

# Summer 2012 SARS Newsletter

## Southeastern Antique Radio Society

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Caution: Performing repairs on radios could be dangerous. SARS assumes no responsibility for accidents resulting from any information contained in this web site or newsletters.

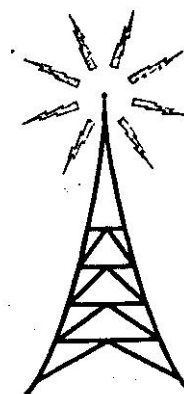
### General Information

Southeastern Antique Radio Society

113 Laurel Ridge Drive

Alpharetta, GA 30004

<http://www.sarsradio.com>



### Club Officers:

President: Jim DelPrincipe

Vice President: Roddy Pearse

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Newsletter Editor: Mark Palmquist

Secretary: Mark Edwards

Treasurer: Tom Knutson

Webmaster: Rich Rodgers

[sarsradio@earthlink.net](mailto:sarsradio@earthlink.net)

**Come to our monthly meeting! (2<sup>nd</sup> Monday of each month):**

Check <http://www.sarsradio.com> for map and details. Ryan's has closed so we are currently seeking a new meeting place

**Next Meeting: Monday, August 13, 2012**

Show & Tell Topic: TBA Discussion: TBA

Location TBA See [www.sarsradio.com](http://www.sarsradio.com) for updates

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Alpharetta, GA 30004

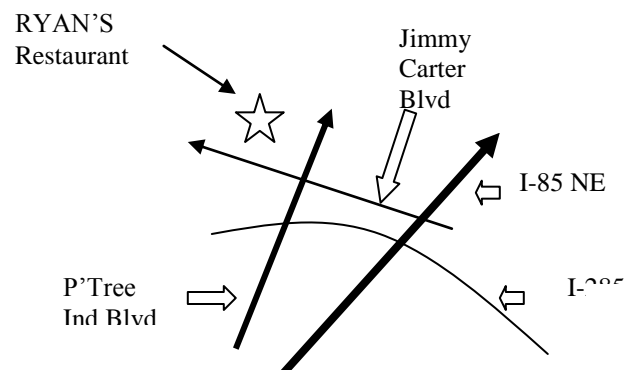
**JOIN SARS!** Dues are \$16 per calendar year. Join after June 30 and dues are pro-rated to \$8.00 for the remainder of the year. Send payment to the SARS address above or to PayPal at [payments@sarsradio.com](mailto:payments@sarsradio.com).

**SUPPORT YOUR CLUB!**

The Southeastern Antique Radio Society meets on the second Monday of each month at RYANS Restaurant, 7045 Jimmy Carter Blvd. Norcross, GA 30093. Meetings start at approximately 6:30 PM. Most attendees arrive early and eat before the meeting. In addition to club business, meetings have a “Show and Tell” session where members bring in items to display and discuss. All are encouraged to participate in this activity. See the monthly schedule elsewhere in the newsletter and the map below.

**ANNUAL DUES ARE  
NOW PAYABLE! ONLY \$16!  
JOIN OR RENEW TODAY!**

**SARS RADIO CLUB**



# Methods and Sources for the Cosmetic Restoration of Suitcase Portables

Or

## Are Radio Collectors Mostly Harmless? A Study of the Influence of Vacuum Tubes on Psychopathology

By

Michael Klevickis

*Radio restorers need a credo, a sort of moral mission statement defining who we are and justifying what we do. I have blatantly borrowed one from the great Piero Martini: Some said it couldn't be done. Some said it's too stupid to do. We said, "We'll do it anyway!" That's us, The Southeastern Antique Radio Society!*



**Figure 1 The Stromberg Carlson AWP-8 – Cadillac of the Suitcase Portables**

From the early 1940's until the 1960's Zenith Radio Corporation built a series of multi-band, tube, suitcase-style portable radios aimed at the high-end of the market. Hallicrafters came out with a competitive model in 1953, then RCA in 1954 and Stromberg-Carlson in 1956. All of these radios used the same tube set and similar circuitry. These sets, known as Zenith Trans-Oceanics, Hallicrafters World-Wides, RCA Strato-Worlds, and Stromberg-Carlson AWP-8s, have become some of the most collectible of all radios.

There are good reasons for their iconic status. They were well made, expensive, never built in large quantities (especially the Stromberg-Carlson), esthetically attractive, and marketed to the well-off adventurer-sportsman. They are saturated with history. Although the majority of these sets never traveled farther than a wealthy man's library table, one can easily imagine one being listened to in WWII Europe, a base in Korea during the war, on a yacht in the Atlantic, or on a rubber plantation in Viet-Nam. They were found in all these places and more.

