

# HOW TO REPAIR MARRED FIXING RADIOS

REPAIRING MARRED RADIO CABINETS



**No. 13**

**How To Repair Marred  
Radio Cabinets**

**RADIO SERVICING METHODS**

# NRI TRAINING PAYS..

Dear Mr. Smith:

When I started this Course, I never thought of learning as much as I did. After finishing the twelfth lesson, I started to repair radios. Radio selling, servicing, and electrical repair work in my spare time earned about \$427 for me by the time I graduated. I now have my own radio shop at home and am steadily taking on new customers. My equipment is the best in town, and it was all paid for by the money I earned while studying the Course.

D.H., New York



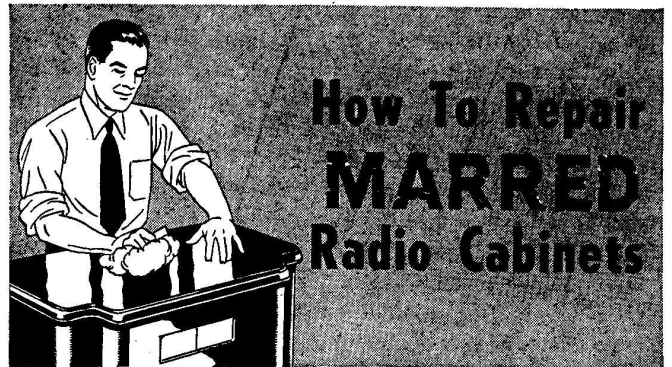
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**M**AKING repairs to marred radio cabinets can be a profitable source of extra income for you. The cabinet of a modern radio is often a fine piece of furniture that the owner is proud to have in his living room. By the same token, he is anxious to preserve its beauty, and very often, when he has called you in to make a repair, he will readily agree to let you fix up any damage that the cabinet may have suffered. Doing such work can add a surprising number of dollars to your servicing profits.

If you have a tie-in with a radio dealer, you may also find it possible to pick up extra money preparing his sets for display. Cabinets are often damaged in shipment—usually not badly enough to warrant calling in an expert cabinet refinisher, but enough to require a “touch-up” before they are placed on the sales floor. If you are able to do the work, most dealers will gladly pay a reasonable fee for the service.

Given the proper equipment, you can repair such defects as small scratches right this minute even if you have no experience as a refinisher. More difficult work requires experience and skill, but if you enjoy working with wood there is no reason why you cannot learn to refinish a cabinet completely. In this RSM Booklet, we will give you practical instructions for making all surface repairs, both large and small.

**Things to Remember.** There are two things you should always keep in mind when you are dealing with cabinets. The first is—*don't bite off more than you can*

*chew*. If the job is too big for you, don't be afraid to say so. After all, you are a radio repairman, not a cabinetmaker. Fine refinishing requires care and experience. If you are a novice, don't say "Sure, I can fix it" when the cabinet is badly damaged. In all probability, you can't—not in a professional manner, anyway—and the customer will seldom appreciate an amateurish job. It's a good rule never to accept any cabinet job that you have not already done successfully. **GET YOUR EXPERIENCE ON AN OLD CABINET OF YOUR OWN**, not on a customer's. (Buy an old cabinet for practice if you do not have a suitable one. It does not have to be a radio cabinet, but it should have a varnish finish like that of a radio cabinet rather than a painted finish.)

► The second point to remember is—*don't damage a cabinet yourself*. Perhaps this sounds obvious, but many a serviceman has earned customer ill-will by carelessly allowing his hot soldering iron or a heavy tool to strike a cabinet. Accidents are particularly liable to happen when you are taking a cabinet to your shop. For this reason, you should leave all large console cabinets in the customer's home if possible—take the receiver and loudspeaker out, and leave the cabinet.

