INSPECTING A POTENTIAL NEW-TO-YOU VINTAGE YAMAHA FG v2.2.1 (2/9/20) by Dave Fengler

The allure of collecting vintage guitars can be intoxicating. The vintage tone, history and potential value make them hard to resist. But looks can be deceiving. While a guitar may initially look great, it must be structurally correct (playable and not falling apart) to be worth anything but hanging on the wall, spend its life in a case, or be resold.

I wrote this to attempt to enlighten people to the pitfalls of vintage guitar collecting. The thrill of the chase is only the first part. A careful inspection is required to determine if the guitar is worth the asking price. In some cases the guitar is very rare and you may never find another one. But in most cases, some (or a lot!) of patience will result in finding a better version.

Buying a vintage guitar is like buying a used car. It may sound good, but you don't know what's under the hood until you take a closer look. And you need to know what to look for. Many problems can be fixed but do you have the money or the ability to do it?

While a car can survive just about any weather you can throw at it, a guitar is made of wood (either solid or plywood) which will shrink or expand with a change in humidity and temperature, although plywood is much less susceptible. Extremes in humidity will cause cracks due to components changing at different rates. Extremes in temperature can also cause problems. High temperature will cause glue joints to loosen. Low temperature is usually associated with low humidity, the wood will shrink and crack, and in extreme cases, glue joints to fail. NEVER try to fix a guitar that suffers from a lack of or too much humidity. It must be brought back to a normal state before doing anything. All plywood guitars (as most vintage Yamaha FG's are) are less affected by changes in humidity. Also, years of string tension can cause the wood to very slowly move, causing warping of the top and neck, and the neck angle increasing causing high action.

I'll separate the inspections into 4 levels: **Quick Overview, Closer Look, Measurements, and Internal Inspection.**

QUICK OVERVIEW: The obvious stuff – All the basic parts are attached, bridge, neck, saddle, nut, 6 tuners, 6 bridge pins (no golf tees), no major cracks, holes, dings or gouges, can't pass a pencil under the strings at the 12th fret.

CLOSER LOOK: Stuff that matters. Tune the guitar to pitch, or 1 step down if the strings are very old.

- ***Do the tuners work:*** They can be stripped internally and work fine until the string is close to pitch, then pop or slip. If there is a screw on the end of the tuner button, tighten it if the tuner slips. Any screws, bushings or covers missing? 50 year old tuners and parts are very difficult to find.
- ***Is the neck or headstock cracked:*** The guitar probably was dropped or knocked over. A crack on a shallow angle that hasn't gone all the way thru is a fairly easy fix, glue and clamp. A perpendicular crack with complete separation is a tough fix due to less surface area to glue and the string tension trying to pull it apart. Most of the time it can be repaired, but it will always be ugly. And if it isn't done correctly it can break again.
- ***Condition of frets:*** Are there any grooves in the frets? Are the frets low or very flat? Low flat frets are very common in vintage FG's since they may have been leveled in the past 40-50 years. If there are some grooves in the frets and the action is high, the guitar may play cleanly, although difficult. Once you lower the action the fret grooves can be more of a problem and cause fret buzzing. Depending on how high the frets are, the frets can be leveled and recrowned. If only the first 2 or 3 frets are grooved you might be able to get away with loosening the truss rod slightly to bring the fretboard up slightly, if the neck curvature will allow it, and level and crown just the first 2 or 3 frets. Otherwise the worn frets will need to be replaced. See ***Refretting A Vintage Yamaha FG***. http://yamahavintagefg.boards.net/thread/221/refretting-vintage-yamaha-fg
- ***Is the neck obviously bent upward where it meets to body:*** This is usually seen with the bridge tilted and top bellied. It's another decades of string tension problem. If there aren't any underlying structural problems, the only way to fix this is an expensive neck reset. See ***Vintage Yamaha FG Neck Reset Procedure.*** http://yamahavintagefg.boards.net/thread/18/vintage-yamaha-neck-reset-procedure

