GATE DIP METER

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(There is great demand from new Hams for a suitable Gate dip Oscillator. Here is a circuit which appeared in 1977 in the then mouth piece of ARSI. You may use 2JPVC variable capacitors single section in place of Airdielectric Capacitor zone. The Gate resistor may be changed to 100 kilo ohms. BFW 10 or 11 can also be used.)

Here is yet another circuit of GDO but with a difference! Different, because it does not give false dips and meter needle stays at a constant level while checking for a dip. And, when the resonant frequency point is reached, it gives a very significant dip, which one just cannot miss! It is simple to make and sure to work, - the first time it is switched on ! Frequency coverage of this GDO can be extended to VHF region but has not been tried due to non-availability of VHF receiver.

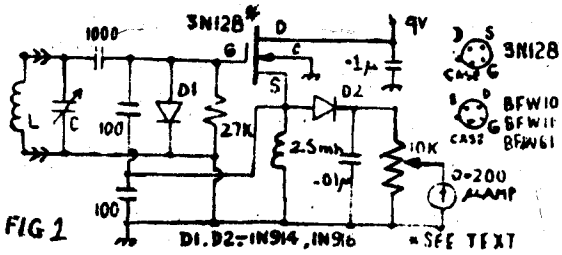

FIG 1

The circuit diagram of the dip meter is as shown in Fig. 1. It utilizes MOSFET 3NI28 in RF oscillator configuration (al though FET BFW 10, 11, 61 were tried with comparable success instead of 3NI28). The output of the oscillator is rectified by D2 and .01 mfd capacitor and is fed to 0-200 microampere meter through 10K linear potentiometer to adjust for a convenient level of current in the meter.

The Dip Meter is constructed in an aluminium box, abundantly available in utensil shops as tiffin box (rectangular shape) Mechanical lay-out is slightly critical. Before attempting to solder the components, it is better to complete the mechanical lay-out first. Refer to Fig. 2, Notice that the plugin coils are made out of audio phono jacks (do not hesitate - they work well upto HF range end!). Fix female phone jacks, variable capacitor, tuning meter, potentiometer and on-off switch at the positions shown in Fig 2. Complete the inter-connection wirings of these components using shortest possible wires. Then wire the remaining circuit on a small general purpose pc board using point to-point wiring. Cover the complete board with insulation tape, with only the interconnecting wires coming out. Complete the inter-connection of pc board with other components. Lastly solder the battery connections and place it just below the variable capacitor with the help of two sponge pieces to make it tight fit. Recheck the wiring, making sure that there is no short in inter-connecting wiring. Close the back cover. Next, prepare the coils as per Fig. 3. Make sure that the 'hot end' of the coil always forms the top layer and is near the top-end of the plug-in coil.

Plug in one of the coils and switch on Dipper (Do NOT switch on, when coil is not plugged-in. It is because the circuit draws more current when not oscillating). Adjust the potentiometer till the needle is in the centre of the scale of the meter. If the needle of the meter moves by changing potentiometer it shows that the oscilator is working and that the job is almost complete. If it does'nt, re-check wiring. Now squeeze the plug-in coil between two fingers, the oscillator will stop oscillating, and the meter needle will dip. Check all coils in similar way.

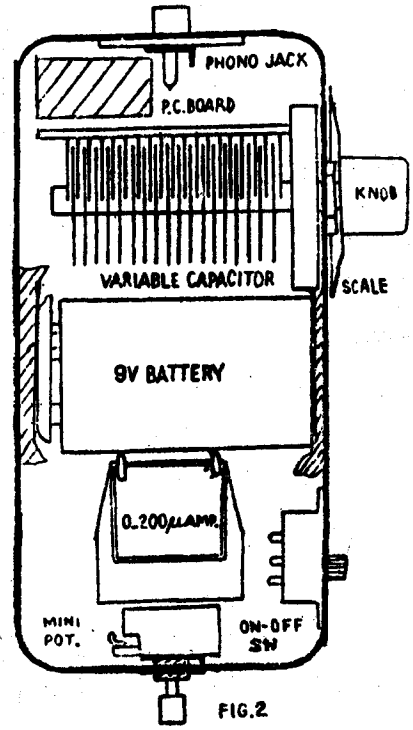

FIG.2

Although coil data is given, yet the dipper will require calibration by a well calibrated receiver, as it is feared that

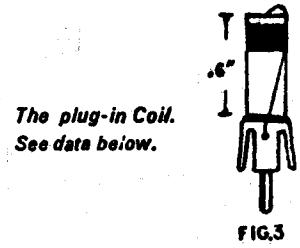

FIG.3

the variable capacitors may not be having the same stretch of capacity in each case. Keep the variable capacitor fully meshed-in. Align zero of circular scale with marking on the knob. Plug-in coil L1 and switch on calibrated receiver, keeping the dipper near the receiver antenna. Tune the receiver somewhere near 4MHz and slowly start tuning up

in frequency till a strong whistle is heard in receiver due to dipper oscillator. Make sure that the whistle is due to dipper oscillation, by switching on-off the dipper or by touching the coil of dipper with finger Note the frequency.Keep increasing the receiver frequency in steps of 1/2 MHz and every time adjust dipper to get a whistle in the receiver, noting down the corresponding readings in the scales. Tabulate the result, which can be pasted on the front panel for easy reference. This completes the calibration of GDO.

COIL DATA

All coils close-wound on 1/4 dia forma except 4.4 to 7.5 MHz (L1), which is in 1/2 dia former.

1.	4.4	to	7.5	MHz	27t	32 swg.
2.	7.5	to	12.7	MHz	20t	32 swg.
3.	12.5	to	20	MHz	11t	26 swg.
4.	19.7	to	32	MHz	5t	25 swg.