

## IMPORTANT NOTES AND CAUTIONS

A) Ultrasonic cleaning generates heat by way of kinetic energy as well as introduces air bubbles into the bath. This speeding up the heating of the water. The colored temperature light bar will move from left to right: GREEN to GREEN-ORANGE, TO GREEN-ORANGE-RED (long red bar). A pre-heater is used to warm the water to 68 deg. F.. When the long red bar is lit to the right of the orange bar, the bath temperature is 95 deg F. (35 deg C.) You may continue to restore and clean records until the small RED light to the right of the long RED bar is lit. This indicates approx. 2 to 8 minutes remaining of wash time. Time to finish the last cycles. NOTICE: When this small RED light bar flashes, critical temperature has been reached: In both situations: Stop the process and remove the record(s) from the bath. Turn power off, remove the top assembly, let cool for 10-15 minutes. **Some users simply refill the basin with fresh cool water/IPA mix, and continue, and rotate the water between the four 1 gallon jugs of water.**



B) The cavitation effect introduces air into the tank. As does inserting records. Pressing the PULSE (DE-GAS) button after restoring 5 or so records with the record assembly disconnected for one cycle of 1:36 minutes will remove air bubbles increasing the efficiency of the cleaning and restoration action. Also slows down the effect of the water being heated by way of cavitation.

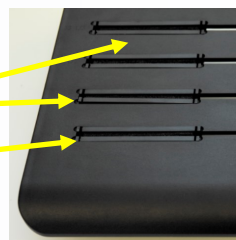
C) Check periodically the basin and change out water whenever the basin's water becomes too murky; It is a good practice to perform one change every 12—15 records. **Never keep water in tank overnight.**

D) **STOP USING THE MACHINE FOR 10 MINUTES AFTER 35 MINUTES OF CONTINUOUS NON-STOP OPERATION. THIS TO COOL DOWN THE ULTRASONIC GENERATOR. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE CERAMIC TRANSDUCERS AND VOID WARRANTY.** One can also replace the heated water with cool water as described above, allows one to continue restoring records without the 10 minute wait time.

E) **AFTER EVERY DAILY USE:** (i) **DRAIN THE TANK.** Discard water. (ii) USING THE RABBIT MICROFIBER CLOTH, **WIPE THE TANK DOWN WITH THE CLOTH MOISTENED WITH 70% ALCOHOL.** (iii) **REMOVE THE RECORD POSITIONING FELTS BY PULLING ON THE TABS.** (iv) **MIST FELTS WITH DISTILLED WATER,** (v) **PAD DRY** using the rabbit cloth. (vi) **LET AIR DRY BEFORE RE-INSERTING INTO THE SLOTS.** **NOTE:** Replace as removed. There is a notch on the left side of each pad. Must be seen on the left side of the pocket. (vii) USING DISTILLED WATER, **MIST THE UNDERSIDE OF THE RECORD WASHER ASSEMBLY.** (viii) Use the RABBIT Microfiber cloth to **DRY THE UNDERSIDE OF THE ASSEMBLY.** Use both hands to turn the short and long black rubber rollers to access all gears. Dry gears with rabbit cloth.

### FELT ASSEMBLIES

33 RPM  
78 RPM  
45 RPM  
(SLOT HAS SHORTER FELT)



**NEVER KEEP WATER IN THE TANK OVERNIGHT. DISCARD!**

F. IF IN PLAYING A RESTORED RECORD AND WHERE A WHITE FLUFF - LIKE MATERIAL APPEARS ON THE NEEDLE, THIS INDICATES TO YOU WHERE: (i) THE RECORD WAS NOT SUBJECT TO ENOUGH 2 or 5 MINUTE CLEANING CYCLES. (ii) WHERE OUR SYSTEM HAS SOFTENED PRIOR CLEANING AGENTS FOUND IN THE RECORD'S GROOVES LEFT OVER FROM OTHER PROCESSES. SHOULD THIS OCCUR: (a) USE THE SUPPLIED NEEDLE CLEANER TO CLEAN THE STYLUS. (b) PROCESS THE RECORD ONCE MORE: REPEAT STEPS 4-11.

G. The ultrasonic washer may clean other items: such as jewelry, reading glasses, silverware. **DO NOT PLACE ITEMS DIRECTLY INTO THE TUB. They will scratch the basin. Suspend the items. To clean items:**

- 1) Remove the Record Washer assembly. (Not needed for this operation). Set aside.
- 2) Ensure the tank is filled to the MAX LINE with distilled water. Add 1 teaspoon of a liquid detergent to the distilled water.
- 3) Turn power on. Use the DOWN button: set the timer to 0:20 seconds.
- 4) Press the ON/OFF Button Twice. The system will start, a buzzing sound will be heard. The Timer will count down. Lower items to be cleaned into the water. Swish the items to be cleaned around. A greyish like "smoke" or "cloud" will rise up from the items being cleaned. This indicates that the cleansing action has started. When the smoke "cloud" dissipates, your item has been washed. Repeat as needed.
- 5) If cleaning jewelry with diamonds or other stones, ensure the diamonds are well crimped into rings, etc..

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CHECK OUT OUR LATEST TECHNICAL INFORMATION AND PRODUCT UPDATES ON OUR WEB SITE. CONSULT OUR "HOW TO USE" VIDEOS ON OUR KIRMUSS AUDIO YOUTUBE CHANNEL.  
In the EU: www.kirmussaudio.net

## MODEL KA-RC-1 ULTIMATE ULTRASONIC RECORD RESTORATION SYSTEM OWNER'S MANUAL

USER NOTICE: COMPLETELY READ THIS MANUAL BEFORE USE!

