

RINGING OSCILLATOR OS2/36

General Description

The OS2/36 (Fig. 1) incorporates an Ericsson ringing generator and may be used to supply up to 25 telephone ringer units in parallel. By selecting an appropriate resistor to be connected across pins 1 and 12 the oscillator may be operated from either a 24-volt or a 50-volt d.c. supply. The output frequency depends on the load current and is of the order of 25 Hz on full load when operating from a 50-volt supply.

The unit, which is constructed on a chassis based on the CH1/18E, has overall dimensions of 108 by 128 by 272 mm, and has indexing studs in positions 22 and 42.

Each transistor conducts alternately in the bottomed state while the opposite transistor is cut off. Current is thus made to flow alternately in each half of the winding 1, 2, 3 to give a roughly square no-load voltage waveform in the output winding. The circuit may therefore be described as a push-pull inverter circuit and, according to the maker, is the simplest type which will produce a symmetrical output waveform on load. Fig. 3 shows typical waveforms for this circuit, labelled (a), (b) and (c).

A 2.7-kilohm resistor R1 is connected as shown from the base of VT1 to the negative side of the power supply to ensure satisfactory starting by causing current to flow preferentially through VT1

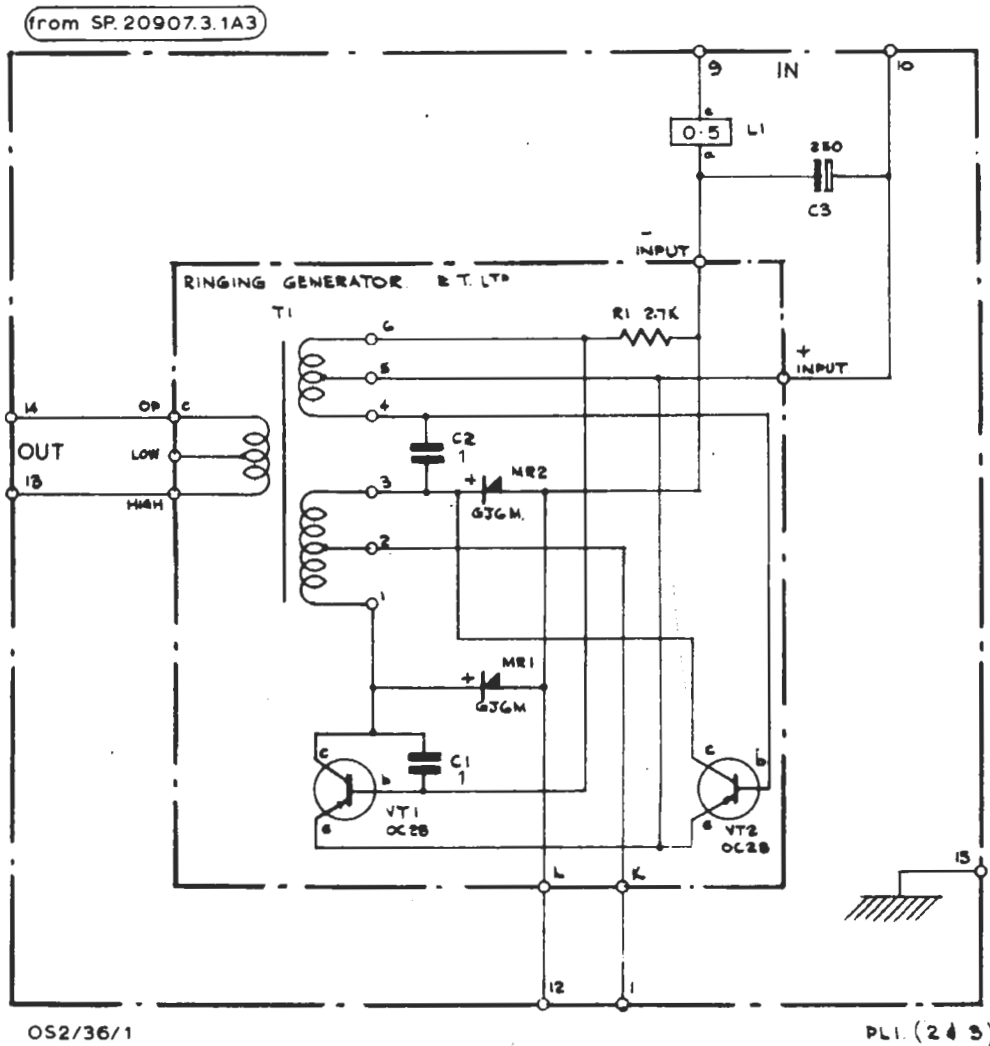


Fig. 1. Circuit of the OS2/36

Circuit Description (Figs. 2 and 3)

