

# OPERATING MANUAL

# TE-20

RF SIGNAL GENERATOR

## SPECIFICATIONS

|                         |  |
|-------------------------|--|
| FREQUENCY RANGE .....   | 120 Kc to 260 Mc in 6 bands              |
|                         | Band A 120-320 Kc                        |
|                         | Band B 320-1000 Kc                       |
|                         | Band C 1-3.5 Mc                          |
|                         | Band D 3.2-11 Mc                         |
|                         | Band E 11-38 Mc                          |
|                         | Band F 36-130 Mc (Fund.)                 |
|                         | 120-260 Mc (Harm.)                       |
| OUTPUT (RF).....        | High (100,000 $\mu$ v max.)              |
|                         | Low (100 $\mu$ v max.)                   |
| OUTPUT (Audio).....     | 400 cps., approx. 8v.(adjustable)        |
| MODULATION.....         | 400 cps., internal                       |
| POWER REQUIREMENTS..... | 105-125 volts, 50-60 cps. AC             |
| TUBE COMPLEMENT .....   | 1-12BH7                                  |
|                         | 1-6AR5                                   |
|                         | 1 Silicon Rectifier                      |
| DIMENSIONS.....         | 7"H $\times$ 10 1/2" W $\times$ 5-3/8" D |
| SHIPPING WEIGHT.....    | 9 lbs.                                   |

## FUNCTIONS OF CONTROLS

A good understanding of the controls is essential if optimum results are to be obtained with this instrument. The function of each control is indicated briefly in Figure 1 and in more detail below.

### VERNIER TUNING DIAL

The 6 bands of frequencies are calibrated on the vernier-controlled tuning dial, and cover the total range of 120 Kc to 260 Mc. Band F covers two ranges—36 to 130 Mc (fundamental) read on the upper portion of scale F, and 120 to 260 Mc (2nd harmonic) on the lower portion of this scale.

### FREQ BAND

This is a rotary switch which selects one of the 6 bands of frequencies on the tuning dial. The switch should be set to the band which includes the desired frequency. Actual frequency selection is then accomplished by means of the tuning dial.

### MOD

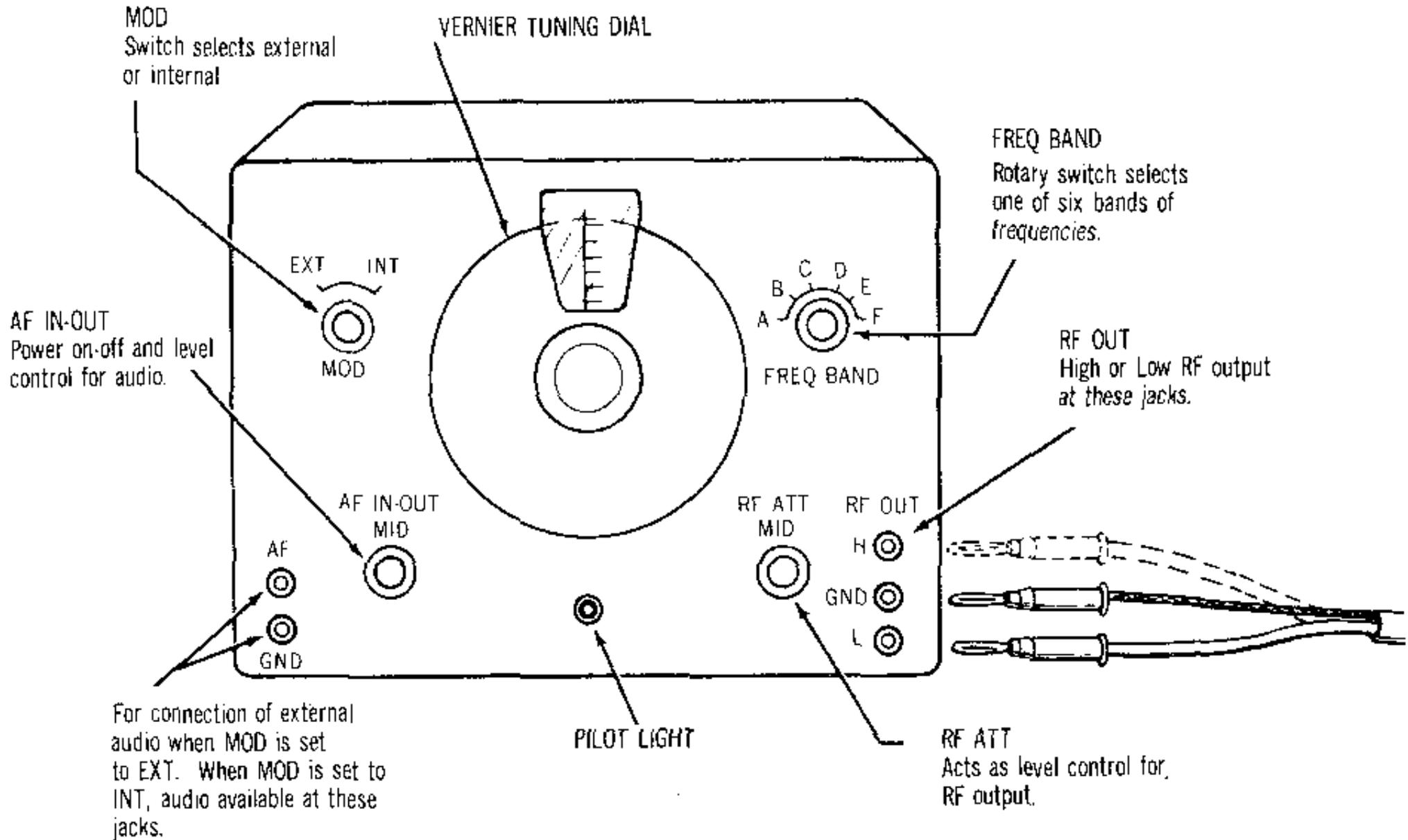
In the INT position, the internal 400 cps audio signal modulates the RF output. While in this position, a 400 cps audio signal (up to 8V.) is also available at the jacks marked AF and GND. The level of this audio signal is adjusted by means of the AF IN-OUT control.

