Radio Cabinet Restoration - Part 1

BY JOE KOESTER

When ten people who do radio cabinet restoration get together, there will probably be ten different opinions on what should be done, what shouldn't be done, and how to do it. I don't believe there is any *one best* way to restore or refinish a radio; there are simply many ways to approach it, so I don't claim my methods are any better (or, hopefully, no worse) than anyone else's. I have seen good cabinet restoration work by a number of my fellow collectors, using a variety of techniques—resulting in radios that any collector would be proud to have in a collection. This article documents the methods with which I have had success.

Determination: Of course the first question is whether to opt for just cleaning the radio cabinet, touching it up, or doing a total refinishing job. Most will agree that leaving the original finish is best, if it is of acceptable quality and condition. Sometimes a cabinet that looks as though it will need refinishing will look remarkably good after a thorough cleaning with Go Jo, as described below. If you have had limited experience with stripping and refinishing, don't begin by working on your most valuable and rare radio. It takes several attempts for most radio collectors to get the hang of it. Buy a couple of ratty looking $5 radios at an auction and work on them to hone your techniques. After achieving success with some garden variety sets, then you can feel confident about tackling that special radio that you want to look especially nice.

Clean Up: There are a number of ways to clean a dirty cabinet. My favorite is to go over it with mechanics' waterless hand cleaner—the original white can Go Jo—which I always keep on the workbench. This is an old standby and you also end up with clean hands. The Go Jo even tends to hide scratches. Put some Go Jo on a rag or a paper towel and liberally wipe down the cabinet. (Remove the grillecloth if you can, or place some stiff paper between the grille work and the grillecloth, because Go Jo will probably stain the cloth.) For stubborn dirt or a deteriorated finish use a toothbrush to do light scrubbing, and for more difficult conditions, use Go Jo on 0000 (extra fine) steel wool. But use gentle pressure and motion or the steel wool will cut through the finish. When finished, wipe the cabinet down with dry paper towels and put it aside for a day or two, and the residue from the Go Jo will evaporate. If the cabinet is particularly dirty, you might have to do this twice. If the paper towels appear brown as you wipe off the Go Jo, it means dirt is still coming off. Go Jo is also excellent for cleaning up chassis and the *inside* of very dirty cabinets. After cleaning the dirt off the cabinet with Go Jo, there are a number of "restoring" products that you can try to improve the appearance of the finish, as described below. If the cabinet is not that dirty, one of these may be tried as a first step. Or, if the cabinet looks very good after cleaning with Go Jo, a coat of wax as described below may be all that is required to finish the job.

Restoring Solutions: There are a number of these solutions available, including my personal favorite, which I call Slagle Sauce (equal parts of gum turpentine & boiled linseed oil) in honor of Bob Slagle, who shared the formula. It is important not to let this "sauce" dry. It should be allowed to soak into the finish for 20-30 minutes and then wiped dry. Then after an hour or so, wipe it again. This smoothes out areas that have different soak rates. Another is Howard Restor A Finish, which I believe works like the Mohawk Amalgamator and other similar products. Products of this type typically contain a mixture of alcohol and lacquer thinner. They dissolve some of the original finish and move it around to cover damaged areas. In some cases this works quite well; in others it only removes some of scratches, heat rings and watermarks. (There are a number of products on the shelves and it is *not* my intent to explore or comment on all of them, because I have limited or dated experience with a number of them.) Kramers Antique Restorer is another popular refinishing product. Its secret formula is probably similar to Slagle Sauce, except that Kramers also contains beeswax, which leaves a shiny finish when it dries. Another old standby for hiding scratches is Old English Scratch Remover, which can have limited success on some cabinets. It comes in light or dark tone. Generally speaking, for a scratch in the finish use some matching stain (more follows) to color the damaged wood, and then seal it with wax after the desired color match is achieved. Again the results may or may not be

satisfactory depending upon the cabinet and finish, as well as the degree of damage. If you like what you see at this stage, then all that may be needed is a coat of good quality paste wax, as described in the next section. Let the restorer get thoroughly dry before applying a coat of wax, though.

Waxes: My overall favorite wax is Antiquax, which probably still comes in a blue can and is a fine combination of carnauba and beeswax. I have also gotten good results with Briwax (which I believe still comes in plain and tinted varieties), Classic Car Wax, and Butcher's Wax. Fibber McGee and Molly recommended Johnson's Paste Wax, and that works well, too. Follow the directions, but generally apply a light coat and wait a short while before buffing it off with a soft cloth.

Polishes: After layers of dirt have been removed with Go Jo, some people recommend using a good quality automobile polish. Blue Coral comes to mind. Most of these polishes contain a mild abrasive, will clean the cabinet, and also have a separate agent to shine and protect the finish. Depending upon what you use, you may or may not want to apply wax. For trim or areas that need extra cleaning try "Mother's Mag Polish" which is available in auto supply stores. It contains a very fine pumice or polishing agent.

Touch Up Kits: Wood Medic makes a Handyman's Repair/Touch Up Kit, which essentially allows you to repair scratches, gouges, scuffs and cigarette burns. It consists of a small container of wood-tone pigment powder, which is mixed with a small amount of shellac and denatured alcohol (small container included), and a second small container of graining powder, which is a much darker pigment. Using the tiny brush provided, you can draw a grain pattern in the wood to match the existing pigment. An easier solution here might be a graining pen. (See Graining Pen below).

Refinishing

It is a good idea to take color photographs of the cabinet before you refinish. You might want to bring the completed radio to a show and tell session at your radio club, and having a "Before" picture to compare with the finished product is always nice. Also, once the finish is stripped, you may not be able to recall which trim pieces were lighter and which were darker.

