SEQUENTIAL TONE SENDER UNIT UN1/21

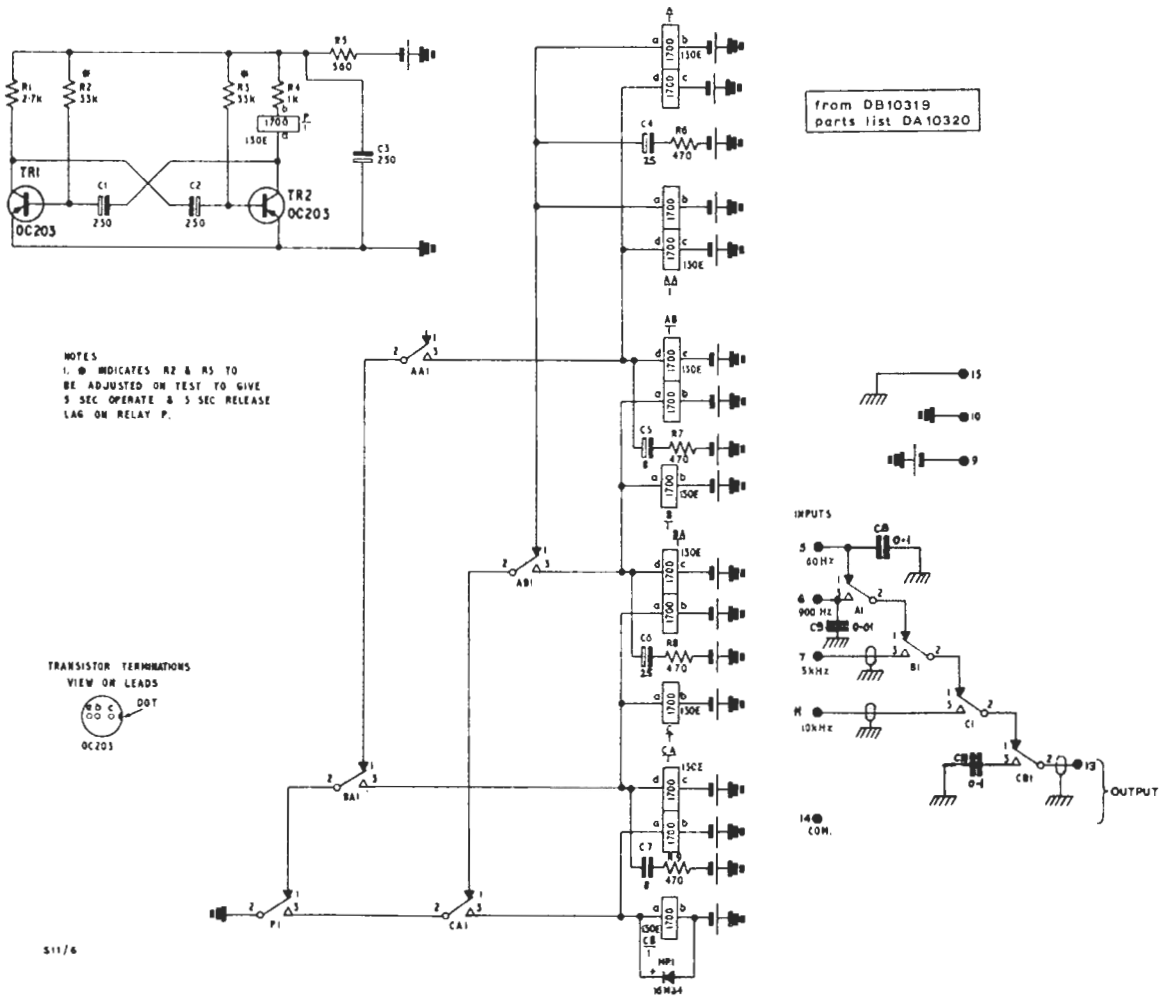

Fig. 1. Unit UN1/21: Circuit

Introduction

The UN1/21 is a switching unit designed for use in oscillator OS1/1 to select a repeating sequence of four tones from other units of this oscillator and apply them to an output amplifier. The sequence provided is

60 Hz for 5 seconds,
900 Hz for 10 seconds,
5 kHz for 5 seconds,
10 kHz for 5 seconds,
no output for 5 seconds.

General Description

The UN1/21 essentially comprises a multivibrator circuit and nine relays, housed in a chassis CH1/18E plugging into a panel PN3/23, which also carries the remaining units of the oscillator. Indexing pegs are fitted in positions 9 and 24.

Circuit Description (Fig. 1)

The multivibrator circuit incorporates a pulsing relay, P, which operates and deoperates at 5-second intervals, set by adjustment on test of R2 and R3.

Relay P controls the operation of the other relays to give the switching sequence required.

Until the unit is energised by a 50-volt d.c. supply, the output is fed from the 60-Hz input, via relay contacts A1, B1, C1 and CB1. When the supply is connected, the switching sequence begins, each complete cycle occupying 30 seconds.

Switching Sequence

The initial connection of the 50-volt supply is followed, either immediately or after a short delay, by the second stage in the normal switching sequence.

2. Multivibrator operates P
P1 changing over operates A and AA.
A1 switches the output from 60 to 900 Hz.
AA1 closes to prepare for stage 3.

AFTER 5 SECONDS

3. Multivibrator deoperates P
P1 operates AB, and holds in A and AA on their second windings. C4 and R6 prevent A and AA from falling out during the transit of P1.
A1 maintains 900 Hz at the output.
AB1 changes over to prepare for stage 4.

AFTER 5 SECONDS

4. Multivibrator operates P
P1 operates B and BA, and holds AB. A and AA fall out.
B1 replaces 900 Hz by 5 kHz.
BA1 changes over to prepare for stage 5.

AFTER 5 SECONDS

5. Multivibrator deoperates P
P1 operates C and CA, and holds BA. AB and B fall out.
C1 replaces 5 kHz by 10 kHz.
CA1 changes over to prepare for stage 6.

AFTER 5 SECONDS

6. Multivibrator operates P
P1 operates CB and holds CA. BA and C fall out.
CB1 removes 10 kHz from the output.

AFTER 5 SECONDS

1. Multivibrator deoperates P
P1 releases CA and CB.
CA1 disables CA and CB to prepare for stage 2.
CB1 restores 60 Hz to the output.

AFTER 5 SECONDS

2. Multivibrator operates P
From this point on, the sequence is repeated.

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