

Restoration of Vintage XK Interior Woodwork

[Karl H. Krause](#)

Member, Eastbay XK Registry

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Introduction

In early 2001, I set out to complete the restoration of my recently acquired 1953 Jaguar XK120 Fixed Head Coupe (680199). Seven long months later, after the car had been painted and returned to my mechanic for re-assembly, I was invited to “come get the wood”. I had researched the possibility of hiring an expert to refinish the interior trimmings, but I balked at the price I was quoted by the few people willing to take on the job. Moreover, I felt the need to be able to eventually point to something significant on the car (at some show or rally) and say proudly: “I did that!” So, I decided to take on the job personally.

Though I had some familiarity with minor repairs to antique furniture and refinishing of hardwood floors, this was my first attempt at something so meticulous and risky to such a cherished and historical item (I know it’s not the ceiling of the Sistine Chapel, but it IS my Jag). An old friend of mine is fond of saying: “Never get good at something you don’t want to do for a living”. This is typically good advice, but not for this project. I knew I’d probably only want to do this once in my lifetime, yet I wanted a good job – one I’d be proud of. So, I did lots of research, consulted some experts, considered several options, used quality tools and worked slowly and methodically.

Herein is described the process I used. I trust that these “lessons learned” will prove useful to other Jag enthusiasts in the restoration of their own interior woodwork.

Is this my “Cup of Tea”?

Before you commit to doing the job, ask yourself these questions:

Are you qualified to do this? Probably so – after all, you own a vintage Jaguar! If you are reasonable handy, and have experience with woodworking and/or refinishing, then yes - you should be able to tackle the job. If you totally bodge the job, take heart – and proceed to the next question below.

Is your wood too far gone? If pieces are missing, broken, seriously delaminated, mildewed, destroyed by an amateur restorer, etc. you may justifiably think better of a restoration and opt for new wood. If so, consider a complete (and expensive) replacement kit from a reputable source such as Classic Veneers or British Autowood. Their web address is <http://www.britishautowood.com>. Such kits can be ordered unfinished if you still wish to subject yourself to at least fortnight of self-abuse. Alternatively, you can have a professional finish the whole lot to your specification (color, finish, etc.)

Do you have the time? I spent in excess of 40 hours over a period of three weeks on my wood. A perfectionist could spend much more. It’s a fun way to spend your evenings and avoid television. Above all, one must be methodical, patient and careful. Much dwell time is spent waiting for application of the next coat of finish and you will have to force yourself to “leave the damn stuff alone” until it has properly dried before sanding and applying another coat. I found myself making endless trips (at all hours) into my den just to glance admiringly

at the wood as each layer of the finish dried.

What finish do you want to achieve?

Herein, you'll learn of my approach: a modern, durable, maintenance-free, non-yellowing, oil-based polyurethane coating that can be applied in gloss, semi-gloss or satin finishes. In short, it's a better finish than the original and I suspect that Jaguar would have done it this way had the materials been available 50 years ago. Yes, it is not true to the original 50's "look" in that it has a more modern "wet" appearance, but if done right it will obscure none of the beautiful grain or colors of the walnut burl. Moreover, you'll spend more time driving your car, and less time applying waxes and worrying about the ravages of sunlight, humidity, heat and cold. I believe that this sort of finish is appropriate to both "trailer queens" and 'drivers'. I've seen quite a few JCNA Concours entries (including a 99.9+ points winner) with similar high-gloss interior wood finishes. Apparently the judges were much more appreciative than disappointed!

I have heard of some people applying literally dozens of coats of polyurethane. I believe this tends to make the dashboard resemble a newer car – something like a thick sheet of glass over the wood. I limited my application of polyurethane to as few coats as necessary to achieve a smooth, flat finish - typically three or four coats were needed, no more. This results in a minimum thickness of finish and tends to minimize the "high tech" look. I found that the minimum number of coats differs for each trim piece and is dependent on several factors: absorption of the initial coat(s), surface finish (evenness) of the raw veneer or wood, grain tightness, temperature, extent of repairs, etc.

If you are hell-bent to avoid an "over-restored" look, simply follow the process below through the final preparation of the wood. Then, apply the finish that you prefer (wax, varnish, lacquer, shellac, etc. If you are not satisfied, you can always re-strip and refinish the wood in the future.

