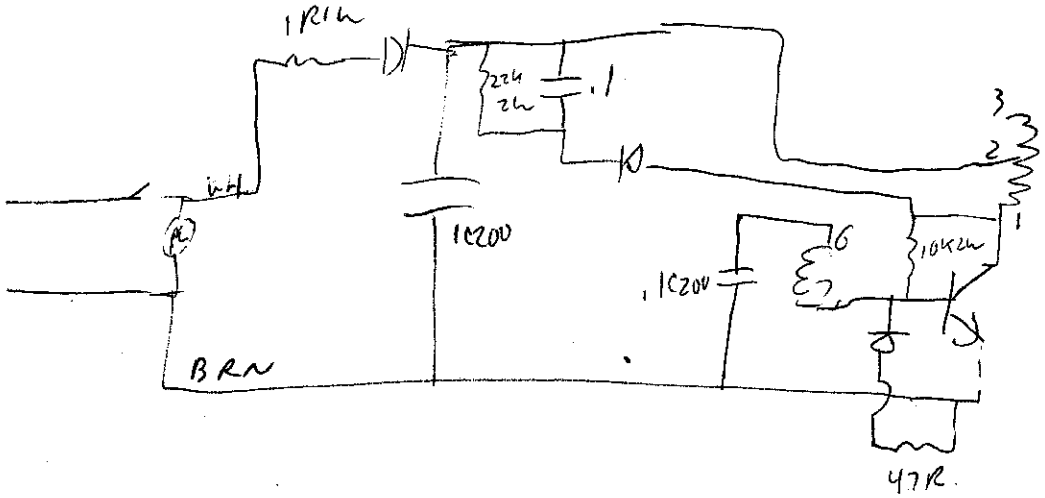
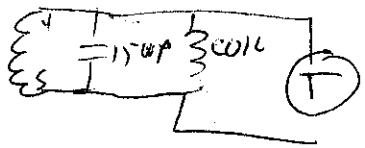
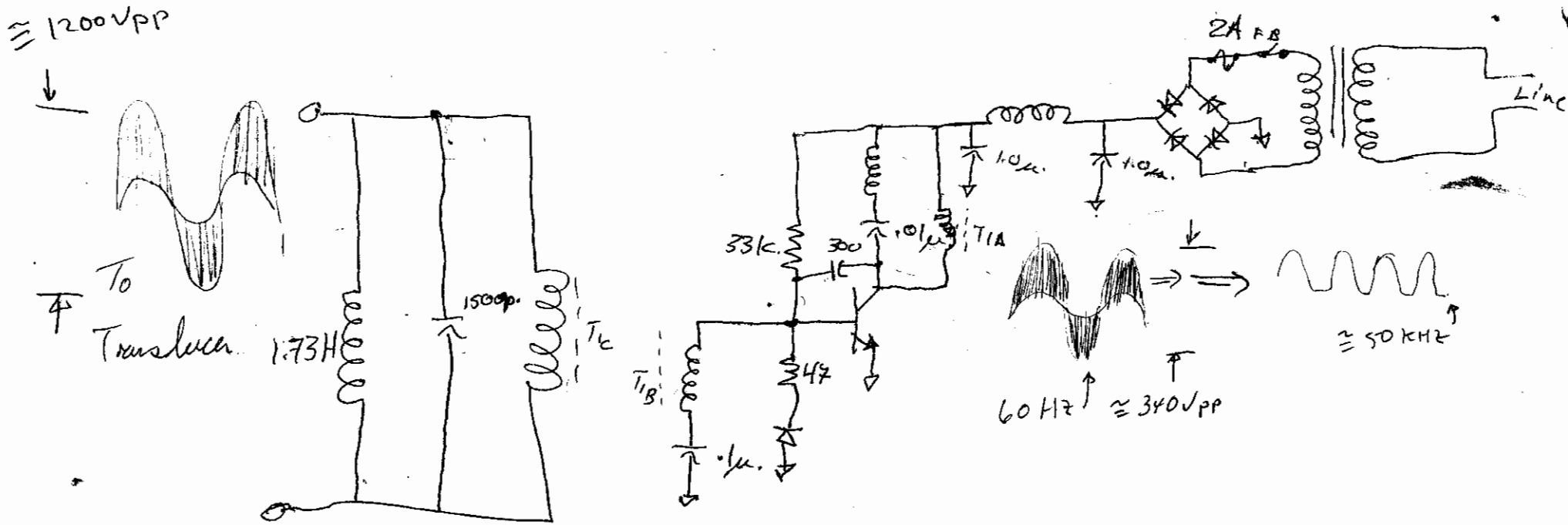




Small Bronzer
Cleaner

Branson 12.