VER. 13 APR 2024

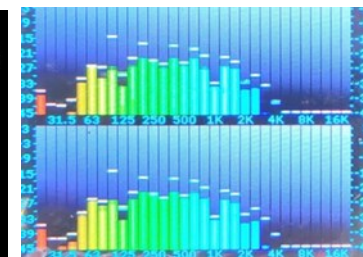
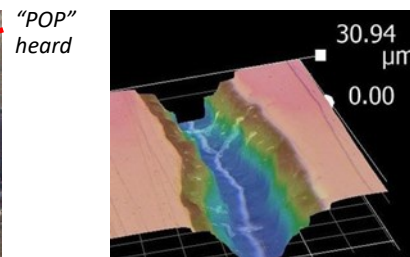
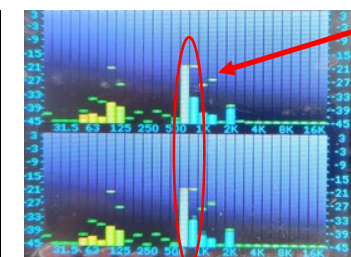
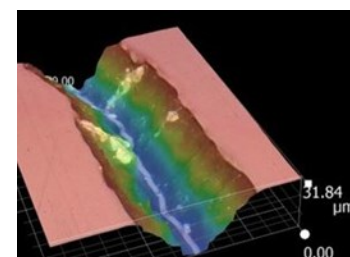
THIS MANUAL CONTAINS IMPORTANT SAFETY AND OPERATIONAL INFORMATION. FAILURE TO DO SO MAY VOID WARRANTY, DAMAGE EQUIPMENT AND/OR DAMAGE RECORDS. ONLY USE KIRMUSS APPROVED SURFACTANTS. USE OF THE KA-RC-1 SYSTEM ACKNOWLEDGES THAT THE USER HAS READ THE MANUAL COMPLETELY.

www.KirmussAudio.COM

**Thank-you for purchasing our Record Restoration System.** Once records are processed with the KA-RC-1 typically you will realize between 1.3 to 4 dB gain of signal over floor with an 8 to 28% increase in frequency response from your cartridge after restoring your records. This varies based on the provenance of the record. **WE DO NOT JUST SURFACE CLEAN, WE RESTORE!** Manual, vacuum, and peer ultrasonic systems may only surface clean and shine as both records and cleaning solutions have the same electric charge. As a test, you may see for yourself where a non restored record repels any liquid cleaning solution used, this as seen by pooling of water on the surface of a record placed horizontally. Further, as water droplets in a cleaning solution are larger than the record grooves, they cannot reach the inside of the grooves. **ONLY DOES THE KIRMUSS KA-RC-1 reach into the grooves.** For this to occur: An ionizing agent/spray is used to change the charge of the record before inserting it into the KA-RC-1 to be opposite to that of water, to attract the effects of cavitation where collapsing bubbles and their resulting "vacuum effect" pulls materials off records. Several cycles in and out of the machine are needed as the induced charge wears off as the record spins in the machine. The first cycle to first remove films left over from prior cleaning processes, then the second cycle removes the film deposited by the outgassing of the plasticizer of a record that has been in its sleeve for decades, then finally the pressing oil, (release agent). It is here where at the pressing plant the cooling record fuses dirt and dust around the press at the pressing plant into the grooves, creating those unwanted pops heard in new records. (The Kirmuss spray may not be used with other machines or processes, damage may occur)

**About the Science:** Records are precious and many are one of a kind and are irreplaceable. No matter how you store and play your records they inevitably will require care and maintenance. Dust particles and contaminants that have settled on the record will eventually find their way into the grooves. As the record is played, surface contaminants will also build up on the stylus as the tone arm moves across the record and "dull" the sound. Further: The heat of the needle has been found also to fuse surface dust into release agent (if not removed). Creating new pops. Recommend thus the use of a 10 micron parastatic felt brush to remove any dust before playing a record, restored or not. **END RESULT** after the Kirmuss process: It is just like playing the stamper directly. Revealing the breath, soundstage, imagery and timbre as it was meant to be. To keep your stylus clean, a safe wet cleaner is supplied to maintain your needle.

**The Proof: (Consult our YouTube channel. Videos show before and after audio with video of records restored.)**  
**BEFORE KIRMUSS GROOVE RESTORATION:**



**AFTER: (four-5 minute cycles)**  
Above: A record that was processed prior using a vacuum system. Sees an increase of 6 dB gain over floor and 28% increase in frequency response. The POP seen in the first slide caused by fused in dust in the groove has been removed.

In some instances the record's surface may also show scratches. As discovered, many times this is not of the plastic, rather of the film deposited by the outgassing of the plasticizer of a record kept in a record sleeve for decades. Plasticizer films removed, so are these scuff marks and related noises. Plastic that was physically damaged by "needle drops" or those unintentional "tone arm skids" are a different matter. We cannot repair plastic. This said: we have witnessed where 7 times out of 10 where we do not hear the record skid tick every revolution, as the needle is now "seated in the pocket" of the groove. **All told:** Only will our Restoration Process provide you with discernable auditory improvements. **RESULTS GUARANTEED.** Record groove now restored, contaminants and coatings removed, the needle will now sit properly making proper contact with the left and right channels and offer you the breath, air, and the incredible soundstage that analog records are known for. The KA-RC-1 revolutionizes the way we care for records. It is also possesses a Patented Record Suspension System that assures records of any speed and size are spaced correctly.

