



Ultrawave

Precision Ultrasonic Cleaning Equipment

Instruction Manual for Bench-Top Cleaning Baths

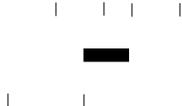
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Ultrawave baths are manufactured in the United Kingdom.

Ultrawave baths are manufactured to exacting standards, and conform to international standards.

Safety Instructions

Electrical

Connect to a 220 - 240 VAC fully earthed supply via a 3 pin plug.

It can be dangerous to operate an ultrasonic bath without an earth connected.

Most baths are fitted with a detachable mains lead. The mains socket on the rear of the bath is fitted with two 20mm fuses. See rating information on page 9. ***NEVER FIT A FUSE OF A HIGHER RATING.***

Baths with a fixed mains lead (U50, U95 and U100) are fitted with a 5A mains fuse at the mains plug. ***NEVER FIT A FUSE OF A HIGHER RATING.***

Ensure that excess mains cable is stored neatly.

General Use

Ensure that the bath is at least $\frac{3}{4}$ full of liquid before you switch it on.

Always use a basket or beaker support to support items to be cleaned.

Heated baths can reach temperatures in excess of 70 °C – so please follow safety precautions.

Disconnect the bath from the mains supply before emptying.

When emptying baths with no waste outlet, tip the bath AWAY from the electrical connector and lead.

Do not place fingers in the bath.

Getting started

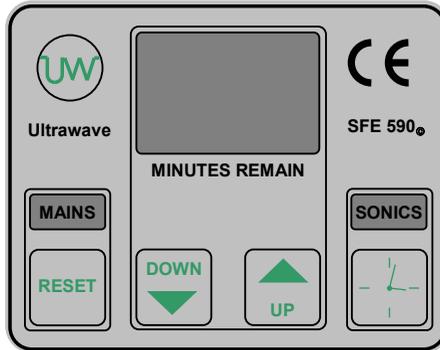
- **DO NOT OPERATE THE BATH WITHOUT LIQUID IN THE BATH.**
- **ALWAYS USE A BASKET OR BEAKER SUPPORT - THE BATH WILL BE DAMAGED IF ITEMS ARE IN CONTACT WITH IT DURING OPERATION.**
- **NEVER USE TOXIC, FLAMMABLE, ACIDIC, CAUSTIC OR CORROSIVE SOLUTIONS.**
- Pour hand warm water into the bath until it's at least $\frac{3}{4}$ full.
- Add the required dose of cleaning additive. See page 10.
- Add more hand warm water so that the liquid reaches the required level.
- Turn on the machine for 5 minutes to de-gas the cleaning liquid. {see page 10 for more details on de-gassing}
- The bath is now ready to use.
- To operate your bath, please refer to the appropriate instructions on the following pages.
- Once the cleaning cycle has finished, remove the cleaned items and rinse them in clean water.
- Change the cleaning liquid at regular intervals. Your cleaning process will determine how often to change the liquid – the more soiled your items, the more often you will need to change the liquid.
Ultrawave recommend changing the cleaning liquid at least on a daily basis.

REMEMBER

- ALWAYS keep the bath at least $\frac{3}{4}$ full.
- NEVER operate an empty bath.
- ALWAYS use a basket or beaker.
- NEVER put hot water into a cold bath.
- ALWAYS Remove mains plug from supply when emptying the bath.
- NEVER expose hands to cleaning solutions.
- NEVER use toxic, flammable, acidic, caustic or corrosive solutions.
- NEVER breathe fumes from strong solutions.
- ALWAYS Keep the bath filled with water when not in use. This will prevent items dropping onto the base of an empty bath.

Subjecting the bath to improper treatment or misuse will invalidate the warranty.

Operating Instructions for the Digital I Control Panel



When the machine is switched on, the MAINS light will glow, and the MINUTES REMAINING display will indicate the preset cleaning time of 10 minutes.

To switch on the ultrasonic activity:

Press the CLOCK key. The SONICS light will glow, activity will commence in the liquid and the display will count down from the factory preset time of 10 minutes.

At the end of the timed period the activity will stop and the timer will revert to the preset time, ready for a repeat of the operation.

