

OPERATING INSTRUCTIONS MODEL RFO-5

The Model RFO-5 Oscillograph is fundamentally identical to the RFO-4 illustrated in the enclosed operating instructions. The RFO-5 has, however, provided in addition to the narrow band frequency modulated oscillator of the RFO-4, which was designed for use with amplitude modulated receivers, a wide band frequency modulated oscillator for the servicing of frequency modulated and television receivers.

You will note that some of the controls from the main panels have been rearranged to make provisions for the two additional controls which have been added. These controls and their functions are as follows:

PHASING CONTROL:

Refer to Fig. 67, page 29, of technical bulletin #150 and you will note the effect of phase distortion on intermediate frequency stages as it shows up on the response curve. In cases where phase distortion exists phasing control will bring the two traces together so that they appear as illustrated in Fig. 63, page 28, which is a condition of no phase distortion. As a result of the incorporation of this control, it is possible to eliminate the 120 cycle sweep and use only the conventional 60 cycle sweep for the frequency modulated oscillator. The 120 cycle sweep as used in the RFO-4 is illustrated as position 8, page 3, technical bulletin #150.

FREQUENCY MODULATED SELECTOR CONTROL:

This is a four position control which selects either the narrow band frequency modulated oscillator (1000 KC with 10 to 30 KC sweep) for use with amplitude modulated receivers, or the wide band frequency modulated oscillator (23 KC with 100 to 900 KC sweep) for use with frequency modulated or television receivers. In either the narrow or wide band position, the frequency modulated oscillator can be modulated internally at 60 cycles (10 to 30 KC or 100 to 900 KC sweep) or from an external source such as phonograph pick-up, audio oscillator, or any other audio frequency source capable of delivering approximately one volt of audio frequency. The KC sweep control is connected as an attenuator between the external modulator and the modulating tube so that if the modulating voltage is in excess of that required for normal modulation it may be reduced by retarding the KC sweep control back towards the counter clockwise position.

EXTERNAL OSCILLATOR:

The use of an external oscillator to supply any frequency within the limits of the oscillator is to be used in the same manner as illustrated for the model RFO-4, that is, the external signal generator is to be connected in at the binding post labeled "Ext. Osc." the ground, of course, being between the ground of the signal generator and the model RFO-5. When using the external oscillator with the narrow band frequency modulated oscillator, which has a fundamental frequency of

1000 KC, the external oscillator should be set 1000 KC above or below the desired frequency. In the case of the model RFO-4, the fundamental frequency of a narrow band frequency modulated oscillator was 665 KC, but please note that this has been increased to 1000 KC for increased convenience of determining the setting of the external oscillator. Using the external oscillator with wide band frequency modulated oscillator which operates at 23 megacycles, the same procedure should be followed, that is, set the external oscillator at 23 megacycles above or below the desired frequency.

23 megacycles was chosen as a frequency for the wide band frequency modulated oscillator since the fixed harmonic of this (46 MC) falls in the center of the present frequency modulated band, which extends from 43 to 50 megacycles. By this selection it is often possible to effect an alignment or a test of frequency modulated receivers without using any external oscillator. It is often desirable to test out a frequency modulated receiver before returning it to the customer and test can be made by merely feeding a phonograph pick-up or other external audio frequency source in through the model RFO-5 and using it as a miniature frequency modulated transmitter to check quality of a receiver before returning it to the customer.

Another reason for the selection of 23 megacycles for this fundamental frequency is that many frequency modulated receivers will be operating with 3 megacycles intermediate frequency amplifiers and it is very convenient to set the external oscillator at exactly 20 megacycles in order to have a difference in frequency of 3 megacycles for intermediate frequency alignment.

IMPORTANT NOTICE:

Technical Bulletin #150 and the operating instruction manual "Cathode Ray Oscilloscope & Operation" are being reprinted to include this information on the model RFO-5, these reprints to be forwarded immediately to you as soon as they are off the press. Be sure to send in the registration card so that we will have the correct name and address to which to send the revamped bulletin.