**Rest assured of many years of satisfaction with our revolutionary ultrasonic based record restoration system.**  
The KA-RC-1 from KirmussAudio, 11 years in the making,  
**...NOT JUST A SURFACE SHINER AND CLEANER, we RESTORE! Thank-you, Enjoy!**

## IN YOUR KIT: Main Restoration System Components.

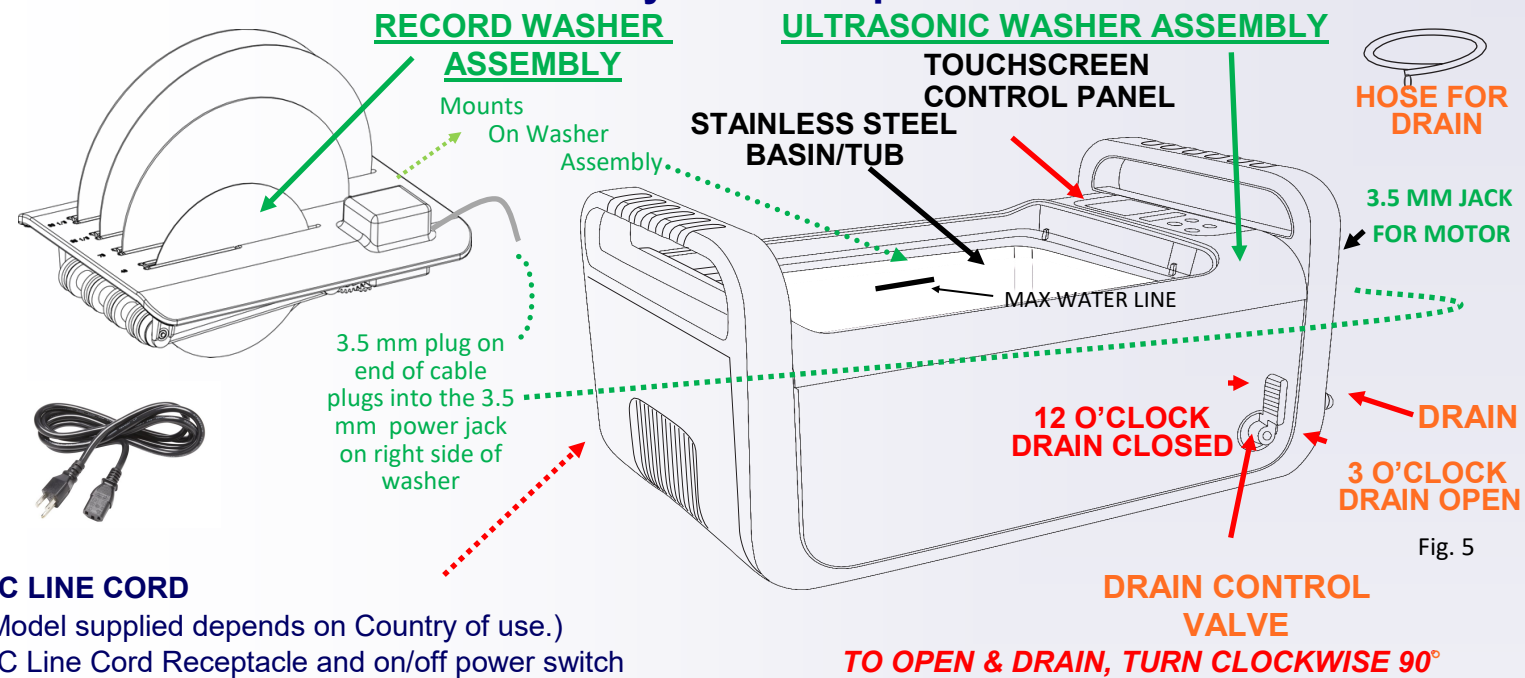


Fig. 5

### AC LINE CORD

(Model supplied depends on Country of use.)  
AC Line Cord Receptacle and on/off power switch located on the backside of ultrasonic washer.

**NOT INCLUDED:** i) Distilled Water. [Available at local grocery store or pharmacy]. Aprox. 6.5 L / 1.75 US Gallons; ii) 40 mL / 1.4 ounces of 70% IPA Isopropyl Alcohol. **With no additives showing on label. NEVER USE MORE THAN 40mL (1.4 OZ) OF ALCOHOL added to the basin. (2 capfuls suffice). Higher amounts will see the loss of the plasticizer/ stabilizer on the record.**

**The alcohol is used to kill dormant and live fungus, not used for cleaning. Use always in a well ventilated area. The distilled water should be replaced very 12-15 records. DISCARD DAILY. DO NOT LEAVE IN TANK OVERNIGHT.**

### SUPPLIED ACCESSORIES:

**KA-AS-1 (\*)** Combination Anti-bacterial/anti-static ionizing spray solution. (60 mL/2 ounces). To also use as an anti-static agent. Comes with 6 sq. inch (15 sq. cm) lint free optician's cloth. Larger 16 sq. inch cloth also supplied. **AVAILABLE ACCESSORY KA-AS-1-R1 300 mL / 10 oz. REFILL BOTTLE.**

**KA-B1** Combination "2-in-One" 2.5M Carbon Fiber with 10 micron Parastatic Felt Brush. (1) In the process we use the parastatic felt to polish the record's grooves after removing any droplets of water remaining with the optician's microfiber cloth. (2) When not used with the record restoration process: *The parastatic felt side removes dust where the carbon fiber brush side removes static and dust from the grooves before playing a record. ALWAYS RECOMMENDED to use a clean KA-B1 next to the turntable to remove dust and static before playing any record, restored or not.*

**KA-B-1** Goat Hair Bush. Used to apply the ionizing agent to the record. **KA-MT-2** (5"/127 mm), **KA-MT-3** 4"/101 mm felt mat to suspend records on the workstation cloth.

**KA-MF-1** Microfiber "Rabbit Cloth". Used as workspace mat. Also to dry the Goat Hair Brush between applications of the spray.

