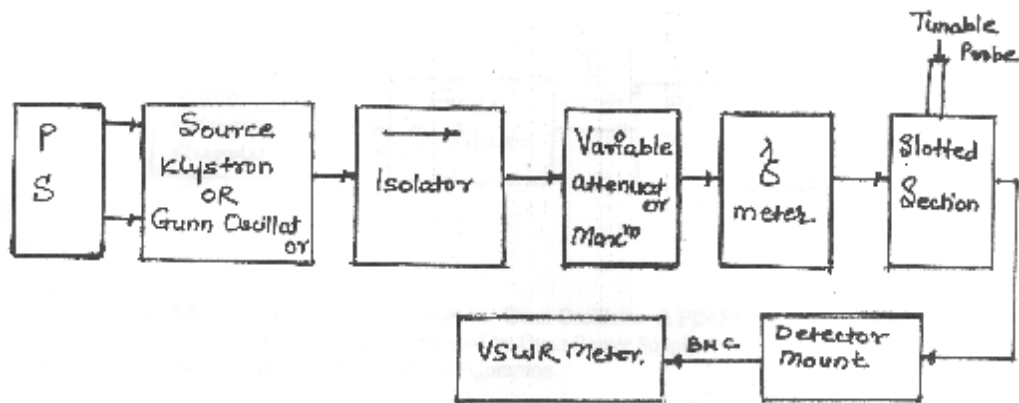


Installation Procedure for Klystron Based Microwave Test bench Model

MT9000



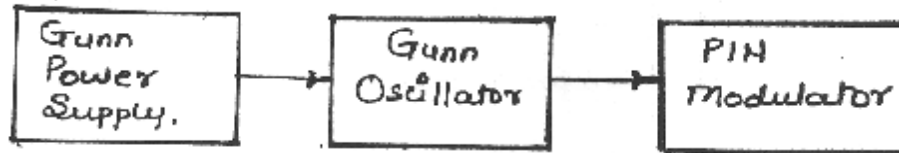
- Power On Klystron Power Supply.
- Put HT Switch in Off Position
- Put Meter Select "C" i. e in Current Mode
- Beam Voltage Knob in Anticlockwise direction
- Repeller Voltage Knob in Clockwise direction
- Select AM Mode & Put f / A Anticlockwise
- Switch ON HT.
- Wait for 4-5 min till current meter shows 7.11mA
- Increase beam voltage to 300V Such that Current Meter will indicate 10Ma (approx 10 -21mA). [Also observe as we increase beam voltage, beam current also increases)
- Adjust VSWR Meter for Maximum Power [Repeller V (270V) / f /A] By Moving Reppler (-270 to -10) Range and Adjust o/p with the help of f /A Knob.

Scientech Technologies Pvt. Ltd.

94-101, Electronic Complex, Pardesipura, Indore- 452 010 India.
 Tel.: 91-731-2570301, 2576472, Fax: 91-731-2555643
 Email: info@scientech.bz, Web: www.scientech.bz, www.caddo.bz

Installation Procedure For Gunn Oscillator Based Microwave Test bench Model

MT9001



- Klystron Source will be replaced by Gunn Oscillator & PIN Modulator.
- Klystron Power Supply is replaced by Gunn Power Supply
- All other Bench. Components are Common
- Put Meter Select Switch in Voltage Mode
- Gunn Bias Knob Fully anticlockwise direction
- PIN Bias Knob Fully anticlockwise direction
- Switch ON Gunn Power Supply
- Increase Gunn Bias Voltage and note corresponding Current from the meter. It will increase upto certain value and then start decreasing with increase in Voltage (- ve resistance region).The voltage at which the current is maximum is called 'as **Threshold Voltage**.

Frequency Measurement

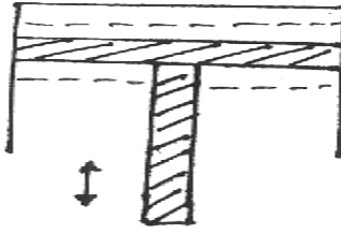
- Now By adjusting Modulation Amplitude and Modulation Frequency adjust bench for Maximum Power observed on VSWR Meter.
- Then Start Tuning Direct Readout Frequency Meter-such that you observe dip on VSWR Meter.
- Readout the dial of DFM which shows frequency of Microwave.

