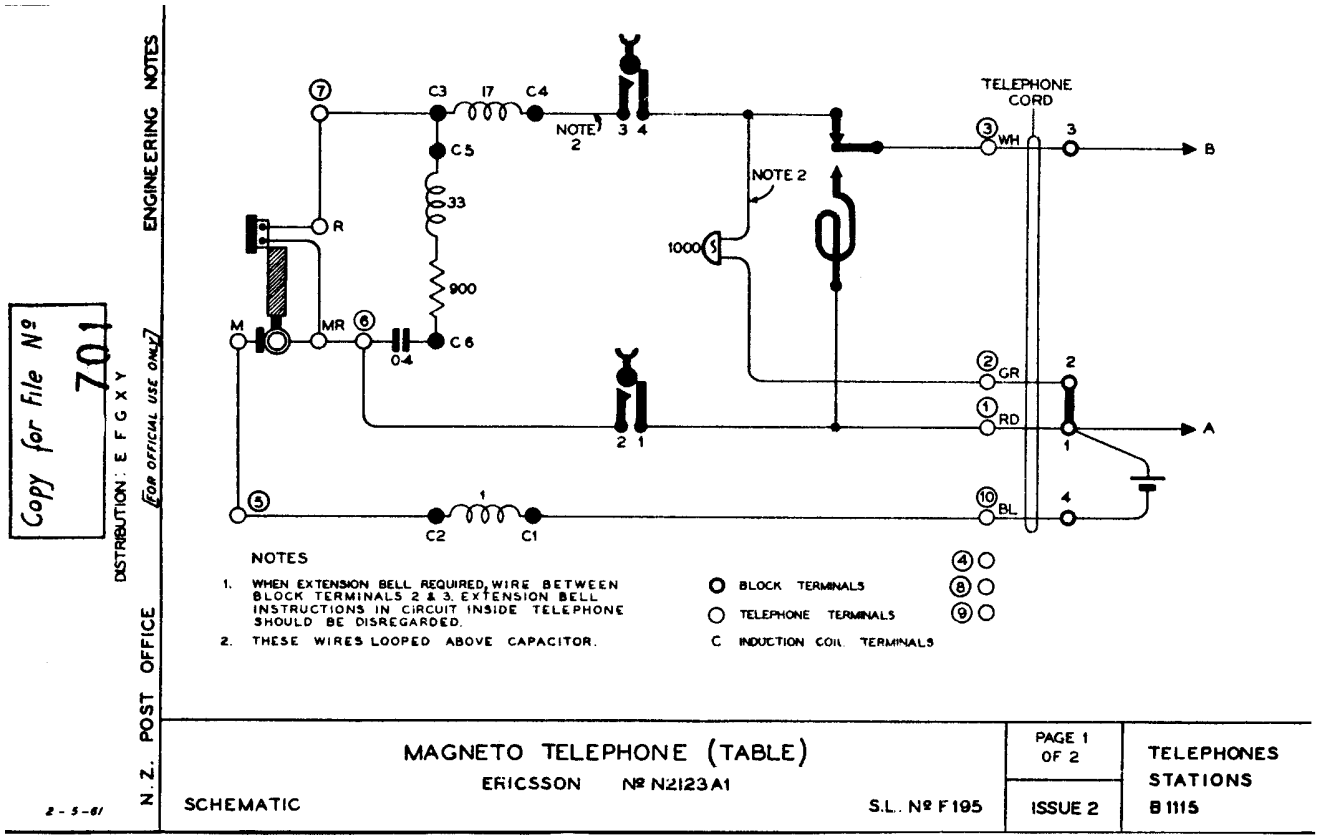
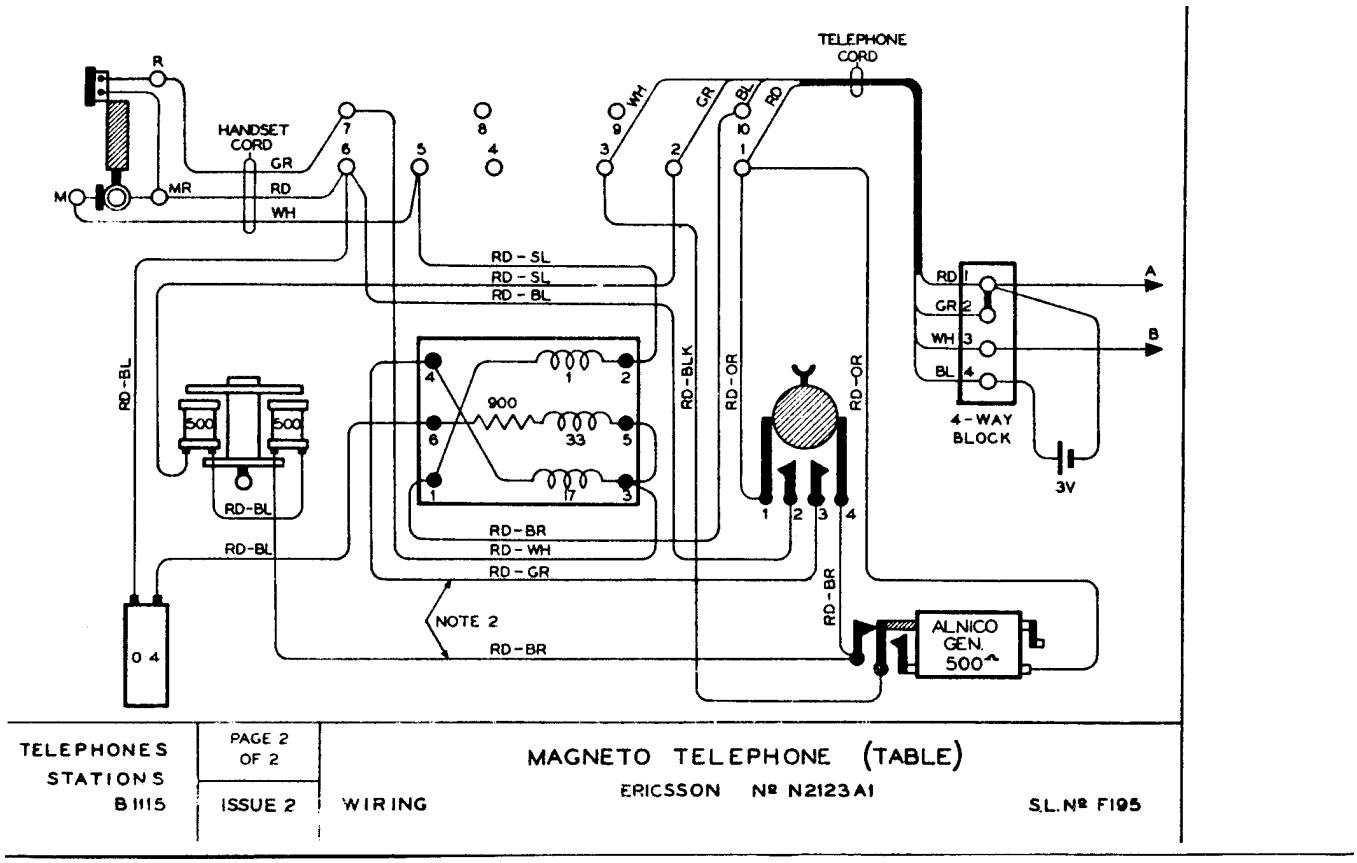
TELEPHONE ENGINEERING NOTES