Preparation: When a decision is made to refinish the cabinet, there are several steps to be taken. The order in which they are performed is important. Begin by removing the chassis, speaker, grille cloth, escutcheon, etc., and brush or blow all the dirt from inside the cabinet. (An air compressor is a big help.) I usually do not attempt to re-glue or repair any loose or damaged veneer or cabinetry at this time. Two reasons: first, you won't know the exact color and grain pattern of any damaged or missing veneer until you have removed the old finish. Removal makes for a better match if you must replace some. Secondly, the stripper is harsh, and can loosen some glues, especially recently applied glue. So I repair *after stripping.*

Stripping: There are a number of types of strippers, the most common of which contain methylene chloride. They usually come in two types, an adhering paste and a much thinner liquid. The paste type has the advantage of adhering to the sides of a cabinet as it does its work, rather than running off. That can be helpful when stripping a large console, especially a first coat. In spite of that, I prefer the thinner liquid for most jobs. You might want to purchase both kinds and experiment to see which you like better. Methylene chloride is a hazardous material. There are other strippers that are gentler and more environmentally friendly, but I have had very little experience with them. They tend to take longer to do the job. I have seen demonstrations where a piece of glass was used to scrape off the finish and it worked OK, but not on curved surfaces, and there is the possibility of scratching or gouging the veneer with the glass if you aren't careful. So, I prefer a liquid stripper and steel wool. Get a pair of good fitting rubber gloves. The thin rubber gloves sold in grocery stores for dishwashing are just not adequate. Buy heavy-duty rubber gloves designed for handling hazardous chemicals, available at a good hardware or industrial supply store. You will also need a small can for the stripper (cat food size is great), a paint brush of about 1-inch width, an old toothbrush, one of the small brass brushes designed for paint stripping, a plastic paint scraper, a dental pick, an old credit card, some paper towels, a pack

of extra fine steel wool (0000), and some clean rags. Because of the hazardous chemicals involved, do this outside where there is good ventilation. If you don't want to stain your driveway, get a large plastic tub or a heavy plastic sheet to catch the drips. It might be good to wear goggles in case you splash some stripper in your eyes.

Application: Apply the stripper to one area of the radio at a time. Don't slop it all over because it will run, and sometimes the run marks will show where the stripper went over the edge and down the side and was allowed to dry, rather than being worked to remove the finish. If you do get a run, immediately wipe it off with a towel or rag. On a console I usually do one side at a time, being careful to keep the stripper confined only to that one side. Then I do the top and front, the base, and whatever else is needed. Apply the stripper, following the directions on the can and test it with the paint scraper. When the finish loosens, the idea is to remove as much of it as possible with the flat paint scraper and deposit the old finish on a paper towel. (You'll use a *lot* of paper towels!) Use the credit card to get into tight places. At this point the goal is to remove the majority of the old finish, so don't worry about small patches or tight places. Usually you will apply a second coat after you have initially worked one coat into the radio.

Interim Cleansing: The next step is to put some clean stripper in the little can and apply it to a small area. Dip the steel wool in the stripper and gently work the remaining residue loose from the radio. For stubborn spots or hard to reach places, use the toothbrush, brass brush, and even the dental pick in small crevices. Be careful with the dental pick—it can easily scratch the wood and damage the veneer.

Wipe Down: Take more fresh stripper, dip a clean rag (old T-shirts are great), and wipe down the entire radio. You can easily see how much residue (stain, wood filler, lacquer, dirt, etc.) you are removing on the white T-shirt. Do this several times until the rag is generally clean and all the old finish is gone. Now, set the cabinet aside and let it dry out and breathe for a day. Stripper can loosen up glue joints and veneer, particularly if they were not secure before you started, so make a list of any spots that need to be re-glued. (More on that later.) When you have finished stripping, take all the old towels, rags and residue and dispose of them carefully. This residue is highly flammable! Don't *ever* keep such materials in the house or you risk unintentional ignition and fire. A pile of solvent-soaked rags can *easily* lead to spontaneous combustion. One approach: on a sunny day with little wind, you can lay the rags and towels out on the grass. After a few hours, most of the solvents will have evaporated, reducing the danger of spontaneous combustion when you put the rags and paper towels in the trash.

Examination: Now take a good look and see what steps remain. Did you remember to make a diagram or take a picture showing the variations in trim finishes? You should always strive to determine precisely what the original finish looked like so you can attempt to return the cabinet to near original condition. If you can find a color photo of the radio in original condition, or if you have a friend with the same radio in good condition, that will help you determine whether, for example, the vertical trim pieces were originally dark or medium brown or black. And, what about the base? It is usually black or very dark. There is frequently a piece of trim around the top of the cabinet that is a contrasting color. Getting the colors right on the toning and detailing of the trim has a major impact on how authentic the finished product will look (see below).

Repair: Most vintage radio cabinets will have loose joints, trim pieces, bases, loose or missing glue blocks, and damaged or missing veneer. All are repairable. The first step is to secure the cabinet by re-gluing all loose joints. I use a good grade carpenter's glue and use a thin metal strip and an Exacto knife to work glue into joints. I also keep on hand a couple of thin pieces of aluminum cut from a roll of fascia and soffit material, and one or two of the blanks used to cover expansion access points in old computers. These are handy for inserting between the clamp and the piece being reglued. Even a piece of veneer will work well, but be alert that no portion of it dislodges under the veneer you are attempting to secure or there will be a bump under the veneer!