If you must take the cabinet to your shop, be sure to protect it against damage in transit. Cover it with a soft pad like those used by furniture movers. A heavy blanket will do almost as well. Wrap the set in the pad, and fasten it securely in place, before you start to move the set from the customer's home. Then, if you happen to hit a doorway on the way out of the house, you will not suffer the embarrassing experience of damaging the cabinet before the customer's eyes. If you are going to carry out the cabinet in bad weather, cover the pad with a piece of canvas. Be sure to fasten the set securely in your car or truck so it cannot bang around if you make a sudden stop or start. Use wide straps to fasten it, rather than ropes (ropes may bite through the pad and cause damage when tightened). Such careful handling is bound to impress the customer.

**Refinishing Materials.** From any radio supply



Courtesy General Cement Mfg. Co.

**FIG. 1.** Unless you do a great deal of cabinet repair work, this kit contains everything you will need. It is small enough to be carried to the job easily, yet contains material for any job short of a complete refinishing.

house, you can buy prepared kits containing all the repair supplies you need. One such kit is shown in Fig. 1, and others are pictured on later pages. (These are put out by the General Cement Mfg. Co., Rockford, Illinois.) Kits of this sort are not expensive, and are probably your easiest way of getting the supplies that you need. It is usually advisable to have a small touch-up kit to carry with you to make small repairs in the customer's home, and a more complete one for use in your shop.

If you prefer to assemble your supplies yourself, the materials mentioned in our instructions can be purchased at paint and hardware stores. However, it is more economical to buy them in kit form (unless you do a great deal of refinishing), for the smallest quantities available at stores are generally far larger than you need. Excess quantities must be thrown away, since paints and other materials deteriorate once their containers are opened. Kits contain such small quantities that there is little loss—you can afford to buy new supplies when needed.

## REPAIRING SCRATCHES

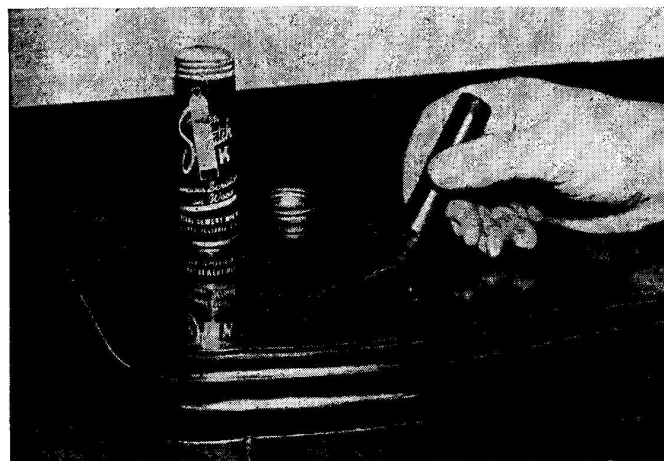
Fine scratches that do not penetrate far into the finish are easy to remove. If there are many of them, rub the whole cabinet down with scratch-removing polish. Apply the polish with a soft cloth, then rub the surface with another cloth until it is thoroughly dry, and finally polish the cabinet with a wax-base polish. In this final polishing, polish one section (panel, side, or top) at a time instead of trying to do the whole job at once.

Scratch-removing polishes are available for use on both light and dark woods; those intended for light woods are clear, but those to be used on dark woods contain stains. Be sure not to use a polish that is darker than the original finish.

► If there are only a few small scratches, you can usually repair them with a scratch stick. This is a small stick containing solid stain at one end and a felt cork in a bottle of liquid at the other. Just rub the stain over the scratch, then reverse the stick and buff the scratched area with the felt. This is a particularly useful piece of equipment to carry in your pocket or your touch-up kit for use in the customer's home. It is not

If the cabinet has many small scratches, remove them with scratch-removing polish, then finish off with a wax polish.

Courtesy General Cement Mfg. Co.



Courtesy General Cement Mfg. Co.

Remove small scratches with a scratch stick.

practical to use if there are many scratches, however; the scratch-removing polish is quicker and does an equally good job. Neither works well on deep scratches.

