LEADER ELECTRONICS CORP.
NO. 850, TSUNASHIMA-CHO, KOHOKU-KU.
YOKOHAMA, JAPAN

700920K Ⓑ

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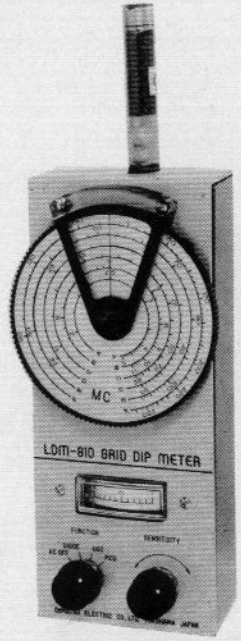
LEADER TEST INSTRUMENTS

MODEL LDM - 810

GRID DIP METER

OPERATING INSTRUCTIONS



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buffer, or power amplifier.

Adjust the dip meter Frequency dial for maximum meter deflection, and read the frequency.

To check for harmonics or spurious radiation, adjust the frequency slowly. Change the plug-in coils as necessary.

The meter deflection will indicate the relative strength of these signals. **Do not touch any of the high tension portions of the transmitter. Safety is important.**

2.2 Neutralizing.

Remove the plate voltage (also screen voltage for beam or pentode tubes) from the stage under test.

Couple the dip meter to the plate coil.

Adjust the neutralizing capacitor for minimum dip on the meter.

Restore plate (and screen) voltage connection after this operation.

2.3 Monitoring Phone Signals.

Insert earphone (high impedance dynamic type) in the phone jack.

Tune the dip meter to the output frequency and listen to the signals.

2.4 Receiver Checking.

a. Receivers with beat oscillator.

Set FUNCTION to "OSC".

Place the dip meter close to the antenna lead or near the input circuit.

Turn on the beat oscillator and tune the receiver to the dip meter frequency, or vice versa.

The receiver can be checked for frequency calibration or range.

b. Receivers for AM (phone signals)

Set FUNCTION to "MOD".

The dip meter can be used for checking the receiver frequency calibration and performance.

3. Precautions.

At the higher operating frequencies, there will be discontinuities in

MODEL LDM-810
GRID DIP METER

GENERAL

The LDM-810 Grid Dip Meter has been designed for quickchecking of circuits and components in radio receivers, transmitters, antennas., in the range from 2 to 250 Mc/s

It features a large 310 degree calibrated dial, edgewise indicating meter, nuvistor tube, internal modulation, six pre-adjusted plug-in coils, and an attractive two-tone finished strong steel case.

SPECIFICATIONS

Frequency Range	2–250 Mc, with 6 plug-in coils
	A 2 - 5 Mc/s D 22 - 50 Mc/s
	B 4.8 - 11 Mc/s E 48 - 116 Mc/s
	C 10.8 - 25 Mc/s F 108 - 250 Mc/s
Internal Modulation	1 Kc, approx.
Tube Complement	6CW4 (Nuvistor)
Power Supply	AC 50/60 cps; 100–115 or 200–230 V; 5 VA
Size and Weight	170×70×50mm; 0.8kg (6¾×2¾×2 in.; 1.76 lb)

Circuit Description

A Nuvistor tube, 6CW4, is used in a Coplitts oscillator circuit. The frequency is determined by the plug-in coil and a sturdy two-gang variable capacitor. A 500 DC microammeter is connected in the grid circuit to indicate the grid current.

A function selector is used to turn on the AC power, operate the tube as a diode detector or oscillator, and to apply modulation. A neon tube oscillator is used to generate an audio frequency of approximately 1 Kc. The

indicating meter is connected to a current balancing circuit to increase the sensitivity.

Controls

Frequency Dial	Frequency calibration on six scales, one for each band.
Indicating Meter	DC microammeter to measure grid current. 500 μA full scale.
Phone Jack	For use in monitoring AM signals with high impedance earphone (dynamic type), also for beat detection on heterodyne operation.
Function Selector	Four position switch for: AC OFF, DIODE (detection), OSCillator, and MODulation.
Sensitivity	For adjusting indicating meter to optimum condition.
Slide Switch	Located at rear for setting to line voltage, 100–115 V or 200–230 V.