Securing Voids: Sometimes you find a cavity, a chunk or piece of wood missing, or perhaps a space or void between two otherwise sound cabinet joints. Rather than just fill the void or crack with glue, make it stronger and more secure. Take a mixture of common sawdust from the shop and mix it with your woodworker's glue. Strive for an easy-to-work-with consistency—not too dry, and not overly runny. Force the material into the cracks or voids and pack it in with a small putty knife or an old disposable popsicle stick. For a deep hole in, say, a cabinet base, drive a few small nails or screws in the void to reinforce it before adding your repair material. Do not quite fill it to the surface. If it is a large void, fill it in two or more steps. It will dry more quickly if it is not too thick, but succeeding coats will work well. When it is dry (and it may take a couple of days before a thick patch is completely dry), fill the remaining small void with regular wood filler. Remember not to use the sawdust/glue to fill right up to the surface. Leave room for your plastic wood or other wood filler that can accept stain! The glue and sawdust mixture will not take stain; the wood filler will.

Securing a loose joint in the base of a cabinet. Force the glue-sawdust mixture in with a thin tool.

Filling Holes: Wood fillers such as Plastic Wood are easy to work with and can fill nail holes, very small voids where veneer is missing, cracks, seams, etc. Plastic Wood is soluble with acetone. You can reclaim a dry can of filler or thin a hunk of filler so that you can literally paint over a small void. Most wood filler products come in a natural finish or come tinted with colors such as walnut, mahogany, or oak. Try an experiment on a scrap piece of wood with the wood filler and stain you intend to use to ensure that the filler will accept stain, or you might have a light spot that shows up like a blinking light. I particularly like a brand of wood filler called Wunderfil. It is exceptionally easy to apply as its base material is very fine. It sands and takes stain exceptionally well. It covered all the veneer repair cracks and joints in a Philco 90 speaker grille repair.

Types of Clamps: Work the glue into one area of repair at a time and use clamps to pull it all together. To do cabinet work successfully, you must have a big assortment of different sizes and types of clamps. There are a number of good clamps on the market, and you can never have too many. The big spring clamps sold by home centers, plastic with about a bite of 1 or 2 inches, are inexpensive and work well. A variety of steel C-clamps is handy to have, and can apply the greatest pressure when needed. Large wooden woodworker's clamps can help in some situations.

Pipe clamps are a necessity. These come in two pieces screwed onto a ½-inch or ¾-inch piece of threaded galvanized water pipe or black gas pipe. Be sure to buy a couple of pipe couplings and a couple of extra sections of pipe to extend the clamps for the occasions when you need to clamp a console cabinet from side to side or top to bottom. (The pipe sections should be threaded on both ends if you intend to extend the clamp.) In recent years a clamp with a pistol grip has appeared, and I find these invaluable. You will need several of these with a 12-inch capacity and a couple with even greater distance. These are among the easiest of the larger clamps to use. They come in small versions, too. One of my absolute favorites is the Pony Band Clamp. It consists of a long piece of strap and a securing block with a ratchet. The strap clamp can be used on

To repair console cabinet like this one you need an assortment of clamps.

curved surfaces, can wrap an entire console, and can easily be used to hold down a repair in the middle of a flat expanse of cabinet (like the middle of a console side) when nothing else will fit. Just put a piece of wood directly over the repair area and ratchet it down tight, using the strap. Sometimes extra wood is needed and you can move the ratchet to a different area to get a better bite and more pressure. An alternative is a heavy weight right over the repair. That will work well in some situations.

Glue Blocks: Most radios have a series of glue blocks, which are simply small blocks of wood glued in place in areas of the radio cabinet needing additional support. Consoles usually have a few under the shelf holding the chassis, and down on the base helping secure the lower part of the radio. Glue blocks are nearly always found along curved surfaces (cathedral arches, especially) to provide necessary support and cabinet rigidity. Sometimes these are loose or missing. Glue them back in place and replace missing ones. The manufacturer put these blocks there for a reason!

Wax Paper: Remember that most glues will *not* take a stain, so you don't want glue on surfaces to be stained. Assuming you are using a wood block or small piece of plywood underneath the clamp to apply pressure to the repair area, be sure to put a piece of wax paper between the block and the repair surface. If you don't, most likely some glue will seep from the joint and will glue the wood block to the cabinet. After applying the glue, position the block and clamp and give it a preliminary tightening. Then back off to see what has happened. If it was positioned properly, you will probably see some glue squeezed out of the joint or repair site. (Glue oozing out means there should be sufficient glue in the repair site to secure it adequately.) Use a damp paper towel to remove as much of this excess glue as you can, and replace the wax paper, with a fresh sheet, if necessary.

Veneer Repair

This can be one of the most daunting and intimidating aspects of cabinet repair, and it really need not be. I've included pictures showing a small veneer replacement job, a larger one on a Zenith 9-S-262 console, and a complete re-veneering of a Philco 90 cathedral.

New Veneer: New veneer is definitely easier to work with than salvaged used veneer. A rolled-up sheet of good quality walnut veneer measuring two feet by eight feet can be purchased at a woodworking shop for about $55. There are many benefits of using new veneer: it is clean, solid, has matching grain patterns, and has a backing that will keep it from splitting and separating when you cut it or bend it. When you are cutting new veneer (or any veneer for that matter), use a T-square and cut a very straight and clean edge. Clean cuts will make butting pieces or matching so much easier, for example, for a repair like a new top or side on a cabinet, or the arched top of a cathedral. There is a possible disadvantage to veneer with backing. That occurs in situations where you are piecing in a repair and find the new veneer is thicker than the original, which happens quite often. One of the thinnest veneers I ever encountered was on an 18- tube Midwest console. It

was paper thin, about half the thickness of normal veneer. In fact, it was so thin that the factory had sanded through a spot on the side before the final finish had been applied to the radio, and the flaw had been disguised.

