

## IMMACULATE VINYL RECORD CLEANING

According to Bill Utz

Self-Proclaimed **MASTER** of Record Cleaning

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### WHY SO CLEAN?

Any record, new or used, should be cleaned before play. New records have mold release compound and used records have every contaminant known to exist. The sheer force of the diamond stylus may drive these contaminants permanently into the vinyl, as the pressures at the diamond are significant.

Few audiophiles have heard an immaculately clean record. Chasing ever more expensive audio equipment to improve your listening experience has its merits, but nothing I have ever heard can match the vinyl for its faithfulness to the original source. Vinyl's analog nature is critical to the purity and naturalness of the reproduced sound. And the sound is there, if you remove all the noise that contamination causes.

Clean records offer a relaxed presentation, and details that are amazing. When a guitar is played, you will know whether it was plucked by hand or pick, because you can hear the pick hit the string before the note is played. The crack of a singer's lips when they open their mouth before the note is sung. Hear the swish of a drumstick through the air before the drum head impact on some records.

Your stylus will last longer, because it will have little contamination from the record. After 10 records, my stylus has no visible dirt on the zero-dust gel cleaning system. (However, I do encourage you to clean your stylus often, even if you cannot see the dirt). Only with an immaculately clean record will you ever know what your system is capable of reproducing. The results are spectacular, and few people have heard vinyl as clean as the results you can and will obtain. You will find a degree of personal satisfaction in cleaning a record that would have rated as Good+ to a newly cleaned Mint -.

### THE GOAL

Over the past several years, I have attempted to develop an approach to record cleaning that results in a maximally clean record. While this approach will not be suitable for everyone, it may offer some degree of insight into the process and is hopefully beneficial to the reader. No company or individual has provided any incentive, payment, gifts or things of value to recommend their products; but I would accept them if offered in the future and adjust my recommendations accordingly.

The parameters of this record cleaning approach were held within a framework which included:

- A cleaning cycle time no longer than a playing record
- Use of commercially available products easily found from audio-related retailers
- Reasonable cost in relation to the benefit, with cost minimization where feasible

Many different commercially available vinyl record cleaning products were previously used, both individually and in combination with others. Over a thousand hours of experimentation with these products was completed. The results were determined without any scientific evaluation except listening. The list of products used was not exhaustive, but the goal of an immaculately cleaned record was achieved and therefore further experimentation was not pursued.

I have also mixed and used combinations of soaps, Everclear, isopropyl alcohol, distilled water etc. Incidentally, these were the worst cleaners of all. Various brushes and application pads were used, and the final recommendations are included.

### CLEANING FLUIDS

The vinyl cleaning chemicals utilized in the following approach are:

- Walker Prelude Active Enzyme Cleaner, Pre Mixed Cleaner #2, and Ultra Pure Water

- Potent Record Cleaner
- Distilled Water (from the local grocery store)

Find a few small, new plastic bottles (available at the Container Store) so that each bottle is a different size so that you can feel whether you have the correct bottle in hand. Walker supplies several with his kit, but you need a different bottle for your distilled water. Find and use bottles with a spout, not a spray head. The spray type tends to send fluids everywhere, including the record label. Mark the bottles with a black felt pen as to their contents. Mark the top ledge area of the bottles so it can be read from above. The markings combined with the differing sizes will minimize your chances of applying the wrong fluid in the cleaning process.

## BRUSHES

The recommended brushes used are:

- Initial Dust Brush - **Audioquest - Carbon Fiber Record Brush**
- Enzyme Application, and Walker #2 Fluid Application (2 brushes needed)
  - **Nitty Gritty Bristle Brush - Black Nylon**
- Potent Fluid Applicator
  - **Mobile Fidelity Record Brush**
  - Alternate Potent Fluid Applicator - Disc Doctor Miracle Record Brush for 12-inch LPs, but use the Mobile Fidelity replacement pads as they are significantly thicker.
- Rinse Water Brush - **Nitty Gritty Record Cleaning Brush - Bi Directional**
- Record Play Dust Brush - **Goat hair** record cleaning brush by Russell Company in England available from Smart Devices.

Since the same brush is used for both the enzyme and Fluid #2 applications, consider, grinding or filing grooves on the brush handle of the brush used for the enzyme application. This way, you will immediately know if you have the enzyme brush in your hand.

## EQUIPMENT

The equipment used in this process includes:

- Loricraft *PRC4-Deluxe* Record Cleaning Machine
- Milty - Zerostat Anti-Static Gun
- One Minute Sand Timer
- Littlelight Halogen Lamp

Most of these products are referenced to a website at the end of this document. The latter paragraphs are included so as to fully inform the reader of several issues surrounding this cleaning approach.

