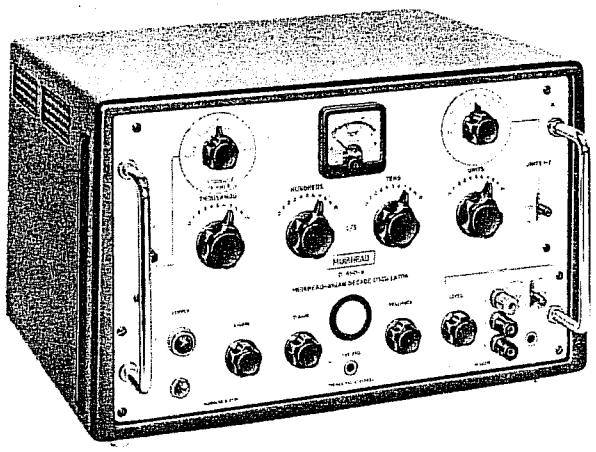
D-890-A MUIRHEAD-WIGAN DECADE OSCILLATOR

£357 1964



THIS oscillator, which has been adopted for use by NATO, has the same frequency range (1 c/s–110 kc/s) as the widely-known D-650-B Oscillator which it supersedes. The frequency band is covered in two ranges (× 1 and × 10) and frequency selection is by means of four decade switches and a continuously variable control, the latter being used primarily below 500 c/s. For frequencies above 500 c/s, the frequency can be trimmed by a variable air capacitor control.

Purity of waveform and stability of frequency and output level are assured by the use of controlled negative feedback applied to the oscillatory section of the instrument. As a result, the instrument is particularly easy to use: there is no complicated setting-up procedure.

One of the principal operational features is the inclusion of a crystal check facility. A one-inch cathode ray tube on the front panel enables the oscillator frequency to be compared with the frequency of the built-in crystal. The crystal has a frequency of 2 kc/s and, by using Lissajous figures, covers practically the entire range of the instrument. Provision is also made for comparing the oscillator frequency with any external frequency, again using the cathode ray tube on the front panel.

The instrument is fitted in a bench mounting metal case which can be fitted with extension pieces for mounting in a standard 19 in rack. The case has a blue-grey finish, and the front panel is light blue.

SPECIFICATION

NATO PART NUMBER	6625-99-100-8919
FREQUENCY RANGE	
× 1 Range	1 c/s–11 112 c/s
× 10 Range	10 c/s–111 100 c/s
FREQUENCY ACCURACY	
Without Crystal Check Facility	
× 1 Range	±0·2% or ±0·2 c/s, whichever is greater
× 10 Range	±0·4% (above 10 kc/s)
With Crystal Check Facility	
At frequencies producing stationary Lissajous figures	Accuracy equals that of crystal oscillator
× 1 Range (by interpolation)	±0·05% 500 c/s–10 kc/s
× 10 Range (by interpolation)	±0·1% 10 kc/s–110 kc/s
ACCURACY OF CRYSTAL OSCILLATOR	±0·005% (18° to 40°C ambient temperature)
HOURLY FREQUENCY STABILITY	±0·02% over most of range, after warming-up period of 5 minutes to 1 hour (depending on frequency) at constant supply voltage*
MAXIMUM OUTPUT	
8k ohm load	126V (2 watts) 20 c/s–50 kc/s 90V (1 watt) 20 c/s–110 kc/s 20V (50mW) below 20 c/s
600 ohm load	25V (1 watt) 300 c/s–110 kc/s 17V (0·5 watts) at 200 c/s decreasing to 5V (40mW) at 60 c/s
HUM LEVEL	−80 dB ref. 2 watts into 8k ohm
HARMONIC CONTENT	
1 watt into 8k ohm	Less than 0·6% down to 60 c/s, increasing to 1·5% at 20 c/s
2 watt into 8k ohm	Less than 1·25% down to 60 c/s, increasing to 2·5% at 20 c/s
1 watt into 600 ohm	Less than 1% above 300 c/s
CONSTANCY OF AMPLITUDE WITH FREQUENCY	
8k ohm above 20 c/s	±0·2 dB 20 c/s–50 kc/s ±1 dB 20 c/s–110 kc/s
600 ohm above 200 c/s	±0·1 dB 300 c/s–10 kc/s decreasing to −3 dB at 110 kc/s
HUM BEAT	Less than 1% peak to peak at mains frequency or multiples
POWER SUPPLY	95–125V, 190–250V; 50–60 c/s
POWER CONSUMPTION	90VA
DIMENSIONS	17½ in wide × 10½ in high × 13 in deep (44·5 cm × 26·7 cm × 33 cm)
WEIGHT	64 lb (29 kg)

*A mains variation of ±10% may produce a further change of approximately ±0·01% between 1 kc/s and 50 kc/s.