I strongly suggest that whatever finish you choose, always test it on a sacrificial piece of wood before you risk the "real thing". For example, I used a spare piece of door trim that I finished in three sections: gloss, semi-gloss and satin. This afforded me the opportunity to compare each finish side by side. In so doing, I was able to choose the one I preferred. I chose an all-gloss finish for its evenness and its ability to highlight the grain. I also appreciated the fact that the gloss finish is easiest to apply (it requires no stirring). Under a high intensity light, I found that the satin or semi-gloss tended to obscure the grain and the finish looked "sandy" (you can actually see the grit in suspension if you look carefully). A friend suggested that I use gloss until the final coat, then switch to satin to give a warmer or softer finish. I thought this was a very good idea, but when I got the gloss finish looking good, I decided to "leave well enough alone".

Required Materials

When buying materials, don't be cheap! Expect to use lots of brushes, paper towels, etc. Make it a policy to keep a fastidiously clean work area and to throw out anything the least bit contaminated. Below is the list of materials I used (in no particular order):

Clean paper towels, rags, new cotton diapers, newspaper – lots!

Jasco Paint and Varnish Remover or milder product such as Formby's (depending on the tenacity of your original finish)

Sandpaper sheets (highest quality wet/dry), 240, 600 and 1500 grades

Miscellaneous inexpensive (disposable) brushes (1/4' to 1") for application of stripper, glue, and epoxy (also good for knocking cleaning sanding dust from crevices)

Rubber gloves (e.g., "Playtex") for stripping

Plastic spatula

Press weights for veneer (e.g., concrete blocks, water cooler "carboys", etc.)

Stain wiping pads (cotton or terrycloth over foam rubber)

Veneer Glue: "Weldwood" Contact Cement, or "3M Fast Bond" Glue (brush-on, slow drying), or "Imperial Adhesives Permagrip" (17 oz. spray)

Two-part wood epoxy (available in parallel plastic syringes)

High quality water based stain (walnut shade) such as by "Minwax"

Artist brushes (several sizes)

Highest-quality natural bristle brushes (for oil-based applications), 1/2" and 1"

Razor blade knives for cutting and trimming veneer

Glue clamps ("c" clamps are fine)

Scotchbrite pad (available at the grocery store)

Wax Paper (for shielding veneer from wet epoxy)

Notepaper, tags, Baggies, muffin tins, jars, camera and film for labeling parts

Mineral spirits

Wood filler ("Minwax" two-part filler works well)

Polyurethane (gloss, semi-gloss or satin) in 8 oz. cans or alternate finishing product such as Varnish or Wax

Tweezers

One or two small rollers (hard rubber and/or plastic) for bonding veneer

Grinding wheel (bench type) for shaping cured epoxy and polishing hardware such as hinges and bezels

Flat and round wood files

High Intensity lamp(s)

Miscellaneous hand tools (screwdrivers, pliers, etc.)

Replacement veneer (available in sheets from hardwood suppliers)

Disassembling the Wood

Film is cheap. Take many detailed photos of the wood trim prior to removing it from the car. (In fact, take a few pictures throughout the whole refinishing project for your Jag album). As each piece is removed, label it as to location (use a pencil on the back surface). Label and bag all the mounting hardware as well.

You will note that the larger pieces (if original) will be signed by the craftsperson that originally fabricated them long ago. Mine were all signed by "Nancy". I took delight in this discovery. I found myself picturing what she must have been like. In my mind's eye she was a cockney-throated survivor of the Blitz who resembled Eliza Doolittle. I imagined that she routinely washed down "bangers and mash" with a pint of warm bitters in the Coventry plant commissary. Yes, I get carried away.....

Now that your wood is out of the car and on the bench, finish the disassembly. Remove all bezels, cubby and glove box handles, hinges, collets, remaining instrumentation, switches, screws, hardware, etc. Be sure to carefully label everything. Use string tags, baggies, muffin tins, etc. so that you can replace them when you're through. Make diagrams and be sure to note orientation of all parts. Again...take photos!

Make an initial assessment of the wood, piece by piece. Will you need to do major repairs prior to refinishing? Is the plywood intact or does it need to be re-glued? Does the veneer appear intact?

Stripping the Wood

The stripper you use will depend on the finish you are attacking. I had no idea what the car's previous owner had "slopped" onto the wood, or when he had done it. Whatever it was, it had been carelessly and unevenly applied with the dash in place! At first, I tried the "kinder and gentler" stuff like Formby's, etc. Nothing made a dent in the old finish, so I threw caution to wind and went to the old reliable "Jasco" paint and varnish remover (and lots of it). I found that the Jasco did no harm whatsoever to the old hide glue or the veneer but I was careful to not leave it on for long and I avoided letting it get onto the edges of the plywood.