- ***Is the neck heel separated from the body:*** Yes, this is as bad as it sounds. The neck is loose and has to come off for a neck reset. Don't try to squirt glue in the gap to fix it. Not very common for Yamaha's, but very common for old Harmony's, they usually have poorly set necks with lots of glue that dries out and the necks come loose.
- ***Is the heel cracked:*** A cracked heel is typically caused by dropping the guitar or improper packing when shipping, similar to neck or headstock cracked. Somethings going to give with all that string tension and a sudden shock. A heel crack can be glued and clamped but I recommend installing a pin thru the heel also to reinforce it. Carefully remove the heel cap (if it has one) with a razor blade. With the neck held down to close the crack, drill a 13/64" hole into the bottom of the heel ½" to ¾" past the crack, use a toothpick to get epoxy in the crack, drop enough epoxy in the hole so when a 3/16" diameter hardwood dowel is pushed in you can see the epoxy being pushed up to fill the hole, clamp, clean up any epoxy squeeze out with denatured alcohol, reattached the heel cap with a small amount of superglue after the epoxy has cured. A heel crack isn't fatal and can be repaired, but it will always be ugly. If the guitar also needs a neck reset I install 2 pins on an angle from the inside using the above techniques. Glue the crack first, then drill the holes and install the pins the next day.
- ***Are there any cracks in the body:*** A plywood body should never crack, although the binding can crack and fall off, or the top or back can separate from the sides. Loose binding is an easy fix. A separated top or back is a major fix due to their probably being more damage than you can see, including cracked or loose braces or kerfing. Throw that one in the fire pit. All solid wood guitars can also have cracks in the sides that are parallel with the top and back. This can be a very difficult fix to get everything lined back up, especially if it's been in that condition for a while.
- ***Are there any cracks in the top*****:** Plywood guitar tops don't normally crack, although I've seen a couple where the center seam separated very slightly due to low humidity, but that was only the top layer, the top is still structurally sound. SOLID tops can get cracks in many places, either due to low humidity or outside forces. The center seam is the most common since the top is usually made of 2 pieces. Less common are cracks at either or both sides of the fretboard extension. This is another low humidity problem. The whole guitar is imploding. This is a major structural problem, since the neck block is no longer anchored to the top. But the cracks can happen anywhere on the top, always being parallel to the grain of the wood. If the cracks have gaps the top must be rehumidified and most times the cracks will close. NEVER just add glue to an open crack, glues do not have any strength as gap fillers. Internal cleats will need to be added to keep the crack from opening again. Water thin super glue can be used to reinforce the crack once it is closed, but you must be very careful as it will run and damage the finish on the top. The only way to remove excess super glue is to sand.
- ***Are there any fixed cracks:*** Properly cleated and glued cracks shouldn't be a problem, unless they were done poorly. And there's the visual factor. You can't really tell unless you do an internal inspection. See the last section.
- ***Is the top caved in:*** A caved in top is typical of a solid top guitar that is severely dehydrated. The top should have a slight crown to it. Put a straight edge across the top just behind the bridge. If there is a 1/32" to 1/16" gap on each side of the straight edge, you're good. If there's more the guitar could be over humidified or they could be a broken/ separated internal brace. If the top is flat or there's a gap in the middle, the guitar needs to be humidified to bring the top back up before checking anything else.
- ***Is the bridge tilted forward & top bellied:*** Another sign of a guitar slowly imploding. If the bridge is tilted up, typically the neck is tilted up also, and the area around the sound hole is caved in. This can be a structural problem, possibly cracked/separated braces or bridge plate. But not always. Only careful internal inspection will clarify what's going on. A solid top can be trained to be flat with proper clamping for a few months. This rarely works with plywood tops. A JLD Bridge Doctor can help fix a tilted bridge/bellied top. It is a block of wood that is bolted to the bottom of the bridge (bridge plate) and an adjustable rod presses against the endblock to flatten the bridge area. Again, be sure the guitar is properly humidified before correcting any structural problems. The JLD Bridge Doctor does very little to help high action. If a forward tilting bridge is forced backwards it will usually cause the saddle to rise, the opposite of what you want if the action is already high. I don't recommend installing them, except for 12 string guitars. The rear strings need a flat bridge to have any break angle.