**How to Use Stick Shellac.** Scratches too deep to be covered up with polish, but not so deep that the bare wood is exposed, can be repaired with stick shellac. There is a definite technique involved in using stick shellac; *you should not try to use it on a customer's set until you have practiced a few times on a piece of wood or some of your own furniture.*

The series of pictures in Fig. 2 shows how this shellac should be used. First, select a stick that is a little lighter than the color of the cabinet (the shellac will darken slightly when it is heated during application). Next, heat the blade of a spatula in the blue part of an alcohol flame. (Alcohol is specified because it will cause the least depositing of carbon on the blade.)

When the blade is hot, wipe it clean with a dry cloth. The blade must be clean to prevent foreign substances from getting into the shellac. Do this quickly so the blade will not cool off too much.

Touch the shellac stick to the hot blade and allow some of it to melt onto the blade. If the shellac bubbles on the blade, *it is too hot*; wait until it stops bubbling



before applying it to the cabinet. If the shellac is applied when it is too hot, bubbles or pin points will appear in the completed job.

Apply the shellac on the blade sparingly to the scratch. *Be careful not to allow the hot blade to touch the unmarred surface*, or you will have a burned spot as well as a scratch to repair. If the spatula becomes too cool for the shellac to flow, reheat it. Fill in the scratch completely, then allow the shellac to harden thoroughly.

When the shellac is hard, carefully cut off any excess with a razor blade. Again, be sure not to damage the surrounding surface; if necessary, you can leave a slight ridge of shellac. Saturate a piece of heavy felt or an ordinary blackboard eraser with shellac-stick rubbing fluid, and rub it over the repaired area until it

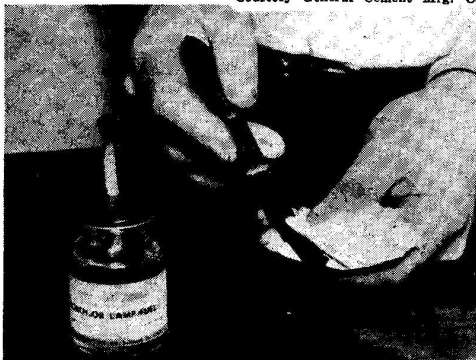
is smooth and level with the surrounding surface. If you prefer, you can smooth the repair with fine steel wool, fine sandpaper, pumice, or rottenstone, but you will have to be careful with these not to mar the surrounding area. Rottenstone or pumice may be applied by sprinkling the powder on a piece of felt (or blackboard eraser) that has been saturated with rubbing oil, then rubbing it over the surface to be smoothed. *Always work with the grain of the wood.* To get a really good finish, use pumice first, then repeat with rottenstone.

After the scratch has been filled in and smoothed, complete the job by cleaning the surface and polishing the whole area with wax polish.

► Notice—the pictures in Fig. 2 show the repair materials placed on top of the cabinet. It is necessary to do this so you can take the heated spatula directly to the

FIG. 2. Follow these steps to use stick shellac.

Courtesy General Cement Mfg. Co.



1  
HEAT SPATULA  
IN LAMP FLAME.  
WIPE CLEAN.



2  
TOUCH HEATED  
SPATULA TO  
SHELLAC STICK.

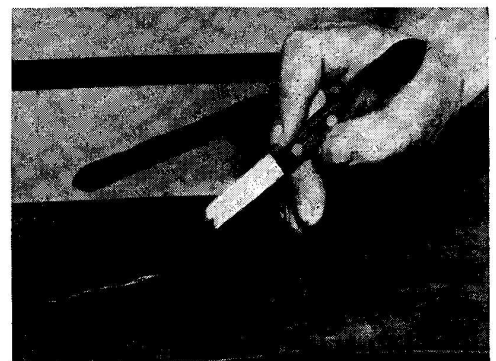
6



3  
APPLY SHELLAC  
TO SCRATCH  
WITH SPATULA.



4  
RUB DOWN WITH  
SHELLAC-STICK  
RUBBING FLUID.



7

scratch without giving it time to cool off too much. However, be sure you put a smooth piece of wood (or a heavy cloth and a piece of wood) under the lamp and the shellac to prevent damage to the cabinet. And, of course, be careful not to move so quickly that you upset the lamp. Don't fill the lamp over the cabinet; alcohol will spot or ruin almost all finishes.

