

Classical Guitar Care and Maintenance

By Douglas Niedt

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TEMPERATURE AND HUMIDITY CONTROL

A classical guitar requires a stable environment with consistent temperature and humidity levels year-round. Ideally, humidity should be maintained between 40% and 60%, while temperatures should range from 60 to 80 degrees Fahrenheit. Those are approximate numbers. Some luthiers recommend a tighter range. Avoiding sudden fluctuations in both humidity and temperature is crucial.

Exposing the guitar to humidity levels below 40% for extended periods or subjecting it to rapid changes in humidity can lead to cracks or open seams. A dry instrument will produce a deteriorated, thin, and rough sound, while excessive humidity can result in a muffled and lifeless tone.

A classical guitar's wood will expand or contract, dry out, and swell when exposed to temperature and humidity extremes. The top can crack, or the neck can warp, changing the action of the strings, making the guitar buzz, or making it less able to play in tune. The glue that holds the internal braces and joints can work loose, and the guitar can begin to fall apart. The bridge can pull up, work loose, and even pop off. Repairing these problems is expensive. If humidity drops below 40%, it is very common for the fretboard to shrink, causing the frets to stick out.

At Home: Room Humidifiers and Dehumidifiers are the Best

Heating systems dry out the air. A good rule of thumb is to humidify your guitar if the heat is on. However, while most people associate dryness with cold weather, it is important to note that dry, warm weather and air conditioning in humid weather can significantly reduce a room's relative humidity in a very short amount of time, often below the minimum safe level for a fine classical guitar.

For optimal guitar care, use automatic room humidifiers and dehumidifiers to regulate humidity levels. Whole-house humidifiers installed on your furnace can also be effective (unless your water has a high mineral content). Room and whole-house devices can maintain programmed humidity levels. Room humidifiers are easy to maintain and usually only require filling once a day. **IMPORTANT:** Be sure to use distilled water, not tap water. Tap

water can clog up the machine's system. Hard tap water with lots of minerals will leave a white film on objects in the room.

To avoid damaging a guitar by over-humidification, do not store or play your guitar directly next to a room humidifier. Do not use your room humidifier if the relative humidity in the room in which you keep a guitar remains at a constant 45% or above with your room humidifier turned off.

For Travel: In-Guitar or In-Case Humidifiers are a Must

In-guitar or in-case humidifiers are essential when traveling with your guitar, where you cannot control the environment. Many brands of in-guitar and in-case humidifiers are available. Damp-it, Oasis, D'Addario, and Boveda humidification systems are excellent. However, some luthiers recommend against using an in-guitar humidifier that seals the guitar's soundhole. They say it can trap too much moisture in the body of the guitar.

At home, although in-guitar and in-case humidifiers are better than nothing, they are not an ideal solution. You must constantly monitor them since they dry out quickly. One may not be enough if the humidity level in the air is very low. Also, when the guitar is out of its enclosed case when you are practicing in a low-humidity environment, it will struggle to maintain the instrument's proper moisture level. If you only use an in-case humidifier, when you take the guitar out of its case to practice, you have no protection at all. Therefore, in-guitar or in-case humidifiers should only serve as temporary or backup solutions. Also, an in-guitar or in-case humidifier is unnecessary if your playing environment is humidified correctly and monitored. In short, an environmentally correct room is better for all your instruments (and wood furnishings).

Basic Rules to Remember about Temperature and Humidity Control for Your Guitar

Never place the instrument near heat sources, cold drafts, or moisture sources. Keep the guitar away from heaters (including floor heating), wood-burning stoves, air conditioners, bodies of water, grass, or showers.

When transporting your guitar by automobile, don't leave it in the car trunk or car interior, period. Bring it inside with you wherever you are, as laziness is not an option when it comes to your precious guitar. When I was on tour traveling by car and had to stop for meals, I ALWAYS took it inside the restaurant with me. In hot or cold weather, run the car heater or air conditioner for several minutes to stabilize the interior car temperature before travel.