- ***Is the bridge cracked or lifting:*** Like many other cracks, bridge cracks are a result of stress and/or lack of humidity. The normal test for a lifting bridge is to insert a piece of paper all around it. If it goes in more than 1/4" the bridge needs to come off and be reglued. You can't reglue it in place. Some guitars (not Yamaha's) are bolted on and will have 2 "pearl" dots covering the screw heads. A crack following the bridge pin holes is common, and repairable as long as it doesn't extend much past the outer holes. While it may look fatal, I've had good luck rehumidifying the bridge and permanently gluing the crack. See ***Fixing A Cracked Bridge.*** http://yamahavintagefg.boards.net/thread/50/fixing-cracked-bridge Be sure nothing is in the crack and rehumidify the bridge with a small saturated sponge for a couple of days. The crack is glued with water thin superglue and the top of the bridge sanded. A crack thru the saddle slot can be repaired but will usually fail again do the high force of the strings pulling the saddle forward and these cracks tend to be all the way thru the length of the bridge.
- ***Has the bridge been sanded lower:*** If the thickness of the bridge is ¼" or less, more than likely it's been sanded to lower the action. Another way to tell is if the bridge pins stick out too far. The bridge is usually sanded to be able to have more saddle sticking out of it when lowering the action, instead of a neck reset. It's not a bad thing, although it could reduce the value of expensive guitars, and can reduce the sound output of the guitar slightly. This is a "poor man's" neck reset. And the bridge will need to be replaced when a neck reset is finally done.
- ***Is there very high or very low string action:*** Very high string action is caused by decades of string tension and/or low humidity. Check for a tilted bridge or bellied top, or the neck obviously bent upward where it meets the body. There could be internal problems (loose or broken brace) or the guitar just needs a neck reset. Very low string action is usually only seen in solid top guitars, caused by very low humidity, the top is caving in. The guitar can be rehumidified and many times the top will return to normal.
- ***How much saddle is left:*** Normal saddle height (measured next to the 2 E strings) above the bridge is about 1/8" to 3/16". If the saddle is more than 3/16" high you risk splitting the bridge from the force of the strings pulling the saddle forward. 3/32" is OK. Depending on how far the bridge pins are away from the saddle, and if the bridge has been ramped, you might be able to get away with a 1/16" high saddle. If the saddle is under 3/32" high and the action is high, it's asking for a neck reset. For an inexpensive guitar, if the bridge is 5/16" or thicker you can get away with sanding the top of the bridge and ramping the bridge pins and still have a good break angle, just don't go lower than ¼" thick. But you need to check the depth of the saddle slot before sanding, you want that to be at least 1/16" deep at the outer edges.
- ***Is the truss rod functional:*** 1966 to 1980 models have the truss rod adjustment in the headstock. 1981 and up models have the adjustment inside the body under the fretboard. For 1966 to 1976 models the adjustment done with an 8mm socket wrench, 1977 to 1980 uses a 5mm Allen wrench. ***Is the truss rod nut present?*** Sometimes the truss rod has been broken by overtightening the nut. STAY AWAY guitars that do not have a truss rod nut and no thread exposed in the pocket!! Replacing the truss rod requires removing the neck and removing it out the heel end. Then you have to find a donor guitar to take a truss rod from. It is not something you can buy, although one could be custom made. But you still need to remove the neck to replace it.
- ***Check the neck relief, nut action, 12th fret action, and neck projection.*** See the MEASUREMENTS section below.

MEASUREMENTS: Things you should measure are the first part of a setup, without actually changing anything. I've copied the following from my ***Acoustic Guitar Setup Guide***.
http://yamahavintagefg.boards.net/thread/19/acoustic-guitar-setup-guide

A basic setup consists of adjusting the **neck relief**, **action** and **nut height**. In that order.