Repairing an Entire Surface: I put a new top on a Kennedy L-61 console and was quite pleased with the results. (See *Radio Age*, October 2007, p. 9.) The top of the cabinet had some little curves that were tricky. But by following the methods below, the job was doable. First, remove any old remaining veneer. One of the easiest ways is to use a heat gun. Places like Harbor Freight sell heat guns for about $20, and they are also excellent for shrinking the heat-shrink tubing used in chassis repair—much better than the old soldering iron! Get a couple of metal paint scrapers or drywall knives of different width. Insert the scraper under the edge of the veneer as you apply heat. Often the veneer will peel off in one piece. Save it – that veneer can be used for repairing other radios. (You can never have too much veneer.) Once the veneer is off, sand the surface to remove any traces of old veneer, as well as glue residue. I like 100- grit sandpaper because it levels the surface nicely and leaves it rough enough for glue adhesion. A perfectly smooth finish is not necessary, so stay away from 220- or 320-grit. If the surface has indentations or holes these must be filled with good quality wood filler (like Plastic Wood) and sanded smooth, or the indention or imperfection might show from beneath the new veneer. Cut the veneer slightly larger than the piece needed. I usually cut mine ¼ to ½ inch larger than the piece to be repaired. If you are a beginner, start with a ½-inch extra border. It is easier to trim off excess than to deal with a piece that turns out to be a tiny bit too small. Before you cut the veneer look at the old veneer you have removed to make sure the grain in the replacement is running in the same direction as the original. Now, thoroughly dust the surface to be glued—the air compressor works great here—and choose your glue. For most of my repairs I use Woodworker's Glue. On the Kennedy L-61 I applied this glue to the veneer, placed it on the top of the cabinet, applied pressure, and smoothed it out. Then I carefully *removed* the veneer to look for places on either surface where the glue was missing or did not adhere properly. I applied more glue in the area of these voids and smoothed it around with my finger. You can also use a small straight edge to level the glue. Now place the veneer back on the cabinet and position it so that a little extra is sticking over the edge. If there is one long straight edge, like the back of the cabinet, line up the new veneer with that edge and you might not have to trim it on that edge. But glue will ooze out and will have to be cleaned, too, so you can probably leave a small overlap all around. With the veneer in place it is essential that the new veneer be bonded solidly to the old surface. I use a small roller with a handle and roll it across the entire piece, both with the grain and against the grain. Work from the center out. In the case of the viscous Woodworker's Glue this forces the excess glue and any air bubbles toward the outside edge. You can also use a flat metal paint scraper or drywall knife (keep a 1-inch, 2-inch, and 4- or 6-inch scraper in your shop) and draw it across the veneer at a 45-degree angle to help compress any voids and move excess glue away. By this time several minutes will have elapsed. Remove any excess glue that has oozed out along the edge. But don't compromise the edges by pulling on them or you will have glue to clean up later. Now you must, in the case of Woodworker's Glue, clamp the veneer to the cabinet. Again I use the Kennedy L-61 as an example. I used a piece of ¾-inch plywood slightly larger than the cabinet top and used four pipe clamps to secure it. This large surface required uniform pressure throughout, and the ¾-inch plywood was sufficiently thick and strong to remain completely flat. A thinner wood might have bowed in the middle and resulted in a section of unsecured veneer. Had that happened it might have been possible to reattach the glue afterwards using an iron set to a medium to high heat. Use a thin cloth between the iron and the veneer and *keep the iron moving* to avoid scorching the veneer. A bubble in a sheet of veneer can sometimes be repaired by making small slits in the veneer and injecting glue, but if it is done right, that's not necessary. Be sure to use little wood blocks under the other end of the pipe clamps to keep from damaging anything as you tighten them.

Wood Blocks and Strips: As an aside, you can never have too many small wood scraps when gluing cabinets. I have pieces of ¼-inch plywood one to four inches long, two by four inches, some longer strips, and varying sizes of ¾-inch lumber (several pieces of varying lengths of 1 x 2, 1 x 3, or 1 x 4 lumber are great). I use a lot of paint stirrers and small smooth molding similar to screen door molding. The stirrers and molding and plywood will bend to conform to curved surfaces (like a cathedral) and can be invaluable

in gluing these surfaces. Don't forget the wax paper where applicable.