Because they were well made to begin with, these radios are quite easy for the restorer to work on. (The only exception might be some of the capacitors in the tuning/band selection sections of the Hallicrafters and Stromberg-Carlsons which compel one to consider taking up a second life as a watch maker or one of those recluses who build ships in bottles.) With the exception of the 1L6 tube (which is still available as NOS but getting harder to find and a bit expensive) and to a lesser degree the 50A1, all the parts needed for a complete restoration are still available. And, even in the case of the 1L6 and 50A1, there are adequate substitutions and electronic alternatives available. SAMS still sells circuit diagrams and alignment specifications for these sets. And, although the original Eveready 752 or Zenith 985 A/B battery has long been out of production, there is a great A/B battery pack utilizing standard D-cells available from James Poitivent (darbycircle@aol.com) that provides great battery life and lets you use these radios in the manner for which they were designed, as portables.

If one needs any other excuse to buy and restore one of these large multi-band portables, they are just beautiful. (OK, there is an exception.) The design of the Stromberg-Carlson AWP-8, with its five frosted glass-like horizontals set above those four gold centered knobs and two large Taylor weather instruments could compete with the best of the French designs. The large black slide rule dial surrounded by gleaming chrome or brass of the Hallicrafters World-Wide is restrained elegance. The cast aluminum and polished chrome grill of the RCA Strato-World has the esthetic exuberance of the American cars of the mid-1950's.



**Figure 2 The Brown Leather Transoceanic 600 Series**

Then there is the Zenith Trans-Oceanic. Don't get me wrong. I love T/O's. If it had not been for Commander McDonald and Zenith Radio we would never even have had this class of radio. They have a history; and every great event in this country's history from WWII to the Space Age was heard of over a Trans-Oceanic. I own some Zenith Trans-Oceanics and like them. But Zenith, always a conservative company, had its styling stuck in the execrable 1940's. If the faces of the Hallicrafters, RCA, and Stromberg-Carlson reminded one of the '56 Packard Caribbean or the '57 Cadillac Eldorado, that of the Zenith reminded one of Chrysler's cars of the late forties and early fifties, perhaps a Dodge, before they hired Virgil Exner, and were designing cars for old men who were still mad at FDR and railed against kids and their rock and roll. I know, I now risk having my shop stormed by maddened T/O cultists armed with

sharpened voltage probes and large charged capacitors. But the Trans-Oceanic looks like it was styled by an engineer who wore a pocket protector. It probably was.

Every radio restorer or collector should have at least one of these iconic radios.

(Additional reason to collect these radios: They are portable! That means when your wife curiously asks: "Just how many radios DO you own?" You can innocently claim ignorance and move them around a bit, ingeniously hiding evidence of your most recent purchase!)

That said, one has to acknowledge that the very newest of these radios are almost as old as I am and the early ones are even older! Understandably, anything that old has accumulated a number of bumps and scrapes, as my body insists upon reminding me. I admit that a certain patina of age does add a degree of dignity to a man, for example my dueling scar from that "incident" in Heidelberg (Barons can be so touchy about your use of their wives). However, I prefer my restored radios not to show the scrape from an encounter with an unsupervised exploring child or the stain where some dim witted guest left her cocktail glass. Thus, the need for cosmetic restoration.

(I have considered, rather than spending days restoring these things, just leaving the radios unrestored, with their dents and stains showing their history, and inventing some riveting story, a la Baron von Munchausen, about the radio, Bengal tigers, and unreliable native gun bearers, thus entertaining my guests with stories of my exciting past life, explaining away the dents and scrapes, and giving me an excuse for another vodka cocktail...an addiction developed during my time living among the Bolsheviki in Magnetogorsk. However, the threat of involuntary commitment, always a risk for radio collectors who live with sane **people**, has so far restrained me.)



**Figure 3 The Hallicrafters Suitcase Portable**

So, back to the matter of restoration. Unfortunately, the plasticized fabric "leatherette" covering over a plywood substrate that encases most of these radios is not very durable, especially as it ages, and shows wear and damage rather easily. (Some of the Zenith Trans-Oceanics were optionally covered in genuine leather. And the RCA put real leather over the aluminum cases of their Strato-Worlds.)