In the EXT position, the internal audio signal is cut off and the RF output is unmodulated. However, insertion of an external audio frequency (50 cps to 15 Kc) between the AF and GND jacks will cause the RF signal to be modulated by this frequency. The audio input level is adjusted by means of the AF IN-OUT control.

### RF ATT

This control is used to adjust the level of the RF output.

# LOCATIONS AND FUNCTIONS OF CONTROLS



## HIGH AND LOW OUTPUTS

Both high and low level jacks are provided on the instrument. The high level jack (H) provides a maximum of 100,000  $\mu\text{V}$  and the low level jack (L), 100  $\mu\text{V}$ . The level of both outputs may be adjusted by means of the RF ATT control.

A shielded test cable, terminated at one end with banana jacks and at the other with alligator clips, has been supplied for connection of the signal generator to equipment under test. Always make sure the black shielded plug is connected to the corresponding black GND jack on the generator or damage to the instrument may result.

## WARNING

Never connect the shielded lead directly to the chassis of AC/DC equipment. To prevent danger of shock, place a 0.1  $\mu\text{f}/400\text{v}$  capacitor in series with the shielded lead before connecting it to such equipment.

## USING THE TE-20

An RF signal generator is an invaluable aid in receiver testing and alignment. For example, by inserting an RF signal at various points in a receiver, the proper functioning of each stage and its associated coupling circuits can easily be determined. This procedure is known as the signal substitution or signal injection method of servicing. The RF signal generator is also universally used for receiver alignment. A superheterodyne receiver may have from three to seven or more tuned circuits, each of which has to be in resonance at its proper frequency for best operation.

The procedure for aligning AM or FM receivers will vary from unit to unit. It is always recommended, therefore, that the manufacturer's service and alignment notes be referred to before attempting alignment. These usually contain specific instructions in the procedure to be followed for optimum results. There are many other uses to which a signal generator may be put, but they are far too numerous to list here.

An extremely useful text is that found in the Howard W. Sams Photofact publication, "101 Ways To Use Your Signal Generator" by Robert G. Middleton "How To Use Signal and Sweep Generators" by J. Richard Johnson (a Rider publication) is also recommended. The text covers a wide range of AM signal generator applications, including AM receiver alignment.