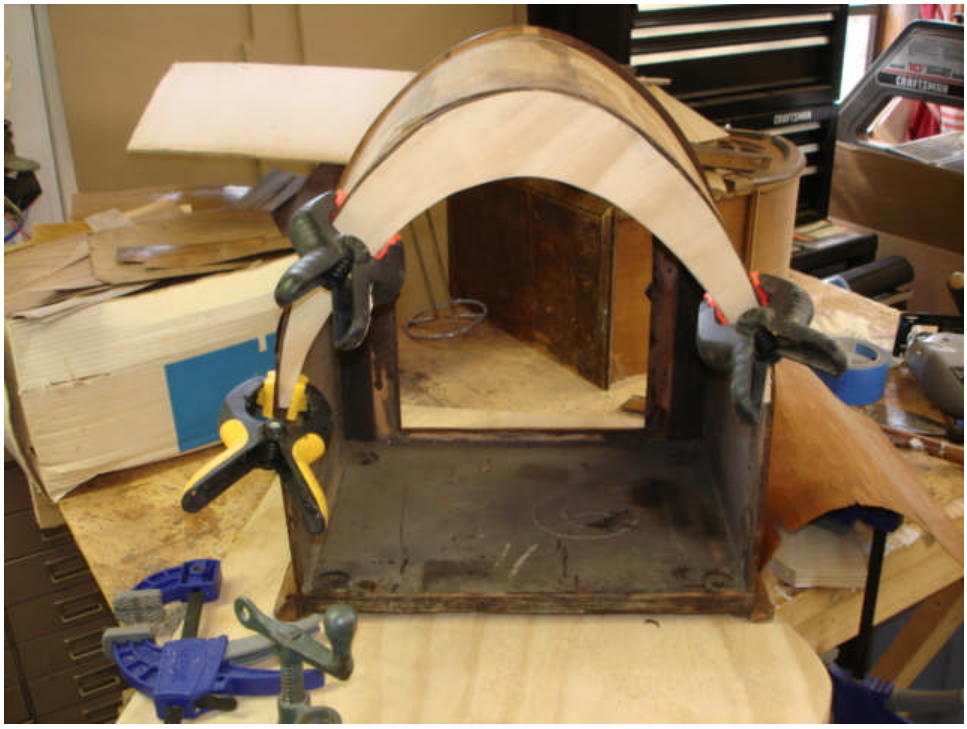
Trimming and Clean Up: Now that the clamps and blocks have been removed and the veneer is solidly affixed to the cabinet, it is time to trim the edges and remove the excess glue. The latter can be tedious. Take your time or you can create additional problems. I use a new and very sharp Exacto knife, occasionally a veneer cutter, and sandpaper. Replacement Exacto knife blades are cheap when bought in quantity. A dull blade can lead to sloppy cuts and a botched job, so use a *new* blade. Remember that veneer is harder to cut across the grain. Make multiple cuts rather than trying to cut through with brute force in a single pass. Veneer cuts will tend to follow the grain, sometimes going off at an angle where the cut is not intended to go. So cut *slowly*, with multiple cuts in the same groove. In trimming excess veneer I generally leave about 1/8 inch of border because it can easily be sanded down. Use medium grit sandpaper (150-grit) and use a sanding block or a piece of wood behind it, and carefully sand the edge of the veneer, keeping the sandpaper perpendicular to the veneer. If you sand at an angle with this grit you can bevel the edge and remove too much veneer on the top surface. As the sanding process approaches the edge, you will notice a thin layer of residue next to the edge. Surprise! It is the last vestiges of the glue. It must be removed before stain can be applied. Remember, stain will not take to most glues. There are some new glues that are purported to accept stain, but I have not used them. The sandpaper has probably removed about all the glue that it will, and additional sanding at this time is likely to remove more veneer edge than desirable. Very carefully use the Exacto knife, and scrape and pick at the glue. A very slight cut along the glue line will often give the purchase necessary to strip away that thin layer of glue. Continue this process all along the edge and remove the remaining glue. When finished, sand the newly veneered surface lightly with 150-grit, and then 220-, and finally, 340- or 400-grit paper. Do the same to the edges, and everything should be smooth and ready for staining. This procedure is the one I used with success on my Kennedy L-61. Now let's consider another task—replacing a large piece of veneer on a totally different type of cabinet.

Re-veneering a Cathedral: The procedures and techniques are much the same as with the Kennedy, but a cathedral poses a few other challenges. We'll use another type of glue on the example here, a Philco Model 90. One of the things I found that made working with the cabinet much easier during the re-veneering process was to screw the base to the workbench. I used two inch drywall screws and big washers and went through two of the four holes in the cabinet base that are used to secure the chassis to the cabinet. Large C-clamps might have worked, too. I have two Model 90s, one in fair to good condition (it probably needs to be refinished), with new molding around the base that needs to be finished. The other 90 was in bad shape. About a quarter of the veneer was missing on the top/side and the remainder was loose. And, the wood arch at the back of the cabinet was missing. I stripped the set and thought originally that I would repair the veneer, but the glue had lost much of its adhesion. A lot of the veneer would have to be re-glued, and there was a great deal of old glue residue under it. Part of the grille was also broken. So I chose to re-veneer the cabinet.

The arch at the top rear of this Philco 90 cabinet needed to be replaced.

Arch Replacement: I first tried to trace the arch from the other Philco 90 in place, but eventually decided to remove it. Because it was loose in about half its area, I used paint scrapers to separate much of the remaining joint, and slipped a hacksaw blade in to cut the half dozen nails holding the top to the arch. I then made a pattern of the arch from a piece of heavy cardboard and made certain it would fit the other cabinet. I bought a piece of furniture-grade plywood from Home Depot—about $7 for a two-foot square piece—enough for several arches. After cutting it out I sanded the edge with a belt sander to smooth it. I might add that when I transferred the arch pattern to the plywood I made the two tails, or lower edges, slightly wider and longer than the pattern to allow for any variations between the cabinets. That turned out to be a good idea. The subveneer was composed of two layers, and there was a split at the back that needed to be repaired when the arch was installed. I tried the arch in the cabinet under repair, and, of course, it was not a perfect fit. I got one end (or tail) to fit close to the existing side support on the cabinet and clamped it in place. Then I worked up the cabinet, applying clamps every so often. When I reached the other tail I was able to mark it for a tight fit, and removed it for trimming. Replacing the arch and testing again, I was able to glue it in, applying glue to one surface, fitting, removing, and applying more glue where needed. Starting at one side I clamped the arch and moved around the circumference of the cabinet applying clamps as I went . I also repaired the split sub-veneer, temporarily clamping it in place. When it all fit I drove a half-dozen small nails through the sub-veneer (counter-sink them when the glue is dry and fill the holes), and secured the arch. I then removed one clamp at a time and placed blocks of wood under them to spread the pressure of the clamp over a wider area. On the curve a paint stirrer was sufficiently flexible to clamp at one end, and I moved up along the curve, clamping in several places to spread the

