

A3 and A3A RECEIVERS

Service Notes on Method of Ganging

We have received from time to time requests from our Dealers for information concerning the trimming condensers on our A3 and A3A equipments, and it is felt that the information given below will be of general interest.

In the case of the A3 receiver, refer to Fig. 1, from which it will be seen that there are two condensers marked Trimmer No. 1 and No. 2 which are in the aerial and grid circuit of the screen grid valve respectively.

To adjust : Tune in a fairly weak station on about 300 metres, increase reaction to the point of oscillation, and carefully retune to the well of the carrier, which will be clearly defined as the central position between the two peaks of oscillation. The tuning control should not be touched further. Now decrease reaction until the signal is just audible, and adjust the hexagon nut on trimmer No. 2 until loudest results are obtained, adjust No. 1 in a similar manner. To make certain that the ganging is as accurate as possible, the whole operation can be repeated.

In the case of the type A3 receiver, considerable improvement in the general selectivity will be obtained by replacing the fixed resistance, which is shunted across aerial and earth by a 500 ohm variable resistance similar to that incorporated in the A3A. Reference to this receiver will show the method of fitting quite clearly. This component can be supplied at a cost of 3s. net, complete with knob. Careful adjustment of this control is necessary if the best results are to be obtained from it. When interference from an unwanted station is being experienced, put the "local distance" switch down, place your hand at the back of the receiver and rotate the wheel until both stations are very much reduced in volume. If reaction is now applied, and the tuning control slightly re-adjusted, it will be possible to bring in the required station with the minimum of interference. In many cases selectivity may be further improved by careful adjustment of the trimming condensers to suit the particular locality in which the set is operated.

With reference to type A3A receiver, it will be seen from diagram Fig. 2 that there are three trimming condensers in this model :

No. 1	Aerial circuit
„ 2	Grid „
„ 3	Anode „

A small screwdriver is needed : this should have an insulated handle, and the blade, with the exception of the tip, covered with a piece of valve rubber, or other insulated sleeving.

To adjust : Tune in a weak station on a wave-length of approximately 210 metres, i.e. the station working on the lowest wave-length which is obtained clearly in your locality, apply reaction to just below the oscillation point, and turn the adjusting screw on trimmer No. 3 slightly either way until maximum results are obtained. This should not be touched again. Next tune in to a station about 300 metres, or to a wave-length slightly lower than that portion of the scale where interference is most severe (not exceeding 400 metres) and carry out adjustments to trimmers No. 2 and 1 in exactly the same way as outlined above for the A3.

Another method is to note the deflection of a volt-meter connected between the detector valve anode and earth. This should be a reliable instrument ; the internal resistance, however, need not exceed 200 ohms per volt. In the absence of signals, the plate voltage will measure approximately 110, but as the tuning knob is rotated to tune to a station the volt-meter needle will be observed to rise : a maximum value being obtained when the set is exactly in tune. It follows, therefore, that if the trimmers are adjusted in the manner and order described above, with a view to obtaining a higher deflection if possible, then the instrument is accurately ganged to the frequency of the incoming signal ; at this point the movement of any one trimmer in either direction will cause the voltage to drop. Definite figures cannot be given since these depend upon the strength of received signal.

Summarising, it will be noted that the ganging operation may be carried out in two ways :

1. Aurally.
2. By the use of an instrument.

In general it will be found that the aural method used on a weak station is most satisfactory, as adjustments may be carried out under the operating conditions of the particular station subjected to interference.

The advantage of the instrument method is that it permits the adjustment to be carried out on a strong signal.

The alteration of the trimmers as adjusted when leaving our Works should be undertaken with the greatest care and forethought. If the ganging is correct, it should not be necessary to adjust the tuning control by more than one or two metres when reaction is increased from a minimum to just below the oscillation point, a fairly weak station should of course be used for this test.

We have described the method of ganging the A3A in some detail. For this reason it should not be thought that it is necessary, or even desirable, to carry out the operation in its entirety in every case. Almost always a very slight re-adjustment of trimmers Nos. 1 and 2 only will give just that little extra selectivity required on one particular section of the waveband, which is all that we are attempting to describe.

