

EQUIPMENT STORE NOTES.

Transistors.....

The equipment store still has available a quantity of general purpose types ONLY. Price...12c each over counter or 15c each posted.

Relays.....

Also available are some small relays. These operate very satisfactorily on 12 volts and have four sets of change over contacts. As already mentioned they are reasonably small and are just the thing for those remote switching requirements.

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FOR SALE..... 2 Kræesler Magnavox Woofer Loudspeakers,
15 inch diameter, 25 watts RMS each.
Tone resonance 35cps. \$70 pair.

G. H. Thompson
15 Proctors Rd.,
Dunyrne. Phone 24875.

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POTENTIOMETER TRACKS...

There are probably some readers who are a little hazy as to the exact meanings of the terms "log" and "anti-log" etc., this article I hope will help to clarify the subject a little.

The resistance law or taper is the manner in which the resistance changes with rotation of the shaft. The diag. shows the basic laws found in the vast majority of radio applications. It should be noted, however, that when a carbon track pot. includes a switch the first 20% of the movement is concerned with the switch function; the resistance variation is then condensed into the remaining 80% rotation.

Curve 1 shows the straightforward linear taper. This type of resistance law is commonly used on voltage control potentiometers, on tone controls and other applications requiring straight division of input voltages.

Curve 2 shows log law where the resistance increases only gradually during the early movement of the shaft, squeezing most of the resistance variation into the final 20% of the rotation. This type of taper is roughly in accordance with the natural sensation of loudness (our ears follow a log law in their sensitivity to sound), and such components are necessary for the conventional type of volume control in order to provide an apparent linear increase in sound output as the shaft is rotated: if a linear control is used in this position almost all the entire noticeable change in volume takes place in the first few degrees of rotation.

Anti-log law tracks are the opposite of the log taper, providing a big change in resistance in the first half of the clockwise rotation. These tracks are useful in such applications as cathode gain controls and for some biasing networks.

Where the resistance law is unknown it can be fairly readily found with the aid of an ohmmeter. First measure the full resistance value; then the resistance with the shaft turned half way. If the second value is half the total, it is certainly linear; if only 10-20% of the total, then it is a log law component; and if about 80% of the total, then it is anti-log. Semi-log and linear tapered tracks have values roughly midway between linear and log; to decide exactly which of these two it will be necessary to draw a rough graph. However, neither of these tapers are very common, although semi-log is used in some tone control circuits.

NOTE... logarithmic taper (sometimes called "audio taper") and antilogarithmic ("reverse taper")

Graph showing the above curves is on page 2.

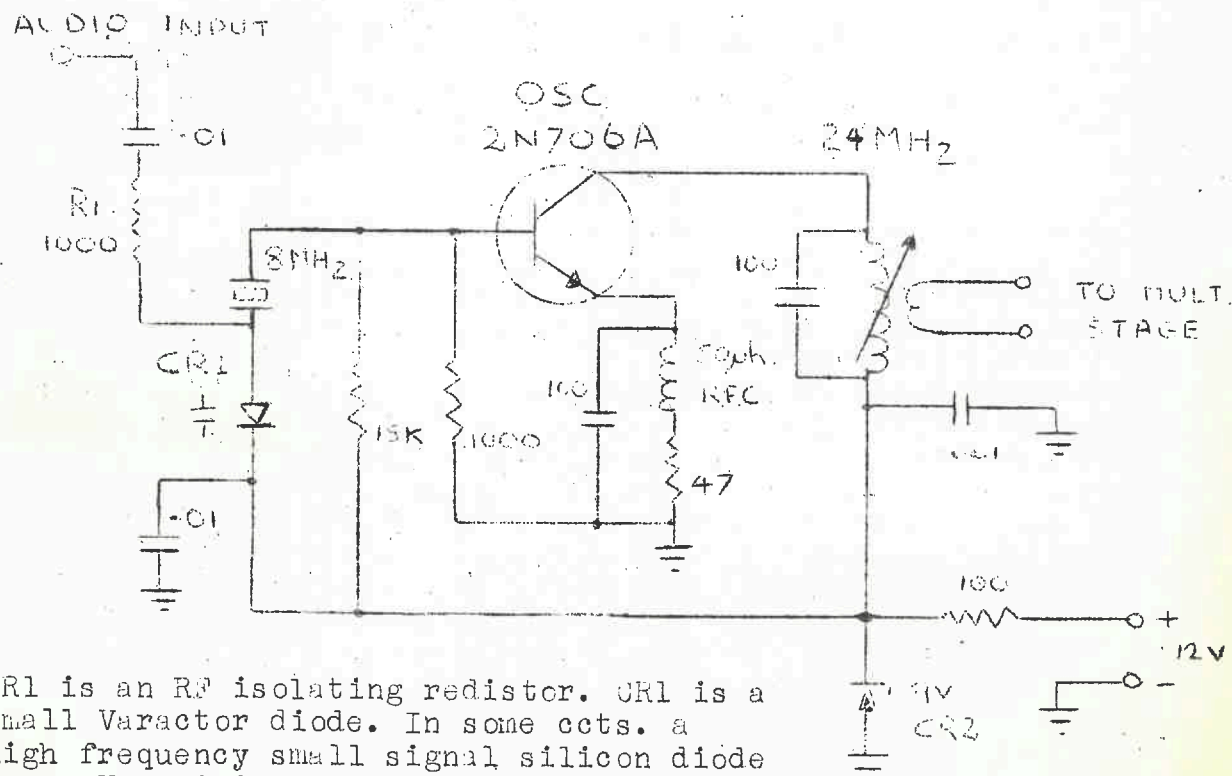
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TECHNICAL ARTICLE..... Barry VK7ZBJ.

A practical way to obtain f.m. with transmitters that use crystal oscillators is to employ the method shown in the diag. The junction capacitance of CR1 is varied by the incoming audio voltage. As the capacitance of CR1 varies, the oscillator frequency changes because the crystal is "pulled" by the action of the Varactor diode. Only a few volts of audio are needed to provide the necessary frequency swing.

A simple transistorized audio amplifier of two or three stages is usually sufficient for this purpose. The amount of frequency swing is controlled by the setting of the audio gain control (deviation control). This type of circuit is useful with transmitters operating at 50MHz and above. The oscillator is followed by additional frequency-multiplier stages, thus assuring ample frequency deviation to provide a suitable f.m. signal.

This technique, though shown here with a Class-A oscillator-tripler, can be applied to other oscillator circuits too. It can be used with overtone crystal oscillators as well, provided the order of frequency multiplication in the transmitter is high enough to give ample frequency swing at the carrier frequency.



R1 is an RF isolating resistor. CR1 is a small Varactor diode. In some ccts. a high frequency small signal silicon diode (or a VHF silicon transistor) can be used for the same purpose.

NOTE.... The supply rail is regulated by zener diode CR2.