

2. Modulating to produce Bar Patterns

Vertical and Horizontal bars on the picture tube raster offer a method of checking horizontal and vertical linearity adjustments of a television receiver.

By using the audio oscillator similar to the Jackson Model 655 capable of generating multiples of the horizontal sweep frequency (15.75 KC) it is possible to produce both vertical and horizontal bars with the TVG-2.

- a. Obtain a signal from the Variable Marker oscillator by the procedure previously described.
- b. Select either a Picture Carrier frequency and feed the RF Output into the antenna terminals, or select the Picture Intermediate frequency and feed the RF Output to the grid of the first Video IF stage.
- c. Feed the output of the audio oscillator into the VIDEO MOD connector of the TVG-2.
- d. To produce horizontal bars to check vertical linearity, set the audio frequency oscillator to a multiple of the 60 cycle receiver vertical sweep frequency. As an example, if the audio frequency is 600 cycles, 10 horizontal bars should appear. The top or the bottom bar may be decreased in width, due to the retrace time of the receiver vertical sweep oscillator.
- e. To produce vertical bars to check the horizontal linearity, set the audio oscillator to some multiple of the set 15.75 KC horizontal sweep oscillator frequency. If the audio oscillator frequency is 157.5 KC, ten vertical bars should appear. If the frequency is 78.75 KC, 5 vertical bars should appear. Equal spacing between bars indicate good linearity.

Note: For satisfactory modulation, either video or bar pattern, between 5 and 10 volts will be necessary at the VIDEO MOD connector.

G. GENERAL PROCEDURES FOR VIDEO, LUMINANCE, AND BANDPASS AMPLIFIER ALIGNMENT AND "I" AND "Q" RESPONSE CHECKS.

Note: The Video Amplifiers of Color T.V. sets have the same response as those of a Black and White set (See Figure 1). The additional circuit responses which must be checked in the color system are those of the Luminance and Bandpass Amplifiers as well as the "I" and "Q" channels. The Luminance Amplifier output is the Y signal and has a response as shown in Figure 2. (The Luminance Amplifier is sometimes called the 2nd Video Amplifier or Y Amplifier or a combination of these three terms.) The Bandpass Amplifier selects and passes the portion of the overall video signal (See Figure 1) which contains the color information (See Figure 3). This information is in turn fed to the "I" and "Q" demodulators and the I and Q signals are developed. The "I" and "Q" signal responses are shown in Figure 4 and Figure 5 respectively.

Some Color systems use what is called R-Y and B-Y Transmission. The "I" and "Q" signals and demodulators are now referred to as the "R-Y" and "B-Y" signals and demodulators respectively. In this system the R-Y and B-Y signals both have a response as shown in Figure 5.