WHAT IT IS:

- The **neck relief** is the curvature of the neck that allows you to press the string at a fret and the string won't buzz at the next fret. Excessive neck relief will result in high action, but the neck relief is not the only cause of high action.
- The **action** is the distance between the strings and the 12th fret. High action makes the guitar very hard to play and will pull the strings out of tune when they are fretted.

- The **nut height** (also known as nut action) affects how easily chords can be played in the first few frets. It will affect the string action to a small degree.

WHAT & HOW TO CHECK:

- The **neck relief** is checked by holding the string down at the first and 14th frets (last fret before the body). Holding down the first fret takes the nut out of the equation. There should be a very slight gap at the 7th fret, .005" to .008", about the thickness of 1 to 2 pieces of paper. Checking the low E and high E should be sufficient. THE TRUSS ROD IS USED TO ADJUST THE NECK RELIEF ONLY, IT IS NOT FOR ADJUSTING THE ACTION OR CORRECTING A BAD NECK ANGLE.
- The **action** is measured at the 12th fret with the string held down at the first fret; again it takes the nut out of the equation. I like to see 5/64" for the low E. Over 1/8" makes the guitar very hard to play. The high E string action should be 1/64" lower than the low E string. The action for the other strings should taper from the height of the low E down to the high E.
- The **nut height** is checked by pressing the string at the 3rd fret. There should be a very small gap at the 1st fret, checked by pressing directly on the first fret and feeling just a little movement, it should be very hard to see but you should feel and hear the string hit the fret. All strings need to be checked.

A very important thing to measure in vintage guitars is the neck projection. 40-50 years of string tension tends to pull the neck up and push the area around the sound hole down, causing a bad neck angle. This should be checked AFTER adjusting the **neck relief**, otherwise you may get inflated readings. **But**, if you're looking at a guitar to buy you'll have to evaluate the neck relief and neck projection numbers together to determine if the neck is good or not.

- Lay a 24" straight edge vertically across the fretboard and move it forward until it contacts the bridge. A neck that is visibly bent where it meets the body will give lower results because the straight edge will contact the first and last frets, and a large gap in the middle, instead of laying across all of them. In this case use a 12" straight edge (or the regular **neck relief** check using the strings) to check the flatness of the neck between the 1st & 14th frets. Stay away from guitars with a fairly straight neck (good **neck relief**) but the obvious bend in the middle. They need a neck reset. The truss rod will not fix it. A good neck will project to at least the top of the bridge. I like to see 1/16" or more above. A neck that projects 1/16" or more below the bridge needs a neck reset. Depending on the height of the bridge & saddle you might be able to do some sanding and leave the neck alone for now. But all guitars will need a neck reset eventually. See ***Vintage Yamaha FG Neck Reset Procedure.*** http://yamahavintagefg.boards.net/thread/18/vintage-yamaha-neck-reset-procedure

INTERNAL INSPECTION: Hidden stuff that can make a guitar worthless. Look for broken or loose braces, cracked or lifting bridge plate, chewed up bridge plate, cracked or loose kerfing, repaired/cleated cracks in the top, cracked or broken neck or end block,

- **Tools Required:** Since you can't physically get into the guitar to inspect it, you need a use mirrors, a flashlight and a camera to assist in the inspection. You can use an automotive inspection mirror, many have a swiveling mirror and a telescoping handle. You can use this with the strings still on. Stew Mac sells a set of 3 mirrors that you slip in thru the sound hole, which will give you a pretty good view of the back side of the top. You'll need to remove the strings to use this mirror. Using this with your cell phone camera is a good way to see and document what's in there. There are inexpensive ($10-$20) USB endoscopes you can plug into your cell phone to look anywhere inside the guitar. The main problem with them is they claim 2 MP but most are actually only 0.3 MP. They work OK but actual 2 MP would be much better. A bright LED flashlight with make viewing and taking pictures much easier.
- **Broken or Loose Braces:** Aren't always noticeable on the inside. One hint is a bulged top behind the bridge, but a broken brace isn't always the cause of that. A broken brace is usually obvious, but a loose brace is not. You can't easily see the brace from the side to see if there is a gap under it. You can try grabbing the brace and try to wiggle it. Or try to push something under it. Brace repair requires special clamps. I've had good luck with various size wedges. A broken brace can be fixed with wood glue. Wood glue won't work for a loose brace because it will only glue wood to wood. Either all the old glue must be removed or you need to use a different glue.