To stop the sonic activity at any time, press the CLOCK key.

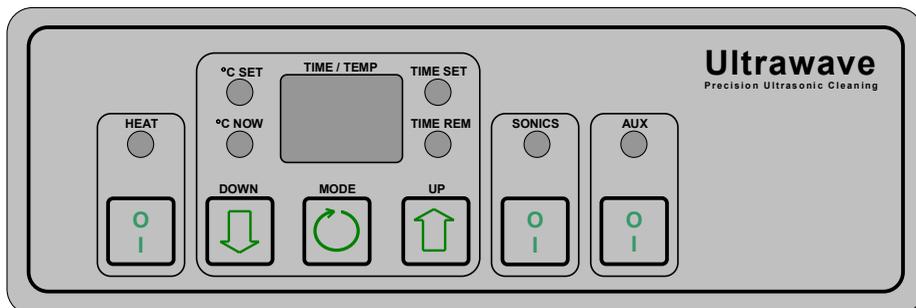
To alter the time settings:

Press the centre TIME SET UP or TIME SET DOWN keys until the required time in minutes is indicated.

Press the RESET key to return to the preset time of 10 minutes

The new programmed settings will be stored in memory once the unit has completed a cleaning cycle, and will remain even if the machine is disconnected from the electricity supply.

Operating Instructions for the Digital II Control Panel



To switch on the ultrasonic activity:

Press the SONICS key. The SONICS light will glow, activity will commence in the liquid and the display will count down from the factory preset time of 10 minutes.

At the end of the timed period the activity will stop and the timer will revert to the preset time, ready for a repeat of the operation.

To stop the sonic activity at any time, press the SONICS key.

To operate the heater:

Press the HEAT key. The HEAT light will glow and the liquid temperature will rise until it reaches the factory preset level of 50 °C. At this point the HEAT light will flash indicating the set temperature has been reached.

NOTE: Ultrasonic activity itself will heat the liquid. This means that the liquid temperature may rise above the set level. The °C NOW setting will indicate the actual liquid temperature.

To alter the time settings:

Press the centre MODE key until the TIME SET light glows. Press the Up or Down arrows until the required time in minutes is indicated.

To alter the heat setting:

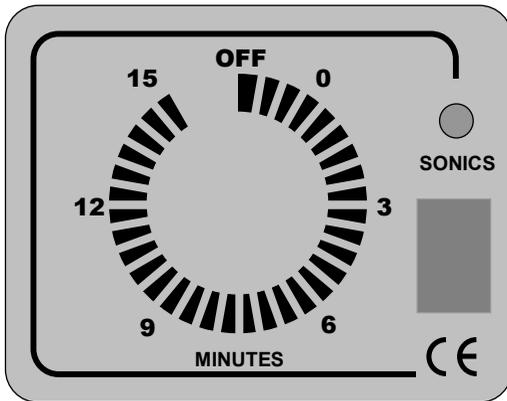
Press the centre MODE key until the °C SET light glows. Press the Up or Down arrows until the required heat setting in degrees Celsius is indicated.

The new programmed settings will be stored in memory once the unit has completed a cleaning cycle, and will remain even if the machine is disconnected from the electricity supply.

The centre MODE button can be pressed at any time to view the time set, time remaining, the temperature set or actual temperature.

The panel also has an AUX button which is reserved for auxilliary functions not fitted to our standard baths. Pressing the AUX button will have no effect.

Operating Instructions for the Manual I Control Panel.



To switch on the ultrasonic activity:

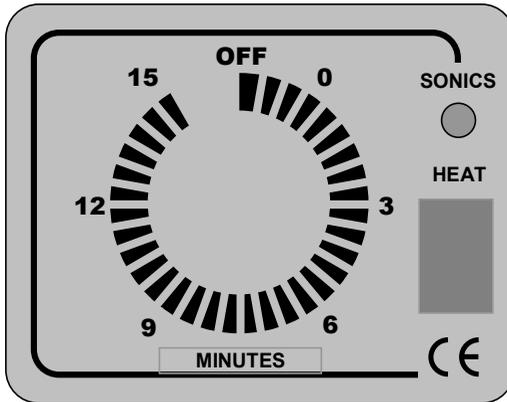
Turn the MINUTES dial to the desired time, and switch on using the SONICS switch.

