	Jewelry & gemstone cleaning	Dirt, jewelers rouge, polishing compounds	Conc: 1 part to 10 parts water Temperature – 70° -160°F
107	Optical Cleaner Liquid, mildly alkaline cleaner, disinfectant, sanitizer	10.0-10.5	Optical lenses, glass and plastic, Eyeglass frames	Dirt, dust, oils, fingerprints	Conc.- 1-4 oz./gallon of water Temperature – 120° -140°F

NO.	Name/Description	pH	Application/Compatibility	Contaminants	Use
114	Aqueous Power Degreaser Liquid, slightly alkaline, free-rinsing detergent	9.0-10.0	All metals, plastics, glass ceramics	Grease & Oils	Conc: 1 part to 10 parts water Temperature – 120° -160°F
116	Sonic Strip Liquid, Heavy-duty alkaline, ink remover	13.5	Ferrous metals, plastics, ceramics	Gravure & Flexographic printing inks, oils, wax, grime, grease, dirt	Conc: 1 part to 3 parts water Temperature – 130° -150°F
119	Non-Ionic Wetting Agent Liquid, near-neutral, surfactant/wetting agent	7.0	All metals, plastics, ceramic, glass	Light oils, airborne soils, particulates, fingerprints	Conc.- 1-2 oz./gallon of water Temperature – 100° -130°F
119A	Non-Ionic Anti-Stat Liquid, near-neutral, Anti-static surfactant/wetting agent	7.0	All metals, plastics, ceramic, glass	Light oils, airborne soils, particulates, fingerprints	Conc.- 1-2 oz./gallon of water Temperature – 100° -130°F
122	Golf Club Cleaner Liquid, mildly alkaline cleaner,	12.0	Golf Clubs	Grass stains, dirt, debris	Conc.- 3-6 oz./gallon of water Temperature – 110° -120°F
122A	Blinds Cleaner Liquid, mildly alkaline cleaner,	12.0	Blinds	Dirt, grime, dust,	Conc.- 3-6 oz./gallon of water Temperature – 110° -120°F
123	Heavy-Duty Detergent Liquid, Heavy-Duty, Non-caustic Alkaline	12.0	Ferrous metals, plastics, ceramic, glass	Silicone oils, grease	Conc.- 4-10 oz./gallon of water Temperature – 120° -150°F
124	Non-Caustic Detergent Liquid, Heavy-Duty, Non-caustic Alkaline	12.0	Ferrous metals, some brass, some aluminum alloys, plastics, ceramic, glass	Oxidation, some carbon, grease, oil	Conc.- 6-12 oz./gallon of water Temperature – 140° -170°F
202	Buffing Compound Remover Liquid, Non-caustic Alkaline	12.0	Most metals (no aluminum), gemstones	Tripoli, rouge, buffing compounds	Conc: 1 part to 3 parts water Temperature – 120° -140°F
205	Carbon & Rust Remover Powdered, Heavy-Duty caustic Alkaline material	13.5	Ferrous metals	Oxidation, carbon deposits	Conc: Saturated solution in water Temperature – 120° -160°F
301	Sonic Phosphoric Detergent Liquid, slightly acidic material	5.0-5.5	Aluminum, Brass, Copper, beryllium, zinc	Oxidation, scale, tarnish, oils, fingerprints, dust	Conc: 1 part to 5 parts water Temperature – 150° -180°F
304	Cast-Off Liquid, mildly acidic material for removal of investment casting material	5.0-5.5	All metals	Investment casting material	Conc: 1 part to 5 parts water Temperature – 150° -180°F

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