## THE 10 STEP SYSTEM

The following paragraphs will attempt to detail the chosen method, products and reasoning as well as beneficial comments on the process. While in the initial reading, this process may seem overwhelming, it will become second nature after a few attempts.

### Step 1: Dust and Evaluate

Whether the record is new or used, remove the record from its cover and dust side 2 (or B side) with the *Audio Quest* dust brush while holding the record with one hand. You do not want to contaminate the top of your record cleaner with the back side of your record. This brush is recommended because it is not sensitive to moisture that may come in contact with the brush later when re-dusting this same side 2 when the record is flipped over. Place the record with side 1 up on the vacuum record cleaner and dust again. Repeat this until no particles are found on the brush. Dust all the way to the spindle hole to remove dust on the label. Evaluate the record for the intensity of necessary cleaning, from normal to maximal.

### Step 2: Enzyme Cleaner

Mix the Walker enzyme cleaner according to its own directions. Apply using the grooved Nitty Gritty Nylon Brush. Initially turn on the cleaning machine rotation in reverse direction, cover the record completely with the fluid and while turning the brush at various angles so as to maximize the foam on the record surface, but not flooding the record with fluid. Reverse the record cleaner direction and repeat. Stop the rotation and wait one minute. Restart the reverse rotation, re-wet and re-brush in both directions. Turn off the record cleaner and wait one minute. (For maximal cleaning, do this a 3rd time, but this is usually not necessary or beneficial.) Re-wet the record in the reverse and then forward direction and use the vacuum action of the record cleaner in this forward direction to remove the enzyme cleaner. Do not dally in moving on to Step 3, as this will allow the microscopic enzyme solution reaming on the record to fully dry and will effectively destroy the record.

### **Step 3 Wet and Clean**

While the record is still spinning forward, apply some 50% diluted (dilution discussion later) Walker #2 and some distilled water (about half and half each) until a very light foaming is achieved with the second Nitty Gritty nylon brush. Reverse and brush. Vacuum off in reverse. This fluid applied is effectively a 25% Walker #2 solution to water.

### **Step 4 Potent Clean**

While still spinning in reverse, apply the Potent cleaner with the MoFI brush (on its edge) and then reverse to forward, apply more Potent, and then vacuum off. For maximal cleaning, stop the table and let stand for one minute, then re-wet in both directions and vacuum off in the forward direction. This is typically not necessary or beneficial.

### **Step 5 Clean Some More**

While still spinning forward, apply diluted Walker #2 with the same brush Nitty Gritty brush as used previously for Step 3, reverse and apply a little more. Vacuum off in reverse.

### **Step 6 Rinse**

While still spinning in reverse, apply distilled water with the Nitty Gritty Bi-Directional brush, reverse and apply a little more. Vacuum off in the forward direction

### **Step 7 Super Rinse**

While still spinning forward, use the same bi-directional brush to apply more water, reverse and apply a little more. Vacuum off in reverse and then vacuum off in forward. This double vacuum is to get any remaining water which may have been missed due to record warp, as well as attacking any water remaining from another angle. A choice between distilled water and Walker's water should be considered for this rinse. Using distilled will cut your costs significantly, and I use it on used vinyl.

### **Step 8 Repeat**

Flip the record and repeat steps 1 through 7 on the other side of the record.

### **Step 9 Touch Up**

Flip the record again and vacuum for any dripping that may have gotten around the edge. If soap bubbles are present, repeat Step 7 (purified water and double vacuum) on this side to fully clean the record of any late contamination.

### **Step 10 – PLAY THE RECORD**

Place the record on your turntable and use an anti-static device, such as the Zero-Stat, as the record will typically develop some static from all the spinning. Use a dust brush to remove any room dust which has been recently attracted to your record. I recommend the goat hair brush available from Smart. You must play the record to be certain it is dry. Alternatively, leave the record open to free air at least 20 minutes on each side.

## **FURTHER CONSIDERATIONS**

### **DIRECTIONAL THEORY**

Since the Loricraft Cleaning machine takes almost a minute to vacuum the record in one direction, the forward direction is chosen as this starts the cleaning head at the inside of the record and moves outward. Some fluids need to be cleaned off the flats (or run-in area) of the record sooner than later, as certain fluids dry quickly. These are the Enzyme formula, the Potent, and the first water rinse.