It is not too difficult to make a repair of this sort after you have practiced a few times. However, it is very easy to cause more damage than the original scratch if you are careless.

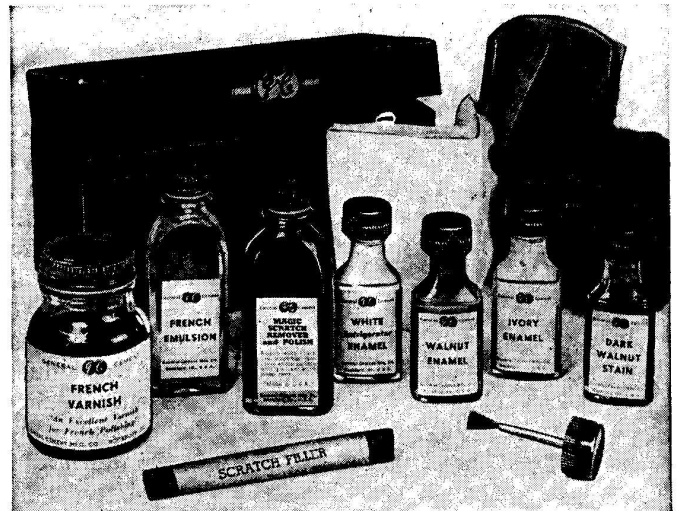
► If you are going to use transparent shellac to fill in a scratch so deep that it exposes the wood, you will usually have to stain the wood first to the proper shade. (Staining is optional if you use a colored shellac, provided the shellac is the proper shade.) Use a stain that is considerably lighter in shade than the cabinet finish. Apply several coats with a brush until the shade matches the desired one. Allow each coat to dry about three hours before applying the next one. If you happen to stain the wood too dark, you can lighten it to some extent by rubbing it lightly with a cloth moistened in alcohol. This will remove some of the coloring matter (but remember that the alcohol will probably also injure the original finish if you rub over it much).

After the stain is thoroughly dry (overnight drying is desirable), complete the repair in the manner already described for a deep scratch.

### REPAIRING GOUGES, NICKS, AND CUTS

Any injury that actually removes some of the wood from the cabinet is considerably more difficult to repair than a scratch, chiefly because the hole must be filled in.

Clean all foreign matter from the hole with a knife, then mix a little Savogran Wood Putty with water to the consistency of a thick dough, and immediately fill in the hole as neatly as possible. Smooth the wood putty with a knife blade or spatula while it is still soft. Wait at least 24 hours for it to dry, then shave off any excess with a razor blade. Smooth the repaired area in the manner previously described for the stick-shellac repair, using fine sandpaper, steel wool, pumice, or rot-



Courtesy General Cement Mfg. Co.

This is a complete touch-up kit, suitable for all touch-up jobs but not for major repairs.

tenstone. Finally, stain the repair with several coats of light stain until the desired shade is reached. If the repaired area is large, it will probably have to be refinished completely. Instructions for such refinishing are given later in this Booklet. If the area is small, and the repair neat, a good rubbing with wax polish will complete the job.

► It is possible to make a satisfactory repair in this manner if the cabinet wood has no noticeable grain pattern. If it has a marked grain, however, the repair will show—although it will probably not be as noticeable as the hole was. Until you have had considerable experience with repairs of this sort, don't lead the customer to expect too much if the area to be repaired is large.

Savogran Wood Putty can also be used to replace bits of ornamental work that have been knocked off. Follow the instructions given for filling in a hole, but instead of smoothing the wood putty before it hardens, mold it at least roughly to the desired shape. After it hardens it can be carved to the shape you want. In carving it, be careful not to exert much pressure in a direction that will tend to knock off the material.