Page & Wilson.

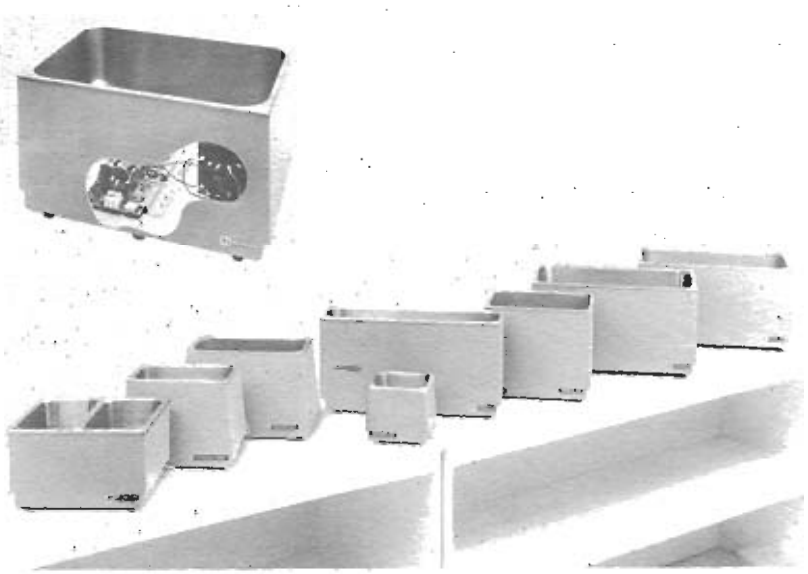


BRANSONIC™ ultrasonic cleaner

BRANSONIC™ features

- **Highest performance** small unit available.
- **All solid-state** circuitry and rugged **printed circuit boards**—built-in.
- **Quality components** assure trouble-**free operation.**
- **Lead Zirconate** Titanate transducer —virtually indestructible.
- Engineered **for long-term** operation.
- No fan or other moving parts.
- Simply operated—one ON/OFF switch.
- **Highly portable,** compact, self-containing.
- **Automatic tuning** insures consistently **high cleaning** efficiency and performance.
- **May be run continuously.**
- Steel **housing** Duralac coated, **stainless steel** tank.

model 2-22
model 92
model 72
model 42
model 52
model 32
model 220
model 12



ultrasonic cleaning

Basically, ultrasound isn't very mysterious. It's simply sound that human beings can't hear, in other words, frequencies ranging from 20,000 cycles per second on up.

Bransonic™ Ultrasonic Cleaners employ high frequency sound (50-55,000 cycles per second — 50-55 kHz) generated electronically by a transmitter in the unit. This electrical energy then is changed into sound waves by a device known as a transducer.

This sound, introduced into a specially formulated cleaning solution, creates countless millions of microscopic bubbles which rapily expand and collapse (cavitation). These implosions act like millions of high speed miniature scrub brushes driving cleaning solution into parts submerged in the cleaning tank, blasting away residues and accumulations.

Cavitation exists throughout the entire volume of an ultrasonic cleaning tank, but primarily on the surfaces of parts being cleaned. The scrubbing action of cavitation is quickly and thoroughly carried into all recesses and minute openings of parts being cleaned, wherever capillary action will take cleaning solution. Intricate parts can be cleaned with little or no disassembly because cavitation will penetrate wherever solution is in contact with a surface.

The purpose of introducing ultrasound into a cleaning solution is solely to provide the most intense scrubbing action on the part to be cleaned. It will accelerate the chemical cleaning action of the cleaning solution making it more effective on soluble soils. It will also help break loose tenacious insoluble soils or particulate matter which is ordinarily not removed by chemical action alone.

the equipment

Ultrasonic cleaners require three basic components:

- An ultrasonic generator to convert line current to high-frequency electrical energy.
- Transducers to convert electrical energy to ultrasonic energy.
- A tank to contain the liquid into which the ultrasonic energy is transmitted by the transducers.

