

ANTIQUE RADIOS

Loudspeakers and things.



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IN MOST INSTANCES, YOU WON'T BE able (or permitted) to plug in or make any tests on a set that you might want to purchase, so your decision must be based entirely on your visual inspection. Actually, being able to plug in a set isn't really that important—there have been only two sets that I was able to listen to before buying. If the set has a worn line cord, as practically all do, you wouldn't plug it in anyway. Suppose you plug in a prospective set and it doesn't light up at all. Would you reject it? If you did, you might be making a big mistake. I always prefer to repair a radio or TV that's "dead," rather than one with distorted or intermittent sound, or a wavy picture.

Restoration

I've got a Philco Model 650, from about 1936. Over 50 years old, the set shows its age. Having a collection of antique radios, I bought the set (the left one in Fig. 1) just to get a part for another set (the right one in Fig. 1). I don't think that \$20.00–\$25.00 is too much to pay for a parts set to get a major component. What should we do with what's left over? Well, let's restore it! Sometime in the future, I'll bet that this derelict will be the antique radio of the month.

The cabinet has a lot of damage, especially to the veneer, but we won't get into any woodwork this month. We'll concentrate on getting it working.

Not only is the veneer damaged, but the frame is coming apart also. The grille cloth is worn and torn, there is a knob problem, and the escutcheon is missing. There's

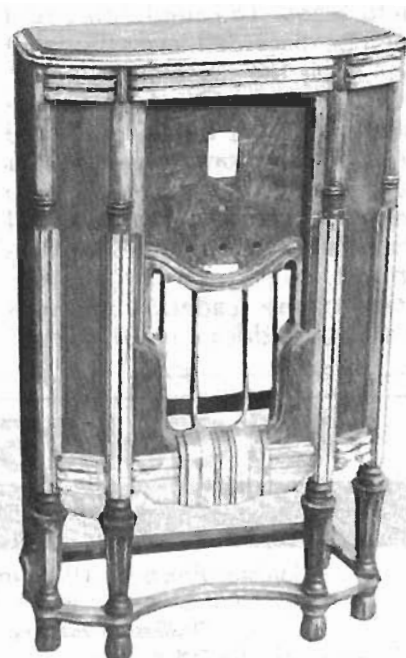
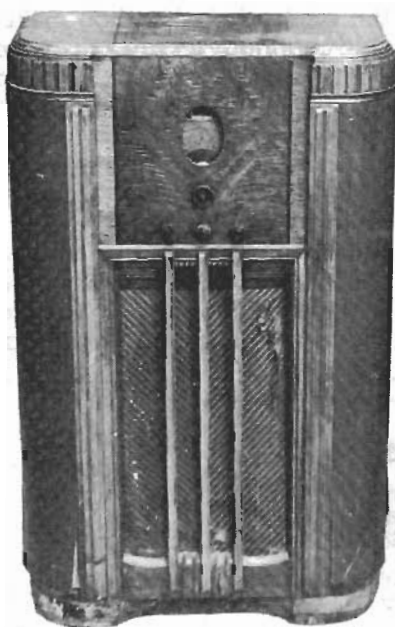


FIG. 1

nothing I hate more than finding an antique radio with the escutcheon missing. It's like taking its identity away—and I won't be able to make one as easily as I have for some other radios.

Besides the multi-band dial, there's also the Philco shadow-meter tuner—that is going to be a tough escutcheon to make. I'll have to get a photo of the same model to copy it. As you can see, this Philco has every defect that an antique radio can have. It would take a true antique radioer to see any possibilities in that mess.

Dynamic loudspeakers

The Philco Model 650 has a component problem: the loud-

speaker, or the lack of one. The set was purchased for the sole purpose of getting the electro-dynamic loudspeaker for another radio of mine in which the speaker had a damaged voice coil and cone, but the field coil was still intact. Since the field coil (or a substitute) must remain in the circuit (for the Philco 650, but not all antique radios), I think I'll put the damaged speaker in the bottom of the cabinet, so that I can at least connect the field coil.

The purpose of the field coil is primarily to create an electro magnet. On sets where the field coil gets its DC voltage from a separate source, or from a battery, as in most auto radios, it can be discon-

nected when replacing with a permanent-magnet loudspeaker. However, in most antique radios, the field voltage is taken right from the set's power supply, so the field coil is actually shown schematically as part of the power supply—removing it would disable the power supply.

In a way, using the field coil in that manner was an economy move by the early radio manufacturers. For us antique radioers, we would rather see a separate choke coil installed. Then we could replace the electro-dynamic loudspeaker with a permanent-magnet type by just disconnecting the field leads. The field coil could then be discarded, even though it was rarely the cause of trouble.

The last time I made that statement about the durability of field coils, it drew considerable reader response from radiomen who were not in complete agreement. I thank all who took time to correspond, even just to disagree. Many of the readers' comments were very educational. However,

looking at my collection of antique radios, there's not an open or shorted field coil in the lot.

Yes, an open can occur in the winding of the field coil; a resin block, corrosion, overloading, or even a faulty speaker plug can give that indication. If the field coil is part of the B supply, it will completely disable the receiver.

Often the field-coil winding gets its voltage from a separate source or rectifier. In that case, there may be a weak signal from the loudspeaker, even though there is an apparent open associated with the loudspeaker field-coil winding. The slight residual magnetism is the cause. So, when you make a cold continuity test on a suspected open field coil, be sure to include all of the connecting wires and plugs. Also, be sure to set your ohm meter to the proper range; some field coils have resistances up to 2000 ohms.

If an open is found, and it is definitely in the field winding, remove some of the insulation where the leads enter the coil.

That is a vulnerable spot, and often the trouble is there. You can then make the necessary repairs and replace the insulation.

Now, if you can't repair the field coil, or if the cone or voice coil are beyond repair, a replacement loudspeaker must be found. You may have to buy a whole receiver just to get the proper electro-dynamic loudspeaker. All electro-dynamic loudspeakers are not interchangeable, so be sure to compare them before making substitutions. If you can't find a suitable substitute, you'll have to go with a permanent-magnet type.

On most units where the field coil is part of the B supply, you will be able to install a choke coil as a substitute. To do that, you will have to know the resistance of the field coil you are replacing. Then obtain a choke coil with about the same DC resistance. Usually a choke coil having an inductance of anywhere from 3-8 henrys will be suitable; even one that is slightly more or less might be OK. When a substitute choke coil has less resistance than the field coil, the operating voltages throughout the receiver may increase over what they normally were.

Besides the two aforementioned field-coil uses, they sometimes had another use. An extra wire from the field coil could be used to supply negative C bias voltage for the receiver. So you can see that there is no easy way to just remove an electro-dynamic loudspeaker and install a permanent-magnet unit. Each receiver will have to be studied to determine what will safely replace a unit that can't be repaired.

Going back to the Philco 650, that console was directed toward those who wanted all that was available in a radio at that time. Besides being a superheterodyne, the set included the Philco shadow tuning. Also, there were provisions for short wave and tone control. That is a lot of radio. Everything appears to be in place and in fair condition. The multi-band superheterodyne with eight tubes and push-pull output should have an excellent tone and provide some fine listening. How much will it be worth when restored? I'd say about \$200.00. **R-E**