The circuit of this oscillator has been rearranged in Fig. 2 to show more effectively that it is fundamentally symmetrical. The basic circuit consists of a transformer having a centre-tapped winding 1, 2, 3, a feedback winding 4, 5, 6 and an output winding, and two transistors VT1 and VT2.

when the power is switched on. Capacitors C1 and C2 between collector and base of each transistor reduce the amplitude of oscillatory voltages produced by the leakage inductance of the transformer at each end of the cycle of operation and the diodes MR1 and MR2 limit the voltages appearing across the transistors. A smoothing circuit L1C3 is included in

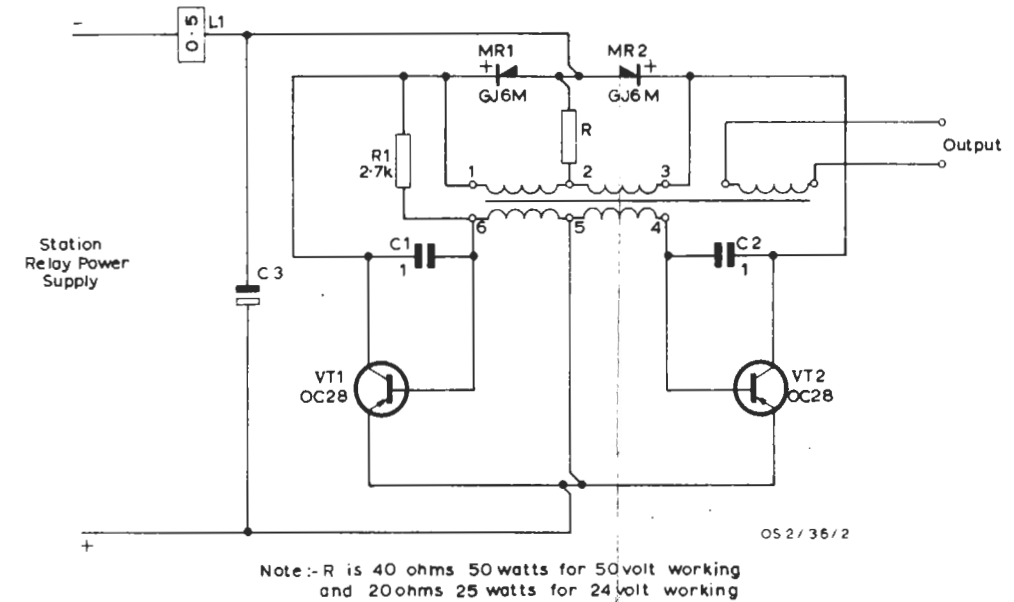


Fig. 2. Explanatory Circuit Diagram

the power supply leads to limit possible generator noise in the supply.

2. Connect an 84-ohm 6-watt resistor to pins 13 and 14 to simulate the full load of 25 ringers.

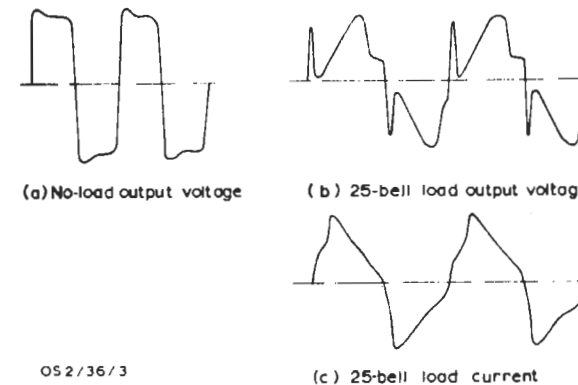


Fig. 3. Typical Output Waveforms

Test Data

All measurements approximate.

50-volt Working

1. Connect a 40-ohm 50-watt resistor between PL1 pins 1 and 12. Connect a 50-volt d.c. power supply with an Avometer in series to monitor the input current to pins 9 (negative) and 10 (positive earth).

No-load input current 400 - 500 mA

No-load a.c. output voltage:

- (a) on oscilloscope 120 volts p-p
- (b) on Avometer 59 volts.

Input current 900 mA

A.C. output voltage:

- (a) on oscilloscope 75 - 80 volts p-p
- (b) on Avometer 21.5 volts

24-volt Working

3. Connect a 20-ohm 25-watt resistor between pins 1 and 12. Connect a 24-volt d.c. power supply with an Avometer in series to pins 9 (negative) and 10 (positive).

No-load input current 560 mA

No-load a.c. output

voltage on oscilloscope 180 volts p-p

4. Connect a 188-ohm 6-watt resistor to pins 13 and 14.

Input current 900 mA

A.C. output

voltage on oscilloscope 60 volts p-p