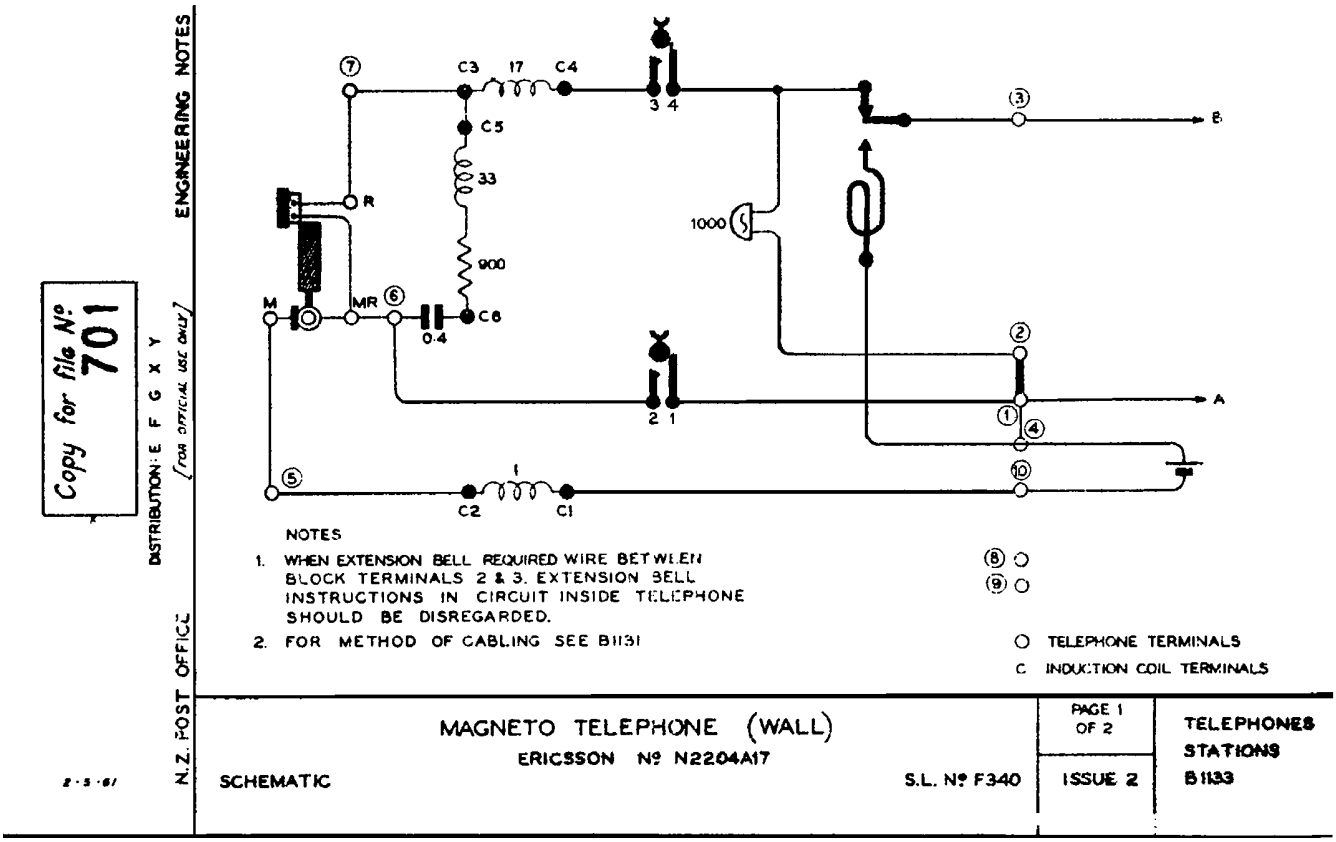
INDEX TO ENGINEERING NOTES

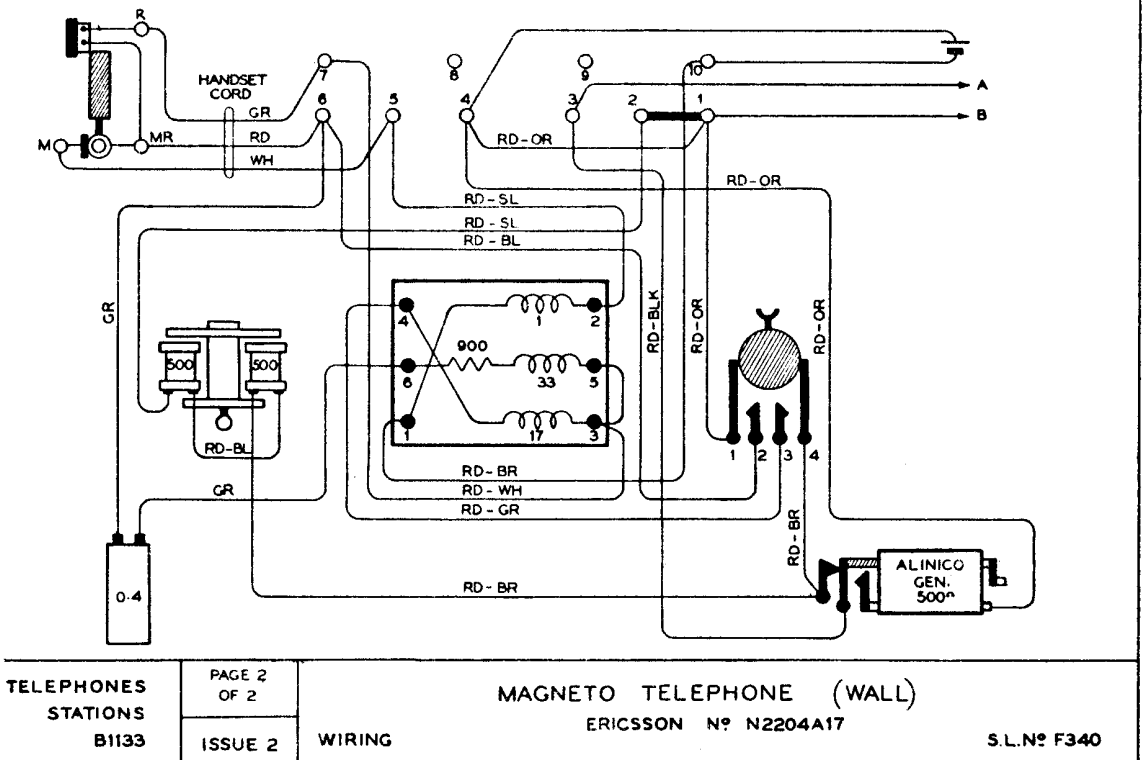
MAGNETO TELEPHONE, TABLE



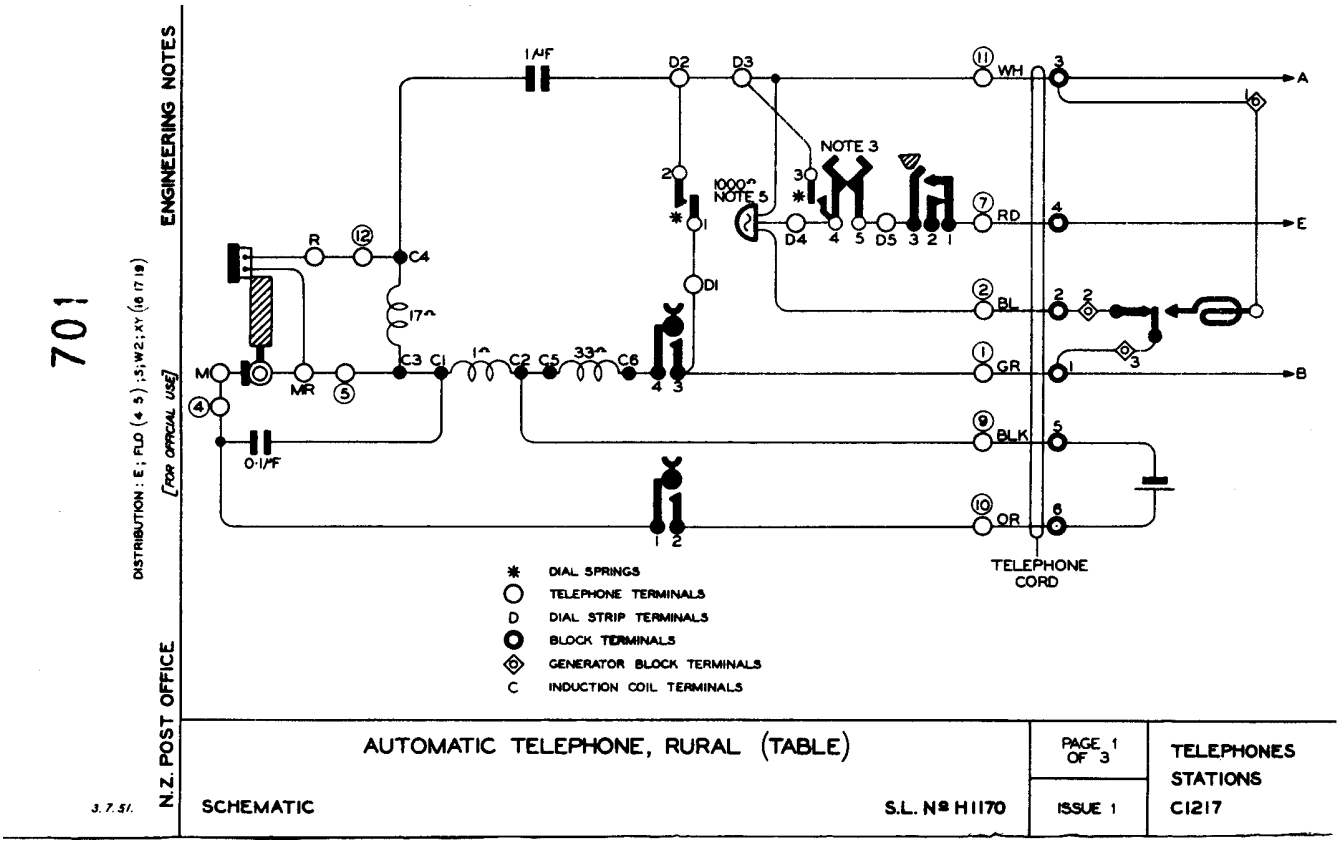