The SONICS switch and the SONICS light will glow, activity will commence in the tank liquid and the MINUTES controller will be heard ticking.

At the end of the timed period, the timer will click off, the SONICS light will go out, and tank activity will stop.

To stop the sonic activity at any time, switch off the SONICS switch.

Operating Instructions for the Manual II Control Panel.



To switch on the ultrasonic activity:

Turn the MINUTES dial to the desired time.

The SONICS light will glow, activity will commence in the tank liquid and the MINUTES controller will be heard ticking.

At the end of the timed period, the timer will click off, the SONICS light will go out, and tank activity will stop.

To operate the heater:

Switch on using the HEAT switch.

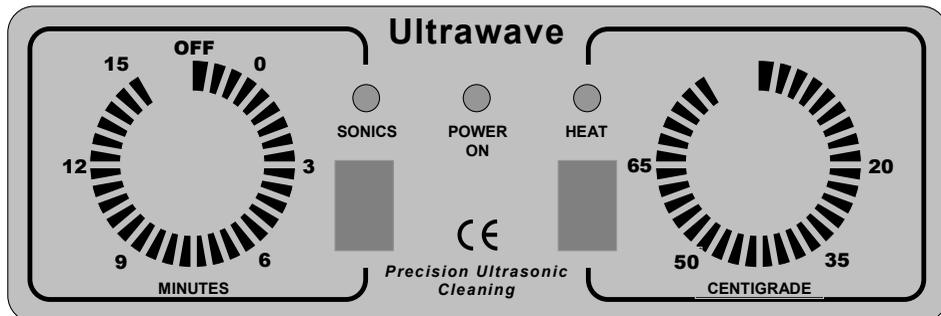
The HEAT switch will glow, and the liquid will start warming up.

No indication is given when the preset maximum temperature of 70°C is reached.

To stop the heater at any time, switch off the HEAT switch.

NOTE: Ultrasonic activity can elevate the liquid temperature to above the set level. If in doubt, check actual temperature with a thermometer.

Operating Instructions for the Manual III Control Panel.



To switch on the ultrasonic activity:

Turn the MINUTES dial to the desired time, and switch on using the SONICS switch. The SONICS switch and the SONICS light will glow, activity will commence in the liquid and the MINUTES controller will be heard ticking.

At the end of the timed period, the timer will click off, the SONICS light will go out, and ultrasonic activity will stop,

To stop the sonic activity at any time, switch off the SONICS switch.

To operate the heater:

Turn the CENTIGRADE dial to the desired temperature, and switch on using the HEAT switch.

The HEAT switch and the HEAT light will glow, and the liquid will start warming up.

When the set temperature is reached, the HEAT light will go out.

To stop the heater at any time, switch off the HEAT switch.

NOTE: Ultrasonic activity itself will heat the liquid. This means that the liquid temperature may rise above the level indicated on the centigrade dial.

The CENTIGRADE dial only controls the heater cut-out temperature.

If in doubt, check the actual temperature with a thermometer.

Troubleshooting

If the unit stops working, check that the indicators illuminate when switched on.

If the indicators fail to glow, check the mains supply and fuse in the mains plug, and the two fuses in the mains socket (if fitted) on the rear of the bath.

If the fuses and the mains electricity supply are OK, and the unit fails to operate it should be returned to your supplier for service.

There are no user serviceable parts inside the unit.

Fuse Ratings

IEC Socket Fuse Ratings

If your bath has an IEC socket, then two 20mm fuses will be fitted. The following table gives the correct fuse rating for each different model.

Replacement fuses should ALWAYS be anti-surge. This type of fuse is marked with a "T"; e.g. T1.6A, T3.15A etc

Model Number	Fuse Rating
U100, U100D, U100H, U300, U300D, U300H, U300HD, U400, U400D	1.6A
U500, U500D, IND500D	2A
U1100D	3.15A
U1250D, U1750D, IND1250D	4A
U2800D	5A
IND1750D	6.3A
IND2850D	8A

Fitting fuses of the incorrect rating will invalidate the warranty.

