Holes in Panels

Remedies for Mistakes

OCCASIONALLY, owing to an error of judgment, or to some other cause, a hole is bored in a panel which provides too loose a fit for the terminal; and the result is that, no matter how tightly the under-nut of the terminal may be fastened, the terminal itself sooner or later comes loose, and develops a most annoying degree of play.

Fortunately, however, such cases can be remedied by the exercise of a little trouble. If the hole in the panel is only very slightly larger than the outer diameter of the terminal shaft, make up a paste of fine ebonite powder and thick gum. Roll the terminal shaft in this, and then insert it immediately into its hole, allowing it to stand for several hours before it is again touched. By this method, the ebonite powder will effectively bind the terminal.

If the panel hole is considerably larger than the diameter of the terminal shaft, another means will have to be employed in order to provide an effective fit for the terminal.

This is the method of terminal "packing"—the terminal being packed in its hole by means of some substance which can be poured in the hole in a molten stage, and then allowed to solidify.

Substances to Use.

THE two best substances available for this purpose are sulphur and Wood's metal. Either of these may be melted, and then carefully poured from a small spoon around the terminal in its hole. They will quickly solidify, and will provide a very fast binding for the terminal.

On the whole, Wood's metal is the better material to use for this purpose, it being rather more indifferent to mechanical shocks than sulphur.

If the hole in the panel is not excessively greater than the diameter of the terminal shaft the presence of the packing will not show on the upper side of the panel, for it will be hidden away from sight by the base of the terminal pillar.

As for the underside of the panel, if the packing material overflows the hole when it is poured in, and flows over the ebonite surface, it can readily be removed after it has solidified, by the aid of a knife and a little sand-paper.

Solder Hints

A Simple Matter

SOLDERING is really quite simple, the main idea being merely to heat the surfaces which have to be joined together sufficiently for solder to adhere to them. When they are thus warmed, solder can be "run" across from one surface to another, and on this cooling it will set as one mass, thereby joining the two surfaces together. The great art is to keep clean both the iron itself and the working surfaces.

First of all the iron must be "tinned," which is done by heating it in a clear flame (a gas jet is ideal), till it commences to burn with a green flame. When this occurs it can be removed and filed till it is bright, and whilst still very hot it should be dipped into a little flux and a blob of solder, in a tin lid. The melted solder will then run over the clean surface of the iron and coat it with a bright covering of solder, and then the iron is warmed up again ready for business.

Whilst it is reheating the two surfaces can be thoroughly cleaned with a file or emery cloth, till the bright metal shows, touched with a little flux and then brought into contact of the hot iron until a thin coating of solder appears on them, also. (In other words, until they are "tinned" also.) When both the surfaces have been tinned, they are held together, the iron is heated again, and then it is placed over the two surfaces so that it can simultaneously and equally heat them.

When hot enough the blob of solder adhering to the iron will readily run over the two surfaces and these should be held perfectly steady until it solidifies, which it does a moment after the iron has been removed. At this stage and before the joint has had time to get cool, wipe it over with a clean cloth so as to remove any traces of superfluous flux.

The heat will have liquified this, and it can be removed easily and quickly, but if it is left for a little while it will get cool and become greasy, and then be exceedingly difficult to remove, in mind soldering will become a very If, however, the above hints are borne easy and pleasurable occupation.

AMPLIFICATION at high frequency means that the currents magnified are those which are flowing in the aerial or the tuned circuits, before the detector.

Microphonic Valves

Shock Absorption

ALMOST the only disadvantage which the modern low filament consumption valve possesses is a tendency to be microphonic—that is to be susceptible to vibration so that a ringing noise is produced in the loudspeaker when the receiver is subjected to a slight jar.

This effect is due to the vibration of the valve elements, and particularly the slender filament, under the influence of the shock. In extreme cases a fracture of the filament can result.

Many sockets are now fitted with special rubber or spring suspended bases to protect the valves from vibration, and the consequent annoying noise in the receiver. In many cases, however, valve sockets in use are not protected in this way. An excellent form of shock absorber can be provided by mounting the valves on a sheet of rubber cut from an old motor-car inner tube. The rubber should be cut in the form of a panel long enough to carry all the valve sockets in the receiver.

The sockets are attached to it by small bolts, a large washer being placed under the head of each bolt to prevent the bolt head from cutting through the rubber. When the sockets are mounted on the rubber strip, the strip, should be mounted, slightly stretched, in a shallow wooden frame. It can be clamped to the top of this frame by strips of thin wood. In making the frame to carry the rubber strip, it is important to see that it is not too deep to prevent the bottom of the socket from being pressed against the baseboard of the receiver when the valve is inserted, but deep enough to keep the bases clear of the baseboards even after the rubber has sagged slightly, as it will, under the weight of the valves.

It will be found advisable to use flexible rubber covered wires to make connections with the valve base. If bus bar is used, there is a danger that it will transmit shocks to the valves, and thus nullify the effect of the rubber suspension.

High Amplification Factor

BECAUSE a valve of high amplification factor is inserted in the R.F. sockets of a multivalve receiver, is no indication that the signals will come in stronger. Rather, in the majority of cases, the reverse is the case. A high amplification factor valve usually has a high impedance, and this high impedance does not match the coil in the anode circuit of that valve and the losses are greater then the gains. Also, by changing the valves, neutralisation is affected and the set becomes unstable as a consequence. Use only those valves for which the receiver is designed.