## REPAIRING SPLITS

If the cabinet is badly damaged—split through, or broken apart at a corner—or if the veneer is checked, peeling, or split, the repair is really a job for an expert cabinetmaker. However, if the customer does not want to go to the expense of having a cabinetmaker do it, you can do a reasonably good job if you are careful. There are too many possible repairs for us to go into detail on all of them, but here are some hints that will be helpful.

If a piece of wood is split through, coat both edges to be rejoined with glue. Use a good grade of wood glue, such as casein, hide, or fish glue. Never use a lacquer-base cement if the surfaces next to the split are finished, for such cement is apt to cut into the finish and make it necessary to refinish the whole surface.

After applying the glue, press the split together several times with your hands to work the glue in well. Wait about five minutes until the glue becomes tacky, then press the split together as firmly as possible and clamp it tightly with an adjustable clamp. Do not let the clamp bear directly on a finished surface, for it will probably mar the finish; instead, place a fairly wide block of smooth wood between the clamp face and the finished surface before tightening the clamp. When you have finished clamping, wipe off any excess glue with a damp cloth.

Allow the glue to harden at least 24 hours before removing the clamps. If any glue has oozed out of the joint, remove it with a razor blade, then smooth the joint with fine sandpaper or steel wool.

Whenever possible, don't depend on glue alone to hold a split together. Use screws, finishing nails, or corrugated fasteners to help hold it if these can be driven in without spoiling the finish. If screws or finishing nails must be driven in from the outer surface of the cabinet, be sure to sink them below the surface. Then treat the holes thus produced as you would any other hole.

Corners that have broken apart will require reinforcement. Sometimes dowels can be run into both



Courtesy General Cement Mfg. Co.

This large kit contains everything you need to refinish a cabinet completely.

pieces and glued in place; sometimes small steel brackets or glue blocks can be used. Remember that the cabinet should be as sturdy as possible, for it is subjected to surprising amounts of vibration from the speaker.

Veneer that has come loose along an edge of the cabinet can often be glued back in place. Treat it as you would a split, but do not move the veneer any more than necessary; it is very thin and can be split rather readily. Apply as much pressure as you can when you clamp it, and be sure to place a smooth wood block between the clamp and the veneer.

Veneer that has bubbled up in the middle of a panel is almost impossible to fix. About all you can do is cut out the bubbled section and fill in the hole with Savogran Wood Putty. Usually this will not look right, for nearly all veneers have a pronounced grain that will be missing in the repaired spot. Sometimes it is possible to flatten the bubbled section after removing it and then to glue it back; however, the result produced is seldom worth the effort involved.

## REPAIRING LARGE SURFACES

In our descriptions of the preceding repairs, we assumed that only a small section of the cabinet surface was marred and that no general cabinet refinishing was



Courtesy General Cement Mfg. Co.  
This is a patch kit, used for filling in deep scratches or nicks in cabinets or porcelain-covered appliances.

necessary. However, sometimes damage is so extensive that a panel, or perhaps the whole cabinet, must be refinished. Such jobs are something you should avoid until you have developed considerable skill, for they are by no means easy.

The first step in refinishing a large surface is to remove every trace of the old finish with varnish remover. Paint the remover over the surface with a paint brush. Allow it to stand until the varnish begins to curl up, then scrape or rub off the varnish with a putty knife or a scrubbing brush. Apply a second or even a third coat, if necessary, to get off every bit of the old varnish.

After all the original finish has been removed, sponge the wood thoroughly with turpentine to remove all chemicals. When the surface has dried, carefully sand it with medium-fine sandpaper or steel wool until it is perfectly smooth. Remove all dust from the work with a soft cloth.

If the cabinet is to have a dark finish, stain it to the desired shade with an alcohol-base stain. Use several light coats (three hours apart) to build up to the proper shade, rather than one dark one. Apply the stain with a clean, soft brush, and take care to make it uni-

form over the whole surface. You will have to work rapidly, for alcohol-base stains dry fast.

If the customer wants you to convert a dark-finished cabinet into one of the modern bleached finishes, apply several coats of a commercial bleach solution to the wood after the old finish has been removed. Follow carefully the instructions accompanying the bleach. When every trace of the old color has been removed, stain the wood to the desired shade with the proper color of light stain. Be sure not to get the wood too dark.

