

Mainly About Construction

Trouble Tracking on the H.F.

COMPARED with almost any other wireless component the high-frequency transformer is a trouble-free and blameless piece of apparatus. Being in essentials merely several coils of wire properly spaced and brought out to pins for connection to the rest of the set, it can hardly fail to work provided it is of suitable type. Yet for all its simplicity the work it carries out is of a highly complicated character, so that it is quite possible for a small fault in an H.F. transformer to make a big difference to the working of a set.

H.F. transformer troubles are best dealt with according to the way in which they affect reception. It is not very often that a fault in a transformer completely stops reception, but it will very often make a stable set unstable, give rise to flat tuning, or in other similar ways make the set misbehave. A good instance of the type of fault which a faulty H.F. transformer will cause is the one in which the symptoms are that the set will not neutralise. Generally, in such a case, the set does not fail to work altogether, but it works in an abnormal way, with peculiar symptoms.

Why Won't It Neutralise?

IN the ordinary course of events, a receiver which contains an H.F. stage will give pretty good results, even if the neutralising is not properly carried out. Failure to neutralise probably means that when the circuits are exactly in tune with one another the set is prone to oscillate at that point; and when the condenser neutralising condenser is readjusted to its correct position this instability disappears and the set becomes perfectly easy to handle.

Not infrequently, however, one comes across a set which simply will not neutralise properly. Adjustment of the neutralising condenser results in the

most violent yells and whistles imaginable.

Usually there is one pretty well defined point where this tendency to instability is at a minimum, but if the neutralising condenser is moved away from that point violent oscillation sets

in. If the coil is a home-made one, matters can soon be remedied by undoing it and changing over the two ends of the neutralising winding.

Another puzzling fault is the appearance of unusually flat tuning. Generally, the aerial condenser appears to

Another rather puzzling fault that high-frequency amplifying sets are prone to develop is a general falling-off in the sharpness and degree of high-frequency amplification. When the set is neutralised in an attempt to restore good amplification, it is discovered that adjustment of the neutralising condenser makes no difference whatever.

In such cases, whatever the position of the vanes—whether all in or all out—no difference to results is apparent. Very often the set is unduly lively when the H.F. circuits are in tune, and, in fact, it may oscillate badly at this point.

If you are experiencing this type of trouble you will probably find it is due to a break in the neutralising winding. Either the wire itself has broken, or is making unsatisfactory connection to the rim of the transformer, or else the pin of the transformer which carries the neutralising winding is failing to make proper contact with the rest of the set. Consequently, the set is behaving as though it were not neutralised at all, and when the connections are restored its behaviour should become the normal one of a properly neutralised receiver.

Weak Signals and Choking.

ANOTHER peculiar fault worth mentioning has a similar cause, but quite different effect. In this case the main trouble is weak signals.

Probably the set has no tendency to oscillate at all, and it may even show signs of choking. In this latter condition, reception, which is not too good to start, seems to fade away periodically, the stations getting weaker and weaker until they disappear altogether.

Generally, one finds that if one of the wires joining the grid-leak or condenser is touched, the set shows signs of life again, only to "pop off" again at the shortest notice. The word "choking" seems exactly to describe this condition, for the effect is as though the set were trying to work all right, but the signals are continually choked back and suffocated.

Very often this state of affairs can be traced to the fact that there is a break in the secondary winding of the H.F. transformer.

Possibly the wire is continuous throughout, but is not making proper contact to one of the pins, or one of the pins is not making proper contact to its corresponding socket to which the rest of the circuit is wired.

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in and frequently spoils reception. In other words, the neutralising condenser appears to be acting rather like a reaction condenser, except for the fact that one cannot reduce reaction sufficiently by it, and the reaction effects are altogether too lively.

Such symptoms are very often due to the fact that the connections to the neutralising windings have been re-

tune quite well, but the tuning on the high-frequency condenser is inexplicably broad and instead of stations being confined to one or two degrees on the dial they are spread out over quite a wide area.

When the N.C. Goes on Strike.

VERY often in such cases the set appears to neutralise fairly well at one point, but not over the whole range. (Flat tuning of this type very often occurs where a home-made H.F. transformer is employed, or it may be due to the use of a very high impedance R.C. valve.)

Such symptoms generally arise because the primary winding has too many turns for its particular valve, so in all such cases a reduction in the number of turns of the primary winding should be tried. All that is necessary is to take off a few turns at a time, say, half a dozen, until the desired degree of selectivity has been obtained.

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