Not only is the plasticized fabric rather thin, but the use of a plywood substrate on all but the RCA Strato-Worlds adds to the problem. A sharp blow to the radio's case can not only damage the fabric covering but dent the substrate itself. It is rare to find one of these radios that does not at least have one or two corners damaged. These radios can, however, be restored to nearly new condition using materials and techniques that are ordinarily employed by automobile restorers. Let's begin.



## Disassembly

The first need is to remove the radio from the cabinet and then take the cabinet apart as far as possible and remove all of the hardware. Remove the telescoping antenna, the front and rear covers and their hinges, the top section on the Hallicrafters TW-1000, the case handles, cabinet feet, cabinet latches, various metal clips, and logos. The cast metal logo on the RCA is held in place by push-on metal quick fasteners which must be removed with delicacy and care so as not to break the logo in the process. The cast metal logos on the Stromberg-Carlson and the molded plastic logos on the Hallicrafters must be gently and evenly pried from the case so as not to break the logos or damage the mounting pins. Removing the carrying handles of the RCA, Stromberg-Carlson, or the TW-1000 version of the Hallicrafters will require bending internal metal fastening plates. The beautifully built aluminum case on the RCA Strato-World disassembles into many sections.

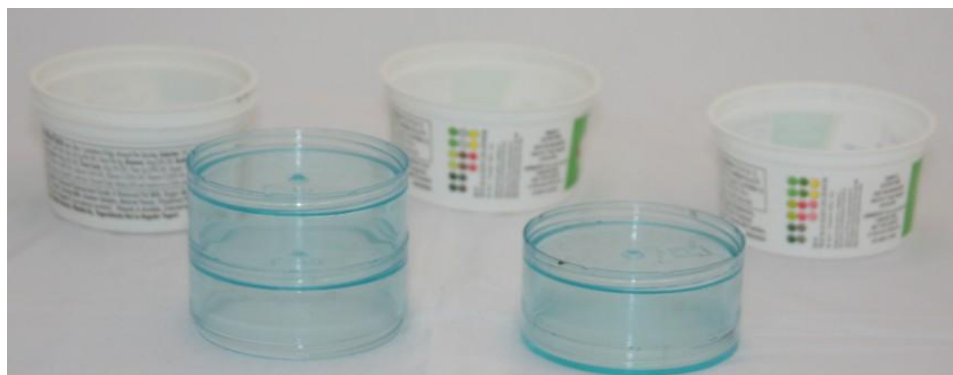


**Figure 4 The RCA Strato-World**

Some parts you may NOT want to remove, such as the hinge sections attached to the front covers of the Zenith, Hallicrafters, and RCA. Removing them would damage the covering and, on the RCA and the Hallicrafters TW-1000, these hinge parts are electrically attached to the loop antenna. Neither would you want to remove the world maps inside the front covers of the RCA or the Hallicrafters TW-2000, as trying to do so would probably damage either the map or the cover. For a similar reason I would leave the latch in place on the front cover and case of the Zeniths and the upper part of the front cover latches on the RCA's. These parts must be carefully refinished in place, while masking the neighboring areas of the case, and must themselves be masked during refinishing of the case.

There are a lot of parts and screws and bolts, nuts, and washers involved. Most of us doing this (with the exception of really creative types who probably should not be allowed to touch devices that plug into the wall) would prefer that these parts go back in the same place and order. Thus, it is a good idea to take digital photos, lots of them from various angles using a good camera with attached photo-flash, before and during disassembly. It is also a good idea to segregate all of the hardware attached to each component and store these parts, along with short descriptive labels, in separate containers. Plastic

sandwich baggies will do, but I prefer the small, stackable, transparent plastic containers with screw on lids. These are available from Garrett-Wade <http://www.garrettwade.com/very-useful-small-stacking-boxes/p/53M01.10/> . Every radio restorer or hobbyist should have a couple sets of these.



**Figure 5 Small Stacking Boxes from Garrett Wade**

## Cleaning

OK, now that everything is apart your next job is cleaning off decades of accumulated dirt and, perhaps, some prior owner's unskilled attempt at "restoration" using hobby paint or shoe polish. You have to remove anything that would compromise the penetration and adhesion of the restoration products you are going to apply. I usually carefully wipe the surfaces of the case with disposable cloths wetted with a volatile quick drying solvent such as xylene (usually sold at Lowe's or Home Depot under the name Xylol) or, preferably, with a pre-finishing cleaner called Pre available from Eastwood <http://www.eastwood.com/ew-pre-painting-prep-qt.html> WARNING: Before applying any solvent to any part, carefully test an inconspicuous area of that part to insure that the solvent does not damage it! Do not allow ANY solvent to contact hard plastic components of these radios. The rigid plastics used in the 1940's and 1950's can easily be damaged by many common solvents! Don't ask me how I know. I still get emotional about it.