If you have any doubt, please contact the Ultrawave Service Department

UK Mains Plug Fuse Ratings

The following models must be fitted with a 5A fuse in the mains plug:

U100, U100D, U100H, U300, U300D, U300H, U300HD, U300WD, M310, U400, U400D, U50, U500, U500D, U95.

The following models must be fitted with a 13A fuse in the mains plug:

U1100D, U1250D, U1750D, U2800D, IND500D, IND1250D, IND1750D, IND2850D.

Fitting fuses of the incorrect rating will invalidate the warranty.

Technical Information

The need for de-gassing

Gases are present in tap water. These gasses have to be driven out of the cleaning solution to allow optimum ultrasonic activity.

The period taken to de-gas the fluid varies, depending on the size of the bath, and the amount of gas present in the liquid.

Ultrawave recommends a de-gas period of 5 minutes.

You can tell when the liquid is de-gassed by increased 'cold boiling' at the liquid surface.

Once the solution is degassed, the bath is available for immediate use.

Cleaning Fluids

Ultrasonic baths require the presence of cleaning fluid to work effectively.

Ultrawave recommend the following cleaning agents which have been specifically formulated for ultrasonic cleaning equipment.

Fluid	Application	DOSING Level	Temperature
Ultraclean M2	General detergent for all plastic and glass, and metals except aluminium.	2 to 5% by volume	Ambient to 60°C
Ultraclean SA	Similar to M2, but suitable for aluminium	2 to 5% by volume	Ambient to 60°C
Ultraclean CS	Suitable for the removal of carbon and heavier contaminants (not for use on aluminium)	3% by volume.	50 to 60°C
Ultraclean PHA	Rust removal for ferrous metals	20% by volume.	50 to 60°C

The effect of heat

Heating the liquid in the bath will aid the cleaning process.

Normally, a temperature of 30 to 60°C is sufficient to accelerate the cleaning process. Higher temperatures are only necessary to dissolve grease or fats from instruments.

Remember that proteins coagulate above 37°C. If you are removing contamination containing animal protein, set the temperature no higher than 30°C.

Ultrasonic activity itself will heat up the liquid at the rate of approximately 5 to 10°C per hour. This means that if you heat up the bath to 50°C, then turn on the sonics for one hour, the bath temperature will rise to 55 to 60°C.

If the sonics are operated continually, very high temperatures are possible.

Cleaning time

Cleaning time will depend on application, type and amount of contamination.

General light contamination will be removed in less than 10 minutes.

An indication of cleanliness is when stains are no longer visible, and contamination no longer appears in a stream from the item being cleaned.

Maintenance

It is important to keep your bath clean. Not only will contaminated liquid reduce the performance of the bath, it may also damage it.

Change the cleaning liquid regularly

Your cleaning process will determine how often to change the liquid – the more soiled your items, the more often you will need to change the liquid.

Change the cleaning liquid at least daily.

The base of the bath generates the ultrasonic activity by vibrating at very high speeds. If any contaminants are in contact with the bath, they act as an abrasive, and the metal surface will wear. In extreme cases, the bath will develop holes, and start to leak.

Warranty.

The warranty on Ultrawave Ultrasonic products applies to defects appearing within 12 months of the date of sale because of faulty material or manufacture. Genuine defective items returned to Ultrawave Ltd or its agent's premises, will be replaced or repaired free of charge at their discretion.

The warranty is extended to 2 years on transducer assemblies and to 5 years on the bonding process. If the transducers or bonding material is exposed to liquid or cleaning chemical, the warranty will be invalidated.

The warranty does not apply to

- normal wear and tear;
- damage caused by misuse;
- non-observance of maintenance, service or connection instructions;
- damage caused by the use of toxic, flammable, acidic, caustic or corrosive chemicals or fluids not recommended by Ultrawave Ltd.

The user should refer to the relevant instructions before operating the equipment and should apply to Ultrawave Ltd or its agent for advice on cleaning techniques or chemicals. Ultrawave Ltd will not be responsible for damage or injury caused by incorrect usage of the equipment.

Statutory rights are not affected.



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