Don't expose your guitar to heat or cold for too long. If you do, bring it inside and allow time for the guitar to adjust to a stable indoor environment before removing it from the case. Always avoid sudden changes in temperature or humidity.

Never store a classical guitar in an attic, a basement, or a shed outside your house. One season of storage in extreme heat or cold can ruin it.

Keep your guitar out of direct sunlight. UV rays will cause premature fading and aging of the wood and finish. If you leave the guitar on a stand, sunlight might hit it during the day. If you leave the guitar in the case, place it somewhere in the room where you are sure the sun will not shine on the case. Most cases are dark colored, and the sun will cook it!

Purchase a thermometer and hygrometer to keep track of the temperature and humidity in the room where you keep your guitar. Hygrometers are notoriously inaccurate. Try to find one sold for scientific use. They cost around \$60-80 USD.

If your guitar shows cracks or warps from temperature and humidity, take it to a qualified guitar repair person, preferably a luthier. They can also give your guitar a setup, adjusting and calibrating parts of the instrument for optimal playability and intonation.

A guitar should not be left exposed to open air, where more significant moisture loss can occur in a too-dry environment, and greater moisture absorption can occur in an overly humid environment. For these reasons, do not store your guitar on a guitar stand or hang it on a wall, especially an exterior wall.

When not in use, store a guitar in its case (with the case latches securely closed), preferably a sturdy hard-shell case with a tight weather seal. Storing your guitar in a good, closed, hard-shell case also helps protect the guitar from accidental damage by young children and pets.

Only store your guitar on a guitar stand if you carefully control the temperature and humidity in the room and you are certain sunlight will not hit it.

Essential Classical Guitar Care Investments to Control the Guitar's Environment:

- An accurate hygrometer and thermometer
- A room or whole-house humidifier
- An in-guitar or in-case humidifier (for travel)

EVERYDAY CARE

Wash your hands before playing. Dirt and oil will clog and corrode the strings and diminish the sound and life of your strings.

Handle the guitar only by the neck. Squeezing the top or body can damage the delicate soundboard bracing.

Extended exposure to water can damage the finish. Sweat is mostly water and salts. The sweat from your arm and chest over time can make the finish look faded or cloudy. When practicing, use a protector to keep the forearm from contacting the guitar. It prevents the transfer of sweat to the top of the lower bout on the bass side of the guitar. A cheap option is to cut an old sock and slip it over the forearm. Or, always wear a long-sleeve shirt. There are commercial options as well. Also, keep the guitar from contacting your chest, especially in the summer when you are more likely to sweat and wear thinner clothes. Place a cloth between your chest and the guitar.

Two clean, soft cotton cloths (old cotton t-shirts work well) are the simplest and most effective solution for cleaning the guitar body and neck after you practice to remove sweat and finger oils. Slightly dampen one cloth to wipe down the instrument or specific spots. Then, immediately wipe again with the dry cloth. Do NOT use paper towels—they are too abrasive. Shove the cloth under the strings to get rid of dust in the area from the bottom of the soundhole to the bridge.

FRETBOARD CARE

Your guitar's fretboard is a high-contact area that needs a little conditioning with a commercial fret conditioner or mineral oil once or twice a year. It is unfinished wood that can dry out and crack, which can also cause problems with the frets.

Mineral oil is a non-drying oil that cleans and conditions the fretboard. It soaks into the wood and acts like a solvent to bring dirt and moisture to the surface. It also prevents the fretboard from absorbing excess moisture.

The easiest way to condition the fretboard is to remove all the strings first. But many luthiers advise not to take all the strings off at once because the sudden release of all neck tension can cause parts to shift or contract. And then, putting all the strings back on reapplies all the tension at once. Instead, they recommend removing only one or two strings at a time and treating the fretboard "strip by strip." Unfortunately, it is hard not to get conditioner or oil on the strings if you do it that way.