Scientechnologies Pvt. Ltd.

94-101, Electronic Complex, Pardesipura, Indore- 452 010 India.
Tel.: 91-731-2570301, 2576472, Fax: 91-731-2555643
Email: info@scientechnologies.com, Web: www.scientechnologies.com, www.caddo.com

Frequency Measurement

- Set test bench for Maximum Output Power.
- Then Start Tuning Direct Readout Frequency Meter such that you observe dip on VSWR Meter.
- Readout the dial of DFM which shows frequency of Microwave



Wavelength Measurement

- Connect VSWR Meter to slotted Sections Tunable Probe
- Tune the probe vertically & horizontally for Maximum Output Power Move the probe horizontally and note I Minima position from scale again move the probe and note II Minima.
- $\lambda_g = \text{Guide Wavelength} = 2 \times (\text{Distance between Two Minima})$
- $\lambda_c = \text{Cutoff Wavelength} = 2a/m$ where $m = 1$ $a = 22.86 \text{ mm}$ TE mode.
- $\lambda_c = 2 \times 22.86 \text{ mm}$

$$\frac{1}{I_0^2} = \frac{1}{I_g^2} + \frac{1}{I_c^2}$$

$$C = 3 \times 10^{10} \text{ Cm/Sec}$$

$$\lambda_0 = \text{Free space wavelength}$$

Sciencetech Technologies Pvt. Ltd.

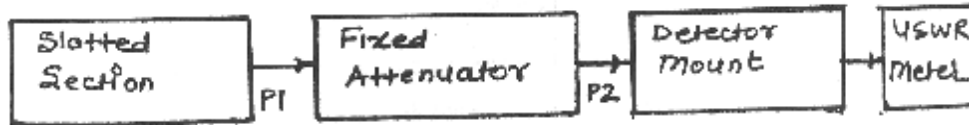
94-101, Electronic Complex, Pardesipura, Indore- 452 010 India.
Tel.: 91-731-2570301, 2576472, Fax: 91-731-2555643
Email: info@scientech.bz, Web: www.scientech.bz, www.caddo.bz

Optional Accessories

Microwave Attenuator : There are two types of Attenuator Fixed & Variable Attenuator.

Variable Attenuator is already connected in Main Bench therefore by varying control knob observe variation of power on **VSWR Meter**.

Fixed Attenuator : Modify Test Bench as following

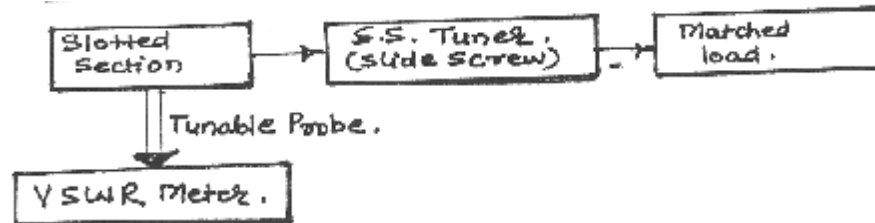


Connect VSWR Meter first at slotted section output and measure reading on VSWR Meter let it be P1.

Connect Fixed Attenuator and connect VSWR Meter at the output of Fixed Attenuator and measure reading let it be P2.

$$P2 = 70\% P1$$

VSWR Measurement



- Tune the probe for Maximum position on VSWR Meter and then adjust it to 1 on VSWR Meter.
- Move the probe on slotted section for Dip. At dip position VSWR Meter shows VSWR Meter for the particular setting of S.S. Tuner.

Scientech Technologies Pvt. Ltd.

94-101, Electronic Complex, Pardesipura, Indore- 452 010 India.
Tel.: 91-731-2570301, 2576472, Fax: 91-731-2555643
Email: info@scientech.bz, Web: www.scientech.bz, www.caddo.bz