The Bransonic™ incorporates all components in a rugged steel housing. With no fan or moving parts, ventilating louvers or slots are not required and all parts are completely enclosed. The cleaning tank is stainless steel with rounded corners.

specifications:

model	tank dimensions*	overall dimensions*	cleaning power (watts)	tank capacity	weight
B-12	5" x 5" x 3"	7¼" x 7¼" x 6"	50	1 qt.	6 lbs.
B-220	5" x 9" x 4"	12" x 7½" x 9"	100	¾ gal.	12 lbs.
B-32	6" x 11" x 6"	14" x 8½" x 9"	150	1½ gal.	16 lbs.
B-52	9½" x 11½" x 6"	10¼" x 12½" x 9½"	200	2 gal.	21 lbs.
B-2-22	9" x 5" x 4"	12¾" x 10½" x 7½"	100 per tank	¾ gal. ea.	18 lbs.
B-42	19¾" x 5¾" x 6"	20¼" x 6¼" x 10½"	200	2¼ gal.	23 lbs.
B-72	19½" x 11" x 6"	21" x 12¾" x 11"	375	5¼ gal.	40 lbs.
B-92	19½" x 11" x 8"	21" x 12¾" x 13"	425	8 gal.	40 lbs.

Above models are 115V AC 60 cycle input.
Models B32 and larger feature bottom mounted drains.
*All dimensions in inches.

B-220 thru B-92 available with heated tank.

cleaning solutions

The recommended solutions are the Branson Cleaning Concentrates which are available from your dealer. However, common household liquid detergent can be used for many applications, particularly where heavy deposits of oil or grease are not present. Simply add ¼ to ⅓ ounce to water in the cleaning tank. *DO NOT* fill the tank; objects immersed in the tank will displace their volume in liquid.

Where a very high degree of cleanliness is required or where there is a chance of damaging the object that is to be cleaned, a knowledge of the basic principles of cleaning solutions will be necessary.

Solutions can be divided into two broad classifications: aqueous and solvent.

Aqueous cleaning solutions are those with a water base. The cleaning agent is mixed with water; it can be either liquid or powder. Water is preferred as a cleaning medium because it is inexpensive and nonhazardous. It has the ability to dissolve many inorganic soils. It cannot dissolve organic materials such as grease, oil or waxes. Water serves, however, as a medium for carrying detergent compounds which will act on such soils. Water also acts as a dispersal medium for organic materials which it cannot dissolve but will carry in suspension.

Solvent cleaners are organic non-aqueous solutions. Non-aqueous solvents offer the advantage of high solubility for waxes, oils and grease. The volume and nature of some soils is such that it is attacked too slowly or not at all by aqueous cleaners. Heavy grease and oils are in this category, and solvents are required for their removal.

for maximum efficiency . . .

The Bransonic cleaner will automatically compensate for variables and give the best possible results for any cleaning condition. There are, however, certain liquid level and temperature conditions of the cleaning tank which will result in the greatest ultrasonic action.

In order to obtain maximum efficiency, once the proper temperature has been reached, it helps to adjust the cleaning solution level until maximum activity of the solution is noted on the surface of the liquid. Care should be taken that the cleaning tank is not overloaded with too large a work-piece/tank ratio or too many small parts in a single load.

Very often it is possible to clean three or four smaller loads with a higher degree of effectiveness in half the time required to clean one large or heavy load. This is particularly true when using baskets containing large quantities of small parts. For best results, a detergent or wetting agent must be employed.

setup and familiarization

A switch turns the ultrasonic generator on and off. The transducer is designed to operate with a liquid load; unit *should not* be operated with less than one half tank of liquid.

The generator is "self-tuning" and will automatically compensate for the variable conditions of ultrasonic cleaning. In order to utilize all the power that the generator is capable of supplying and achieve the most effective cleaning conditions, the transducer is operated at its natural resonant frequency. For Bransonic™ cleaners, this is 50-55 kHz range. This frequency is well beyond the range of human hearing, and at the same time, a low enough frequency for good mechanical action to produce an ideal cavitational condition.

Bransonic Cleaners employ the same type of solid state components used in large industrial ultrasonic cleaners manufactured by Branson Instruments Company (pioneers of ultrasound since 1946). The principle of the *self-tuning circuit* is identical to industrial models. This is an exclusive feature of Bransonic cleaners and is a result of intensive research, testing and experience in building ultrasonic equipment.

The self-tuning feature frees the operator from the necessity of making periodic adjustments to maintain peak cleaning efficiency.