Operation

1. Grid-Dip Meter.

1.1 Set FUNCTION selector to AC OFF.
Before connecting the AC cord to the mains supply, slide the power switch inside the case to 115 V or 230 V, according to the local supply.

1.2 Insert AC plug in the mains receptacle.

1.3 Insert one of the plug-in coils for the frequency range in use in the socket on the top side of the instrument.

1.4 Set FUNCTION to "OSC" and adjust SENSITIVITY control to swing the meter pointer to 40% – 80% full scale. Allow a few minutes for stabilization.

1.5 Couple the coil to the circuit under test.
Rotate the Frequency dial slowly, watching the indicating meter. When the dip meter frequency is the same as that of the circuit

being tested, this will be indicated by a sudden dip, or decease, in the meter deflection.
At the minimum dip, read the Frequency on the dial.
The coupling between the dip meter and the test circuit should be as loose as possible. for accuracy and sharpness of tuning.
If the test circuit has high Q, the tuning will be very sharp.

1.6 When direct coupling by magnetic fields cannot be made, other means must be employed.

a. When the coil is shielded or located in an inaccesible place, a small coupling capacitor, about 1 to 3 pF, is connected to the "hot" side of the coil, and one lead is connected to one terminal of the plug-in coil. Another method is to loop a coupling wire around the "hot" end of the coil, and the other end is also looped around the plug-in coil. No direct connections are made.

b. In both of these methods, the coupling capacitor or number of turns in the loop should be as small as feasible to secure an indication. This is because when the coupling is more or less tight, there will be an increase in the frequency error.

1.7 The inductance of coils can be determined by using a calibrated fixed capacitor. Conversely, an unknown capacitance can be found by using a known inductance.
The following expressions are used:

$$L = \frac{25330}{(C\,\text{pF})\ f^2\,\text{Mc/s}}\ \mu\text{H}\ \text{(microhenrys)}$$

$$C = \frac{25330}{(L\,\mu\text{H})\ f^2\,\text{Mc/s}}\ \text{pF}\ \text{(picofarads)}$$

2. Absorption Frequency Meter.

By setting FUNCTION to "DIODE", the dipmeter operates as a sensitive absorption frequency meter (or wavemeter)

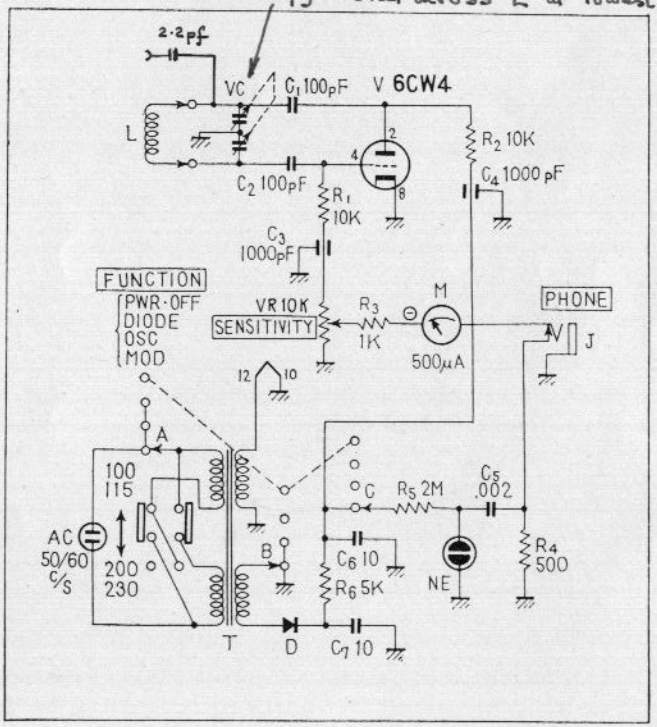
Adjust the SENSITIVITY control for a 20% full scale meter deflection.