- **Cracked or lifting bridge plate:** Similar to broken or loose braces, except sometimes the bridge plate will need to be removed and replaced. I've had good luck gluing a thin (1/16") maple patch over a cracked or worn bridge plate, as long as it is securely attached to the top.
- **Chewed up bridge plate:** The ball end of the strings are held against the bridge plate by the bridge pins and string tension. Over the years the strings can cut thru the bridge plate and bridge, leaving a thin groove. The balls can chew up the bridge plate until the ball starts getting pulled up into the bridge pin hole. Poorly drilled (splintered) bridge pin holes (at the factory) don't help. As longs as the string ball ends aren't pulling up into the bridge plate this isn't a problem. I've had good luck gluing (epoxy) a thin (1/16") maple patch over a worn bridge plate. Then I fill the bridge pin holes and grooves with epoxy, and drill & taper ream. Stew Mac sells an expensive tool to machine the back of the bridge plate and make plugs to fill the holes.
- **Cracked or loose kerfing:** Kerfing (sometimes called Ribbon) is the slotted wood that runs around the inside corners of the guitar. It provides a gluing surface to attach the back & top to the sides. If this gets damaged typically the top or back will be separated from the side. Again, this can be repaired with wood glue, but only if it's a clean wood break, not a separation of a glue joint.
- **Repaired/cleated cracks in the top:** This should not happen to plywood guitars. Rehumidifying will not work on a plywood top. The cracks may not be easily visible on the outside, but cleats should have been used on the inside. Cracks are typically a result of low humidity. The guitar should be fully rehumidified before repairing any crack. I've seen many websites that say to glue a sliver of spruce into the crack. NO! The top has shrunk due to low humidity! Rehumidify it and the crack should close back up! Then cleat and glue it. I've read cleats should be made from spruce. I make them from tongue depressors. Cut off a piece about 5/8" long (grain oriented in this length) and sand it into a diamond shape, then taper the top edges. The cleats are glued perpendicular to the crack, placed every 1-1/2" to 2". I use hot hide glue to attach them, it sets up fairly quickly and the excess cleans up with hot water on a paper towel. Epoxy works but clean-up is much harder and they're non-removable. Wood glue would work but they would need to be clamped since it sets slower. As long as rehumidifying has completely closed the crack, you can use water thin superglue to glue the crack. Then the area of the crack will need to be scraped, sanded and polished to blend in with the existing finish.
- **Cracked or broken end block or neck block:** This may look like the sides have separated from the back with the heel flush to the sides, and high action. Many times accompanied by cracked or loose kerfing. Inject glue in the cracks and clamp, being sure everything is back in its proper alignment.

Good luck with your search. Obviously, you can't inspect a guitar for sale online. eBay ads can be deceptive, leaving out details, not showing side views that would show high action, or just plain lying even when asked direct questions. Reverb is typically more trustworthy, although it's still possible to get burned if you don't ask the right questions. ***Use PayPal for payment whenever possible.*** Then it's much easier to dispute a guitar you've bought that isn't what was stated in the ad. Stay away from foreign ads, the shipping is usually high, and if there's a problem they know you won't want to pay another high shipping charge to send it back.

Checking a few critical items can make the difference between a great guitar and a wall hanger. Many of the vintage Yamaha FG's for sale are not playable and just keep getting resold to the next unsuspecting buyer, eager to have that model. Don't be a buyer/reseller. Select, inspect, detect, reject should be the process until you find a playable FG in good condition.