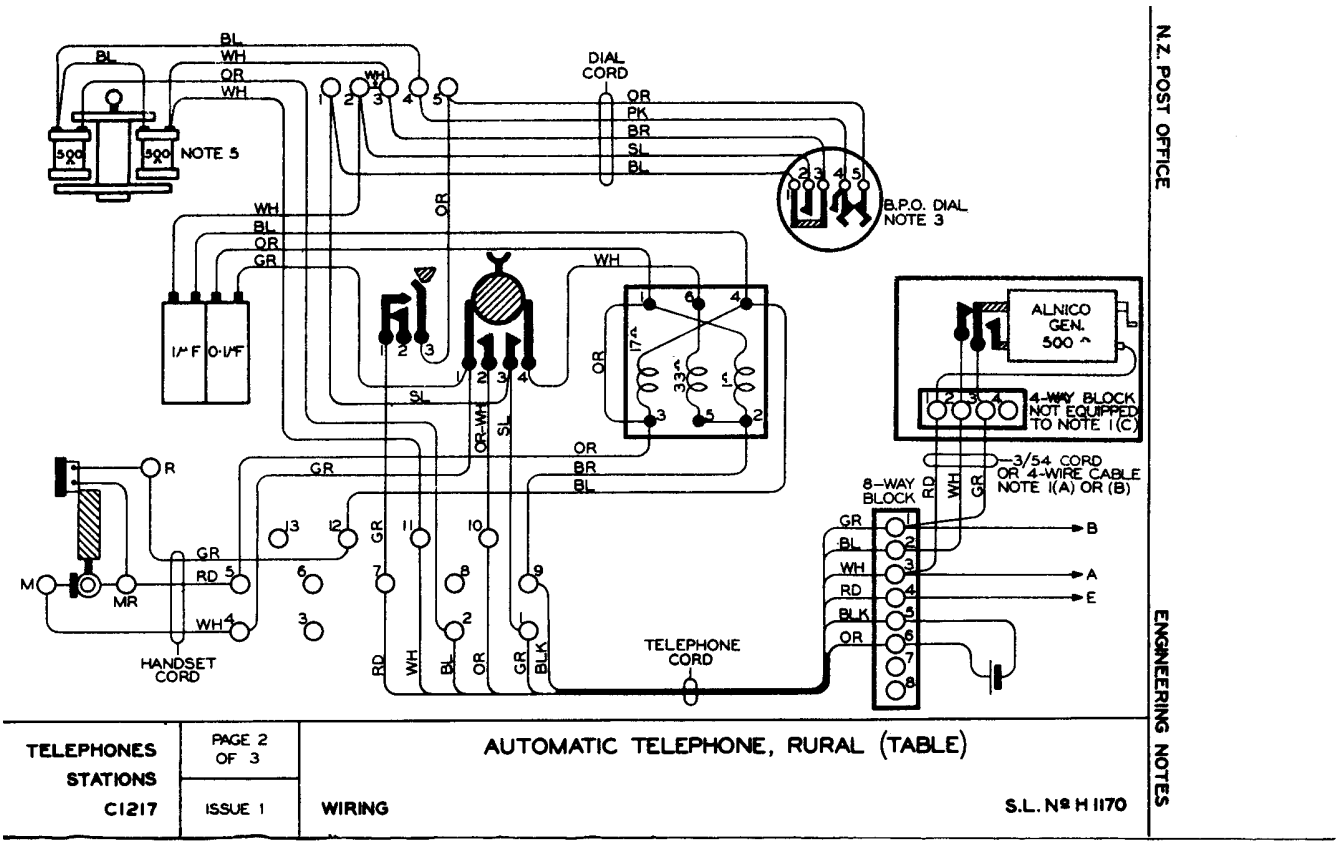
MAGNETO TELEPHONE, WALL



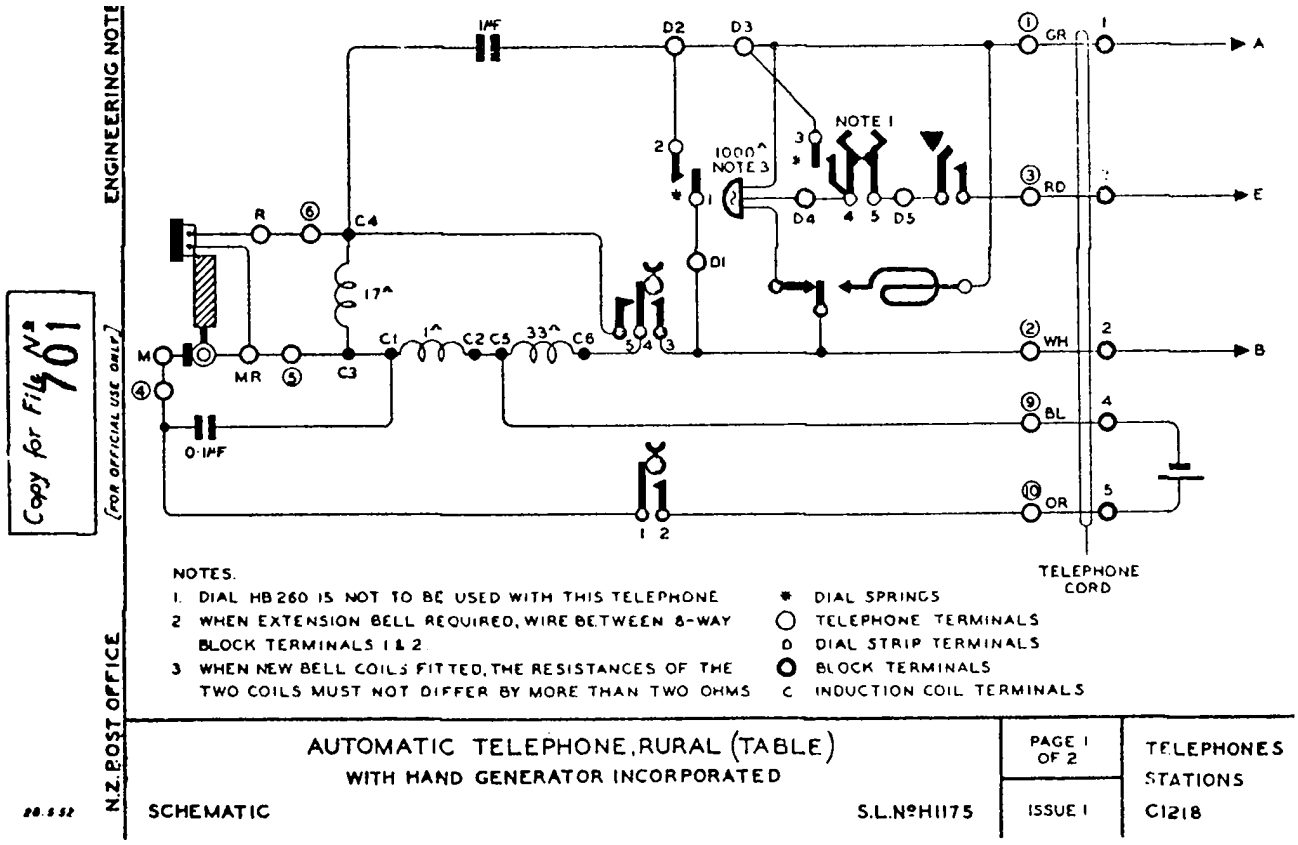


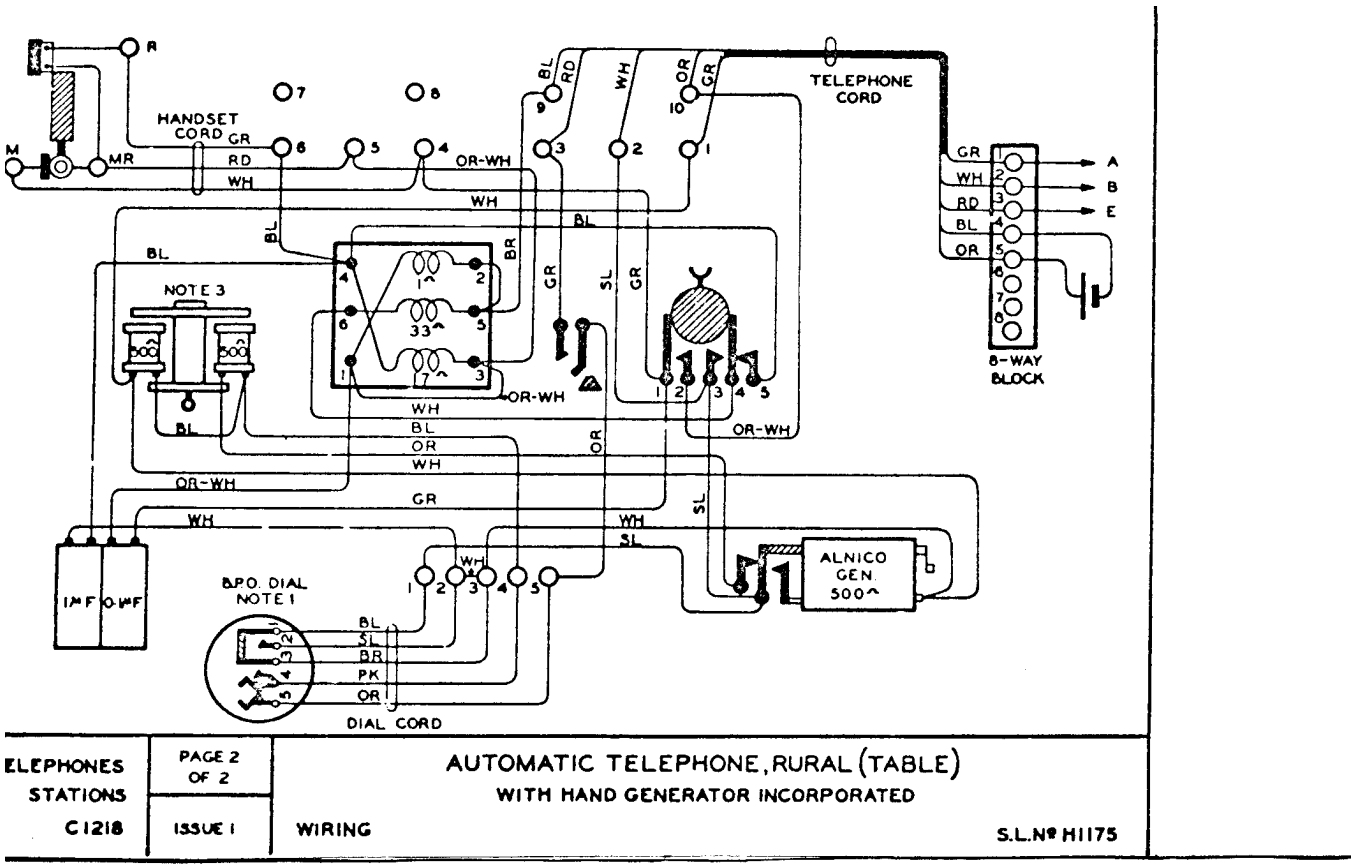
AUTOMATIC TELEPHONE, RURAL ,TABLE





