

# Obtaining VFO stability from an LG300 on HF CW

by Peter Mellett G3PIJ

In Issue 21, Ken Brooks wrote a review entitled *The LG300 5 band transmitter* which reminded me of my associations with this classic 'real man's transmitter'. I first saw advertisements for the LG300 in copies of the Short Wave Magazine for 1959 and immediately (at the age of 13) desired to own one. It was not until 1981 that I answered an advertisement by the late G3LP (of RAOTA) and finally realised my ambition. The heat from the 813 instantly transformed the comfort levels of the shed at the bottom of the garden and the purple glow from the 866s in the PSU was wonderful to behold - but I soon discovered that the signal frequency refused to stay where I had set the VFO.

3.5 Mc/s with the output taken via coax to a 10-turn coil pushed up the inside of the LG300 VFO coil. The original VFO was converted into a grid-tuned buffer stage by (i) removing the connection between the 5763 cathode and the C3/C4 capacitive divider feedback tap and (ii) replacing RFC1 with a 2.7K resistor shunted by a 10,000 pF disk ceramic capacitor.

Harmonic output from the Vackar VFO was reduced to a minimum by setting C2 to the lowest value required to sustain oscillation. The VFO runs continuously, but cannot be heard on the HF band RX (a 75A4) when the B+ supply to its buffer amplifier is cut. This arrangement has worked satisfactorily for nearly 20 years and enables stable QSOs to take place 5 minutes after switch-on. (Unfortunately, an insufficient time for the 813 to bring the shed up to a comfortable operating temperature - but then, we can't have everything in this life). PS. I am still hoping to obtain the companion modulator/PSU (in any state). Can anyone help?

**References**

- Short Wave Magazine (November 1955) *Labgear Bandswitching Transmitter* Volume XIII, pages 463-468.
- Pat Hawker (1980) *Amateur Radio Techniques* (7th Edition) G3PDM *High-Stability FET Vackar VFO* Pages 166- 167.

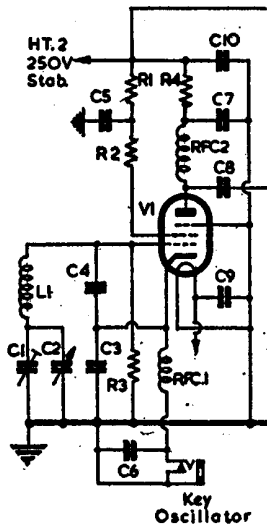


Fig. 1 – The original VFO circuit

The SWM review of the LG300 dated November 1955 notes that: "... stability on the HF bands was checked over long periods against a BC221 ... the results were entirely satisfactory."

However, my experience was that the note drifted unacceptably during CW QSOs on 21 (my favourite DX band) and on 28 Mc/s. I tackled the VFO circuitry (see Figure 1) in much the same manner as that outlined by Colin Guy in his article *The KW Vanguard ... some further notes* (Issue 22) - but replacing frequency-determining components did not stop the jitter and constant and inexorable drift.

In the end, I decided to make the minimum of disturbance to the LG300 by converting the existing VFO into a buffer linked to an external high-stability VFO. The circuit chosen was the G3PDM Vackar FET VFO and buffer amplifier (Figure 2) operating on

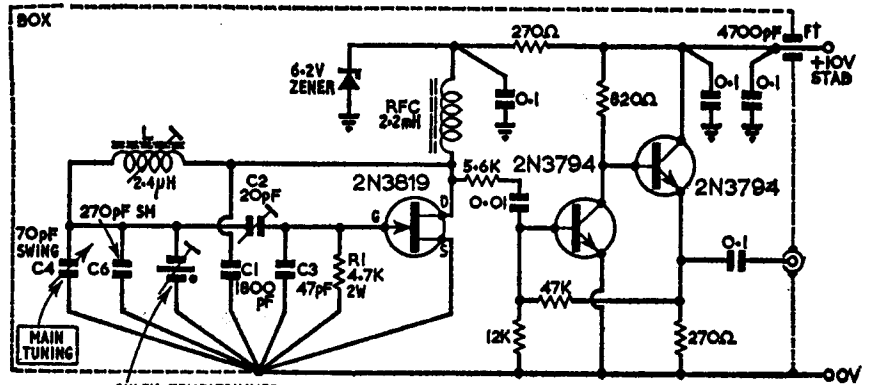


Fig. 2 The G3PDM F.E.T. VFO