

## POST OFFICE TELECOMMUNICATIONS HEADQUARTERS

SPECIFICATION S 1106C

FOR

TELEPHONE SA 4258 DRAWING 93224  
TELEPHONE 2/SA 4258 DRAWING 93225  
TELEPHONE 3/SA 4258 DRAWING 93226  
TELEPHONE 4/SA 4258 DRAWING 93227  
(INCLUDING OSCILLATOR 150A DRAWING 93229)

## 1. GENERAL

1.1 Specification D 1000 shall be taken as forming part of this specification.

1.2 Where specifications exist for individual components of the telephones these components shall be in accordance with those specifications.

## 2. CONSTRUCTION

2.1 The telephones shall be assembled in accordance with, and from the parts detailed on the assembly drawings.

2.2 The colours of the separate mouldings of the telephone shall match each other, where appropriate, to the satisfaction of the Purchasing and Supply Department.

2.3 The buttons of the push button unit shall restore unaided to their full height after operation.

2.4 Telephones SA 4258 and 2/SA 4258. When viewed from the rear, the handset cord shall emerge from the right hand cord outlet in such a way that the helix leads out naturally to the right hand side of the telephone.

2.5 Telephones 3/SA 4258 and 4/SA 4258. When viewed from the rear, the handset cord shall emerge from the left-hand cord outlet in such a way that the helix leads out naturally to the left-hand side of the telephone.

## 3. ADJUSTMENT

(a) Gravity-Switch Mechanism

(i) Telephones SA 4258 and 2/SA 4258. The handset, when resting within the cradle of the completely assembled telephone, shall depress the plungers down to the full extent of their travel as defined by the lugs within the telephone, not by the cover.

(ii) Telephones 3/SA 4258 and 4/SA 4258. The handset, when placed within the handset cradle bracket of the completely assembled telephone, shall depress the plungers such that the gravity-switch is fully operated and perceptible movement of the plungers follows before the handset comes to rest.

(iii) The gravity switch plungers shall restore unaided, when the handset is removed, to the full height of their travel as defined by the lugs within the telephone, not by the cover.

(iv) A  $1\frac{3}{4}$  oz weight placed across the gravity switch plungers shall be insufficient to break contacts 4 and 5 of the gravity microswitch when tested electrically.

(v) A  $4\frac{3}{4}$  oz weight placed across the gravity switch plungers shall depress them as in 3(a)(i) and (ii).

(vi) When the gravity switch plungers are depressed as in 3(a)(v) there shall be a perceptible amount of overtravel available on the gravity microswitch button.

(vii) When the gravity switch latch is engaged with the gravity switch plunger, contacts 4 and 6 and 1 and 2 of the gravity microswitch shall be broken when tested electrically. The latch shall drop freely out of engagement when the gravity switch plungers are fully depressed.

(viii) With a .015 inch feeler gauge inserted between the gravity microswitch button and its operating lever, contacts 1 and 2 of the microswitch shall make, when tested electrically, as the gravity switch plungers are restored to the upper limit of their travel as in 3(a)(iii).

Slight adjustments of such lugs, levers and brackets as may be required to achieve the above adjustments is permissible.

(b) Latch Mechanism - Telephone 2/SA 4258 and 4/SA 4258

(i) At least one of the latch plate stop lugs must bear against its mating face on the mounting bracket (Drawing DMO/141). The maximum deviation of the other stop lug shall be 0.004 in. Pressure against the front face of the gravity switch plunger (Drawing DPL/1021) due to the latch plate assembly shall be not less than 0.30 N measured under the tip of the release bracket of the latch plate assembly (Drawing DLA/61).

(ii) There shall be perceptible clearance between the gravity switch latches and their mating faces on the gravity switch plunger.

(iii) The latch plate shall pivot freely over the working arc and shall latch and release when an .010 inch flat gauge is placed between the stop lug and the appropriate mating face on the mounting bracket.

(iv) Unless otherwise stated on the order, latches shall be in the interlocking position, ie the operation of any plunger (Drawing DPL/1022) shall release any other already operated.

(v) A latched plunger shall not release when the gravity switch plungers are depressed slowly  $1/16$  inch but shall have released when the gravity switch plungers have completed  $\frac{3}{4}$  of their travel, as judged by eye. Slight adjustment of latches to meet the conditions in para. 3(b)(iii) above is permissible.

(c) Bell. When the armature is resting on either of the pole faces the clearance between the hammer and bell gongs shall not be less than  $1/64$  inch, the gongs being adjusted to give optimum ringing under the limiting circuit condition stated in Specification S 81. The ball of the hammer shall strike the gong  $1/16$  inch above the bottom edge, this adjustment being obtained by setting the bell hammer rod.