AUTOMATIC TELEPHONE, RURAL, TABLE WITH HAND GENERATOR INCORPORATED





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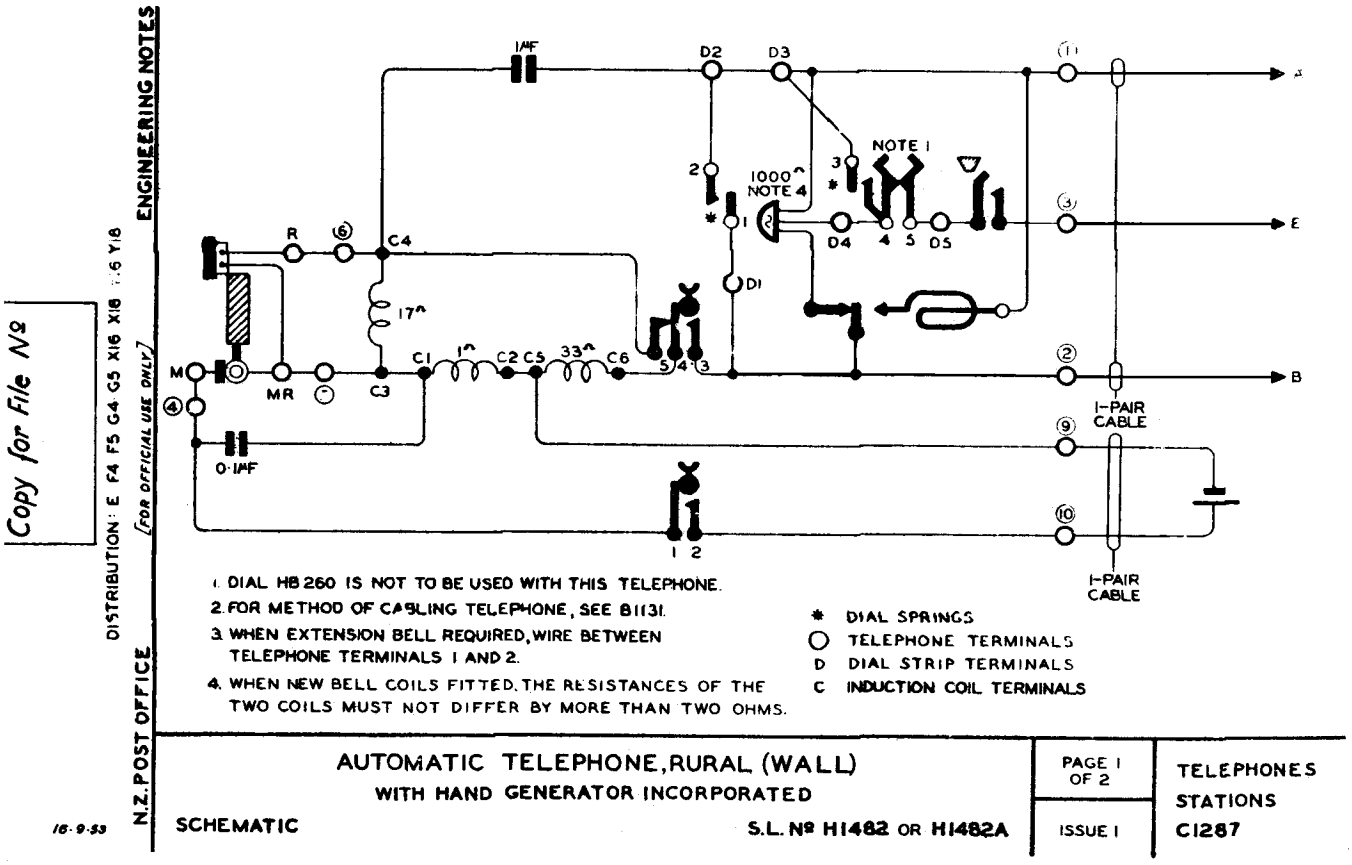