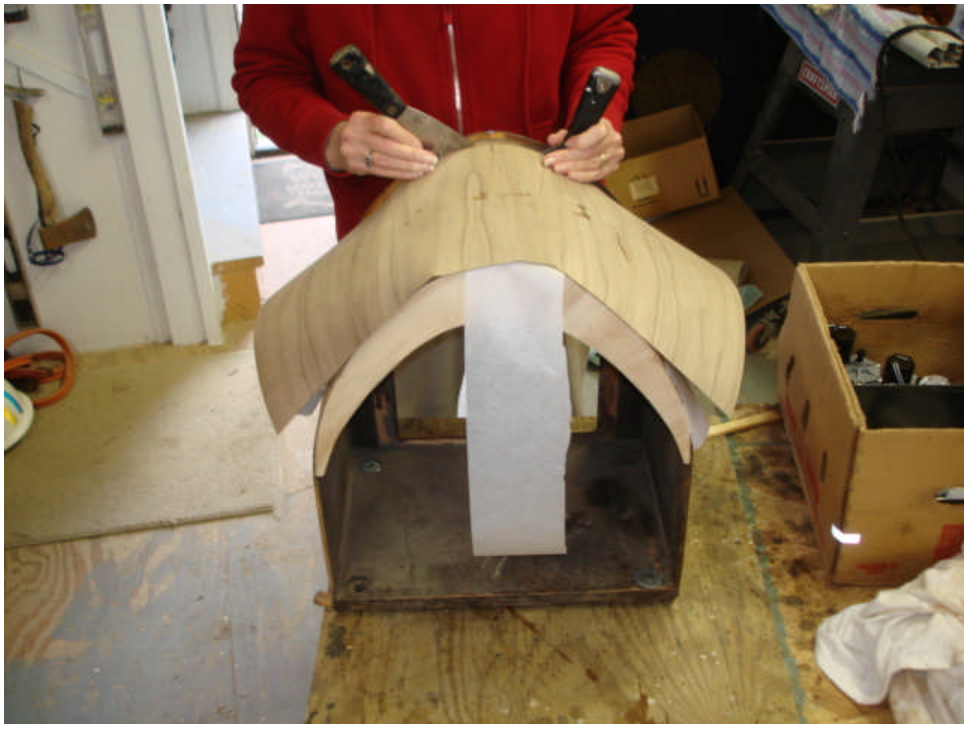
In this photo the replacement arch is being fastened to the top of the cabinet.



The replacement arch is now firmly attached to the top of the cabinet, using tiny nails through the subveneer.

pressure. Twenty-four hours later the clamps were removed and the cabinet was much sturdier. Now that half the cabinet was secured and repaired I still had the front of the cabinet to deal with. Using a mallet and a block of wood, I drove the cathedral front loose from the sides and top, leaving it attached at the bottom, by three nails.

Veneering the Cabinet: I carefully sanded the entire cabinet, removing the old glue residue. I used 100- to 150-grit sandpaper, remembering that a smooth surface is not necessary, but rather, makes a good base to secure the glue. After I wiped and blew all the dust off, it was ready to veneer.



Here I am beginning to attach the new veneer to the top of the cabinet.

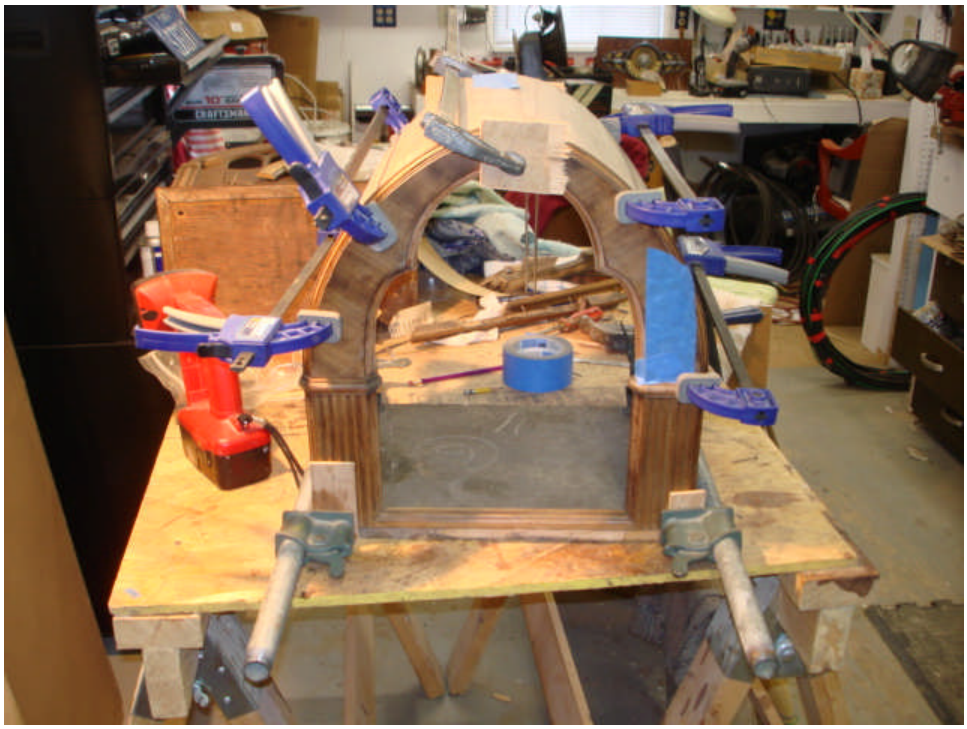
A Different Glue: Because I was dealing with a large area involving a significantly curved shape, I anticipated that it would be difficult to apply clamp pressure over such an area. Accordingly, Woodworker's Glue would not be a good choice. I purchased a small can of Weldwood contact cement for this job. With this adhesive both surfaces get coated, and are allowed to dry before the two surfaces are mated. (A similar type of glue is used to install new grille cloth.) Once the two surfaces touch, they are very difficult to separate. I had a bad experience with this type of glue years ago when I was reattaching piece of veneer to an E. H. Scott Warrington cabinet. That piece of veneer ran from top to bottom on the front of the cabinet and was about four or five inches wide. I started at one end and I was off a quarter inch at the other. I had to destroy the veneer to get it off. This meant two new pieces of matching veneer on this cabinet front and a lot more work! On the Philco 90, observing the former grain direction, I cut a piece of veneer a little over 11 inches wide and 24 inches long. I found and marked the center-point at the front of the cabinet and marked a corresponding point on the veneer so that I'd have an approximately equal area on both sides to veneer with two more pieces. I cut three pieces of wax