Wipe on some commercial fretboard conditioner or mineral oil with a clean cloth and gently rub it into the fretboard. “Lemon oil” is okay if it is scented mineral oil. Do not use pure lemon oil. The conditioner or mineral oil conditions the wood, helps to prevent cracking, and maintains a smooth playing surface. Do not apply it directly to the fretboard. Apply to a cloth or paper towel first, and then rub the cloth or towel on the fretboard. A little goes a long way, so apply sparingly. It’s okay to wipe it on the frets. Avoid adding so much oil that it runs over the edge of the fretboard and down the neck. If it does, wipe away the drips with a new towel.

Conditioning the fretboard removes unwanted grime and adds a nice sheen. However, some products will change the color of your fretboard especially if it is maple or another lighter-colored wood. Test on a small spot first to be sure you are okay with that.

Let the oil sit for about 20 minutes. Then, use new towels and buff with light pressure to wipe away as much oil as you can from the fretboard and frets. Make sure to reach the corners where the fretboard meets the edges of the frets.

If your fretboard is unusually dirty, apply some conditioner to the corner of the abrasive side of a dish sponge. Lightly rub away any buildup, using the conditioner as a lubricant and solvent. Rub right up to the edge of the frets.

FRET WIRE CARE

Over time, the frets of your classical guitar may accumulate dirt and tarnish. A little polishing is usually all you must do to bring them back to their best.

You can use a special fret polishing kit like the Rosette Guitar Products Fret Polishing System or the MusicNomad Kit to restore their shine and ensure smooth playability. These kits contain disposable polishing cloths pre-treated with a polishing compound and fretboard protectors. Rubbing each fret with the cloth removes any tarnish and restores the original luster.

POLISHING THE GUITAR

Do not use household furniture cleaning products on any guitar.

How to polish a guitar that has a nitrocellulose, polyurethane, or polyester finish

Do not polish a new guitar. Wait one to two years for the finish to set. Until then, use the simple maintenance procedures described above.

But as time passes, regardless of all our guitar care, there might be a need for more substantial “restoration.” To restore the full glow of your guitar finish or even hide or decrease lighter scratches, you can polish your guitar. MusicNomad Premium Pro-Strength Guitar Polish and D’Addario Accessories Restore Guitar Polish are two commercial polishes suitable for nitrocellulose, polyurethane, or polyester finishes.

Before you start, double-check that the guitar’s surface and the cloth you will use are perfectly clean and free of dust. Put some polish on a soft, lint-free cotton cloth and lightly wipe your guitar with circular movements.

Do not use polishes on matte or satin-finish guitars. Instead, use a small amount of Ivory liquid soap on a damp cloth and immediately wipe it off with a dry cloth.

SPECIAL CARE FOR GUITARS WITH A FRENCH POLISH SHELLAC FINISH OR OIL FINISH

WARNING: DO NOT POLISH GUITARS THAT HAVE A FRENCH POLISH FINISH OR OIL FINISH

A guitar with a French polish finish should be cleaned with the utmost care. The French polish shellac finish is delicate and scratches more easily than lacquer and varnish finishes. The guitar should never come into contact with any substance containing alcohol, as shellac dissolves in alcohol, potentially ruining your exquisite shellac guitar finish. This vulnerability requires special care and attention in cleaning and maintenance.

Use a slightly damp cloth to gently wipe away dust and grime, followed by a thorough wipe with a dry towel. This method ensures the preservation of the delicate shellac finish while maintaining the guitar’s impeccable appearance and sound.

CHECK THE TIGHTNESS OF THE WORM GEAR SCREW AND THE MACHINE PLATE SCREWS

Every time you change your strings, check the tightness of the worm gear screw and the machine plate screws. While the old strings are still on the guitar, check the tightness of the worm gear screws. The danger is that this adjusting screw that holds the gear in place can get loose and start to rattle or even fall out. A loose screw can also result in premature wear and failure of the tuning machine. Only adjust the tightness when the string is on the guitar at pitch. When the string is slack or off the guitar, the parts may seem a little loose. That is normal. When the string is at standard pitch, the parts should fall into the correct

tolerances with no wobble. Do not overtighten the screw. The gear must be able to move smoothly when the string is up to tension. If a screw is loose, turn it back in until it engages. Not until it is tight, just until it is firmly but gently set.