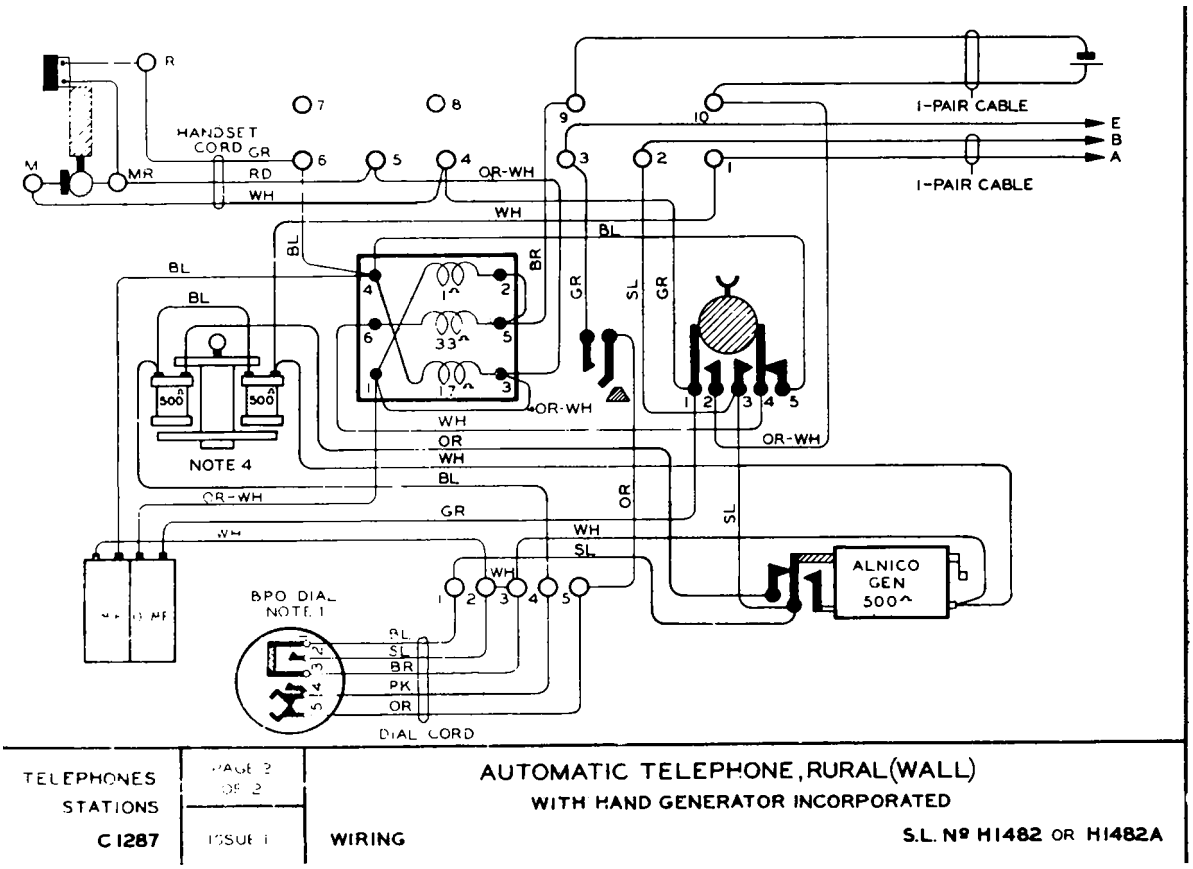

AUTOMATIC TELEPHONE, RURAL, WALL ERICSSON No. 2201A MODIFIED

701

DISTRIBUTION: E; FLOSXY (WR, NA, HBN, DV, GS, SFD, HW, WG, NL, PRC, NOT, BW, ...OUDN).

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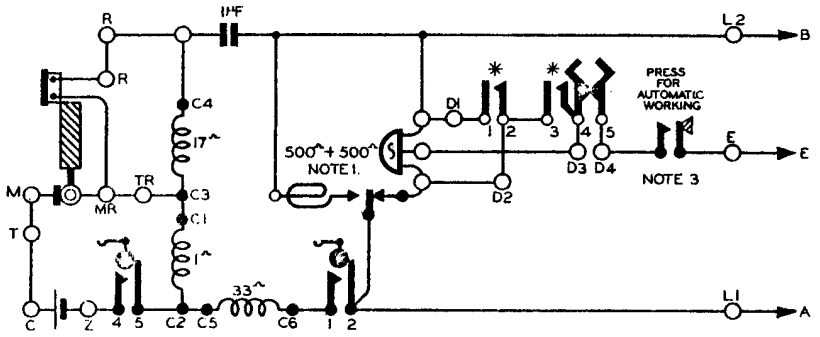


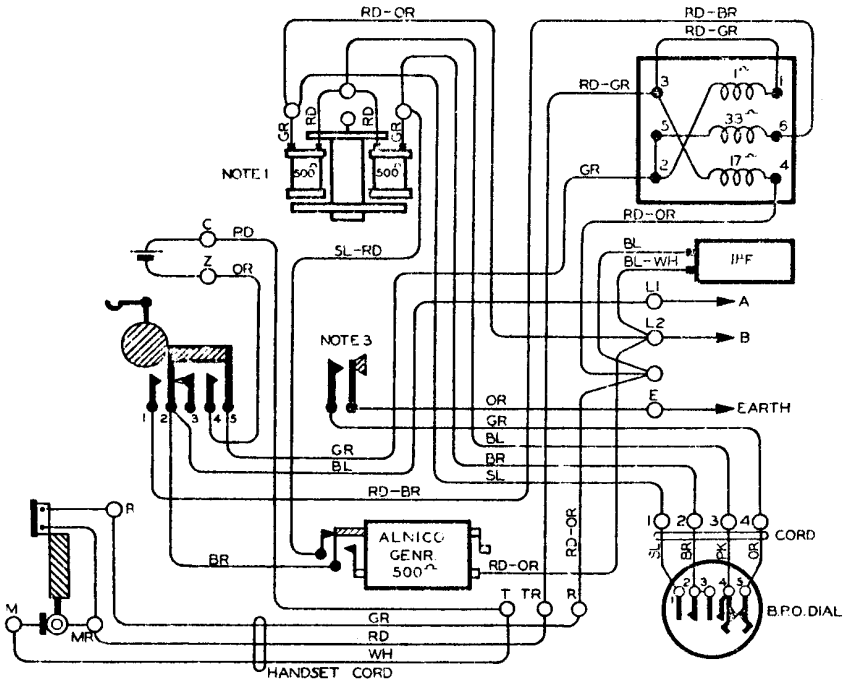
NOTES.
1. BELL COILS ARE BALANCED TO WITHIN 2^ OF EACH OTHER FOR CENTRE POINT DIALLING.
2. WHEN EXTENSION BELL REQUIRED, WIRE BETWEEN L1 & L2.
3. THE AUTOMATIC BUTTON LOCKS WHEN DEPRESSED AND IS RELEASED WHEN HANDSET IS REPLACED.

D DIAL STRIP TERMINALS
✱ DIAL SPRINGS

25.2.49

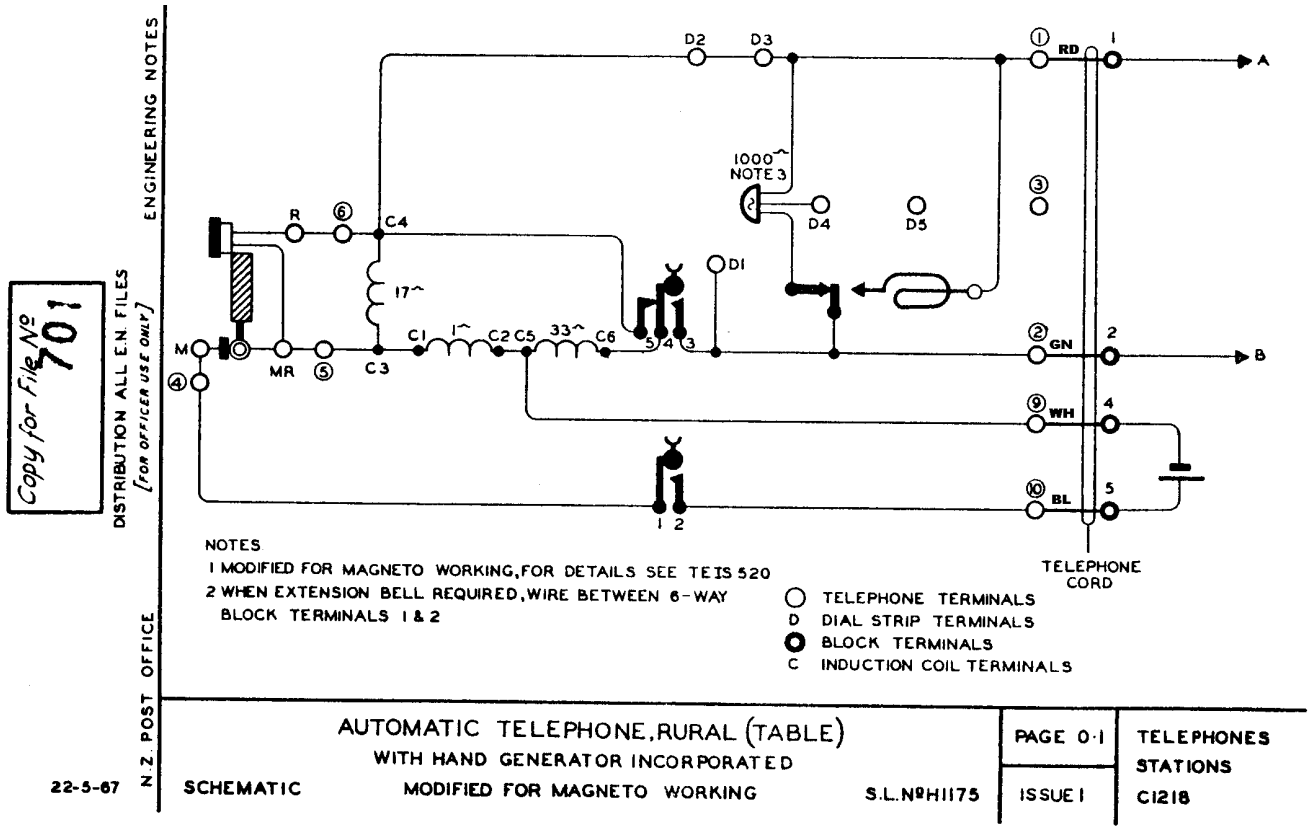
AUTOMATIC TELEPHONE, RURAL (WALL) ERICSSON Nº 2201A MODIFIED	PAGE 1 OF 2	TELEPHONES	
SCHEMATIC	S.L. Nº. H1486	ISSUE 1	STATIONS C1295

