Re-touching Radio Cabinets

THE first impressions go a long way, and the visiting person who is listening to a neighbour's radio will be far more impressed if the receiver is housed in a smart cabinet. Many enthusiasts confine all their energies to the perfection of the reproduction of the broadcast, taking the set out of the cabinet each time an adjustment is made, with the result that the cabinet is scratched and marked with soldering paste, etc. Why not spend a few hours on the outside appearance, and improve the receiver as a piece of furniture.

Filling.

FIRST dismantle everything, unhinging the lid, and unscrew all fixtures. Deep scratches and holes will have to be filled with wax, and this will have to be coloured to the same shade as the cabinet. If light oak, then the ordinary dark-coloured beeswax. Dark oak can be made by powdering a small quantity of walnut stain dye and mixing with the melted beeswax in a small tin. Stir with a small pointed stick, which can be used to hold a small quantity of the melted wax, to fill in scratches, etc.

Modelling wax of the correct colour, as used for making wax flowers, makes an excellent filling. This is melted, and a small quantity run into the hole. When set, the wax is trimmed off with a sharp knife or chisel, taking care not to mark the surrounding woodwork.

The whole cabinet is now rubbed with fine glasspaper. No. 0 is fine enough. Rub with the grain always, and do not go deep enough to hurt the stain underneath the polish. Rub lightly until the surface feels smooth to the touch. Sundry scratches that have not been filled with the wax will show the whiter wood underneath, and the colour of the whole will have to be made uniform. Use a water stain for this purpose, moisten a small piece of cloth, and rub over the whole cabinet lightly. Where the wood is bare through a scratch or knock, the water stain will be absorbed, but where polished, the stain will just lie on top, and can be wiped off with a clean cloth.

Staining.

VARIOUS water stains can be made from ingredients which are more or less household commodities. Very light oak stain can be made by dissolving a small quantity of bichromate of potash in water. This colour develops in a few hours when exposed to the air. Potassium permanganate dissolved in water makes a darker stain for oak or walnut cabinets.

Quite a good mahogany stain can be made from red ink mixed with Indian black, in various proportions, until the desired colour is obtained.

After this coating of colour, rub over with a rag just damped with clean water, and allow to thoroughly dry.

French Polishing.

IF the cabinet is bruised by being knocked, try to restore the flat surface by applying cloths dipped in boiling water to the bruise. The wood will swell where it has been injured, and "bring out" the dent. Before polishing, the whole must be perfectly dry. With a fine camel-hair brush, give the cabinet a coat of shellac varnish, made by dissolving shellac gum in methylated spirits. Three parts fill a container with the shellac crystals, and pour on methylated spirits to fill the jar. By shaking occasionally, the shellac will have dissolved in about six hours.

Give two coats with the brush, and then proceed to polish with a rubber. French polishing is a skilled art in itself, but quite a presentable job can be made by the amateur if he remembers one or two details.

A piece of cotton wool is wrapped in a small sheet of clean linen, sufficient to make a convenient pad for rubbing. Saturate the cotton wool with the varnish, lay over the linen, and rub on the cabinet from end to end. Do not go over the same place twice until the first coat is dry, unless the rubber is lubricated with linseed oil. Allow to dry after one or two coats in this way, and with the fine sandpaper, take off the surface again.

A good polish cannot be obtained until the grain of the wood has been filled in. By applying varnish, allowing to dry, and sandpapering down again, the tops of the hills, as it were, are taken off, and the valleys gradually filled in. To give the final high finish, rub a few drops of linseed oil on the rubber each time the cotton wool is moistened with shellac, and continue to rub in a circular motion. Too much oil will give a dull finish, while too little makes the rubber stick. After a while, the knack will be acquired, and a high polish will result, which should be left overnight to thoroughly harden before handling. A few pence spent in getting new wood screws as substitutes for those whose heads are disfigured, will add to the general appearance.

A few hours spent with the cabinet in this way will seemingly add another fifty per cent. to the value of the receiver.

Importance of By-passing

ALTHOUGH the better grade manufactured receivers to-day are including by-pass condensers with a view to obtaining greater efficiency, the value of this practice is not always fully appreciated by the set-builder and experimenter. Both high-frequency and audio-frequency currents should be provided with the shortest possible path, in all cases avoiding circuitous and high-resistance detours through batteries, mains supply units, transformers, and so on. Moreover, the audio frequency should be kept out of the H.F. end, and the high frequency should be kept out of the L.F. end.

L.F. By-pass.

TAKING the detector and the first L.F. stage as a typical case, by-pass condensers may be used to keep the radio-frequency component out of the transformer primary, and to keep the audio-frequency component out of the high-resistance B supply unit or B battery. A suitable H.F. choke is inserted between the plate of the detector valve and the transformer primary together with a small by-pass condenser on the plate side of the H.F. choke connecting with the filament negative.

The audio-frequency energy is by-passed by a one-microfarad condenser between the B positive and the filament negative. This will be found to improve the tone quality and also generally the volume. The by-pass for the H.F. end invariably provides greater sensitivity and volume, particularly with a regenerative detector which may sometimes fail to oscillate freely in the absence of such by-passing.

Volume and Sensitivity.

BY-PASSING for the L.F. component is provided by a filter condenser of 1 or 2 microfarads between the B positive and the filament negative leads. The use of a by-pass in this position results in better tone quality and a reduction of background noises, whether with B supply unit or partly run-down B batteries. Generally, an amplifier not so equipped may be materially improved by by-passing all B positive connections to the filament negative.

Finally, an H.F. by-pass arrangement which is not often employed but which will increase sensitivity and volume to a considerable extent in many cases is to place a by-pass condenser of .006mfd. between the filament negative and the B positive lead which goes to the primary of the H.F. transformer. This will be found specially useful in cases where the B battery or the B supply unit has considerable internal resistance.