### **VACUUM RECORD CLEANERS**

If you do not plan to use a vacuum oriented record cleaning machine, the approach presented below is **not** recommended. I personally prefer the Loricraft PRC-4 Deluxe machine as it can handle long cycles without any sign of overheating, has reverse spin direction, the string design minimizes cross contamination of the cleaning fluids and the spent fluid reservoir is readily visible. It also allows vacuuming all the way to the spindle, which should be done once within the cleaning cycle to vacuum any dust off the label. If a small spot of fluid is missed, typically due to a warped record, the vacuum head can be easily moved backwards to catch the spot. The small nylon thread should be advanced at the beginning of the cleaning cycle, at the Potent cycle and at the beginning of the Rinse cycle. If you forget to advance the thread, it is not critical since a quarter inch of thread under suction does not carry enough fluid to cause significant cross-contamination.

If you use other vacuum cleaning machines, have at least 3 different head brushes so as to avoid cross-fluid contamination. One for the enzymes, one for #2 fluid and one for the rinse water. Also, some of these alternate machines will overheat due to the prolonged nature of this cleaning cycle.

### **REVERSING YOUR VACUUM CLEANER**

Just as you wouldn't throw your own car into reverse while traveling 70 MPH down the highway, give your record cleaner a chance to stop its current direction before reversing. Failure to do so will result in jumped drive bands and

over-powering of the motor drive, i.e. "there's going to be trouble."

### **WEAR AND TEAR**

One concept employed throughout is that the record cleaning machine should not be stopped or reversed more than is necessary to achieve the desired result. Working toward staying in motion and moving through the steps consecutively will also shorten the necessary time required.

### **THE PADS**

The small white cotton dish cloths available from Target are my personal favorite. Wash these at the end of a day's cleaning and do not use fabric softener. Place one cloth under each brush as used and one at the edge of your spinning record to absorb fluid flung off during the process.

### **LIGHTING**

It is important to be able to clearly see the dust, the amount of fluid applied, and the degree of drying while cleaning a record. The Littlelight is good in combination with another standard incandescent light in the immediate proximity. I prefer the halogen version of the Littlelight over the LED model for its contrast on the vinyl surface.

### **RECORD HANDLING**

While you are probably knowledgeable in this arena, a few words are included here for the novice. Vinyl records will quickly absorb any fluid or oil from your fingers. Wash your hands thoroughly with soap and water before beginning and again if they become contaminated by your actions, such as petting your animals, eating, etc. Touch only the outer edge of the record and the label area. When picking a record up off the vacuum machine, use both hands, but use a maximum of two fingers on each hand to avoid the 3rd figure slipping and scratching the record surface. Practice will make this second nature. Don't ever blow dust off your records, as your breath will contaminate the record surface. Store your records vertically with side 1 to the front and side 3 forward for the second record in a two album set.

### **CHEMICAL MIXING**

Mix the Walker Enzyme formula according to the directions contained with the product. Since Walker indicates these are live enzymes, discard any unused portion of this formula at the end of your cleaning process for the day. In order to cut costs and time, I recommend cutting the Walker #2 premixed cleaning solution in half with Walker pure water. I find the Walker #2 a bit too soapy as it comes, and since it is used twice in this approach, I believe it allows for all of its inherent benefits to be realized. Even cut in half, the #2 fluid has a foamy surface on the record. If you choose not to dilute this #2 solution, I do recommend adding a 3rd final rinse to ensure the removal of all cleaning agents. And remember that water is also known as the "universal solvent," which means that rinsing is cleaning.

### **DISTILLED WATER**

I have read articles that indicate that all distilled water is not adequately pure for vinyl record cleaning. While I have not encountered any problems with the Deep Rock distilled water available locally, you may want to keep the purity question in mind. An alternative would be to use only Walker's pure water.

### **PRE-WETTING BRUSHES**

When beginning a cleaning cycle and before a brush touches the vinyl surface, use the appropriate fluid applied directly to the brush so as to make it less stiff before applying additional fluid and the brush to the record surface.

### **BRUSH PRESSURE**

The maximum amount of pressure that should be put onto the vinyl surface is the weight of the brush itself. All of the cleaning is done at a microscopic level and cannot be enhanced by your additional effort in the form of pushing the brush harder on the record surface. The brushes merely distribute the fluids; they do not scrub the record clean. Additional pressure will destroy both the record and your cleaning machine. Lift the brush whenever you change directions to minimize the start-up load on the cleaning machine drive motor. The brushes recommended will not scratch the record at the light pressures recommended. Feel free to lengthen the time a brush is in contact with the record surface.