Also, check the tightness of the machine plate screws with a well-matched screwdriver. If the screws work loose, the plate will rattle against the wood. But be careful not to overtighten these. You can easily strip the wood holes.

Remember, use a suitable screwdriver that fits the screw head precisely. The machine plate screws usually require a small screwdriver. Do not mangle the screw heads.

Check for wear on the worm and the gear teeth. After hundreds of string changes or if you use a lot of scordatura tunings, these parts can wear to the point of sudden failure. Replace worn parts sooner rather than later so they do not fail at the worst possible moment.

CLEAN AND LUBRICATE THE TUNING MECHANISM (THE WORM DRIVE)

If you have not lubricated the worms and worm gears of the machine heads in the last few months, this is a good time to do it. Lubricating these parts will significantly improve the performance and life of your machine heads.

But be careful about what you use. Do NOT use WD-40, 3-in-One oil, sewing machine oil, wax, vegetable oil, automotive oil, or Vaseline. All these products attract dust. It all congeals and attracts more crud, and soon, the gears are filthy.

An excellent lubricant is Rosette Guitar Products' KeyTone Line Guitar Lube. Rosette Guitar Products is a company that sells many nifty products. This lubricant is a pure synthetic with no petroleum to gunk up your tuning machines. It goes on clear and stays clear. The main ingredient is food-grade quality polytetrafluoroethylene (PTFE), also known as Teflon.

Some luthiers use a lubricant called Tri-Flow Superior Lubricant. It also contains Teflon, but it has an off-color tinge to it and feels a little oily to me.

Your worm and gear may need cleaning first. You can use the same lubricant to clean the gear teeth and worm threads. I put a drop of lubricant on the tip of a multi-purpose lint-free cleaning swab. It has a pointed foam tip to get in the tight spaces. These are cheap and come in packages of 100-500 pieces. I use these, but other similar lint-free swabs will work fine.

I work it into the crevices of several gear teeth. Then, I switch the swab and swab out the spaces a few times. Give the tuning peg a few turns to expose new teeth. Add some lubricant to a new swab and wipe it through some more teeth. Switch to a clean swab and keep cleaning. Keep doing this until you clean all the teeth.

If the teeth are already clean, put one drop of lubricant on your swab and draw it through each tooth of the gear to lubricate. Use it sparingly and carefully. It is best that the lubricant not touch any wood surfaces.

Treat the worm threads in the same manner.

The casual player should lubricate the tuning machines once a year. But if you change your strings frequently (every one to three weeks) or use a lot of scordatura tunings, like drop-D, drop-G, and others, lube the tuning machines more often.

NUT MAINTENANCE

Some guitarists recommend adding lubricant in the string slots of the nut. Proponents say this will help the strings slip smoothly through the nut, avoiding wear on the nut and making tuning changes more precise. Others say no lubricant is needed if the nut slots are cut and polished correctly. Perhaps it might be helpful on a steel-string guitar, but on a classical guitar, I believe the lubricants are a waste of money. The lubricants I tried were oily or sticky. You don't want them gunking up your strings. Also, some of these lubricants are known to penetrate and discolor the nut. Some steel-string guitarists add graphite to the nut slots with a pencil. But unless you are having specific problems with the nut, I recommend doing nothing.

TRANSPORT IN A CAR

When transporting your guitar by automobile, don't leave it in the car trunk or car interior, period. Bring it inside with you wherever you are, as laziness is not an option when it comes to your precious guitar. When I was on tour traveling by car and had to stop for meals, I ALWAYS took it inside the restaurant with me. In hot or cold weather, run the car heater or air conditioner for several minutes to stabilize the interior car temperature before travel.

KEEP FRESH STRINGS ON YOUR GUITAR

As classical guitar strings age, they lose their vibrancy, quality of tone, and precision of intonation. The strings also become harder to press down. When the strings are ancient, there is the probability one will break at an inopportune moment.