Rolling the veneer to eliminate air bubbles between the glue and the veneer and ensure a tight bond.

Trimming the excess veneer from the rear of the cabinet.

paper as deep as the cabinet. One piece, about three inches wide was on the very top of the cabinet, and two large pieces, barely under the edge of the top piece, continued down the sides. You will need help to get this veneer on the radio properly. One person can hold it in place while the other positions it and rolls the veneer onto the cabinet. We placed the veneer on the top, matching the center points, and made sure it was either even with the front of the cabinet or extended just beyond it. Then, in the moment of truth, we removed the small piece of wax paper and applied pressure to the veneer. We rolled the veneer with the roller and the paint scraper blades and slowly removed the wax paper from one side while rolling, pressuring, and scraping the new veneer as we went. Then, the same on the other side, and the big piece was on. The two lower pieces were applied the same way, and it looked good! Meanwhile, we still had to deal with the cabinet front that was attached only at the very bottom with three nails. I neglected to mention that I removed the three base trim pieces from the cabinet—the veneer goes under the two side pieces. So, the front was carefully removed, the veneer edge was sanded on the front, and the excess veneer was trimmed and sanded from the rear. The front of this cathedral has a groove cut in it, into which the cabinet sides fit. There was a good deal of old glue remaining in the groove, plus some old veneer scraps. A few passes with a Dremel tool using a small cutting blade like a dentist's drill made fast work of this, and then the groove was sanded and blown clean.

Assembly: This was a time-consuming chore. I dryfitted the front to the rest of the cabinet several times to ensure a good fit. Because I had used new veneer, it was slightly thicker, and did not everywhere fit nicely in the groove in the cabinet front. I sanded the inside of the front edge of the cabinet to thin it, and got a good fit. After applying glue to the mating surfaces, I fastened clamps around the radio and watched for glue seepage, removing it with a paper towel as it appeared. Then I repositioned the clamps, starting at the bottom, and worked my way back to the top. By applying even pressure it came together well.



Reattaching the front. For this operation, *lots* of clamps are required.

Another view of the process of reattaching the front.

Since I intentionally placed most of the glue on the *inside* edge of the front's groove, it seeped down *inside* the cabinet rather than oozing onto the new veneer. I removed the clamps the next day and the old Philco was rock solid.

Repairing the Grille: In this example two parts of the grille were damaged. The under-layment or sub-veneer, as well as the actual veneer, were missing in spots. First, I had to re-glue the delaminated grille pieces together and achieve a stable grille before I put the ifinal veneer on. In my scrap box I found pieces of subveneer that were the right thickness and held them over the front of the grille while outlining the shape on the backside with a pencil. Using scissors, I trimmed the new under-layment to a close size, cut it in to match the existing under-layment at either end, then glued and clamped it in place. Some hours later I repeated this process using some of the Philco 90 veneer salvaged from the top. It was somewhat bigger than needed. I used my trusty Dremel tool with a rotary sanding disc to trim it to size. When using the Dremel, use the lowest possible speed (mine has a variable speed control) and clean the grille pieces lightly, removing old glue residue, excess subveneer and a small amount of the new veneer. Then use a piece of 150-grit sandpaper to shape it to the proper contour. If the glue joint was off on the sub-veneer, add a little wood filler (not grain filler) to restore the original contour. After getting close, use 240-grit paper to smooth to the final shape. Also "finger in" a small amount of wood filler in the veneer joints on the grille so that when it is sanded down, it is perfectly smooth with no voids.

Repairing the grille. Here again, it is essential to have enough small clamps on hand.

Using Old Veneer: By this I mean veneer removed from an old radio cabinet—a valuable source of repair veneer. The more veneer scraps you have available, the better the chance of getting a good grain match and cutting a piece in to replace a damaged section. Also, recycled veneer comes in many different thicknesses and that provides more options. Years ago I wrote an article on veneering for the *MAARC Newsletter* entitled "Fear of Veneer – Part One;" however, Part Two was never completed. In that article I

mentioned using the bathtub and warm water to soak veneer overnight and remove it from the underlying wood. That does make the bottom of the bathtub both slippery and sticky and may leave stains to be scrubbed off. So, other options may be better. I have left old consoles in the back yard in the rain, but the neighbors might not appreciate that either. Regardless of where and how you obtain old veneer, it is invaluable.