Wear some rubber stripping gloves ("Platex" gloves work fine). Apply the stripper liberally with an old brush and let set for about 10 minutes or less. As you see the old finish "crinkle", scrape off with an old plastic spatula (to avoid getting chewed-out, use one your wife won't miss or keep it well hidden when she ventures into the garage). Stay near a sink – I guarantee you will eventually get some of the stripper on your hand or arms and it burns like hell.

Apply the stripper several times if necessary. Use slightly dampened paper towels to clean away the funky stripper and old finish as you progress. Never, never, never dip the wood in water – it's not worth risking de-lamination! When you gotten off all the old finish, you are ready to progress to sandpaper.

Carefully sand the "public" side of each piece, always keeping in mid that the original veneer is only 1/64" thick and that any previous rework of the wood may have substantially reduced its thickness already. It may sound paranoid, but I made it a policy to never use steel wool for fear of a bit of it staying behind to cause rust or contamination problems under the new finish. I found that I never needed to use anything rougher than 240 grade, and I usually used from 600 grade all the down to 1500 (1500 grade is like TP - one wipe and it's shot). I then applied and final buff with a 3" by 5" Scotchbrite" pad acquired at the grocery store (the kind with the handy handle affixed) and then cleaned the surface with a cotton diaper dampened with mineral spirits.

Now you can once again take stock of the condition of your wood (under a powerful light or in direct sunlight) and get a true assessment of the need for repairs and/or the readiness for finish. The veneer needs to be very flat and smooth, but you must avoid going wild with the

sandpaper as you risk going through the thin veneer. Keep in mind that the polyurethane gravity-flows upon application and as such, puddles will magically form in small voids, irregularities and brush strokes and thereby, “even out” the surface.

Repairs to the Plywood

Once I got the surfaces as good as possible, I again took stock of what I had. Some delamination and mildewing had occurred to the plywood underlayment on the dashboard side panel pieces. This called for some creative “carpentry”. After digging out chunks of old loose glue with toothpicks and small brushes, I re-bonded the plywood using a two-part wood epoxy as follows. After mixing the epoxy (it comes in parallel plastic syringes – very convenient), and forced it in-between the delaminated plywood layers with small brushes, toothpicks, etc. I then clamped the assembly after applying wax paper to prevent unwanted adherence to the veneer. Under each clamp, I used cardboard or thin strips of wood to prevent denting the veneer. Where large sections of rotten plywood needed replacement, I used the epoxy (on the advice of an expert furniture restorer) as one might use wet modeling clay. I found that the wet epoxy can be built up and then formed after hardening by using a file, grinding wheel or sandpaper. Unlike wood filler, it is very hard after curing. Of course, it won’t take stain or finishing, but these major repairs were done to the back and sides of the pieces and will not be visible when the wood is repositioned in the car. I would also recommend applying a coat of polyurethane to the edges and backs of the plywood pieces simply as a protective coating. This can be done before or after the finishing of the veneer as described below.

Repairing the Veneer

Repairs to veneer can range from replacement of very small chips (damaged areas) to entire pieces (e.g., a dash panel) to a complete resurfacing of all sections with new carefully grain-matched veneer. In shopping for veneer, I came across a dealer who had photos of a concours-quality Mark IV that had been completely and professionally restored. Each and every piece of wood had been resurfaced and refinished. Careful attention had been paid to the matching of the burl patterns so that there were no grain discontinuities anywhere. The entire dash appeared to have been made from a continuous piece of material! This was far and away beyond my skills and budget (I was told that the owner of this Jag also owned a private jet), so I decided to repair what I had. Besides, I rationalized that my car is a “driver”, not a “trailer queen”, and that the imperfections in my wood were “historically endearing”.

My wood had seen better days. There were a lot of little veneer patches needed and the veneer on the left and right panels (steering column and glove box areas, respectively) needed total replacement.

With the help of the yellow pages, I found a place in Martinez, California from which I bought some Carpathian Elm Burl veneer. It cost \$300 a sheet (2’ by 8’ by 1/50” thick). Though slightly more gray than my old wood, it proved to be a good match to the grain pattern and I only needed about \$75 worth. (When shopping for veneer, be sure to take some of your old wood to the vendor so that you can lay it alongside their veneers to assure a decent match.)