**KA-N-1** STYLUS (\*\*\*) CLEANER Used to clean turntable stylus.



Contact **KIRMUSSAUDIO (303-263-6353) OR YOUR AUDIO DEALER TO REORDER**

>>> **NEW! NOW AVAILABLE: MODEL KA-RS-1 RECORD SUPPORT PLATTER/SPINNER. AIDS IN SPINNING RECORD WHEN APPLYING THE IONIZING SURFACTANT OR DRYING/POLISHING RECORDS.**<<<

**AFTER RESTORATION: USE OUR NON PVC, HDPE ANTI-STATIC/FUNGAL, TALCUM POWDER FREE RECORD SLEEVES KA-S1-40 (\*), (\*\*)** **TOXICOLOGY: Non Toxic Solution: 98-99% distilled water, 1-2% propanediol 1-2- diol 178 mix**

**WARNINGS:** 1) **BEFORE USE:** Read this manual carefully before using our Record Restoration System as it contains important details and product safety notices. 2) **WARRANTY IS VOIDED IF ANY OTHER SOLUTIONS OR CLEANERS ARE USED OTHER THAN THOSE SUPPLIED IN THIS KIT OR RECOMMENDED BY KIRMUSSAUDIO.** 3) **NEVER USE MORE THAN 40mL (1.4 OZ) OF 70% ALCOHOL added to the basin, (2 capfuls). Higher amounts will affect the plasticizer or stabilizer in the record.** 4) **NEVER USE THE KIRMUSSAUDIO SPRAY WITH ANY OTHER ULTRASONIC MACHINE: DEPENDING ON THE MACHINE, MAY CAUSE HARM TO RECORDS USING 40KHz or HIGHER.** 5) **AFTER USE, NEVER KEEP WATER IN THE MACHINE. ALWAYS MIST THE RECORD ASSEMBLY AFTER USE, DRY WITH THE SUPPLIED RABBIT WORKSTATION CLOTH.** 6) **AS WE ARE DEALING WITH FUNGUS ON RECORDS, USE IN A WELL VENTILLATED AREA.**

## STEP 2: RECORD CLEANING AND RESTORATION, continued.

7. As shown in the YOUTUBE training video and in the accompanying Quick Start Guide Insert that comes with the system, as we brush the ionizing surfactant onto the record, we in the second and subsequent spray applications will notice the emergence of a white "toothpaste like" material. This colorant in the spray allows one to see what the ultrasonic pulled off the record in the prior cycle. As the record spins in the machine, the charge of the record returns to that of water. Therefore we need to process the record in like fashion several times. Inducing a charge, using either 2 or 5 minute cycles (Tech Note 1 and noted in Step 6 (a and b)). We will see first the appearance and rise of this colorant in subsequent applications, then a decrease and a rapid evaporation/dissipation of the colorant as we approach the end of the restoration process. The latter indicates to the user that this is the last application of the ionizing agent. No more cycles needed except the final cycle. **NOTE:** For a better read, between applications of the spray, pad dry the goat hair brush with the rabbit cloth. As we approach the end you will also note where the RESTORED record comes out of the machine relatively dry, as PVC repels water by nature.

**AS NOTED BEFORE:** If there is pooling of water on the record after the first 5 minute cycle with surfactant applied: **REVERT TO 4 TWO MINUTE CYCLES and a FINAL 5 MINUTE CYCLE with surfactant sprayed onto the record. (CONSULT THE SUPPLEMENTAL NOTE).** Also applies to records 16 years or younger. This as there is a coating on the record.



Fig. 6

**NOW, TO FINISH THE RECORD AND END THE RESTORATION PROCESS:**  
8. Place the record on the felt pad or the KA-RS-1 support turntable. With the supplied KA-MF-2 grey optician's microfiber cloth. (Fig. 6), remove any remaining water.

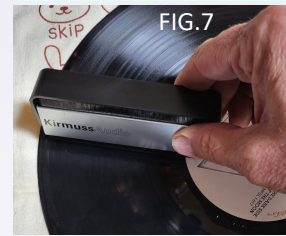


FIG. 7

9. Now use the **FELT SIDE** of the supplied KA-B1 combination felt/carbon fiber brush and follow the grooves in a windshield washer arm motion. This polishes the grooves. Pass over the grooves several times. Do both sides. (Fig. 7).



FIG. 8

10. Then place the record onto a turntable. At arm's length now apply a light mist of the anti-static spray/anti-fungal ionizing spray to head of a separate, dry, KA-B-1 GOAT HAIR BRUSH. Only apply a small mist. Pass the brush through the mist. The mist dries on contact with the brush. With the record now spinning, move the goat hair brush across the grooves of the record, back and forth, while it spins. Edge to dead wax area. Do both sides. [FIG 8]. This applies a charge to the record to repel dust.

**THE RESTORATION PROCESS IS COMPLETE. Play or store the record.**

11. **BEFORE STORAGE OR PLAY:** Now use a clean second KA-B1 COMBINATION PARASTATIC FELT/CARBON FIBER BRUSH to remove dust across the grooves on both sides of the record. Then use the carbon fiber side to remove static.

**TIPS: (1) Between applications of surfactant onto the record's surface in the restoration process as previously described, pad dry the goat hair brush with the rabbit cloth between spray applications to the record.. This to: (A) Keep the goat hair brush clean between cycles; (B) To allow one to better see the rise and fall of the whitish-like material being brought up by the brush between cycles. (2) Good idea before the application of the ionizing spray to use the rabbit cloth to remove any water present on the record so as not to dilute the ionizing spray.**

### MAINTAINING RECORDS AFTER RESTORATION:

**A. Before auditioning any record** it is good practice with the record spinning on the turntable to lightly pass the PARASTATIC FELT BRUSH to remove surface particles. Then use the CARBON FIBER BRUSH side over the grooves to reduce static.

**B. On occasion if there is a static issue:** After (a) above: Use the supplied spray and apply a light mist as before on a clean and dry goat hair brush at arm's length. Then move the brush across the record while spinning on the turntable. Finish with once more the PARASTATIC FELT SIDE of a clean KA-B1 brush, then use the CARBON FIBER side to remove static before play.