Variable conditions that affect transducer resonance are:

- Weight, volume, liquid level, and temperature of the cleaning liquid.
- Size, shape, and temperature of objects immersed in the tank.
- The types of soil to be removed.
- The surface tension of the liquid in the tank. This varies with operating time. As ultrasonic action degases the solution, surface tension is reduced.

importance of wetting agent

Before a surface can be cleaned it must first be wetted by the cleaning liquid. When water is poured on an oily surface (for instance), the surface tensions of the two liquids are so different that the water cannot wet the film. Instead, the water forms individual droplets or pools on the oil.

Recognizing that water is one of the least wet of all liquids, wetting agents are usually added to aqueous cleaning solutions. A wetting agent will reduce the surface tension of water. If the surface tension of the water is reduced so that it is equivalent to that of the oil film, it will spread out over the oil film. But if the surface tension of water is reduced until it is actually less than the oil film, the water will penetrate and displace the oil. When this occurs, oil forms droplets on the surface of the water in cleaning tank.

Wetting action allows cleaners to penetrate the soil. Once the soil has been wetted, detergent action can then act in removing the contamination. Without first having the wetting, any detergent power is useless, unless it has, of course, inherent wetting agent properties. In addition, reducing surface tension allows the liquid to flow into very minute pores and crevices to displace soils.

Since solvents have by nature very low surface tension and are formulated to reduce surface tension still further, wetting agents are not required with their use.

operating check list

- There must always be liquid in the stainless steel tank when Ultrasonic Cleaner is in operation.
- You must use water-soluble solutions or safety solvents only. Gasoline, kerosene and other flammable solvents are fire and health hazards and *should never be used*. Toxic solvents, also are not recommended.
- Your cleaner must not be overloaded.
- When cleaning items for the first time, and when valuable items are to be cleaned, you should experiment with one piece before proceding with the remainder.
- Do not use your Ultrasonic Cleaner to clean novelty or inexpensive items, especially where a combination of heat and vibration may loosen cement — held settings.
- In the case of items containing working parts, parts should only be cleaned individually . . . and should be oiled immediately after cleaning.
- Your Branson Ultrasonic Cleaner should never be immersed in water. After use, simply rinse with warm tap water and wipe dry.
- To avoid discomfort, do not place fingers in the machine when in operation.
- A certain amount of heat is generated during ultrasonic cleaning process. Do not become alarmed if the bottom surface of your Cleaner becomes quite warm.
- When cleaning easily damaged or valuable items, use commercial cleaner recommended by manufacturer.
- Respect chemical cleaning solutions. Follow manufacturers' recommendations.
- Use only cleaning chemicals compatible with work pieces and equipment.
- Avoid contact with solvents and provide adequate ventilation.
- Avoid corrosive solvent conditions.
- Consult authoritative literature for the particular cleaning chemical being used. If questions arise, contact your nearest Branson Instrument Company service depot.
- The stainless steel "perforated" basket should be used when cleaning small, easy-to-lose parts.

why ultrasonic cleaning?

Ultrasonic cleaning is fast and reliable, adaptable and economical, consistent and effective. Why? Simply because cleaning action is generated by high-frequency sound waves that will go around corners, penetrate deep recesses or actually pass through barriers.

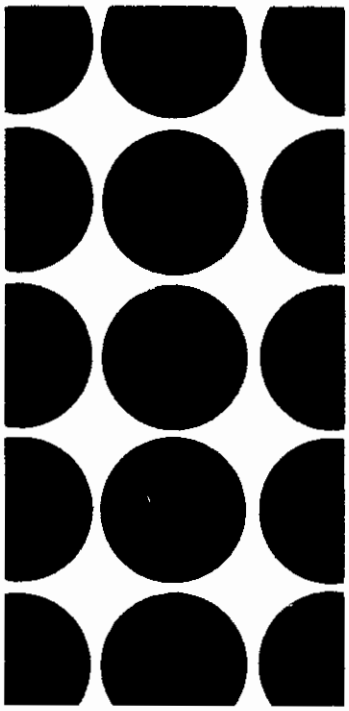
when cleaning . . . reminder

When using your Bransonic Ultrasonic Cleaner, it's important to remember that the time required to clean any particular object depends upon the type, amount, and location of the soil to be removed. In some cases, where only surface dirt and grime are present, soil may actually explode away in seconds before your eyes.

More deeply imbedded soil and rust often require *several minutes* to eliminate. Also, extra amounts of cleaning agent may be required for heavily soiled objects. Cleaning solutions may be reused until they lose strength or become heavy with dirt or grime.

soils removed . . .