I spent many hours carefully replacing the hopeless veneer. There is no easy way to go about this. Find a quiet and comfortable desk with very good light. Secure your veneer, a cutting surface (breadboard, cardboard, etc.), x-acto knife (I like the little disposable knives with the “breakoff” blades), metal straightedge, reading glasses and a high intensity light. Use your old wood as a pattern for large pieces. Study your new veneer carefully and choose

sections that closely match the grain pattern, color and direction of the old piece. Cut the new veneer carefully with fresh razor blades making multiple light passes until it separates. Cutting slightly oversized pieces is preferable as it allows for slight misalignment errors when gluing. Trimming of excess material is easily done once the glue has dried. Make damn sure you are satisfied with your new veneer pieces after you cut them. Place them over the old wood, step back and critically evaluate how well they are aligned. If you are not happy, cut another. Once you glue these down, you are committed, so now is the time to make sure you like what you see.

Finding the right glue was a concern. Eventually, I decided to go with “Weldwood” contact cement (alternative veneer glues are listed in the “materials” section above). The label directions seemed reassuring, and the other recommended glues were simply not to be found.

Contact cement is thinly applied to both the substrate wood and the veneer with a cheap disposable brush. Be mindful that the application and curing should be done in a moderate ambient temperature. Don't let your wood sit out in your cold garage before you begin. Both pieces must be absolutely clean and free of dust. After waiting about 10 minutes, the glue is slightly tacky and has a glazed appearance. Don't be fooled: When these two pieces meet up, they will stick like gangbusters. Next comes the moment of truth. You get one and only one shot at this: carefully align the veneer over the backing wood and when you are sure everything lines up properly, join the pieces. Lay a piece or two of writing paper over the veneer and then, using a small, hard rubber (or plastic) roller and lots of force, roll the veneer in several directions to assure good bonding. Then lay the piece on a flat surface and cover again with a sheet or two of writing paper and a magazine or book and finally, apply evenly distributed weights overnight (I used concrete blocks and water jugs). After the glue has thoroughly dried, remove the weights and admire the result. Next, trim away any excess veneer around the edges and then sand the edges to get a nice smooth and continuous appearance. You needn't sand the new veneer surface unless you find small imperfections. Just give it a quick once-over with the 1500-grade sandpaper and the Scotchbrite.

If the new veneer is a good overall match to the shade of the older pieces, do not stain it. If however you must darken it a bit, do so carefully! Apply a good walnut shade, water-based stain very lightly with cheesecloth or better yet, a terrycloth wiping pad. Remember that a little goes a long way and it's best to “sneak up on the correct color” with multiple light applications of stain. Practice on a test piece and don't soak the application pad. Be sure to quickly (seconds, not minutes!) wipe of the excess. Do the whole piece at once to get an even application. Continue the process as needed to get a match. Never use a pre-stain wood conditioner! These are supposed to tighten the grain but they also seem to have the ability to attack the glue. (I had a large bubble form under the veneer after applying the conditioner and I very nearly had to start over. Quick work with my handy rubber roller and some weights saved the day.) After staining, you will have to buff the piece lightly with 600 and/or 1500-grade sandpaper to knock down the raised grain.

My biggest veneer challenge was in replacing the horizontal surface at the top/center of my dash around the ash tray cavity. This section was missing altogether and although flat, required some complex cutting and was not easy to match to the surrounding wood. Nor did it easily lend itself to the roller and weights necessary to assure a good bond, but eventually, ingenuity won out. I did cut this piece slightly oversized and I was pleased at how easily I was able to trim and sand it (after the glue dried) to match the contours of the adjoining wood.

Minor repairs to veneer are tricky. They require that you cut small, irregularly shaped pieces

of veneer in an iterative fashion until they match the scar you are trying to disguise. Always pick a piece of veneer with the appropriate color and pattern first. I found that I had to grip the patch with tweezers as I carved it to size and that I had to start over on more than one occasion. Once pleased with the veneer patch, it can be glued, rolled and lightly sanded to conform to the surrounding veneer. Sometimes a bit of wood filler is necessary to fill small voids. Where color match is a bit off, you may find it necessary to apply some stain with an artist's brush or q-tip. If so, apply the stain then wipe off quickly lest you over-darken the work. Continue this process until a good match is achieved. I am told that experienced restorers are adept at recreating veneer patterns with paints applied with an artist's brush. This seemed beyond my skills, so I did not attempt it.