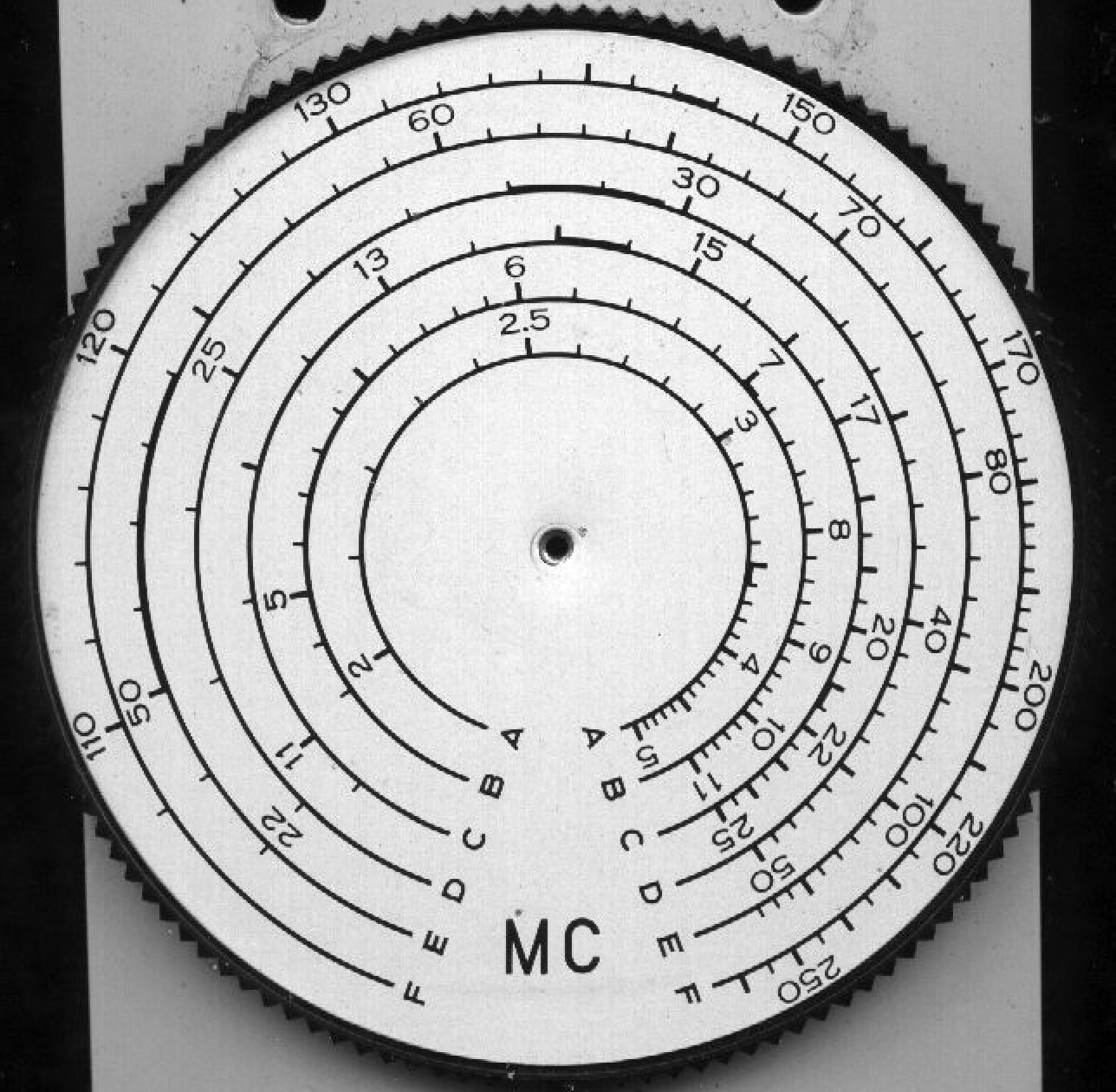
2.1 Transmitter Frequency Checking.

Couple the dip meter to the tuning coil of the oscillator, doubler,

the meter deflections as the frequency dial is rotated. This effect will be present even when the dip meter is not coupled to an external circuit. Care must be taken during measurements not to confuse these with the deflections caused by the test circuit.

For the best accuracy in frequency measurements, the loosest possible coupling between the dip meter and the test circuit should be used.

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