When the wood is stained to the shade you want, and the stain is perfectly dry, you are ready to apply the finish. Finish is put on to give the work a hard, smooth surface. Excellent finishes are produced in factories by spraying on clear lacquer with a spray gun. Spraying equipment is expensive, however, and requires expert handling. You can produce just as good a finish by hand if you work carefully, although the process will be far more laborious than spraying.

We are going to describe three methods of finishing, listed in the order of increasing difficulty. Any one of them will give good results if you are careful. The brush finish, using white shellac or clear varnish, is the only one of the three that can be used on a light-finished cabinet; the other two will darken the surface.

► There are some general rules you should observe in putting on any finish. Work in a dust-free room, so the finish will not pick up dust particles as it dries. Make sure a surface is thoroughly clean before you apply the finish. (Rubbing naphtha or gasoline over the surface is a good way to clean it—but be careful! Be sure there are no open flames near, and do not smoke.) Don't try to rush matters; a good refinishing job takes time, and you may ruin all your efforts if you get impatient near the end.

Finally, try not to apply a finish on extremely damp or hot and muggy days. If finish is applied when the air is full of moisture, it may dry with a cloudy or whitened surface. This is called "blushing" or "bloom." Small spots of blushing can usually be removed by wip-



ing lightly with alcohol, but if a large area is affected you will probably have to refinish it.

**Brush Finish.** Apply an even coat of white shellac or clear varnish to the wood with a fine, soft brush. Use the best brush you can get; a good brush makes a tremendous difference in the quality of your work. Make sure it is thoroughly clean. Wait until the shellac or varnish is thoroughly dry (overnight, at least), then sand it lightly with medium-fine sandpaper or steel wool. Remove all dust with a soft cloth or a tack cloth, then apply a second coat, and again let it dry. (A tack cloth is a cloth dipped in varnish and allowed to dry. It should feel sticky, but the varnish should not come off.) Sand and dust again, then apply a third coat, and allow it to dry. Rub this last coat lightly with rottenstone and lemon oil until all brush marks have been removed and the surface is glass-like and shiny. This will give a glossy surface. If you want a semi-gloss surface, use fine steel wool or fine sandpaper for the final finishing; or, if you want a flat finish, use pumice and oil. (If the finish is light-colored, it is best to use pumice and water or the finest grades of sandpaper rather than rottenstone or an oil, because these latter will darken the surface.)

Three coats are usually sufficient to produce a satisfactory finish. If you want a deeper finish, you can apply more coats. Be sure to let each dry at least overnight, and be sure to remove all sanding dust before you apply a new coat.

**Dip-and-Rub Finish.** This finish is applied with a pad rather than a brush. To make the pad, roll up soft, lint-free muslin or cheesecloth into a ball about twice the size of a golf ball. Tie the ends of the cloth together on top of the ball so it will keep its shape. Fill a shallow tin or saucer about two-thirds full



Courtesy General Cement Mfg. Co.  
This small touch-up kit is handy  
for making last-minute repairs of  
small defects.

with French varnish and a similar tin about two-thirds full with a lubricant such as turpentine or French emulsion. Place these where they can be reached readily.

To apply the finish, dip the pad first into the lubricant, then into the French varnish, and begin to rub over the surface of the wood with a circular motion. Use light pressure and go over the entire surface of the wood. The finish will dry almost immediately and will be practically free from streaks. When the pad begins to stick to the surface, dip it again in the lubricant and the varnish and continue rubbing. When you have covered the surface completely, and it is thoroughly dry, sand it lightly with fine sandpaper. Remove all sanding dust, then apply another coat.

After several coats have been applied in this manner, the surface will take on a rich, soft gloss. To heighten this gloss, allow the finish to dry for 12 to 18 hours, then rub over it with a soft cloth dipped in French emulsion or linseed oil.