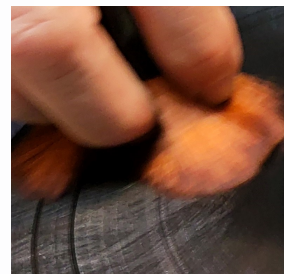
**C. STORE RECORDS IN ANTI-STATIC, ANTI-FUNGAL, HDPE 3 MIL. DUST FREE RECORD SLEEVES.** Always **HANDLE RECORDS BY THE EDGES. YOU MAY ORDER OUR RECORD SLEEVES KA-S1-40**

**D. As the release agent has been removed there is no need to process a record. If the record was handled often and has fingerprints and skin oils on the edges or on the record, at your discretion you may Perform a Quick Clean single cycle of 3 minutes with the ionizing spray applied to both sides to previously restored records. Then follow Steps 8 (above) and onwards.**



ABOVE: As the spray is applied to the record with the brush, the appearance and the rise of "white paste-like material" requires another 2 or 5 minute cycle with surfactant applied in the machine.

BELOW: A reduction of whitish materials or quick evaporation of the white colorant indicates the last 2 or 5 minute cycle in the machine.

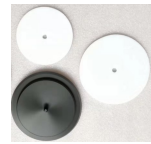


## STEP 2 RECORD CLEANING AND RESTORATION

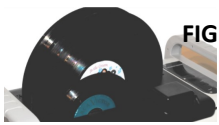
Now after prepping the system as outlined in Step 1, (Page 5), you are ready to process records.

**Check out our YOUTUBE channel for training videos on system use.**

First, find a safe and well ventilated area to set up the restoration station. If your records are coated with fungus, use a face mask and gloves. Locate the "rabbit cloth" and place it on your worktable next to the restoration system. Then place the KA-MF-2 felt pad on it, used to suspend the records off of the workstation cloth when brushing in the surfactant as directed with the goat hair brush. (An optional support Model KA-RS-1 (left) is available that suspends the records off the work area by 7/8" where the records may be spun easily)



1. TO START: Press the "ON/OFF" Button on the control panel twice. The ultrasonic machine will emit a "Buzz" and the motor will turn. The timing clock will count down: 4:59, 4:58 and so on. **With the motor spinning:**



2. **Insert records(\*)** into the appropriate slots, [FIG 1], one at a time. As they are inserted, the records will turn clockwise.

**IF A RECORD IS NOT MOVING, REMOVE AND RE-INSERT.**

Let one 5 minute cycle complete. This first cycle does not use any ionizing agent that is brushed onto the record. **IF RELATIVELY CLEAN, USE A 2 MINUTE CYCLE.** (FYI: The Distilled water with the 1.4 oz. (40 mL) of 1 70% PA is used to wet the record and remove any fingerprint oils and contaminants. Also kills live or dormant fungus coming off the record.)

The unit will stop at 0:00, then the timer will reset itself to 5:00.

**HINT: When restoring multiple records at the same time, IT IS BEST TO STAGGER RECORDS BY ONE MINUTE INCREMENTS. You will discover what is best after you have used the system and started restoring records and get a feel for the process. Check out our YouTube channel.**

3. Take the records out one at a time. Shake excess water off by wobbling the record on the top of the record assembly. Wipe water off the cover. Then place the record onto the supplied 5" felt mat at your workstation. (Or on the optional KA-RS-1 support). Then apply a SHOT of the ionizing surfactant agent spray on both sides of the record, at 3 locations as shown. (FIG.2). (12 o'clock, 4 o'clock + 8 o'clock positions.) Do one side at a time. Take care not to wet the label.



4. Using the supplied KA-B-1 GOAT HAIR BRUSH, holding the brush by the hairs and not the handle, work the ionizing agent into the record's grooves in a circular motion first, then across the grooves. Use light to moderate pressure working the sprayed on ionizing agent onto the record as shown in [FIG.3]. Do both sides. The ionizing spray changes the charge of the record to be opposite to that of water to attract the effects of ultrasonic cavitation.



FIG3: Goat Hair Brush: Work spray into grooves

5. With the records prepped for a second cycle, (now the first cycle with surfactant applied), Press the "ON/OFF Button" on the control panel twice. You will hear the motor of the cleaning assembly run as well as hear the high pitched sound of the sonic cleaner. The clock will count down: 4:59, 4:58 and so on. **INSERT THE RECORDS INTO THE CORRESPONDING SLOTS AS BEFORE. IF A RECORD IS NOT MOVING, REMOVE, RE-INSERT.** Let run for 5 minutes.

**Operational Note:** Pressing the up or down keys increases /decreases cleaning time by one minute intervals. Pressing the ON/OFF button twice restarts the machine, resets the timer to 5:00.

6. **After the first five minute cycle with spray applied: You need to review the condition of the record to determine the next steps. Follow either (a) or (b).**

(a) >>>IF THE RECORD WHEN PLACED HORIZONTALLY AT THE WORK STATION AND WHERE ONE NOTICES THE RECORD'S SURFACE SEES SHEETS OF WATER OR HUNDREDS OF WATER DROPLETS THAT REMAIN ON THE SURFACE, **this indicates that there is a coating detected on the record.** (See Tech Note 1). This dilutes the 2% diol in the spray. In this instance, use the rabbit cloth to wipe off the excess surface water before applying the spray. Work in the spray as before. **NOW Set the timer to 2 minutes using the down button. PRESS THE ON OFF BUTTON TWICE.** The system will start, insert the record. You will need to **use a TOTAL of 4 TWO MINUTE CYCLES, FOLLOWED BY A FINAL FIVE MINUTE CYCLE. USE THIS 2 MINUTE CYCLE FOR NEW RECORDS AS WELL.** It is always recommended to wipe off excess water with the rabbit cloth between spray applications. As you proceed through the cycles, you will notice less sheeting of water. There may be the appearance of the colorant or not. The process is still removing contaminants from the grooves of the record. **IRRESPECTIVE: AFTER THE 5 MINUTE CYCLE: GO TO SECTION 8, PAGE 7, to then dry and polish the record.**

(b) WITH RECORDS **THAT DO NOT SHEET WATER AS NOTED ABOVE:** USE THREE OR FOUR, 5 MINUTE CYCLES WITH THE IONIZING SURFACTANT APPLIED. The number of cycles with surfactant applied depends on the record's condition. You will see as referred to, a rise and then rapid dissipation of the colorant as we apply the spray with the brush. **REFER TO SECTION 7, PAGE 7, for details as to when to stop this process and to dry, and polish. ALSO YOU MAY REFER TO THE SINGLE SHEET QUICK PICTORIAL GUIDE SUPPLIED AS A SUPPLEMENT TO THIS MANUAL. Operational Note:** Recommended to use the rabbit cloth to remove any water found on the record before applying the spray.