**Figure 6 Xylene or Xylol cleaning solvent – Wear protective gloves and goggles! Read label!**

## Repairing Fabric and Leather

Now that the parts are clean you can start repairing damage. The first task is to reattach any fabric or leather that has separated from the case substrate. This can be done using common yellow woodworking glue available from Lowes or Home Depot. The easiest way to apply the glue carefully and in small quantities is by injecting it with a small syringe fitted with an industrial version of a hypodermic needle. These syringes can be obtained from woodworking tool suppliers such as Rockler <http://www.rockler.com/product.cfm?page=10564&rrt=1> or from Amazon.com [http://www.amazon.com/s/ref=nb\\_sb\\_noss?url=search-alias%3Darts-crafts&field-keywords=syringes&x=28&y=37](http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Darts-crafts&field-keywords=syringes&x=28&y=37) . The glued fabric can often be held in place while the glue sets and cures overnight using masking tape or blocks of wood and clamps. If wood blocks are employed, completely cover the section of the block contacting the glued fabric with plastic packing tape. This will prevent excess glue squeezed from the repair from gluing your pressure block to your radio case...a design modification that might be hard to explain when you exhibit your prize at your club's next show-d-tell. Glue down any threads from torn or frayed fabric.



Figure 7 Yellow PVA Glue like Elmers, etc.

## Dents, Scratches, and Gouges

The next operation involves filling in of any and all dents, scratches or gouges on the case. If the covering is actual leather, as on the RCA's and premium Zeniths, these defects can be repaired using a leather/vinyl auto repair kit available from Eastwood, <http://www.eastwood.com/vinyl-and-dashboard-repair-kit-with-sealant-foam.html> . With this you mix a filler of the appropriate color (always best, if an exact match cannot be obtained, to go a bit darker rather than lighter), fill the defect, cover it with an appropriate graining pattern from the kit, and cure it with a tool that resembles a soldering pencil to which someone has brazed a small coin. This system cannot, however, be used on the "leatherette" that covers the majority of these radios, for the heat of the curing device will damage the plasticized fabric and the glue bond. I know. Very sad story.



Figure 8 More Supplies - Vinyl Repair Kit and "Bondo" Type wood filler



The best way to repair dents and gouges in these leatherette over plywood cases is to carefully fill the defects with two-component auto body filler, commonly called Bondo, which is also sold as Minwax High Performance Wood Filler. These products are available at auto supply houses or at Lowe's or Home Depot. These two-component wood fillers dry quickly depending upon the percentage of hardener in the mix. They become unworkable within ten to fifteen minutes. Therefore, mix small quantities at a time, say one teaspoon full, use only a drop of hardener in this amount, and mix thoroughly. I find that the shallow plastic single-serve containers from yogurt make ideal disposable mixing containers; so begin saving these after breakfast. Toothpicks make ideal mixing and applying tools. You will also need a spatula and/or putty knife with flexible blades and some 220-grit sand paper.

Apply the filler to the defect with a toothpick; smooth it out and scrape any excess off of the surrounding area with the putty knife; and allow the filler to cure for at least thirty minutes. After the filler has cured, gently and carefully spot sand the filled area using light finger tip pressure until the filler is even with the adjacent fabric. Although a good high intensity desk lamp set to shine across the surface at an oblique area is very useful, you finger tips, which can easily detect a difference of less than a thousandth of an inch, are a better judge of the smoothness of the surface and the completeness of your repair.

Two-component filler has a tendency to shrink as it cures; thus, it will be necessary to repeatedly go over repaired defects, especially those that damaged the substrate. As you fill and sand out the more obvious defects you will become aware of more defects that you previously disregarded as too small to bother with and start to repair these. Eventually you will find yourself repairing pinpoint defects and worn areas of the covering where the weave of the fabric has begun to show. You have to do this. The color coat you are eventually going to apply will not hide or "paint over" defects. Rather, any defect remaining before color coating will telegraph through the color coat after it cures. In fact, the first layers of color coat are actually used to highlight and emphasize previously hidden defects and improperly sanded repairs. It is thus normal and expected, after the first applications of color coat have cured overnight, to go back to the bench to apply more filler to these revealed defects and correct prior repairs.