It is best to change the strings frequently to get the best tone and playability. How often to change the strings depends on the guitarist's playing/practice habits. The guitar's environment is also a factor. The useful life of guitar strings will be reduced if:

- The guitarist practices many hours each day.
- The guitarist's fingers generate a lot of sweat and oil. A guitarist with sweaty, dirty hands can kill the tone of fresh bass strings in one day.
- The guitarist does not wash his hands before practicing or frequently during long practice sessions.
- There is a lot of humidity in the practice environment.
- The guitarist plays with an aggressive touch.
- The guitarist frequently uses scordatura tunings (non-standard tunings such as dropped D, dropped G, etc.).
- The guitar is not kept in a humidity-controlled case when not in use.
- The guitar is exposed to extensive changes in temperature during use or travel.
- The guitar is exposed to the salt air near an ocean.

Guitarists who only practice ½-hour a day, clean their hands, and take good care of their instrument may get by with changing their strings once every two months. Others, whose fingers produce a lot of sweat and oil, may need to change their bass strings at least once a week. Professionals usually change their strings every 1-2 weeks or after every performance.

In my younger years, when I was giving two to three hundred performances a year, I changed the bass strings every night after a concert. I replaced the trebles every two or three nights. I went through a lot of strings. Fortunately, they were tax-deductible!

I practice 4-6 hours a day, so I change the basses every one to two weeks and the trebles every two to three weeks for my guitar to maintain an acceptable level of vibrant tone quality and accurate intonation. If I do a series of recording sessions over one to two weeks, I will change the basses every two to three days. Otherwise, there may be a noticeable change in tone quality by the last recording session.

You definitely need to change your strings when:

1. The bass strings sound dull:

The three bass strings have a nylon core that is wound with copper wire, to which various types of plating are applied. With time, dead skin cells, oil from your fingers, dust, and dirt collect in the spaces between the windings of the bass strings. The buildup of grime gradually causes the tone quality of the string to deteriorate, reducing its volume and vibrancy to the point where the string sounds dead.

2. You notice grooves in the string windings of the bass strings. Grooves cause the string to vibrate unevenly, deadening its sound and causing poor intonation. In severe cases, the windings even begin to unravel (usually on the 4th string).

3. You notice the surface of the treble strings is rough. Over time, the smooth surface of the treble strings suffers not only from fret wire wear but also from abrasion from the fingernails plucking the strings. If you run a fingertip underneath the length of a worn treble string, you will feel grooves, uneven spots, and rough spots where the string contacts the fret wires or in the area where the fingers pluck the string. These grooves and abrasions in the treble strings cause them to vibrate unevenly, producing poor tone quality and intonation. There may also be a slight reduction in perceived volume.

You can even hear the difference between an old and new string as you rub the fingertip along the string.

The rough string surface where you pluck the strings will produce additional fingernail noise and can even rough up the edge of a freshly polished fingernail.

4. The guitar sounds in tune within the first five frets but out-of-tune in the upper frets (or vice-versa).

5. The bass strings change color from shiny to dull silver or bright to dark gold.

6. The strings smell. If they are that bad, you should have changed them a long time ago.

7. The strings are a few months old, and a string breaks. When this happens, change all the strings. Otherwise, the new string (especially if it is a bass string) will sound noticeably different from the others.

8. The guitar begins to stay in tune. This one is very ironic but true. As the strings stretch less and less and begin to stay in tune, they start to lose the dynamic qualities that make them sound so good and alive when they are new. They are beginning their decline.

Remember that the bass strings have a much shorter useful life than the trebles. If you want to save a little money, you might be able to change the trebles once for every two or three bass string changes without disrupting the tonal balance between trebles and basses. Some players make it a practice to purchase one or two extra sets of bass strings with each full set.

On the treble strings, one string may develop false intonation sooner than another. Unless the strings have been on the guitar for more than a month, you can replace that single string without disrupting the tonal balance of the guitar.

For detailed information on how to change strings on a classical guitar see:

[The Definitive, Comprehensive Guide to
How to Change, Restring, and Tie Classical Guitar Strings
Part 1 of 2](#)

AND:

[The Definitive, Comprehensive Guide to
How to Change, Restring, and Tie Classical Guitar Strings
Part 2 of 2](#)