4. OSCILLATOR 150A (DRAWING 93229)

4.1 The oscillator unit shall be assembled in accordance with, and from the parts detailed on the assembly drawing.

4.2 The oscillator will be connected into the normal telephone circuit such that when any button is operated the contacts of the common switches replace the transmitter in the telephone circuit with the oscillator, the transmitter being rendered inoperative.

4.3 The d.c. resistance of the oscillator unit shall be such that when the telephone is connected as shown in fig. 1, with 6.0 km of artificial 0.5 mm copper cable and switch A closed a minimum line current of 25 mA shall flow when any push button is operated and the handset is off the rest.

4.4 The oscillator unit, when connected as described in para 4.2 shall give sinusoidal outputs at the level stated in para. 4.6 when the appropriate push button is operated at the following frequencies:

PUSH BUTTON	HIGH FREQUENCY	LOW FREQUENCY
1	1209	697
2	1336	697
3	1477	697
4	1209	770
5	1336	770
6	1477	770
7	1209	852
8	1336	852
9	1477	852
0	1336	941
11 (*) LEFT HAND	1209	941
12 (≠) RIGHT HAND	1477	941

4.5 Any deviation from the nominal frequency shall not exceed 1.0 per cent of the nominal under the conditions laid down in para 6.

4.6

4.6.1 The maximum signal power for each frequency from the instrument with the regulator rendered ineffective by means of current reduction shall be -4 dBm (0 dBm = 1 mW in 600 ohms). This test will be carried out using the circuit shown in fig. 1 with zero miles of artificial cable and switch A open.

4.6.2 With switch A closed these readings shall fall by 5 to 12 dB.

Note: The readings taken should be corrected to allow for the pass band loss of the filters and transformer.

4.6.3 With switch A closed and 6.0 km of 0.5 mm artificial copper cable, the minimum signal power shall be -16 dBm for each signal component.

4.6.4 The maximum difference in level between the two component levels shall be 3 dB.

4.7 The power of the signal sent to line shall reach within 2 dB of its final value within 10 ms of contact closure of the common microswitch KCS 2. This will be measured using the circuit in fig. 1 with switch A closed and with zero and 6.0 km of 0.5 mm artificial copper cable.

4.8 The total power of distortion products of the oscillator are to be 20 dB or more below the power of both the component frequencies referred to in para 4.6 taken singly.

4.9 A 'confidence' tone composed of the same frequencies as those sent to line shall be reproduced in the receiver. The level of this tone at the receiver terminals shall lie between -45 dB and -65 dB relative to 1V with the receiver replaced by a 150 ohm resistor. This shall be met with any line length of 0.5 mm artificial copper cable between zero and 6 km.

## 5. ARTIFICIAL CABLE

The simulated 6.0 km 0.5 mm copper cable (para 4 refers) shall be approved by the PO. The cable can be constructed using the components, and in the manner shown in Fig. 2.

## 6. OPERATING CONDITIONS

The telephone shall meet the requirements of para 4 under all normal working conditions including:

- (a) exchange bus-bar voltages of 45V to 52V and
- (b) temperature range of -10°C and +50°C.

## 7. CONNEXIONS AND WIRING

(a) The telephone components shall be connected in accordance with the appropriate SA diagram referred to on the assembly drawing. Terminals shown linked on the diagrams shall be connected by parts 2/DLI/20.

(b) The flexes from the Push Button Unit and the Oscillator shall be neatly grouped and formed to the right side of the telephone when viewed from the front.

(c) The Push Button Unit and Bell connexions shall not foul the bell armature or damp the bell gongs.

## 8. TRANSMISSION PERFORMANCE

The completely assembled telephone shall be capable of passing a simple transmission test to prove the correct connexion of components and freedom from gross component faults.

## 9. INSULATION RESISTANCE

The resistance measured between points which are required to be electrically isolated shall be not less than 5 megohms when measured with 250 volts d.c.

## 10. SIGNALLING RESISTANCE

The resistance of the telephone with the handset held so that the plane of the transmitter diaphragm does not depart from the vertical by more than 45° in any direction, the transmitter being either in the talking or quiet condition, shall not exceed 200 ohms when measured with a line current of 25 mA.

11. MARKING

The telephone shall be marked in the position shown on the approved assembly drawing, with the PO stock list number, the approved code letters identifying the manufacturer, the last 2 figures of the year of manufacture followed by the mark number, eg SA 4258 FHB 99/1.