In some pieces, I left deep imperfections, as fixing them would risk the veneer or my sanity. Besides - they add a little romance! For example, I found a deep (through the veneer and into the hardwood below) burn mark on the passenger doorjamb trim. It was impossible to completely remove. Rather than re-veneer the entire piece, I opted for cleaning it up as best as possible and letting the polyurethane blend and mute the scar. It's still visible, but it's not ugly. One might say that it adds a bit of character or romance. I like to imagine that the burn was made by a heavily-accented European countess in a fur coat who got careless with her cigarette holder as she was being willingly (yet uncomfortable) ravaged by the Earl of Turgidson while they were parked aside a country road in Yorkshire. Oops, there I go again....

Application of Polyurethane Finish

Surgical cleanliness was my watchword for the application of the polyurethane. I chose my den as a dedicated room for brushwork. I kept the room warm; but hours before I was to apply the finish, I closed all doors and windows and kept the forced air system off to avoid stirring up dust that might settle onto wet surfaces. I NEVER sanded or cleaned my wood in the den, only while in the garage. To further avoid contamination, I frequently changed clothing before doing brushwork – especially after sanding. I only used the best, natural bristle brushes and thoroughly cleaned them in mineral spirits between coats and I often discarded them and used new brushes. Also, do not apply the coating to wood that has not been at room temperature for at least 8 hours.

As stated above, I chose clear, gloss, oil-based polyurethane for its durability, longevity, ease of maintenance, and ease of application. I also came to appreciate that it ultimately serves as a strong glue in that it assures no future de-lamination problems provided you apply some of it to the sides and back of the pieces.

Each coat was left to dry 24 hours in my warm "surgical room". Between coats, I sanded with 1500 sandpaper (600 if a blemish needed to be knocked down) and the Scotchbrite, then cleaned with a damp diaper. Don't be alarmed or shy when sanding. It appears to irreparably scar the dried polyurethane, but you will find that the next coat "wets away" all trace of the sanding.

I bought my polyurethane in small 8-ounce cans. After the second or third coat, I threw out the first can (this stuff is cheap) as dried product was forming under the lid and I feared contamination. Always apply the product under a good high-intensity lamp so that you can assure even application and detect missed spots, bubbles, etc. Never shake or stir the product. Using a new or thoroughly clean brush, apply the product in a light and even coat with your final strokes all going in the same direction. A light touch on the final pass should

remove any small air bubbles that form on the surface. You will be relieved at how gravity will smooth out brush marks just moments after you finish brushing. After application, lay each piece flat (wet surface parallel to the ground to prevent running) on a clean sheet of newspaper. When each piece has received its coat, retire. Don't try to go back and brush again a few minutes later as the product will already be setting up, and disturbing it in any way will mar the finish. Fix any blemishes in the next sanding cycle.

Apply as many coats as needed to achieve the look you want. I was satisfied after three or four, depending on the piece. Be patient. Always allow at least 24 hours between coats. If you wait only 4 hours or so (as Minwax suggests) you will find that when you sand the surface, large sticky clumps will roll off the surface (as opposed to a powder) and you'll have some extensive rework to do.

Reassembly

After all the pieces have dried for several days, you will need to reassemble the pieces according to your diagrams, labels, photos, etc. Be sure to polish all hardware (such as hinges, screw heads, etc.) prior to re-assembly and replace any rusted or otherwise questionable screws. Replacement chrome dashboard bezels are available. Wood or bakelite drawer and glovebox door knobs can be refinished in exactly the same manner as the other wood.

Final Thoughts

I had a couple of panicky moments and some rework, of course. Yes, gloss does look a bit more "modern" than the original finish but it is very attractive and durable. Yes, there are some minor imperfections (a week after completing the job I found a minute bit of bristle under the finish of my instrument panel – damn!) and yes, I would do some subtle things differently given the chance to repeat the job. Some of you may choose some major changes in the process such as an alternative finish media (e.g., varnish, wax) or, if you have access to very high quality spray apparatus, it may prove preferable to applying the polyurethane by hand.

Should you choose to personally restore your beloved Jag's woodwork, I trust that, like me, you will find the task to be a great deal of fun and that you too will be very pleased and proud of the final result. Cheers and good luck!