**French Polishing.** French polishing is considered the most beautiful of finishes. It has been used for generations to finish pianos and fine furniture. You can get wonderful results with it if you care to spend the necessary amount of time.

For materials, you need a pad like that used in dip-and-rub finishing and a saucer of French varnish.

Dip the pad in the French varnish, then rub it over the wood with rapid, straight strokes. Rub with the grain and use very little pressure. When you have applied a coat, allow it to dry thoroughly, then sand it smooth with medium-fine sandpaper or steel wool. Remove all sanding dust, then repeat the process several more times. Allow each coat to dry thoroughly, and sand and dust before applying the next.

Eventually, a light shine will appear on the surface. When it does, add a few drops of French emulsion or linseed oil to the varnish, and give the surface another coat, this time rubbing with a circular motion instead of with the grain. Allow the coat to dry, then sand and dust it. Add a few more drops of emulsion or oil to the varnish, then repeat the process. Continue to add more

coats in this manner, putting a few more drops of emulsion or oil into the varnish each time, until you have a finish as good as you want. After the first few coats, rub the surface with rottenstone and lemon oil instead of sanding it. Each coat will make the finish a little better.

### APPLYING GRILLE CLOTH

When a grille cloth over the speaker is torn or faded, a customer will often allow you to replace it if you suggest doing so. This can be either the final touch to a cabinet repair job or a profitable separate job if the cabinet requires no work.

You should always use genuine grille cloth for the repair, not just any cloth that happens to be available. Grille cloth is heavy, flexible, and porous, and does not interfere with the sound waves coming from the speaker. Ordinary tight-woven cloth will usually muffle the sound, and, if it is one of the stiff kinds (like chintz), it may rattle when a note of a particular frequency is sounded. You can get grille cloth from any radio supply house.

Select cloth that is artistically suitable for the cabinet. Usually it is best to get a shade that is near the cabinet color, although some customers may prefer a vivid contrast. A large pattern will look all right in a large console, but will not be suitable in a table model. If possible, get swatches of the various available cloths from your supplier so the customer can select the kind he prefers.

To apply the cloth, first remove the speaker or chassis so you can put the cloth on from inside the cabinet. Remove all the old cloth, and smooth the surfaces on which the new cloth is to be put. Cut the cloth to the proper size, allowing enough for it to overlap the cabinet opening by an inch or more on all sides. (When you cut the cloth, be careful to consider the pattern and the way you want the design to run.)

Coat the area to which the grille cloth is to be attached with fabric cement (you can get suitable cement from your supplier) and apply the cloth over the opening. (Some cloths fasten in the cabinet; others are fas-

tened to a removable baffle board.) Stretch it enough to make it taut and free from wrinkles, then put a tack through each corner (if fastened to wood) to hold it in place until the cement dries.

### REPAIRING NON-WOOD SURFACES

Most of your profitable repair jobs will be on wood cabinets, for they are the most expensive, and the ones that owners are most anxious to have look nice. However, repairing plastic or portable cabinets can be profitable enough to you to make it worth while to learn the simple techniques involved.

**Plastic Cabinets.** A badly damaged plastic cabinet is almost impossible to repair. If a piece of the cabinet is missing, don't try to fix it—instead, try to sell the owner a new one. In most cases, duplicate cabinets can be obtained from the set manufacturer.

If the cabinet is only cracked, you can probably repair it with plastic cement. Your supplier has this, too. Ordinary wood glue can't be used, because it will not adhere properly to the surface. To repair a crack, ap-

Small cracks in plastic cabinets can usually be repaired with bakelite cement if no pieces are missing.

Courtesy General Cement Mfg. Co.



ply a liberal coat of cement to both sides of the crack and allow it to dry. After it is dry, apply a heavy coat to one side of the crack and press the crack shut immediately. Clamp it tightly until the joint has dried thoroughly. It is usually best to allow it to dry overnight.