## BASIC SAFETY GUIDELINES AND OPERATING CONSIDERATIONS:

**READ BEFORE FIRST USE! WARNING: BE SURE THAT THE ULTRASONIC UNIT IS DISCONNECTED FROM A SOURCE OF POWER WHEN MOVING, FILLING, OR EMPTYING THE BASIN.**

- Always place the unit on a flat, stable, level surface.
- USE ONLY distilled water ADDING THE 1.4 OZ/ 40 ML (2 capfuls) of 70% IPA to the tank. Do not exceed 1.4 OZ / 40 mL). This is used to kill live and dormant fungus and is not used as a cleaner.
- FILLING THE TANK: Fill the tub with distilled water to the top of the MAX LINE. DO NOT OVERFILL.
- DO NOT OPERATE IF THE WATER LEVEL IS BELOW THE TOP OF THE MAX LINE.
- **Even though the unit incorporates multiple protection circuits, if the unit is turned on for over 15 seconds without any water in the tank this may damage the unit or reduce the life-span of the unit. Always add water, then plug the unit in the wall outlet, then turn on.**
- Do not run the unit continuously. Even though the washer is designed with overheat protection it is recommended to stop the unit for about 10 minutes to prolong the life of the unit after 35 minutes of continuous non-stop operation. **OPTIONALLY: ONE MAY REPLACE THE WARM WATER WITH COOLER WATER TO AVOID THE COOL DOWN PERIOD.**
- Follow the INSTRUCTIONS in this manual to operate the device. As we are also removing fungus from records, work in a well ventilated area. Use a mask and gloves if fungus is severe.

**To prevent life-threatening electrical shock, observe the following:**

- **Danger of electrical shock!** Never immerse the device or the power cord in water or other liquids.
- **Danger of electrical shock!** Never touch the power plug with wet hands, especially when inserting or removing the plug or accessing the Main Power Switch located on the rear of the unit, adjacent to the power cord.
- **Danger of electrical shock!** If the unit has fallen into water during operation, do not touch the unit. Remove the power plug from the main electrical power outlet first.
- **Danger of electrical shock!** Do not spray water or liquid on the device.
- Never operate the device unattended. Never leave records in the machine when the motor has stopped.
- When removing the power cord from the socket or outlet, do so with dry hands, grab the power plug not the cord.
- If there is damage to the power plug, cord, housing, or other parts of the device, do not use the device.
- Do not disassemble the device, except by professionals. **NO USER SERVICEABLE PARTS INSIDE.** Opening the unit voids the warranty. May result in electrical shock.
- If the unit is damaged, is non-operational, or has fallen into water, do not use, take it to a qualified service provider.
- ALWAYS DISCONNECT FROM A SOURCE OF POWER and Remove the power plug from the rear socket:
  - if a malfunction occurs
  - before moving the device
  - before cleaning the device
  - before emptying the basin
  - before replenishing the water
  - if the device is not going to be used for record restoration
  - after each use (recommended) . (Never keep water in the basin overnight.)

It is good practice to connect to an earth ground fault leakage circuit breaker (outlet) with a rated tripping current of no more than 30 mA that provides further protection against electrical shock.

**To prevent fire hazards, observe the following:**

- Never block the vents on the device. Keep the vents free from lint, hair and other materials.
- Do not place the device on a soft surface, such as a bed or a couch, where the vents could become blocked.
- Observe all other warnings described in the previous section.
- If the supply cord is damaged, it must be replaced.

**Other Notes:**

- To disconnect: turn all controls to the off (0) position, then with dry hands remove the plug from outlet. Do not unplug by pulling on the AC power cord. To unplug, grasp the plug, not the cord. Unplug from outlet when not in use and before filling the tank, draining the tank, servicing or cleaning.
- To reduce the risk of electrical shock, do not put the appliance in water or in other liquids. Do not place or store the appliance where it can fall or be pulled into a tub or sink. Use in a dry area.

Follow the supplied instructions as to the use of the KA-RC-1 Do not use other processes or chemicals with our system. This voids the warranty. No need to AIR DRY AIR OR VACUUM DRY A RECORD AFTER PROCESSING.

Follow our instructions. Processed records come out virtually dry. VACUUMING INTRODUCES DUST AND STATIC ONTO PREVIOUSLY PROCESSED RECORDS. RETURN THE WARRANTY CARD WITHIN 15 DAYS OF PURCHASE TO MAINTAIN WARRANTY.



**Overview of Vinyl:** Before the arrival of downloadable detailed music, MP3's, CD's, audio tapes or 8-tracks: Music, speeches, live radio broadcasts and even books were recorded on vinyl records. Even if today music becomes more and more digital and transportable, vinyl records endure and see a come back. While vinyl's durability may at the onset appear to be part nostalgia, vinyl records really do sound different – and even better, many agree. **Their presence, soundstage and artist's emotion cannot be reproduced or felt in modern day formats.** The best source for Vinyl Pressings are analog, taking the full spectrum of sound created by the instrument or voice. Even the best digital formats in fact sample the analog source and depending on the sampling bit rate sees compromises made due to the media's bandwidth and throws out some of the nuances that vinyl offers.

