

TELEPHONE UNIT UN10/7

Introduction

This unit is for connecting a line and a battery supply to telephone instruments in control desks. It is designed for use with pendant telephone P.O. No. 713, with table telephone No. 246 or with operator's headset Type 4409A. For these applications, the UN10/7 supersedes the UN10/3, although for differential handsets the UN10/3 is still required. In new installations the UN10/7 is itself superseded by the UN10/12, which is not however suitable for use with the obsolescent telephone No. 246.

General Description

The UN10/7 unit is constructed on both sides of a single metal panel measuring 1 3/4 by 6 3/4 inches. Its overall depth is 3 1/4 inches. It has no cover and it is usually mounted inside desks out of sight using the holes in the two stand-off brackets. It can also be mounted on a relay chassis CH1/21 using the fixing holes in the front panel of the chassis.

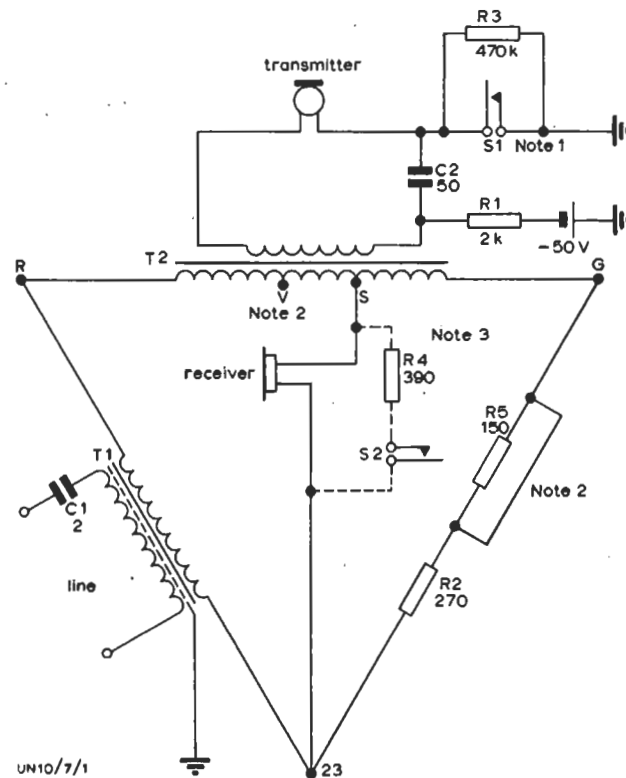


Fig. 1. Explanatory Diagram of the UN10/7

- NOTES:- 1. S1 is telephone rest-switch or operator's transmitter cut key, each depressed.
 2. For telephone 246 the strap across R5 is removed and the receiver connected to tap V instead of S.
 3. R4 is connected only if there is an operator's transmitter cut key. S2 is a contact of the key, shown depressed.

Circuit Operation (Figs. 1 and 2) Diagrams

Fig. 1 is an explanatory diagram. The complete circuit and the connections for each of the three applications are shown in Fig. 2.

Sidetone

'Sidetone' is the signal heard in the receiver which comes from the local transmitter rather than from the line, and it is necessary to ensure the correct sidetone level. If it is too high, operators may speak too quietly, and incoming signals from line may be swamped by noise picked up on the local transmitter. If it is too low, operators tend to shout and their instruments appear 'dead'.

Transmitting

Fig. 1 shows that the receiver is connected across what would be the equipotential points at balance of an a.c. bridge. The input to the bridge from the transmitter is induced by T2 across R and G and the four arms are R to S, S to G, R2 and the line impedance