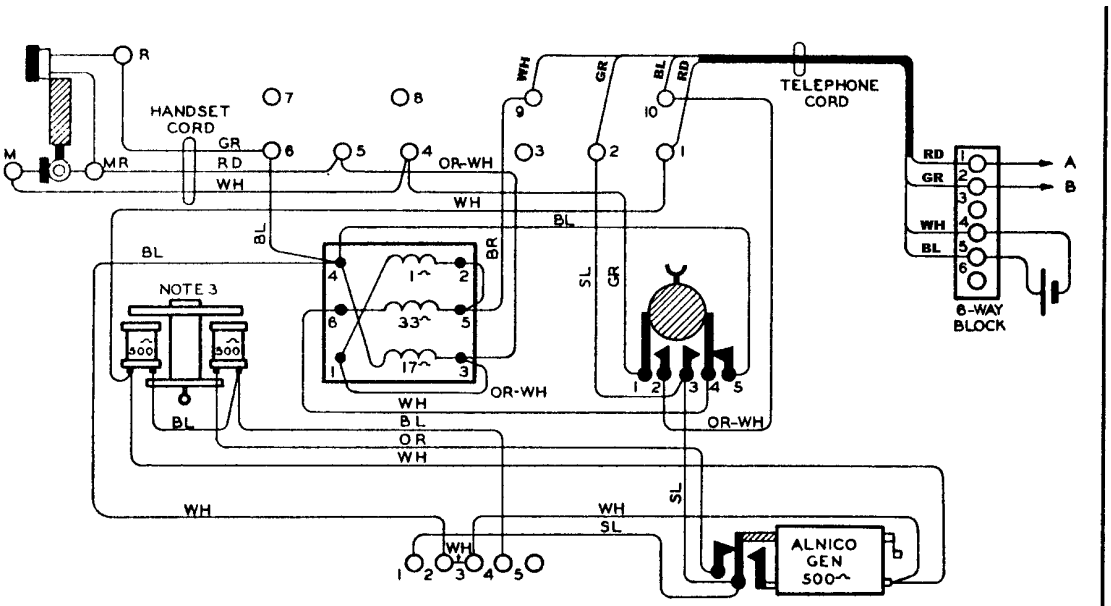
N.Z. POST OFFICE — ENGINEERING NOTES — [FOR OFFICIAL USE]



TELEPHONES STATIONS C1295	PAGE 2 OF 2	AUTOMATIC TELEPHONE, RURAL (WALL) ERICSSON Nº 2201A MODIFIED	
	ISSUE 1	WIRING	S.L. Nº. H1486

AUTOMATIC TELEPHONE, RURAL, MODIFIED FOR MAGNETO WORKING



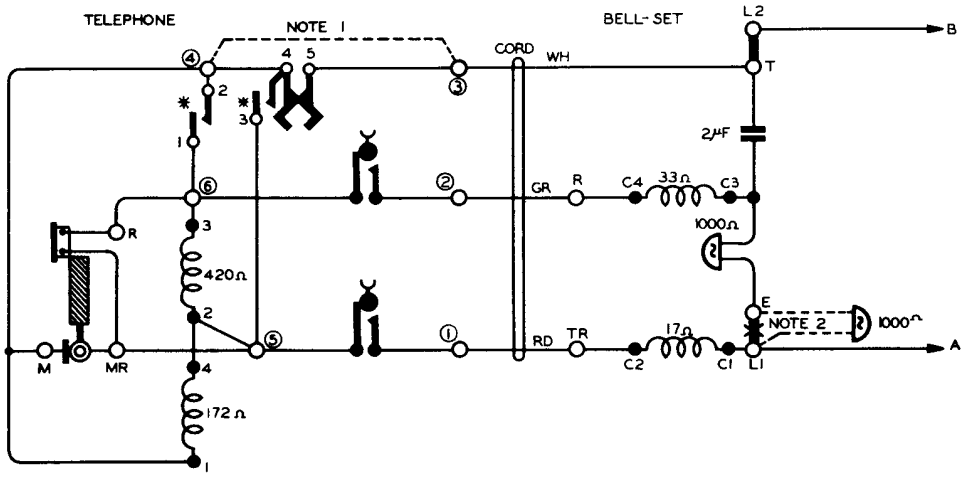


AUTOMATIC TELEPHONE, TABLE, B.P.O. No. 162

701

Distribution: E, FLO(1 TU IN), SX, Y(17 19): W2 [FOR OFFICIAL USE]

ENGINEERING NOTES



NOTES:

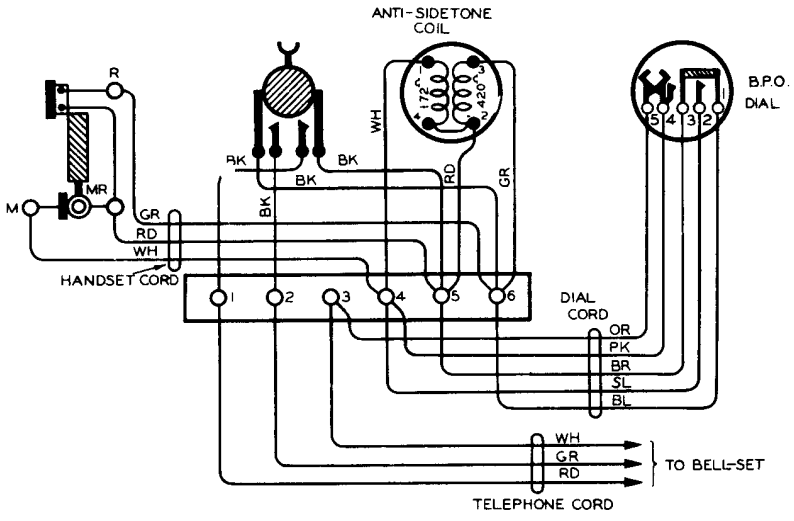
1. FOR C.B. WORKING, REPLACE DIAL WITH DIAL DUMMY AND STRAP TERMINALS (3) AND (4)
2. WHEN EXTENSION BELL REQUIRED, WIRE BETWEEN TERMINALS L1 AND E, AND REMOVE STRAP MARKED THUS ✱
3. WHEN REQUIRED AS COMBINED SET (2-PIECE), I.E. TELEPHONE MOUNTED ON BELL-SET,
   (A) REPLACE 54" CORD WITH 9" CORD BETWEEN BELL-SET AND TELEPHONE.
   (B) FIT 54" CORD BETWEEN BELL-SET AND TERMINAL BLOCK AS SHOWN ON C1375.

✱ DIAL SPRINGS
C IND. COIL TERMINALS
○ TELEPHONE TERMINALS

N.Z. POST OFFICE

AUTOMATIC TELEPHONE (TABLE) B.P.O. TYPE 162 SCHEMATIC (SHOWN WITH BELL-SET HB60) S.L.N°HB470	PAGE 1 OF 2 ISSUE 1	TELEPHONES STATIONS C1340

25.2.80

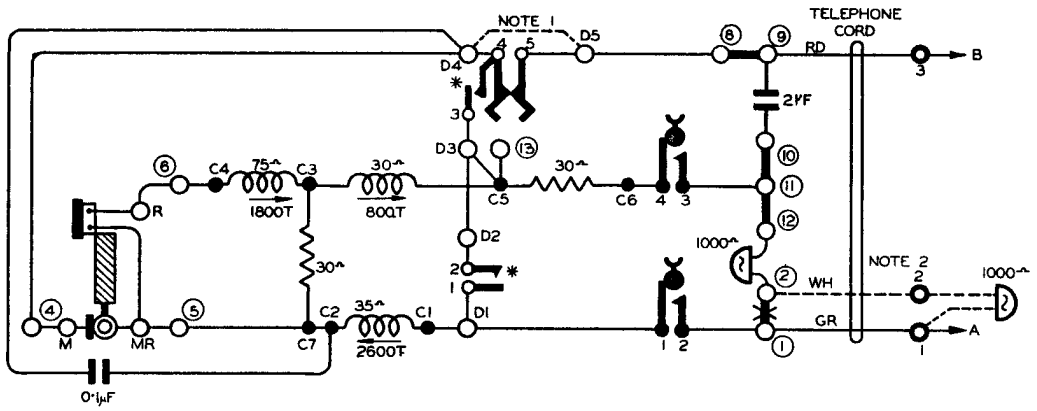


FOR WIRING OF BELL-SET HB60, SEE C1320.