Small nicks, chips, and scratches often can be filled in with stick shellac in the manner described earlier in this Booklet. (Be sure not to let the hot spatula blade touch the plastic.) Remove excess shellac with a razor blade and polish the cabinet to blend the repair into the surface. You can get heavy lacquer enamels from your supplier that can be used to touch up colored plastic cabinets. Plastic knobs and handles can be repaired in the same manner as cabinets.

**Portable Cabinets.** Many portable sets are covered with leatherette or airplane luggage fabric. Often this material becomes torn or frayed after the set has been in use for a while, and most owners are willing to pay a reasonable sum for a repair.

The necessary cloth or leatherette can usually be gotten from your supplier or from an upholstery shop. If you can match the pattern of the material on the set, and only a small part needs repairs, simply cut out a patch of the proper size (considering the design, of course), coat the area with fabric cement, and set the patch in place. Match the pattern lines of the patch carefully to those of the original cover, then press the patch hard and smooth it out.

If you can't match the pattern of the original material, or if a very large area needs repairs, it is best to re-cover the cabinet completely. Remove all the original covering, and sand off any glue that remains on the cabinet. Next, cut the new material into pieces of the

Courtesy General Cement Mfg. Co.  
This small patch kit is intended to be used for repairing nicks and dents in refrigerators or other porcelain-covered appliances.



This plastic cabinet touch-up kit contains six shades of lacquer enamel for touching up marred spots on plastic cabinets.  
Courtesy General Cement Mfg. Co.

proper size for the job. You should use as few pieces as possible so there will be a minimum of seams. Plan the cuts so that no seams will have to be made at edges or corners of the cabinet, for it is difficult to make the covering stick well at such corners. Allow for an overlap of at least one inch at all seams. You may find it worth while to cut out a paper pattern before you cut the material.

When you have the new material cut out, lay it over the cabinet to make sure it will fit in the way you intend. See that the pattern lines will match reasonably well at the seams. When you are sure the new fabric will fit, apply cement to the cabinet and put the new covering in place. Where one piece must lap over another, apply the cement to the under side of the upper piece. As you put each piece on, press it down firmly and smooth it out.

**Other Repairs.** When you are in the customer's home, you can ask if he would like you to touch up the surface of his refrigerator or washing machine. These often have nicks and scratches that you can readily repair. From your supplier you can get refrigerator repair kits that will contain everything you need for such work, including complete instructions. Nicks and scratches are filled in with white stick-shellac or porcelain glaze. Since these surfaces are often "off-white," it may be necessary to tint the filler blue or yellow, depending on the color of the original surface. Try a small amount on an inconspicuous spot before touching up the surface, to be sure you have matched the color.

## RETURNING THE SET

Take just as many precautions in returning a repaired cabinet to the owner as you did in removing it

from his house. Be sure to pad it well, and don't remove the pads until you have placed the set where it is supposed to go. Remember that the customer is paying you for improving the appearance of the cabinet *in his home*; he won't care how beautiful you had it in your shop if you happen to scratch it bringing it in through the door.

After you have put the set in place, give it a final wiping off with a soft cloth to remove any dust it has gathered in transit. If you have done a particularly good job, don't hesitate to say something like "Doesn't it look good now?" It is always a good idea to "sell" the customer a little on how fine a job you have done for him (although, of course, you should avoid bragging).

► Inspect the place where the set is to be used. If the radio is placed too near a fire or a hot radiator, the heat may dry out the glue and allow the joints to separate or may cause warpage or surface damage. Similarly, putting the set in a damp spot or near an open window may cause the veneer to swell or produce other surface damage. Point out these facts to the customer; he will appreciate it.

Finally, remember that the rest of his house furniture is just as apt to be nicked and scratched as his radio. If you have made minor repairs in front of his eyes with just a simple kit of polishing supplies, he is apt to be very much interested in getting a similar kit for use on his other furniture. You can often make a neat extra profit by selling him one at retail prices.

THE N. R. I. COURSE PREPARES YOU TO BECOME A  
**RADIOTRICIAN & TELETRICIAN**  
(REGISTERED U.S. PATENT OFFICE) (REGISTERED U.S. PATENT OFFICE)