## **Color Coating**

Once all of the defects have been repaired, you are (almost) ready to apply the color coats. Take the case components out of any area where you have done any sanding into a space that has good ventilation and light and where the case components can be suspended so that all surfaces are visible and accessible. (I have a number of areas crossed by wire cable mounted between screw eyes and attached by turn buckles, sort of a metal clothes line, from which I hang parts to be spray finished using bent pieces of coat hanger wire.) Remove the dust from all surfaces by blowing the parts with dry, oil free compressed air and then wiping with tack cloths, pieces of cotton cheese cloth impregnated with a dust attracting sticky coating. Tack cloths can be obtained from paint and varnish suppliers or from companies like Rockler [http://www.rockler.com/search\\_results.cfm?srch=usr&filter=tack+cloth&Search.x=66&Search.y=27](http://www.rockler.com/search_results.cfm?srch=usr&filter=tack+cloth&Search.x=66&Search.y=27) . The spray finishing of the cabinet parts will involve three products: a cleaner, SEM 38353 Plastic/Leather Prep, an adhesion promoter, SEM 38363 Sand Free, and a color coat, SEM Color Coat, all available from Eastwood <http://www.eastwood.com> . It is essential at this stage to only use chemically compatible products designed to work with each other from the same manufacturer. The solvents used in these products are chemically complex proprietary mixtures. The use of a generic solvent or dilutant, usually justified because it is cheaper, can result in chemical incompatibilities and finish failure...often in strange, frequently delayed, and unreparable ways.



**Figure 9 More preparation and cleaning supplies**

The parts are first sprayed with the SEM Plastic/Leather Prep and wiped with a lint free cloth to remove grease, finger prints, or any remaining dust or surface impurities. The part to be color coated is then sprayed with the SEM Sand Free. This is an adhesion promoter that penetrates and slightly dissolves the old finish allowing the SEM Color Coat which you are about to apply to chemically bond with the old underlying coating. As such, the first application of Color Coat is applied while the surface of the part is still wet with SEM Sand Free.

The first application of Color Coat, applied over the Sand Free, is a “dry” or “tack” coat, that is, enough of the Color coat is applied to cover the surface but not enough to allow the individual spray droplets to coalesce and flow out into a smooth glossy coating. The purpose of this first application is not to obtain a final finish but rather to provide a chemical and physical bond between the old coating, the adhesion promoter, and the color coat. Moreover, because the surface at this time is still wet with the solvents of the adhesion promoter, too heavy an application of the color coat would result in drips and runs-which, after curing, would have to be sanded out before the process was started over.

Once this tack coat is dry, as indicated by a loss of gloss and which (depending upon the ambient temperature and humidity) should take no more than ten minutes, you can begin to apply successive applications of the color coat. The spray nozzle should always be held perpendicular to the surface being sprayed and approximately eight inches from the surface. Each pass must be made in a straight line, not an arc, always keeping the nozzle the same distance from the surface. Each spray pass should overlap the prior pass by 50%. The rate of the pass should be controlled so that a wet glossy surface is just obtained but you avoid applying so excessive an amount of material that runs and drips result. You have to find that point at which the individual spray drops meld and coalesce into a smooth coating before the solvent in those droplets flashes off into the atmosphere but before the weight of the material and the unevaporated solvent permit runs and drips to form. Many passes that apply thin layers (just to the point of flow out) are always better than a limited number of thick layers (Thick layers present the additional hazard of solvents being trapped below the surface under a “skin” of seemingly dry coating. Such trapped solvents eventually work their way to the surface, often with disastrous results.) After each pass sufficient time should be allowed for the solvents in each coat to flash off into the atmosphere. This is indicated by a noticeable change in gloss or “wetness” and should take no more than one or two minutes under normal conditions.



**Figure 10 Color-Coat products in spray cans**

After you are satisfied with your work, allow the finished cabinet parts to cure overnight before handling. It should be noted that a finish that is “dry to the touch” still contains solvents and is not “cured”. Between these times the finish is very susceptible to damage. Don’t rush things.

As already mentioned, no matter how satisfied you are after you finished applying the color coat, the next day you will find that the color coat brought out unrepaired defects that you had not noticed or that the gloss of the finish is uneven. This is normal and should be expected. The best auto restorers will often first paint a car black (even if the final desired color might be yellow) to purposely reveal unnoticed defects. So, back to the bench for further work with filler and sandpaper before respraying for a final finish. Of course before applying the final finish coats you will want to thoroughly clean the parts again using compressed air, tack cloths, and SEM Plastic/Leather Prep. However, if no more than a day or two has passed between the initial and the final applications of color coat, it should not be necessary to wet the surface with SEM Sand Free again before spraying the final color coats. Even if the first application of color does not reveal hidden defects that you must fill and repair, you will be delighted at how much the second application of color coat, after your first day’s work has cured, improves the gloss, depth, and uniformity of the final finish. This second application should not be skipped.