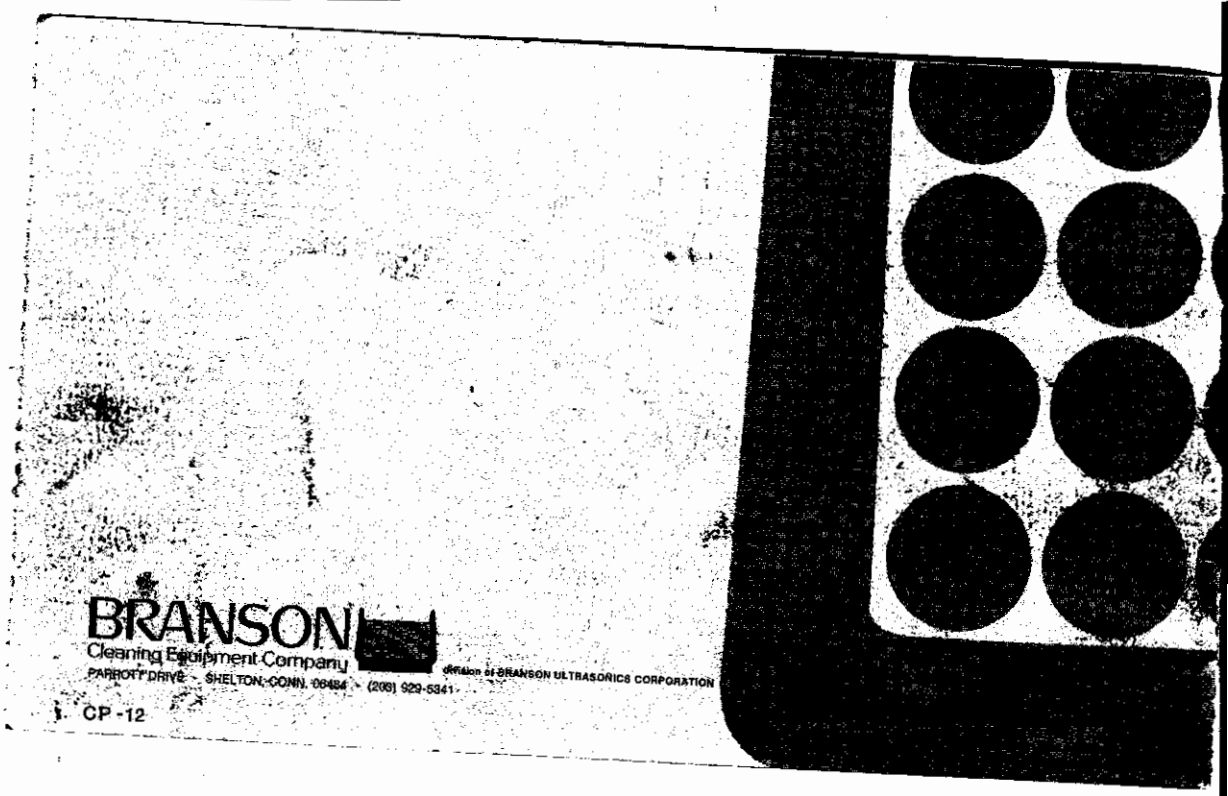
Oil, fingerprints, protein, rust, blood, radioactivity, ink, plaster, food, culture, dirt, grease and most soluble and insoluble soils.