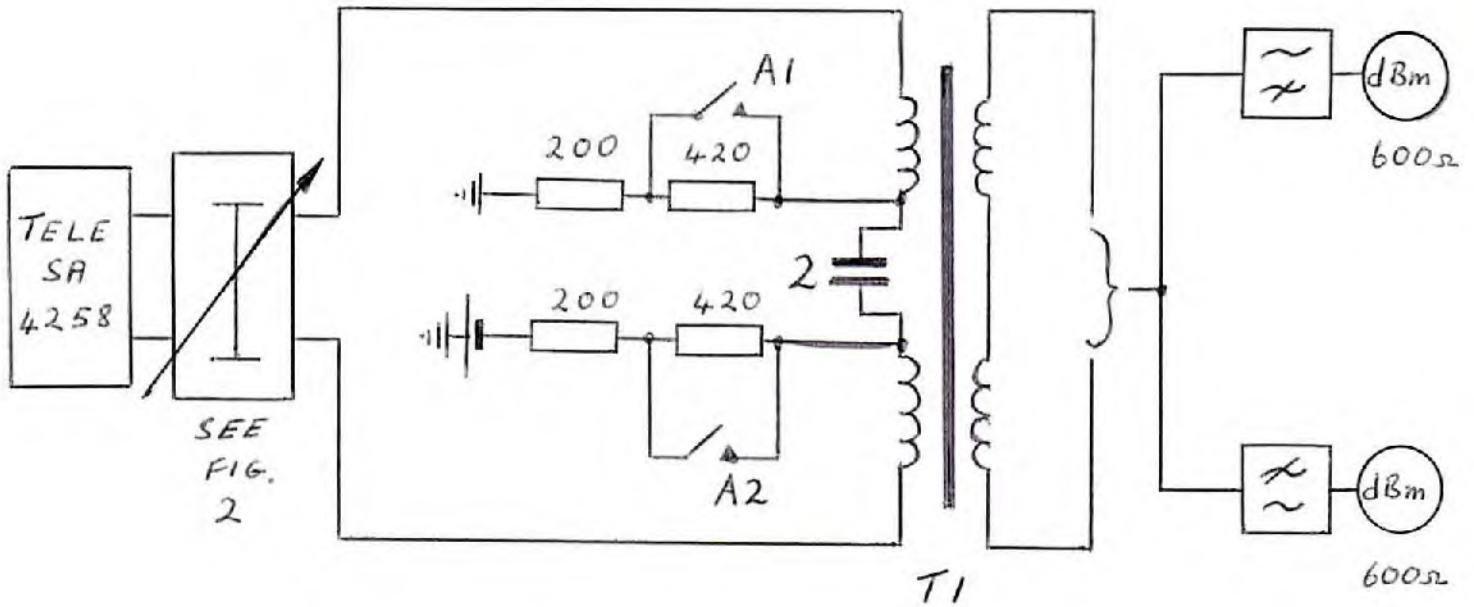
END OF SPECIFICATION

TD2.3.2/4673/5

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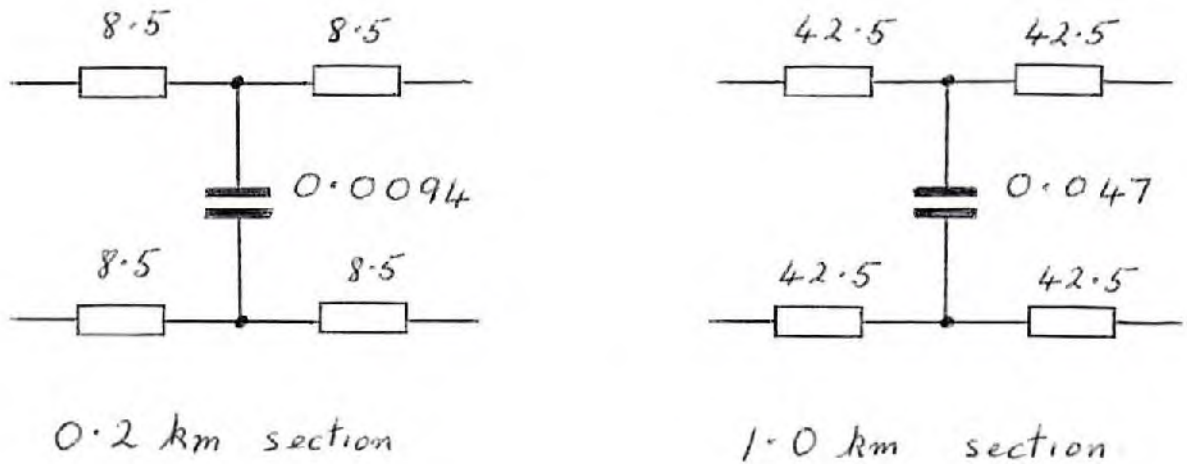
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Note: T1..... PO TRANSFORMER No. 3/216A

Fig 1. TELEPHONE TEST CIRCUIT



Note: All component values  $\pm 1\%$  tolerance

Fig 2. 0.5 mm ARTIFICIAL COPPER CABLE