When ordering materials, you should be aware that, although you will use at most half of a spray can of SEM Plastic/Leather Prep and half a can of SEM Sand Free, finishing all case components of one of these large portables will take three and possibly four cans of SEM Color Coat.

### **Handles-Plastic Handles**

OK, the case is now refinished and looks like new. But what about that dull or scratched plastic carrying handle or cracked and deteriorated leather handle? To refinish the hard plastic carrying handles used on the Zeniths or the 2000 versions of the Hallicrafters you will need some sheets of wet/dry abrasive paper in grits from 220 to 1200 and a Micro-Mesh KR 70 Plastic Restoration Kit (1500, 1800, 2400, 3600, 4000, 6000 grit abrasives and liquid polishing abrasive) [http://www.sisweb.com/micromesh/acrylic\\_plastic\\_hand\\_kits.htm](http://www.sisweb.com/micromesh/acrylic_plastic_hand_kits.htm) , water, and a few drops of dish washing detergent. Hardware or home supply stores never stock abrasive papers beyond 320 or 400 grit.



**Figure 11 Exotic Fine abrasives for obsessive-compulsive-disorder final polishing of plastic handles.**

To obtain the wet/dry abrasive sheets in 400, 600, 800, 1000, and 1200 grits that you will need you will have to go to a local supplier of automotive paints and refinishing supplies. With these items, and some time, you can make the carrying handle on your portable look as good as it did in the show room.

On all of these radios I have restored the color permeates the plastic of the handle. You do not have to worry about breaking through some coating. However, when restoring these handles, or any similar plastic part, there are three things you must keep in mind.

1) You are not trying to smooth out the canyon floor of a scratch or dent or change the slope of its sides. What you are doing with sequentially finer abrasives is lowering the plane surrounding the scratch's canyon floor until that floor becomes the new plain.

2) The plastic particles you are removing are, of course, as hard as the plastic you are refinishing. They can, if deposited in points on the abrasive sheet, create their own scratches which you will have to remove. It is the purpose of the water, and the dish detergent which serves as a wetting agent, to float these particles away. If the abrasive sheet you are using does get clogged with specks or dots of removed plastic, you must either remove those specks with your finger nail before doing further sanding or replace the clogged abrasive with a new sheet.

3) All of the scratches, scrapes, and dents in the part to be refinished are to be removed during the first sanding with the coarsest grit paper, usually of 220-grit or so. You will know you have accomplished this when, after washing and drying, the part being refinished has a uniform dull finish. Any points or lines that are still glossy indicate craters or canyons that are still untouched and below the plane of the part. These indicate that additional sanding with the coarse grit paper is required. Further sanding is not done to remove defects. The only purpose for any sanding from 400 grit through 6000 grit and subsequent polishing is to remove the scratches caused by the prior coarser grit.

If the part permits, a good technique is to orient the direction of sanding of each subsequently finer grit paper perpendicularly to the prior sanding. In this way the replacement of vertical by horizontal sanding lines or vice versa will indicate that you have just removed all the prior sanding marks. Unfortunately, the shape of these carrying handles makes this difficult, if not impossible, for these parts. Have fun. The result will be a like new part.

## **Leather Handles**

If the carrying handle is made of leather, as on the 1000 version of the Halicrafters, the RCA, and the Stromberg-Carlson repair requires a trip to Tandy Leather or at least its web site.

<http://www.tandy-leatherfactory.com/en-usd/home/home.aspx> You will need: leather strips of a width slightly wider than your handle, a spool of sewing thread, appropriate sewing needles, an awl, a ponce wheel, oil based leather dye, a leather working knife, and some knowledge of leather working. If you do

not already have leather working skills, I recommend buying *The Art of Hand Sewing Leather*  
<http://www.tandyleatherfactory.com/en-usd/search/searchresults/61944-00.aspx> .

