

FERRANTI

"X" BAND NOISE TUBE

A tube specifically designed for noise measurement at "X" Band frequencies. The small size and low current drain, coupled with stable noise output make this tube particularly suitable for applications where a built in noise monitoring facility is required.

PHYSICAL DETAILS.

The tube is normally supplied in a waveguide mount. The dimensions of this mount and of the tube are shown on the drawing overleaf. The tube can be supplied without the mount if desired.

HEATER.

Heater Voltage 6.3 volts.
Heater Current 0.95 amp. (nom.)

RATINGS AND CHARACTERISTICS.

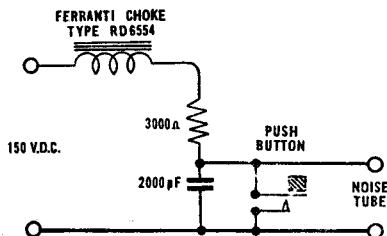
Striking Voltage 1150 volts.
*Normal Operating Voltage 50 volts.
Normal Operating Current 35 mA.
Max. Operating Current 50 mA.
Min. Series Resistance 3000 ohms.
†Available Noise Power 15.25 ± 0.25 dB.
‡V.S.W.R. over band 9.375 ± 350 Mc/s. < 1.25
Insertion loss of
'unstruck' tube on mount < 0.2 dB.

§Bandwidth: The wave guide mount is normally fitted with a three screw matching section which is tuned and locked to a centre frequency of 9375 Mc/s. at a V.S.W.R. of 1.01.

Waveguide Mount: The mount can be supplied with or without a built in dummy load as required.

OPERATION.

The striking voltage is 1,150 and the diagram below gives details of a circuit which enables the high striking voltage to be obtained from a low voltage supply. The push button which is normally open is depressed for a second or two and then released and the resulting high voltage transient is sufficient to strike the tube.



The noise output remains stable over long periods, but to ensure stability a resistor having a value of at least 3,000 ohms must be connected in series with the tube.

*at $I_a = 35$ mA.

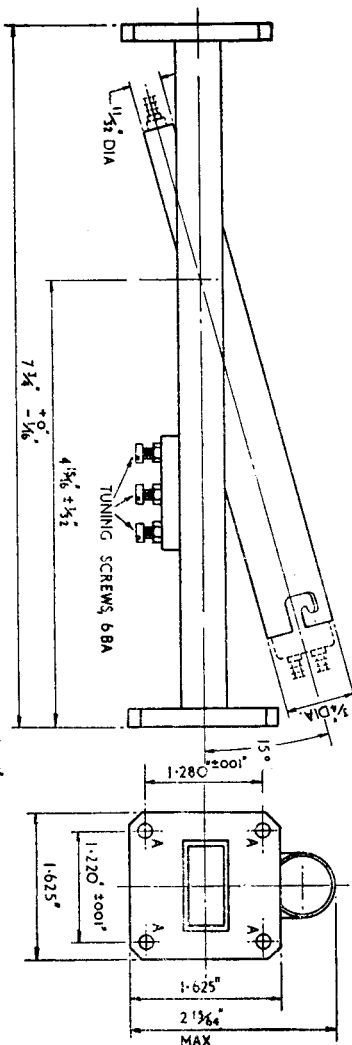
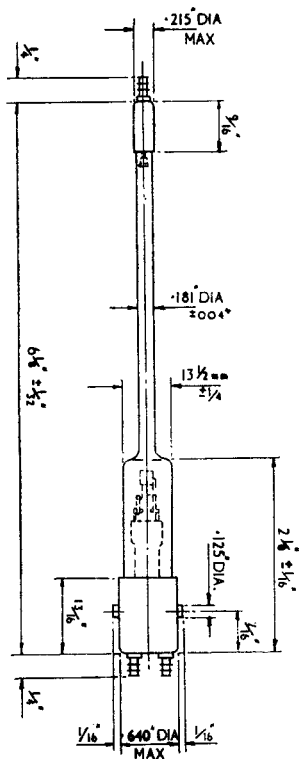
†The available noise power is referred to thermal noise at 17°C and does not include the image frequency contribution.

‡The V.S.W.R. refers to the match obtained with a 'struck' tube in a mount tuned to a centre frequency of 9,375 Mc/s. with the waveguide terminated by a matched load. At 9,375 Mc/s. the V.S.W.R. is 1.01.

§On request the waveguide mount can be supplied with unlocked tuning screws, so that the user can tune the mount to any desired centre frequency in the band 8,500 to 10,500 Mc/s.



TE10



A-4 HOLES IN EACH FLANGE .149 DIA $\pm 0.002 \text{ '}$