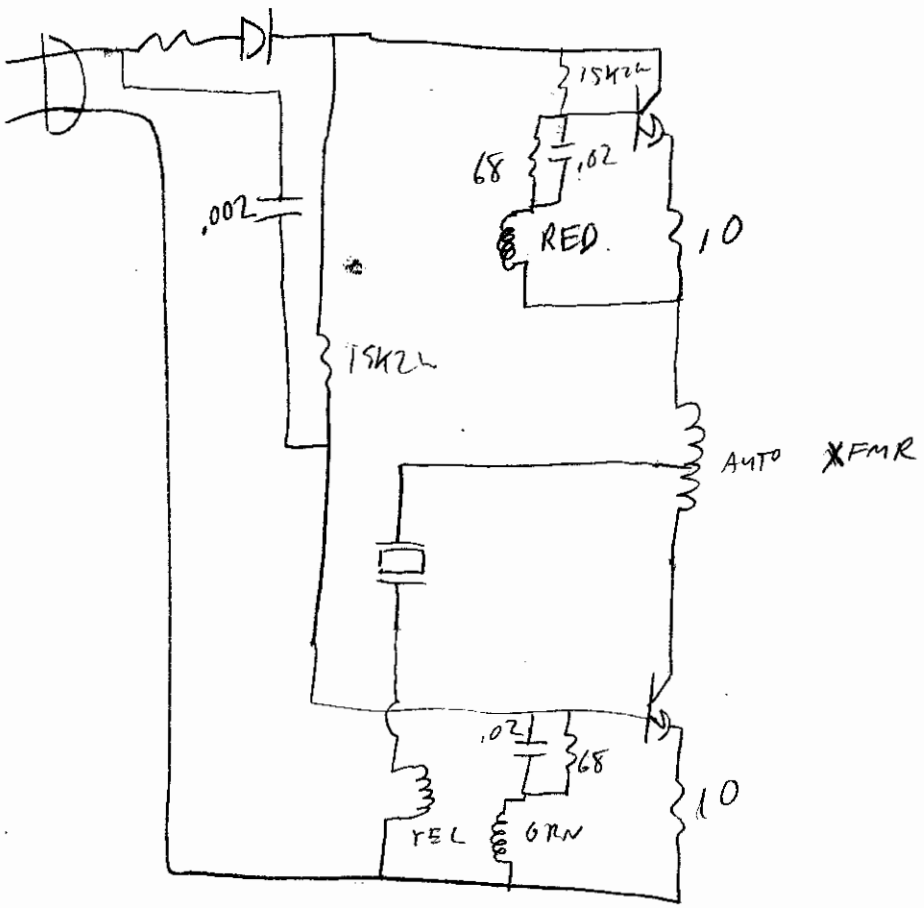


one-year guarantee

Warranty — Bransonic™ Ultrasonic Cleaners, when used in accordance with manufacturer's instructions, are guaranteed for one year after date of shipment. Within the period guaranteed, Branson Instruments Company will repair or replace free of charge, F.O.B. Parrott Drive, Shelton, Conn. 06484, U.S.A., all parts that are defective because of material or workmanship, not including costs for removing or installing parts.

Service — Normal operation of this unit will not require periodic service. If unit fails to operate satisfactorily, return to the nearest Branson Instruments Company service office for inspection and repair. Unauthorized service of unit may void warranty. Fill out warranty card when unit arrives. You will receive confirmation of nearest servicing branch.

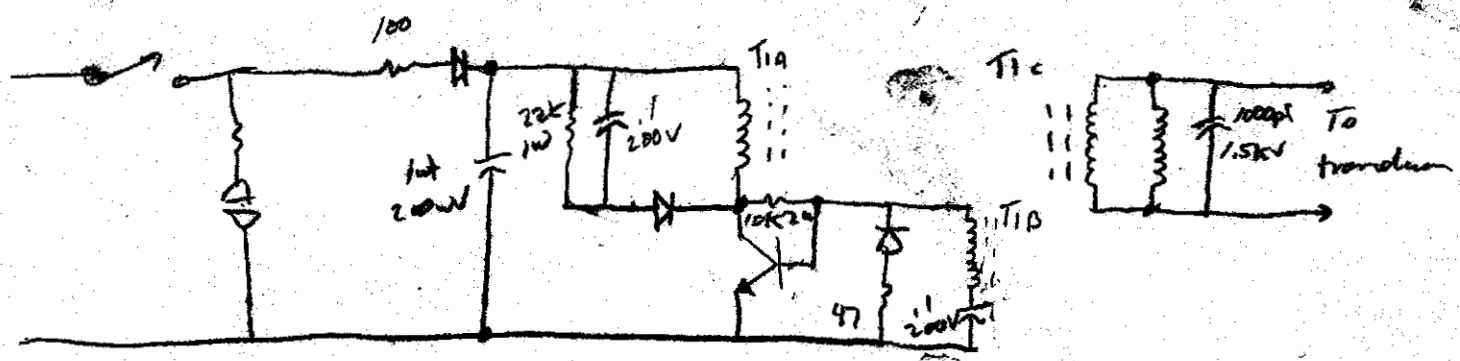




Leroy 61-3125

KDE

Ultrasonic cleaner


100
22k 1W
1 200V
1nf 2kV
T1A
T1B
T1C
10K2W
47
1 200V
1000pf 1.5kV
To transducer