Using a razor blade, cut and remove the stitching on the existing leather carrying handle. Unfold the handle, place it on poster board printed with an eighth inch grid, and trace the shape of the unfolded handle on the poster board. Correct the lines of the tracing using a French curve. Cut out the pattern you have just made and use it to transfer its shape centered onto a leather strip which is slightly wider and an inch longer than the pattern. Fold the strip on which you have traced the pattern so that, when the folds are clamped, the folded strip is exactly the same length as the original handle and trim the length accordingly. Hold the folded strip which will become the replacement handle in its folded shape using industrial grade double sided tape, often called wood turner's tape. You can find this at woodworking supply shops such as Rockler

<http://www.rockler.com/product.cfm?page=25157&filter=double%20sided%20tape> .

I find that the best way to shape the folded leather blank that is to become your new handle is to place the piece on the table of a vertical spindle drum sander (either a dedicated tool or an attachment to a drill press) fitted with a coarse grit sleeve and running at a slow speed so as not to burn the leather, and carefully sand back to the contour lines drawn on the leather blank. Once this part is shaped, use a drafting compass to mark a line along each side for the placement of the stitching. Now take a ponce wheel, chosen so that the distance between the wheel points equals the desired spacing of the stitches, and run it along the line you have drawn for the stitching, pushing firmly so that the wheel's points mark each stitch.

Open your handle up, discard the double sided tape, place the formed metal handle loops within the handle, fold, glue (using leather glue [http://www.tandyleatherfactory.com/en-usd/search/site+search+results.aspx?sectionpath=3&processor=content&p\\_keyword=glue](http://www.tandyleatherfactory.com/en-usd/search/site+search+results.aspx?sectionpath=3&processor=content&p_keyword=glue) ), and clamp the part closed and around the metal hardware. (Sometimes you will find a spring steel insert inside the leather handle which must be inserted before the part is glued up.) Allow the part to dry overnight. When the part is dried, use the awl to punch the leather in the position of each stitch and sew the handle together using unwaxed thread and a double needle technique (which you just learned from reading *The Art of Hand Stitching Leather*). When the handle is fully made up dye the completed part using oil based leather dye or finish it using the same materials you used to color coat the cabinet case.

## Hardware

The hardware on the RCA's and the Stromberg-Carlson's is made of solid brass and is easily refinished on a buffing wheel, first using emery compound to cut through the grime and the old lacquer and then red rouge, on a different wheel of course, to polish the piece. A six or eight inch spiral sewn wheel on a buffing head works well for this. <http://www.eastwood.com/spiral-sewn-buff-wheel.html> Eastwood sells a nice set of buffing compounds for stainless steel and aluminum that every restorer should own. <http://www.eastwood.com/ew-compound-set-emery-stainless-tripoli-wht-rouge.html> . But small parts and parts that must be polished while still attached to the case are best polished using a hand held tool, such as the Proxxon 38481 Rotary Tool equipped with felt buffing heads.

[http://www.amazon.com/Proxxon-38481-Professional-Rotary-Tool/dp/B001FWXEO6/ref=sr\\_1\\_1?s=industrial&ie=UTF8&qid=1314572090&sr=1-1](http://www.amazon.com/Proxxon-38481-Professional-Rotary-Tool/dp/B001FWXEO6/ref=sr_1_1?s=industrial&ie=UTF8&qid=1314572090&sr=1-1)





**Figure 12 The Proxxon rotary hand tool. The real deal. Not to be confused with the Dremel tool.**

This tool can also be used as a small bench buffer by using the Proxxon 28608 Vise and Clamp [http://www.amazon.com/Proxxon-28608-Precision-Vise-Clamp/dp/B000NDGV1G/ref=pd\\_sim\\_hi\\_14](http://www.amazon.com/Proxxon-28608-Precision-Vise-Clamp/dp/B000NDGV1G/ref=pd_sim_hi_14) I far prefer the Proxxon tools over the cheaper Dremel tools as the Proxxons run quieter, cooler, without vibration, and with less (or no) speed variation, and have much better chucks, thus they are much more enjoyable to work with.

Some hardware parts, for example the front panel handles on the Hallicrafters, cannot and should not be restored. The chrome or brass plating on these parts always seems to be pitted even into the base metal. They cannot be buffed out. Fortunately, the design of much of the hardware from these radios from the forties and fifties is so simple that anyone with basic metal working skills can simply reproduce and replace it. All one needs to replace the handles on these Hallicrafters, for example, is some bar stock of approximately the same dimensions in brass, stainless, or nickel and a milling machine and, possibly, a metal lathe. The metals can be obtained from Speedy Metals

<http://www.speedymetals.com/default.aspx>, a company that sells metal bar, sheet, and tube in small quantities. If you belong to an antique radio restoration club I can assure you that at least two or three of the members own metal lathes and milling machines. It goes with the territory. Men who like and have the skills to restore mechanical and electrical historical artifacts like and know how to use instruments and machines. If they have the space, they will eventually own a lathe and a mill.