### **CLEANING BRUSHES**

You must clean your brushes at the end of your cleaning efforts for the day. Since I live in an area that uses pure Rocky Mountain well water that is some 94 million years old, I use warm tap water. You need to determine if tap water is appropriate in your own area, or if further steps to clean brush washing water is necessary. Use the same cleaning brushes to clean the brushes. Do not contaminate the brush with your fingers or additional cleaning products.

### **FLUID APPLICATION**

While record cleaning products are somewhat expensive, do not cheap out on the application to the record. While you are going to all the trouble of cleaning, make sure there is enough fluid to fully cover the record surface. Clean all the way to the label with every fluid application and subsequent vacuuming, as a clean run-out groove is a pleasant experience. Time and practice are necessary. Consider the excess fluid flung off the record during cleaning the sign of an amateur in training to become a master.

## **CROSS-CONTAMINATION**

If you become distracted and accidentally use the wrong brush or fluid, you need to act quickly and use common sense. For instance, using the enzyme application brush later in the cycle calls for you to re-use the Walker #2 Cleaning fluid to ensure that all the enzymes have been removed. Then a full rinse cycle is still necessary. Then wash all affected brushes and don't let the enzymes dry while you are fooling around. Only your judgment can determine the necessary steps.

## **TIMER**

The recommended waiting period of **one minute** for the applicable cleaning fluids to work effectively is not just a convenient measure of time. This is the maximum "safe" period before the cleaning fluids will begin to dry, which you do not want. Re-wetting is required at least every minute. I recommend an hour-glass style one minute sand timer that is made for children. It has a safety cover that may be beneficial under some unexpected circumstances.

## **DOTS**

Self-adhesive paper dots are available at office supply stores. I prefer the size which is about ¼ inch in diameter. Place one dot on the record label on the side of the record you are currently cleaning, and place in the same location on each record, such as the right-center area of the label. It may seem unlikely, but it is very easy to forget whether a given side has been cleaned, especially given the euphoric excitement level normally experienced by anyone brave enough to undertake this record cleaning process. Another dot can be placed on the outside of the record cover, typically outside of the circle of the record so it does not easily become rubbed off. On this dot, you may want to record (write on the dot) what type of cleaning process was utilized. For the process described herein, use the letters "Wp" for Walker-Potent. If the record is cleaned in the future or you try differing fluids, you can add an additional dot to so indicate. While you are cleaning and listening to your records, consider adding a dot (preferably the ½ inch size) that indicates your evaluation of the record from mint to good, etc.

## **WARNING – CONTINUOUS CYCLE REQUIRED**

There are only 4 things that I have found on records that I have no approach to offer for cleaning. They are scratches, epoxy glue, enamel paint and **fully dried enzyme cleaner**. The approach presented following does effectively clean mold, dirt, bodily fluids, sugar, release compound, and all the other things I have found on used and new records. However, due the high impact pressure of the stylus on the vinyl, some contaminants can be infused into used vinyl, and they cannot be removed by any method of which I am aware. I do recommend this entire cycle for both new and used records before you play them. Also, this system works well with records that have been previously cleaned in some alternate manner.

## **WARNING – USE AT YOUR OWN RISK - PERSONAL HEALTH**

While the question has not been posed to the manufacturers of the cleaning products recommended, it is very doubtful that any of the manufacturers or distributors would embrace or recommend the approach contained herein. Also, watching a record spin around for about 20 minutes (the length of this cleaning cycle per side) can lead to alcoholism or unintentional hypnosis. Do not drink your record cleaning fluids even though they may smell remarkably familiar. Also, sheer boredom can be readily achieved. Some level of distraction is recommended including talking to your better half, listening to music, throwing the ball for your dog, etc.

## **STILL NOISY**

If the played record still has noise or crud that is bothersome, you have several choices. One valid choice is to file it and remain confident it's not going to get any better (I do this most frequently). Another is to realize that the phono needle will loosen some of the offending particles, and repeating the entire cleaning cycle can be beneficial. Lastly, try the Audio Intelligent Enzyme cleaning products, as I find these products will significantly quiet an otherwise noisy record and add to its listenability.

## **STORAGE:**

Now that you have an immaculately clean and dry record, place it within a new sleeve and store your record vertically. The sleeve should be open at the top, not the side which would make it more convenient to remove, but allow contamination to readily enter. I use Mobile Fidelity Inner Sleeves.