N.Z. POST OFFICE [FOR OFFICIAL USE] ENGINEERING NOTES

TELEPHONES STATIONS C1340	PAGE 2 OF 2 ISSUE 1	AUTOMATIC TELEPHONE (TABLE) WIRING B.P.O. TYPE 162 S.L. N° HB470	

AUTOMATIC TELEPHONE, TABLE, B.P.O. No. 332



NOTES.

1. FOR C.B. WORKING, REPLACE DIAL WITH DIAL DUMMY AND STRAP TERMINALS D4 AND D5.
2. WHEN EXTENSION BELL REQUIRED, REPLACE 2-CONDUCTOR CORD WITH 3-CONDUCTOR CORD AS SHOWN - - - - - - - AND REMOVE STRAP SHOWN ✱.
3. WHEN EXTENSION BELL CUT-OFF KEY REQUIRED - SEE C 1355.
4. FOR CIRCUIT OF 332 TYPE TELEPHONE (HB 810) WITH HOLDING KEY ALARM SPRINGS SEE C 1385.
5. WHEN TELEPHONE CONNECTED FOR 2-P.L. WORKING TO A MANUAL EXCHANGE WITH THROUGH-DIALLING CORD CIRCUITS, FIT A BIAS SPRING ON SIDE OF ARMATURE ADJACENT TO INDUCTION COIL.
6. WHEN TELEPHONE CONNECTED FOR "M" PARTY WORKING TO A U.A.X., REMOVE THE STRAP AND CONNECT A VALVE K995D BETWEEN TERMINALS (11) AND (12)

○ TELEPHONE TERMINALS
C INDUCTION COIL TERMINALS
D DIAL STRIP TERMINALS
◎ BLOCK TERMINALS
✱ DIAL SPRINGS
◄— DIRECTION OF WINDING

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N.Z. POST OFFICE — ENGINEERING NOTES

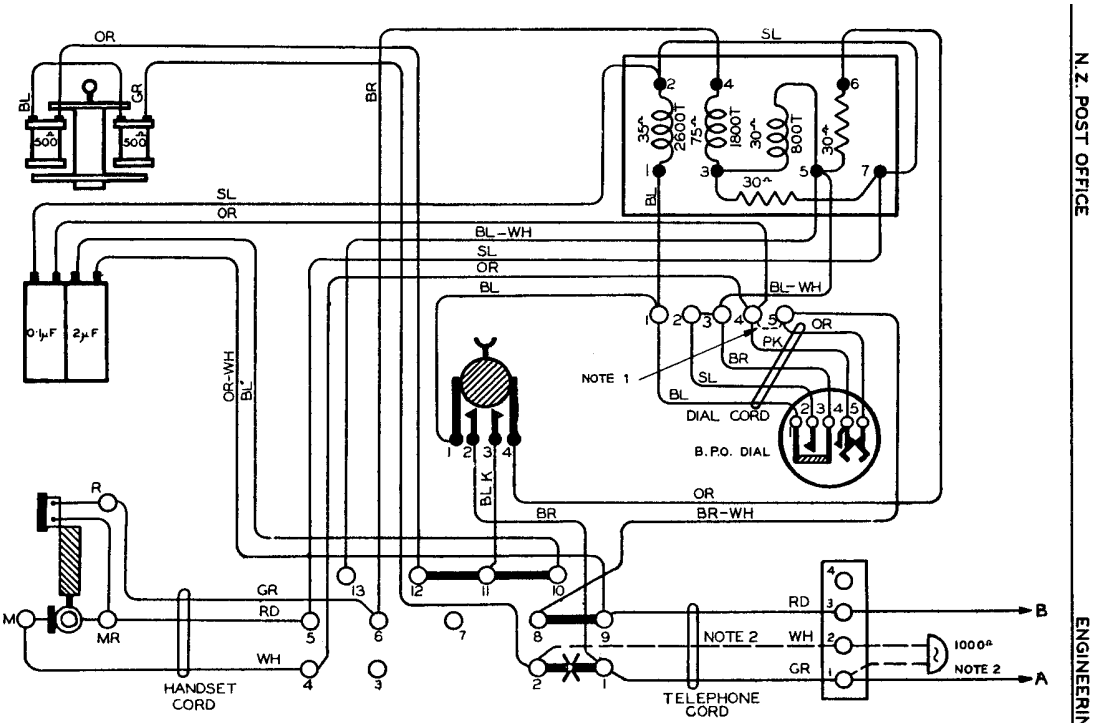
2.9.58. SCHEMATIC

AUTOMATIC TELEPHONE (TABLE)
B.P.O. Nº 332
COMBINED SET (ONE-PIECE)

S.L.Nº HB 670

PAGE 1 OF 2 | ISSUE 2

TELEPHONES STATIONS C1360



N.Z. POST OFFICE — ENGINEERING NOTES

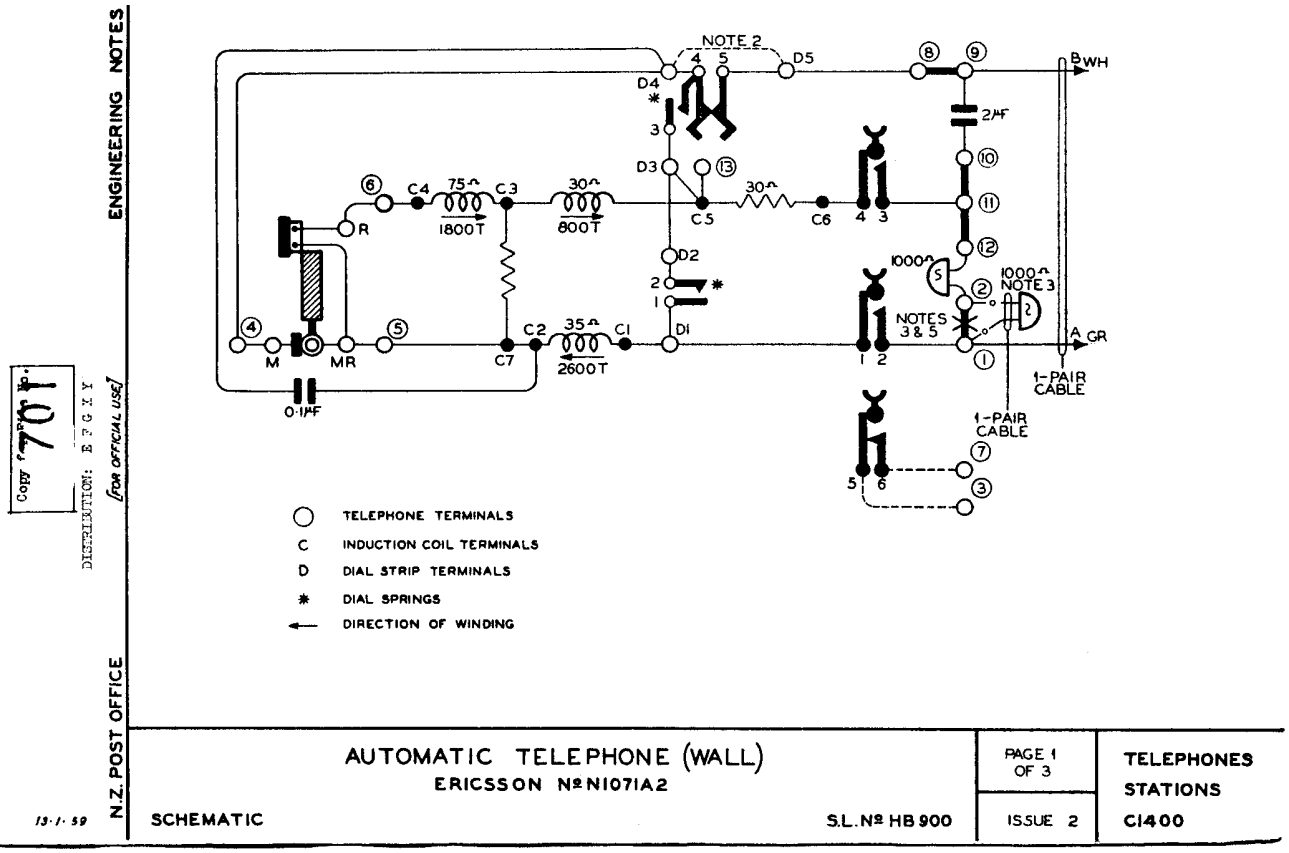
TELEPHONES STATIONS C1360 | PAGE 2 OF 2 | ISSUE 2