Zenith 9-S-262 Repair: I got this cabinet (less radio and speaker) at the AWA Meet in Charlotte in 2009. Since I had a Zenith chassis and speaker, this was what the doctor ordered, especially since it was a tight cabinet at a fair price. It was basically a sound cabinet that had been stripped and some loose veneer re-glued on the bottom sides, but it had several medium-sized pieces of veneer missing. The cabinet had also a light coating of clear finish, probably lacquer. After stripping it and cleaning it I glued the loose veneer and joints and set about using some old veneer and some new veneer to replace the damaged areas. On one side there was a piece missing, about an inch wide and nearly two inches long. I found a piece of used veneer (from the Philco 90) with a similar grain pattern and chose it for this repair. I first marked the approximate limits of the damaged area on the cabinet with a pencil to know how far I had to cut in the new veneer. Then I taped the new veneer over the damaged area on all three sides with the good old blue masking tape. Using an Exacto knife with a new and very sharp blade, I started at the furthest point in from the back and cut an irregular and somewhat triangular piece of veneer, cutting through both pieces of veneer, the new piece and the one beneath it. I repeated it on the other side, making the cut irregular in an attempt to simulate natural grain patterns. *Never* cut a square patch of veneer—it will stand out like a sore thumb. After removing all the tape and the new patch, I removed the old veneer under the cut. Carefully using the knifepoint to clean near the limits of the cut, I then sanded and scraped the glue residue and fitted the patch. It was nearly a perfect fit, and with a light touch of sandpaper to one area, it fit perfectly. I applied the glue, wiped it off, removed the patch, added a touch more glue, applied pressure, wiped off the excess, placed the wax paper and the wood block, clamped, and waited. This turned out to be an excellent patch, barely visible. The two areas on the other side were done the same way, but with new veneer. The procedures were identical, but I ended up with virgin never-stained veneer that really stood out. One more little patch on the bottom used old veneer that was too thin so two pieces of veneer were put in the void, one on top of the other. Obviously the original veneer was joined at several places on the cabinet. Along one junction I found a spot where the veneer was starting to lift off. I carefully placed some glue under both sides with my thin metal strip and Exacto knife. Pressure was supplied to force out excess glue, it was wiped down, and wax paper, wood block, and the Pony Band Clamp tightly secured this repair in the middle of the side. More veneer was loose along the very bottom of the cabinet, and an application of glue, wax paper, wooden block and the band clamp fixed that, too. When these steps were completed, I checked the joints around the patches and carefully removed any residual glue. I took dark wood filler that was thinned (add some Acetone to thin it) and worked it into the joint. After drying it was sanded smooth,

This Zenith cabinet needed veneer patches. Here I apply a piece of scrap veneer larger than the damaged area and then cut through both pieces with the Exacto knife.

and the entire cabinet was sanded lightly with 150-grit and then 320-grit sandpaper. The cabinet was now ready for staining.

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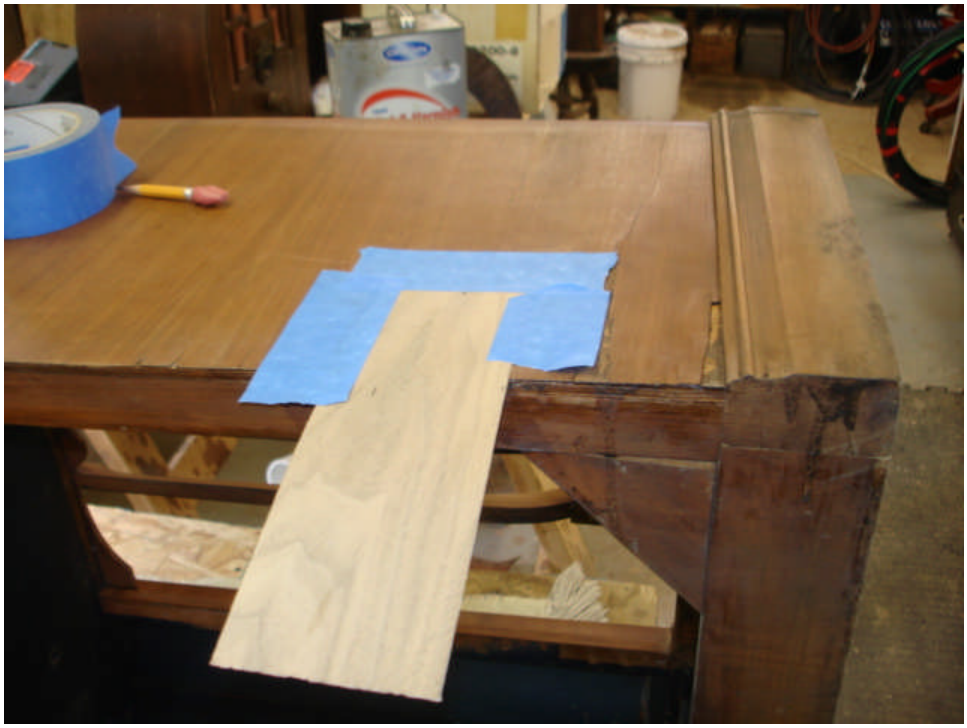
[Continued in Part 2]



When cutting a patch, tape a piece of scrap veneer over the damaged spot that is larger than the area to be patched, and cut through both the new veneer and the old veneer underneath. Always make triangular patches--never rectangular ones.

These veneer patches show now, but when the cabinet is restained and a graining pen is used, they will blend in well.