If you bribe them, showing up both with the metals that you have already bought from Speedy Metals and with some appropriate gift (I would suggest a bottle of single malt scotch or a gift certificate for two to a good restaurant) you might be able to trick them into making your part for you. But remember, it takes as long to lay out a part and set up a mill to make one part as it does to make a thousand, and stainless is difficult to machine and tap. The job, even for a small part, takes both skill and time. Even with your bribe, they are doing you a favor. Be properly appreciative.

The machined part will still have to be polished and buffed. (Don't expect your machinist to do that for you unless you are paying union rates and have a lot of bills in your wallet.) This can be done with progressively finer grits of wet abrasive paper and some cutting oil, starting out with 320 grit and going to 800 or 1000 grit before buffing the part on the wheel with emory and rouge.

Some parts will have to be electroplated. The most striking aspect of the Hallicrafters TW1000 and TW 2000 are their big gorgeous black slide rule dials surrounded by a chrome (or sometimes brass) frame. Unfortunately, the original chrome plating on these dial frames was not that good. Over time they often became tarnished and pitted. The chrome frames cannot be polished out. They have to be pickled

(stripped of their old plating), straightened, buffed, and rechromed. This is not something you can do in your home shop.

The best plating house for this sort of work is Advanced Plating in Nashville, TN <http://www.advancedplating.com/> Of course, a good chrome plating job is not a simple matter of dipping a part in a tank of chromic acid. There is a lot of labor involved. Besides straightening and stripping and polishing, a conforming anode must be built for each part to be plated. And the polished part goes through at least three separate plating operations, being plated first with copper and then a thick layer of nickel before being plated with chrome. The final result is worth the effort and cost. The finished part looks like it is made of liquid mercury. But, of course, this work is not cheap. Before you call them be aware that chrome plating one part will set you back more than \$100.00.

## Dial Covers and Knobs

With the exception of the Zenith Trans-Oceanics, whose plastic dial covers yellow and collect scratches, the dials and faces of these portables are usually in very good condition. The RCA's do not have dial covers as such but rather polished aluminum dashboards. These can be polished with Autosol

<http://search.eastwood.com/search?w=autosol> to look like new. The dial cover on the Hallicrafters is a flat sheet of glass which usually needs no more than a wipe with Windex. If it is damaged it can easily be replaced by any glass supplier. The translucent dial strips on the Stromberg-Carlson are protected by the surrounding gold-tone anodized aluminum and separated from the volume and tuning knobs in a manner that there was no reason to touch them. They are individually mounted by spring clips, can easily be removed, and need no more than cleaning with warm water and dish detergent.

A scratched Zenith dial cover can be polished out with delicate use of the Micro-Mesh KR 70 Plastic Restoration Kit mentioned above. However, at least if you have a model 7G605 or a G500, the better choice is to obtain a new reproduction dial cover from Retro Radio Repair

<http://jmpalm.home.mindspring.com/Inventory.htm> .

It should be noted that some plastic components on the Zeniths and Hallicrafters are made of clear plastic which has been back painted. Be very careful when attempting repair of the paint on these parts. The plastic used is incompatible with many of the solvents used in the available hobby paints. Test first, but even then be aware that the reaction can be delayed; deceiving you into thinking you have a safe paint.

The knobs on these radios, often discolored by decades of accumulated finger prints and dust, come back to life after soaking in warm water and dish detergent and cleaning with a tooth brush. The gold inserts on these knobs are lacquered solid brass. The lacquer has over the years discolored and, especially on the Hallicrafters, been scratched by finger nails. Those inserts can be restored by polishing with Autosol. Polishing them does take a bit of time as one must first cut through the remaining old lacquer. I have found that mounting the knobs in the chuck of a lathe, and spinning them at a low speed while I use finger tip pressure, a cloth, and Autosol to polish them, saves a lot of tedious effort. The shape and design of the Hallicrafters knobs prevents using this method. These knobs, which resemble and probably are 1950's era television knobs, should be disassembled for polishing.

Well I hope you have fun restoring your Trans-Oceanic, Strato-World, World-Wide, or AWP-8. In next month's issue Wolf von Sparkenburn, my compatriot in these adventures, and I will describe our complete electrical and cosmetic restoration of one of Wilhelm Reich's original Orgasmatrons.