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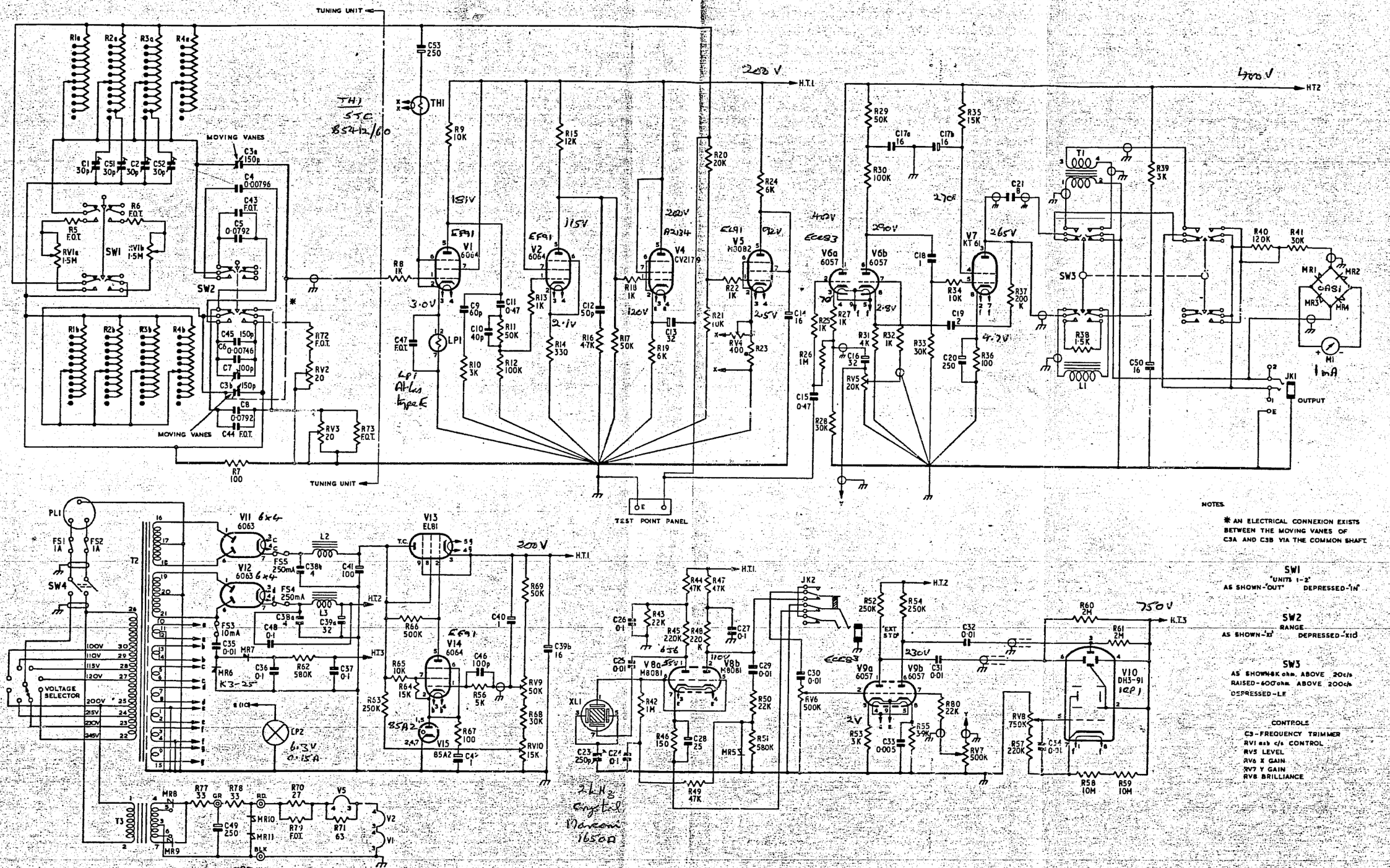
1 Hz – 11.111 kHz on x10



NOTES.

* AN ELECTRICAL CONNEXION EXISTS BETWEEN THE MOVING VANES OF C3A AND C3B VIA THE COMMON SHAFT.

SW1
"UNITS 1-2"
AS SHOWN-'OUT' DEPRESSED-'IN'

SW2
RANGE
AS SHOWN-'1' DEPRESSED-'X10'

SW3
AS SHOWN-8K ohm. ABOVE 20c/s
RAISED-600 ohm. ABOVE 200c/s
DEPRESSED-LF

CONTROLS
C3-FREQUENCY TRIMMER
RV1 osb c/s CONTROL
RV5 LEVEL
RV6 X GAIN
RV7 Y GAIN
RV8 BRILLIANCE

D-890-A DECADE OSCILLATOR CIRCUIT DIAGRAM

12.64
3036 32 2T