**So, why all the noise, static, and fuss over cleaning records?** To appreciate cleaning (in our case record groove restoration), and what the KirmussAudio KA-RC-1 offers one must understand how a record is made. Edison called his sound-recording machine the phonograph, which means literally "sound-writer." It had a wooden cylinder with a thin sheet of foil wrapped round it with a sturdy needle with a horn attached to it pressed against the foil. Edison spoke into the horn and the sound energy from his voice was funneled and concentrated by the horn and made the needle vibrate up and down. Cranking a handle the cylinder rotated and the needle cut a groove into the foil. The depth of the groove varied according to how loud or soft his voice was, where the sound of his voice translated into a mechanical form. To play back the recorded sound, Edison simply ran the process in reverse. He put the needle back at the start of the groove and cranked the handle. The needle ran along the groove, jolting up and down to follow the pattern it had cut previously. As it moved about, it vibrated and the noise of its vibrations was amplified by the horn, recreating the sound of Edison's voice. **Today:** True to Edison's original design: a Master Recording is made in a studio where a "Lacquer" is



placed on a record—cutting machine (lathe), and as it rotates electric signals vibrate a cutting head which holds a needle. The needle etches a groove in the Lacquer. The lacquer with an imprint is then sent to a production lab where the lacquer is first coated in nickel, then silver. A metal master is therefore produced. The resulting master disc has ridges instead of grooves. This Metal Master is then used to create a metal record called the "Mother" which is then used to form what



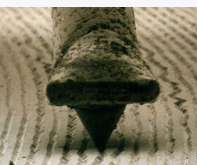
is called a "Stamper". Stampers are just negative versions of the original recording that will be used to make the actual vinyl records. **To make a record:** Two stampers are placed in a hydraulic press where a hot 2 inch thick PVC



biscuit with labels attached for both side A and B " is then compressed by the stamper, flattening it. The PVC plastic itself has both plasticizers as well stabilizer and liquefier agents added to it. As the biscuit is heated and pressed, a scillic acid rises to the surface of the plastic record, termed a release agent. (Pressing oil termed by the Shure Brothers circa 1977). The Stampers push an impression of the master recording. Records pop out hot. Dust at the factory that land on this cooling record get fused into this pressing oil, cause of those nasty pops in new records.



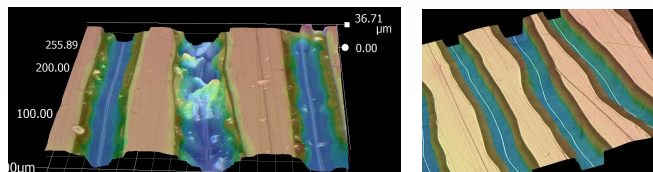
**Playback of the LP:** Today's turntables are still based on the "needle in groove concept". While a mechanism is now used to spin the record with the aid of a belt or a direct drive motor system and a platter replaced the Edison Disk or Can, it is now a needle that is set at one end of a tone arm that is mounted on a the record's grooves. The stylus reads the grooves and picks up vibrations and variations as it moves along the record which now move a coil within a magnetic field inside the cartridge and which then in turn changes the vibrations into electrical signals which are carried along wires to be amplified. These boosted signals are finally turned back into sound through the speakers, producing the sounds, words, lyrics, and music recorded on vinyl records.



**CONTAMINANTS ARE THE ENEMY TO YOUR LISTENING PLEASURE!** Even a pristine record that is still sealed in its jacket is covered with a thin layer of mold release after pressing. Pops heard when playing a new record are dust particles at the factory that landed on the hot, cooling record, fused into the grooves. Discovered by your needle. Added: If a record is played without removing this release agent and using a brush to remove dust before play, heat from the needle may see these dust particles fused into the grooves, heard as new pops. Used records see many other contaminants on the record's surface or embedded in the grooves; fungus, skin-cell debris, fine particles of dirt and sand, oils from finger prints (skin oil), left over residues from various cleaning processes used seen as films, etc.... These "coatings" affect the performance of the needle and how it vibrates. It all makes sense. Less contact with the grooves, less dynamic range and signal. Less air, breath, and soundstage.

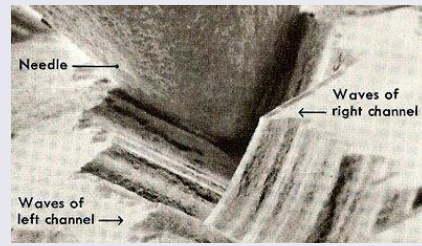
**The Kirmuss record groove restoration system uses a proprietary ionization process to restore and not just surface clean or shine records. After the Kirmuss process: A new pressing will see 1.3 to 4 dB average over floor, records cleaned prior by vacuum or other sonic technologies will see a 4 to 8 dB or more gain. New records an 8% increase in frequency response. Vintage records upwards of 28%. Proven using science.**

RIGHT: A RECORD CLEANED WITH ANOTHER ULTRASONIC PRICED AT 5 TIMES THE COST OF THE KA-RC-1. Both the record and cleaning solution have the same electrical charge. Limited groove cleaning results. Fused dust not removed.



Images © Kirmuss & Assoc. Keyence VHX-7000 2D/3D microscope

LEFT: RECORD RESTORED WITH CONTAMINANTS NOW REMOVED FROM THE GROOVES USING THE KIRMUSSAUDIO RESTORATION PROCESS. Repeated cycles with the record in the machine with the ionizing spray applied to the record prior to insertion changes the charge of the record to be opposite to that of the water in the tank. This attracts the cavitating micro-bubbles to pull contaminants and the like off the record and from within the records grooves.