## **DANDRUFF**

If upon removal of the record for future play, you encounter small white flakes, there are several possibilities. One is that you have bad dandruff and this has combined with dust and adhered to the record during a previous play. Another is that the combination of cleaning efforts, the "scrubbing" by the phono needle and time have loosened some stubborn release compounds from the record. I recommend a complete re-cleaning in this case.

## **CASE STUDY**

The most perfect surface record I own was purchased on EBay and mailed from Italy. It came with a nice inch and a half of visible white mold that indicated the record had been standing in water (or worse) to this height. After a full cleaning cycle, there were two lumps of crud remaining in the groove that jumped the phono needle completely out of the groove. After another cleaning cycle, this record has not one pop, tick or other noise, which is better than any other vinyl record

I own, including many new 180 and 200 gram releases.

#### **ACKNOWLEDGEMENTS:**

I would like to acknowledge the assistance of a few individuals whom have contributed greatly to enjoyment of vinyl records: Al Stiefel (Rocky Mountain AudioFest) for introducing me to the Walker products and what a good system is capable of in terms of sound reproduction; Mikey Fremer for showing me how to correctly set up a phono cartridge via his live demonstrations and DVD; and Gary Tyler of Intrinsic Sound (Denver) for helping me develop an appreciation for vacuum tubes; and Art Tedeschi for keeping the Colorado Audio Society an healthy and viable club for the benefit of all us audiophiles.

#### **DISTRIBUTION:**

Feel free to post this information anywhere it is legal and share with your friends. All I desire is acknowledgement as the author.

#### **CLOSING**

Please feel free to further experiment with this technique, including brushes, chemicals and timing. Please let me know if you find any products or approaches which could improve this system, but only if you have tried this system fully as described. Please email me at [wgutz@aol.com](mailto:wgutz@aol.com) .

#### **Brush Directory**

Initial Dust Brush - Audioquest - Carbon Fiber Record Brush

<http://www.musicdirect.com/product/72883>

Enzyme Application, and Walker #2 Application (2 brushes needed)

Nitty Gritty Bristle Brush - Black Nylon

[http://store.acousticsounds.com/browse\\_detail.cfm?Title\\_ID=15265](http://store.acousticsounds.com/browse_detail.cfm?Title_ID=15265)

Potent Fluid Applicator - Mobile Fidelity Record Brush

<http://www.musicdirect.com/product/73897>

Alternate Potent Fluid Applicator - Disc Doctor Miracle Record Brush for 12-inch LPs

[http://store.acousticsounds.com/browse\\_detail.cfm?Title\\_ID=11115](http://store.acousticsounds.com/browse_detail.cfm?Title_ID=11115)

Rinse Water Brush – Nitty Gritty Record Cleaning Brush – Bi Directional

<http://www.musicdirect.com/product/73999> [http://store.acousticsounds.com/browse\\_detail.cfm?Title\\_ID=12479](http://store.acousticsounds.com/browse_detail.cfm?Title_ID=12479)

Record Play Dust Brush - Goat hair record cleaning brush by Russell Company in England.

<http://www.smartdev.com/loricraft.html>

#### **Equipment Directory**

Record Cleaning Machine - Loricraft Professional Record Cleaning System PRC4-Deluxe

<http://www.smartdev.com/loricraft.html>

Milty - Zerostat Anti-Static Gun

<https://www.audioadvisor.com/prodinfo.asp?number=ZESTAT>

Littlelight - 18" Gooseneck Lamp

<https://www.audioadvisor.com/prodinfo.asp?number=LI18STD>

Sand Timer - Large 1 Minute

<http://www.stevespanglerscience.com/product/1614>

Mobile Fidelity – MFSL Inner Sleeves

<http://www.musicdirect.com/product/73913>

#### **Fluid Directory**

Smart Potent Record Cleaner (1/2 Gallon recommended)

<http://www.smartdev.com/store.html#CLEAN>

Walker Enzyme- Prelude Record Cleaning System (Walker has a money back guarantee)  
[http://www.walkeraudio.com/prelude\\_record\\_cleaner.htm](http://www.walkeraudio.com/prelude_record_cleaner.htm)

Audio Intelligent Cleaning Fluids from Osage Audio Products  
<http://www.audiointelligent.com/>

Other Interesting Articles

An interesting article on wear and the diamond stylus can be found at:  
<http://www.micrographia.com/projec/projapps/viny/viny0300.htm>

The Smart Devices website has a free video using the Loricraft machine. It also provides some insight into the Loricraft machine and is worth the time to watch if you are not familiar with brush techniques:  
<http://www.smartdev.com/cleaning.html>

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