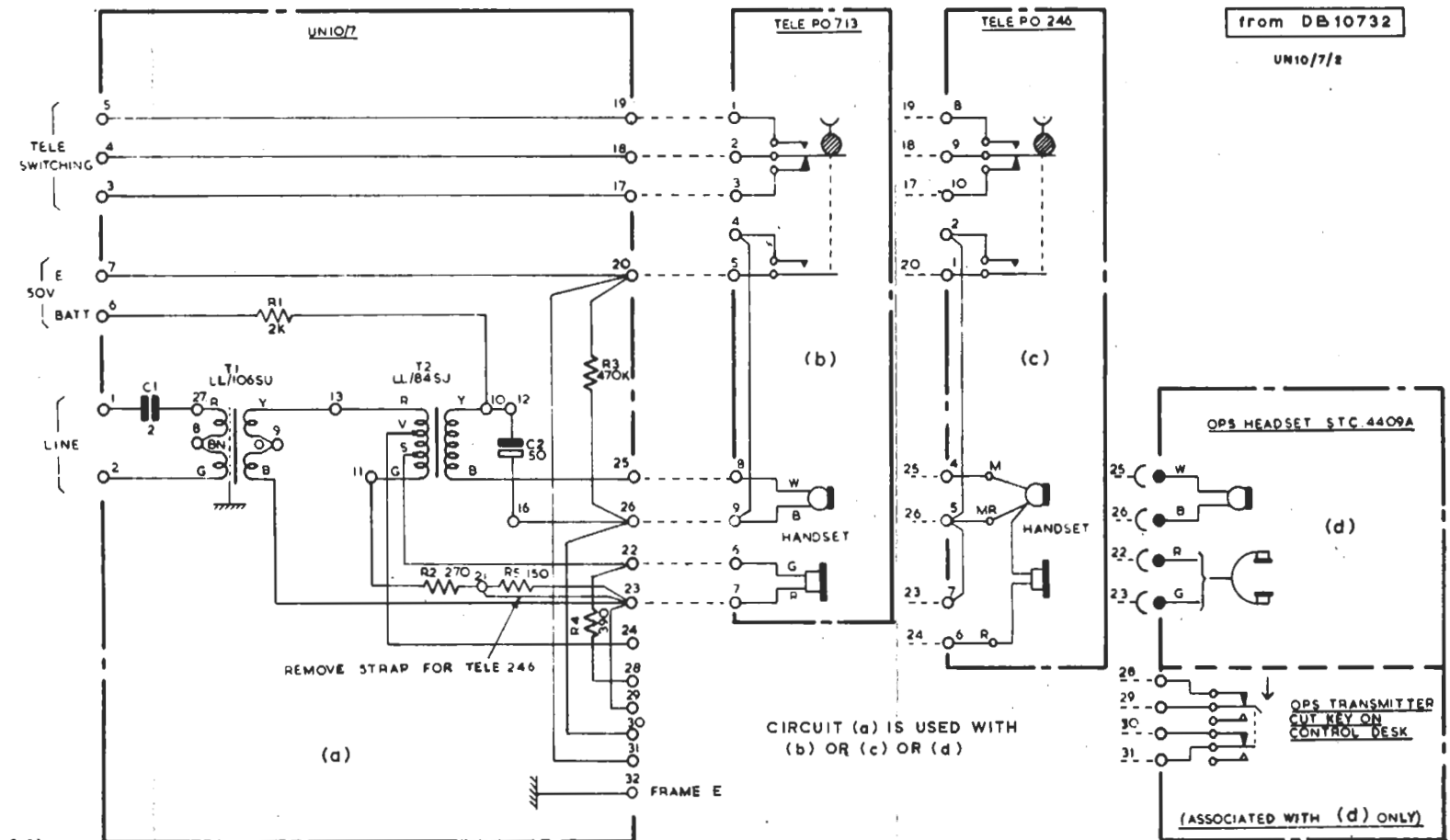


Fig. 2. Circuit of the UN10/7 with Telephone Connections

seen through T1. The impedance of this last arm will vary with different lines. However, the bridge is not required to be balanced perfectly, but merely to be sufficiently near balance to ensure that the sidetone in the receiver is only a small fraction of the signal transmitted to line.

The circuit is normally connected as shown in Fig. 2. When the unit is used with a telephone No. 246, the strap between tags 21 and 23 shown in (a) is removed to maintain optimum sidetone level.

Receiving

For signals applied to the circuit from the line via T1, the receiver connections S and 23 are not balance points, so the attenuation of signals from the line is minimal.

Operator's Transmitter Cut Key

When this key is fitted, the signals in the receiver are attenuated by the 390-ohm shunt. For weak line signals, pressing the key increases the receiver sensitivity and cuts the d.c. supply to the transmitter, preventing sidetone from interfering with the line signal.

General

Transformer T1 provides the line with a balanced input to the telephone unit. Capacitor C1 attenuates 17 Hz to prevent ringing deafening the operator. C2 stops speech currents passing through the common battery supply and R1 limits the d.c. in the transmitter. R3 is a spark-quench resistor.