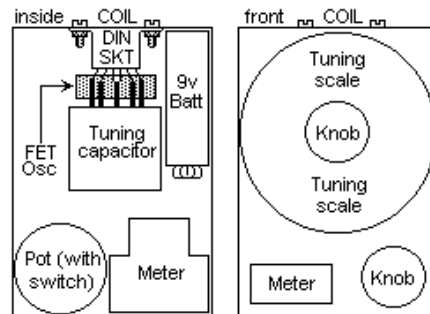


## A DRAIN DIP OSCILLATOR (GDO?) for 80 KHz - 460MHz

1/3

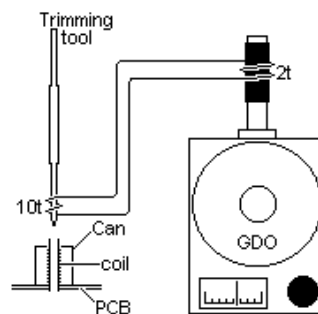
Mount the tuning capacitor about 1cm above centre of an aluminium box, 8cm x 6cm by about 3cm deep. Connect the four tuning capacitors to the DIN socket by means of 2mm Dia copper wire (robbed from a bit of house wiring cable). Connect the DIN socket earth (chassis) pin to the earth tag of the tuning capacitor. Connect both C2's (10n + 1uf) between the DIN socket pin 2 and the earth bar. Mount the components for the FET oscillator in "rat's-nest" fashion as close to the tuning capacitor as possible. All component leads must be clipped as short as possible in order to get performance up to 460 MHz. See below for the layout and front view of the unit.



## CALIBRATION

Several methods; Use a frequency counter, or general coverage receiver or scanning receiver. With a 144MHz receiver you can also find some of the harmonics (eg 72MHz, 48MHz, 36MHz, 28.8 and 24MHz). A Ham-band RX can be used to locate HF frequencies and HF harmonics.

## OPERATION



Use the pot to set the meter to (about) mid-scale and position the GDO coil beside the tuned circuit you want to test. "Sweep" the GDO tuning until you see a "dip" and read the frequency from the tuning scale. It can be useful to set the frequency to that which you want, then adjust the tuned circuit under test for a dip. In this way it is possible to align a QRP TX or RX before power is applied.

## "PRUNING" ANTENNAS

The unit is shirt-pocket sized so you can use it up the mast. To check a vertical 1/4 wave (for example) disconnect the feeder, and short the antenna with a bit of wire about 5-10cm long. Twist the wire to form a single turn loop and check this loop with the GDO as above. If the ANT is too short the DIP will be higher than the frequency you want.

## CUTTING CO-AX BALUNS

If (for example), you wanted a bit of CO-AXIAL cable 1/2 wave long for 145MHz, then cut the cable to "Velocity factor x 150/freq" +5%. Strip and short-circuit both ends of the cable, and form one end into a loop about 1/4" Dia. Apply the GDO coil to the loop and check the resonant frequency. It will be a little low, so cut a bit off the other end and repeat. If the tuning scale is a bit too cramped then you can open-cct the other end and cut the CO-AXIAL cable for 72.5MHz (1/4 wave at 72.5 is a 1/2 wave at 145 MHz).

## SIGNAL GENERATOR

A GDO is always a good quick handy device for generating a signal when checking out receivers. I have added a "MOD IN" socket to my GDO which will give 75KHz deviation at 100 MHz from a high output dynamic mic. I also have an internal 1KHz oscillator (so that I could open a receiver squelch at 10.7 MHz and send a -10 dBmO signal to line as an aid to my job as a Service Engineer).

## FUN WITH "MOTHERCARE"

Stand outside the shop EXIT and tune the GDO between 80-310 KHz, every time someone leaves the shop. This triggers the "anti-theft alarm". If you are seen, RUN LIKE HELL! (NO - only kidding!!)

Ok then, Have fun with QRP (but PLEASE leave Mothercare alone).

73s de HARRY, Upplands Vasby, Sweden.

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I am very grateful to **Harry, SM0VPO** for giving me permission to use his circuits and ideas. He can be reached by Email at [harold.lythall@era.ericsson.se](mailto:harold.lythall@era.ericsson.se)

**Frank, G3YCC.**

[Back to SM0VPO's index page](#)

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