A3

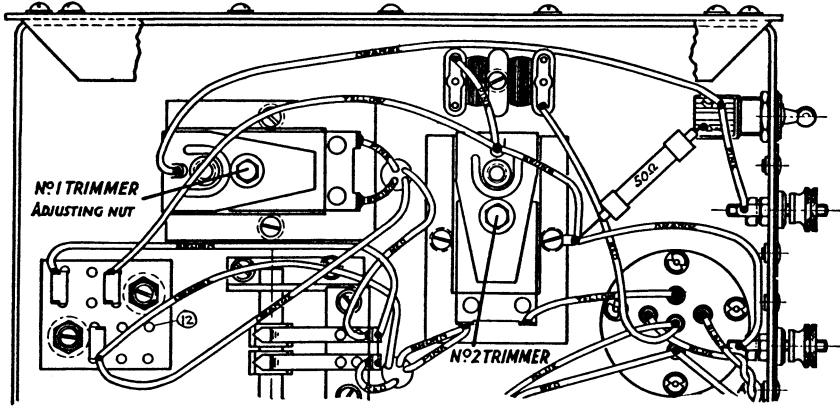


Fig. 1.

A3A

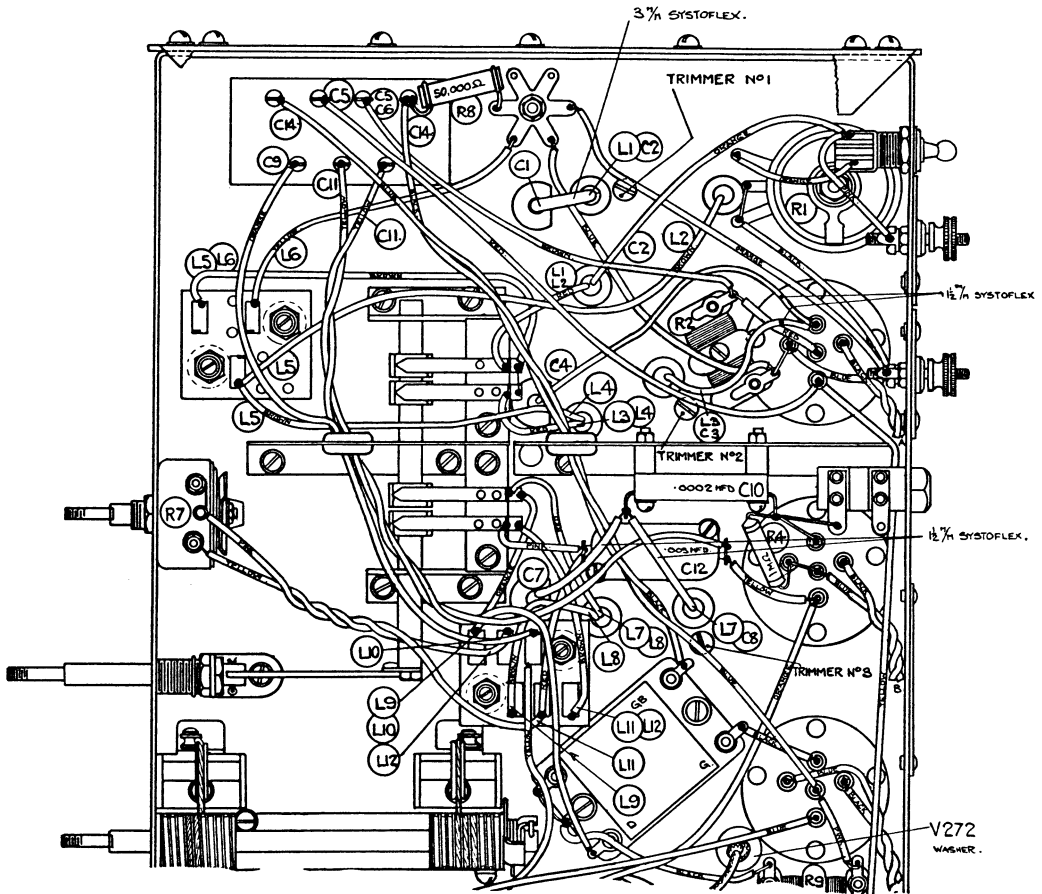


Fig. 2.