

The "Home-made" Three

Refinements for Smoother Operation

By "CATHODE"



THE improvement most urgently called for is the fitting of a proper panel and the inclusion of a filament switch providing greater convenience than the practice of connecting or disconnecting one of the battery clips. The measurements of the panel are: Length 1 1/2 inches, width 7 inches. The material used is of no particular importance, since the only component which is not at earth potential will be the reaction condenser when this is finally incorporated. A very useful and serviceable panel which, although being very much less expensive than the conventional ebonite, is nevertheless almost as efficient, is one of three-ply coated with duco finish. This, when dry, is rubbed with fine glasspaper, reduced and polished with any suitable polish. The result is a handsome efficient panel. Where possible, the duco should be sprayed on.

The baseboard being of a fair thickness, panel brackets should not be necessary. It is assumed that the variable condenser used will be of the single hole fixing variety, and where condensers having several mounting screws are used, the drilling template supplied with the condenser must be resorted to, the shaft of the condenser occupying the position shown in the diagram for the single hole mounting. Only one tuning condenser (that already in use) and the filament switch will be mounted on the panel at this stage, but it is wise to do all the drilling before the panel is screwed to the baseboard to avoid the difficulty of doing it later.

The tuning condenser may be removed from its temporary mounting and mounted on the panel proper. The filament switch should also be mounted on the panel about 3 1/2 inches from the end. In making a choice of a filament

switch avoid those in which a small lever is rotated through an angle of 90 degrees to switch on or off; switches of this type are quite satisfactory in most circumstances but, mounted below two projecting knobs, as will be the case here, they are distinctly inconvenient—a tumbler or toggle switch, or a

stead take it direct from the detector valve-holder to the gridleak; it will be advisable to leave the wire a little longer than is absolutely necessary, in order to avoid having it too short to make the necessary connection when the temporary gridleak is replaced by a commercial product.

IN our issue dated September 6 "Cathode" described a three-valve resistance-coupled set that could be assembled for a very modest sum. The plan adopted has been to describe a number of improvements in each article, but to arrange matters so that only one such improvement need be carried out at any one time. Readers will have recognised that the aim of the "Home-made Three" is to cater for those of us whose pocket books are unburdened with undue adipose deposit and, if it were made necessary to carry out a number of alterations at once, financial embarrassment might be the result.

switch of the pull-out type, will be more suitable.

The connections to the tuning condenser will, of course, be unchanged. It is quite possible, if the condenser has previously been mounted right down on the baseboard, that one or both of the wires connected to it will be too short to reach it in its new position.

Filament Switch.

THE inclusion of the filament switch will necessitate certain changes in the wiring. As things are, a wire runs from the positive filament terminal of the detector valve-holder to the "A" terminal on the terminal strip and thence to the low potential end of the detector gridleak. Disconnect this wire from the "A" terminal and in-

Transformer Coupling.

HAVING arrived at this stage, the receiver may be put into commission again until its constructor feels disposed to indulge in further expenditure to bring it nearer its final form. It is suggested that, as the next step, the resistance-capacity coupling between the first and second audio valves be replaced by a transformer, thus substantially increasing the volume. Before describing this change, a word of explanation is desirable.

The lay-out has been so arranged that the constructor is offered a choice between a single output valve, equipped with a choke-capacity output filter, and a pair of output valves arranged in push-pull. The merits of push-pull amplification have been discussed before in these columns; for the present it will be sufficient to say that the volume obtainable from the two valves will be substantially greater; on the other hand, the drain on the "B" battery will be several milliamps greater, thus shortening its life, and it will be necessary to purchase both input and output push-pull transformers at once instead of, as can be done in the instance of the single output valve, purchasing and installing the intervalve transformer first, leaving the output filter to be added when convenient.

Both arrangements are illustrated, the push-pull system in Fig. 2, and the

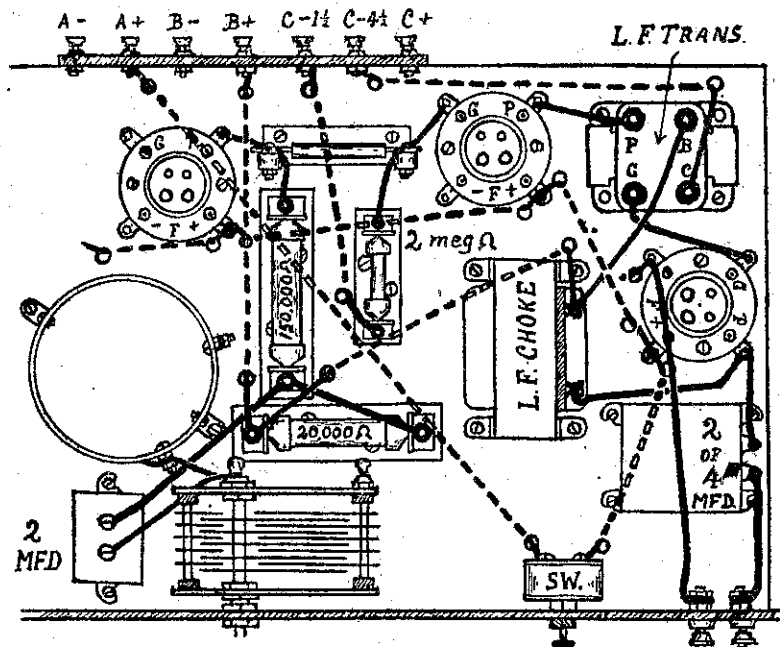


FIG. 1
Practical wiring diagram of altered portion of Receiver, with exception of negative filament circuit.

holder (where there is, of course, one wire already connected). This completes the wiring of the filament switch.

To put the receiver in working order again all that is necessary is to connect the wires left at a loose end when the little terminal strip carrying the loudspeaker terminals was removed, to the same terminals, now mounted on the panel in the position indicated. If the wires are too short, they must be replaced by longer ones.

single valve arrangement in the wiring diagram showing the result of making all the improvements suggested in this article. The necessary alterations in wiring are rendered so clear by the illustrations—particularly if these are compared with the original wiring diagram in the issue of September 6—that a verbal description seems unnecessary.

The coupling condenser left over when the resistance capacity coupling is replaced by a transformer may be

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