The KirmussAudio KA-RC-1 consist of a 35 KHz ultrasonic coupled with a passive AIR resonance of 70KHz along with a patented support mechanism that suspends multiple records of multiple sizes at the proper height and spacing in the ultrasonic bath. The bath comprises of water with a small amount of 70% IPA. IPA is used to kill live and dormant fungus, not used as a cleaning agent. Spaced correctly, canceling unwanted standing waves, records are not skewered, and labels are not touched by the water. Strategically located transducers create cavitating micro-bubbles with a resulting plasma wave of 500 MPH (805 KPH). (810 Cavins of pressure). Even cavitation makes contact from the record's edge to the dead wax area, all sides, all records.

To attract cavitation as both the record and water have the same electrical charge, an ionizing agent is sprayed onto the record, both sides. No known process does this. This temporarily changes the charge of the record to be opposite to that of water. The first 5 minute cycle without the application of our ionizing spray is used to "degrease" and remove any surface dirt, simply "wetting" the record. It does little to remove the release agent or remnants of prior cleaning processes or the outgassing of the plasticizer seen as a film on the record's surface. The intent of the entire process and cycling the record with ionizing spray applied to the record, brushed on both sides, attracts water and the collapsing micro-bubble created by the ultrasonic cavitation. Not an ultrasonic bubbler as many peer products, this pulls out from the record over several cycles the contaminants including the release agent (pressing oil). As this induced charge washes off, it is reapplied. When brushing onto the record the spray, the colorant in the spray allows one to see what the ultrasonic "pulled" off the record in the prior cycle. As the ultrasonic generates imploding micro-bubbles, this release of kinetic energy generates heat of which the system then monitors the water temperature, creating visual alarms when the water has reached both 95 and 105 degrees. F. (35 and 40 deg. C.) The KA-RC-1 may restore two LP's, one 78 and one 45 record simultaneously. Consult for other options.

**STEP 1, SYSTEM PREPARATION BEFORE USE:**

A. **Unpack the contents.** Inside the tub you will find included the accessories as listed and itemized on Page 2. A warranty card must be filled out and returned within 15 days of purchase to validate warranty. **BEFORE USE:** Read the entire manual to familiarize yourself with system operation and the restoration process.

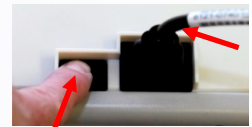


WATER TO TOUCH THE TOP OF THE MAX LEVEL MARK

B. **Set the cleaner on a stable surface.** Keep away from hazards: water, sinks, power outlets.

C. WITH THE VALVE IN CLOSED POSITION. (12 O'CLOCK) **Fill the Ultrasonic unit's basin with only Distilled water** to the top of the MAX line. Add 40 mL (1.4 oz) of 70% alcohol.( 2 capfuls). (Never operate with water below the MAX line)

D. **AC Power:** ENSURE THAT THE MODEL YOU HAVE IS MATCHED TO THE ELECTRICAL VOLTAGE OF YOUR COUNTRY! If in doubt: Consult the label on the underside of the Unit. **EXTERNAL POWER TRANSFORMERS TO INCREASE OR REDUCE VOLTAGE CANNOT BE USED!** Damage will occur.



POWER CORD SOCKET ON REAR OF UNIT

E. **Locate the AC Power Line Cord: plug into the rear of the unit**

F. ONLY with the basin filled with DISTILLED water, with dry hands, connect to a wall outlet. **Turn the Master Power Switch to On.** (The Master Power switch is located at the rear of the unit.). The Control Panel will illuminate, the TIMER Display will show 5:00 minutes.

MASTER POWER SWITCH

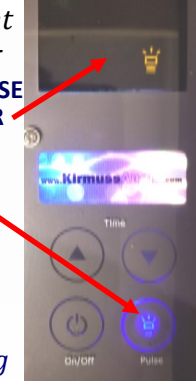
G. **DE-GAS THE WATER FIRST.** This removes air bubbles from the water. Press the **PULSE (DE-GAS)** Pushbutton on the control panel. The timer will show 1:36. Press the button once more, a high pitched pulsing sound will be heard (which is normal, sound of the sonic generator). The DE-GAS/PULSE indicator will illuminate, and the timer will count down. Repeat for a second time. **ON POWER UP: The TEMPERATURE STATUS BAR will see the GREEN BAR or GREEN and ORANGE light bars illuminate.** (One or both depending on the temperature of the water poured into the basin indicating the temp is between 0-30% of 95 deg F.) At the end of the De-Gas cycle, the sonic generator will shut down. The Timer will now show 5:00 minutes after 0:00 appearing momentarily. **NEVER DE-GAS WITH THE RECORD ASSEMBLY POWER CORD CONNECTED or the record assembly mounted on the unit.**

TEMPERATURE STATUS BAR



DE-GAS/PULSE INDICATOR

DE-GAS/PULSE PUSHBUTTON



H. As implied: Press the DE-GAS BUTTON twice once more to repeat the process. The Timer will show 1:36 and begin to count down. At the end, the timer first will go to 0:00, then to 5:00. **With the timer reaching 0:00, the water in the tub has now been prepped for use.** We have removed all air bubbles that were introduced when the tank was filled. **NOTE: AFTER PROCESSING 5-8 RECORDS, REPEAT THE DEGAS CYCLE. (ONE CYCLE WITH THE RECORD COVER ASSEMBLY REMOVED AND DISCONNECTED.) WHY?** Introducing records into the machine sees air being forced into the water as the record repels water. Air reduces the efficiency of the ultrasonic. Causes the water to heat up.

I. Locate and then **mount the Record Washer Assembly on top of the ultrasonic washer.** Locate the 3.5 mm power plug with cable on the Motor Assembly, then plug it into the mating 3.5 mm power socket found on the right side panel of the washer which is located to the right of the control panel. **ALWAYS DE-GAS WITH RECORD ASSEMBLY UNPLUGGED**



**You are now READY FOR STEP 2. (PG.6), and are ready to Restore!**