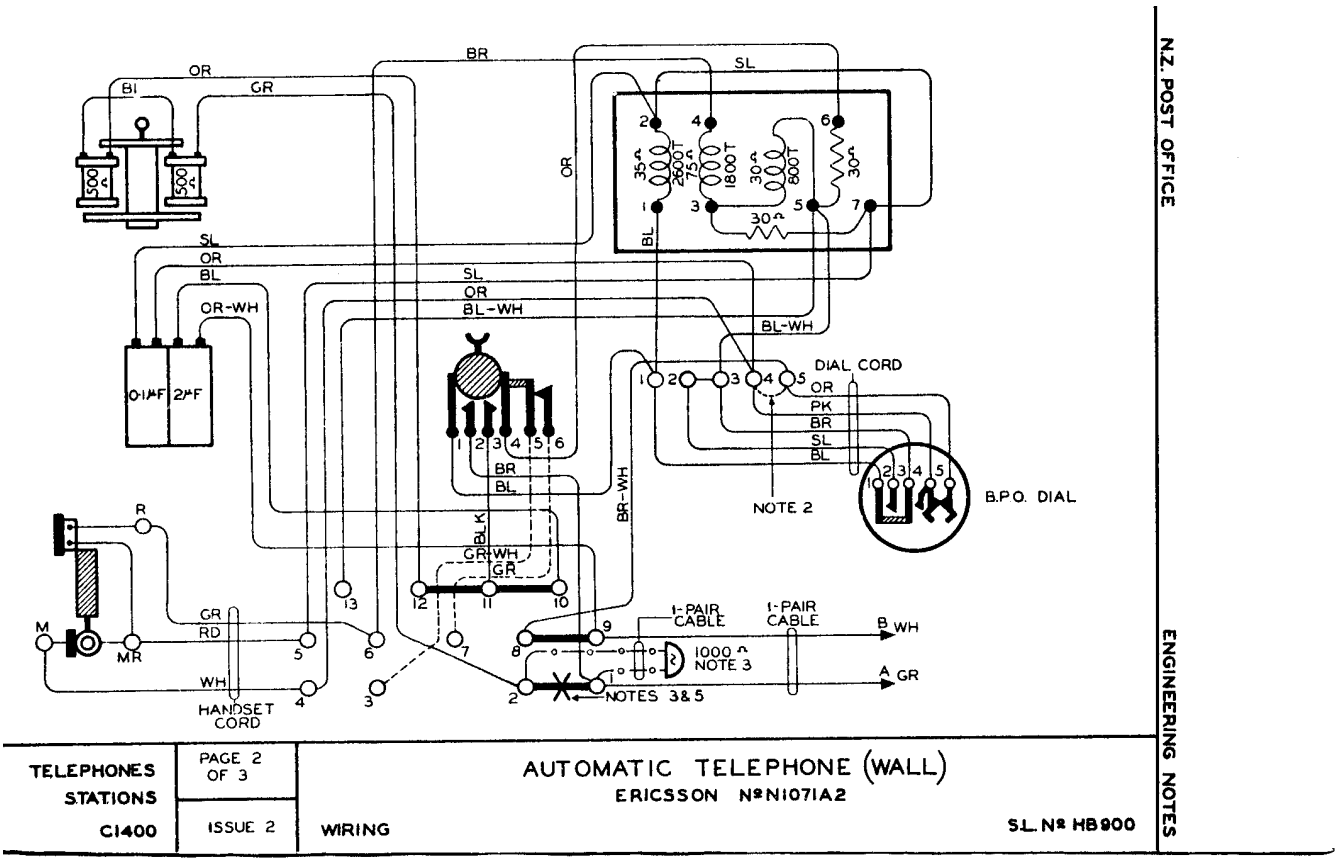
WIRING

AUTOMATIC TELEPHONE (TABLE)
B.P.O. Nº 332
COMBINED SET (ONE-PIECE)

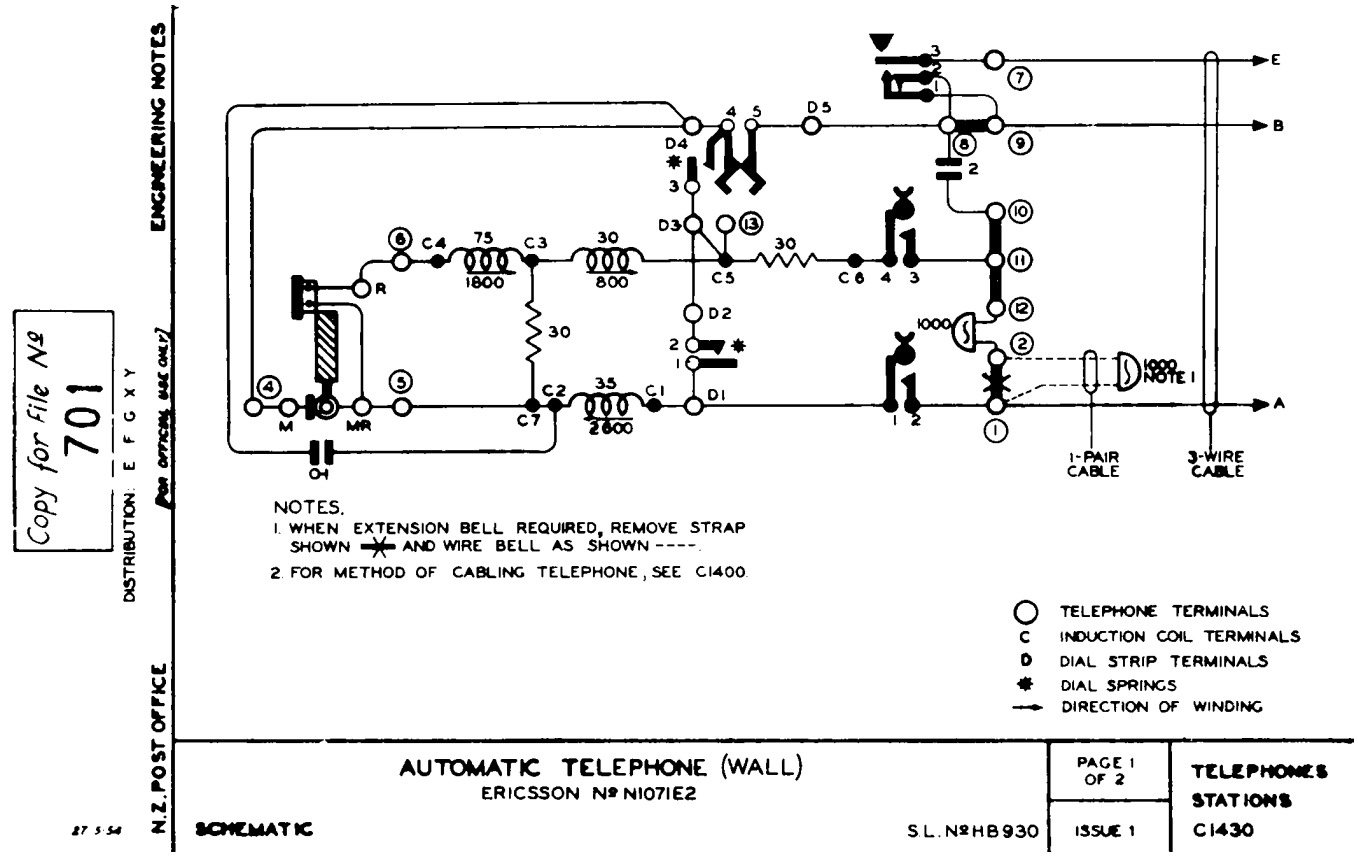
S.L. Nº HB 670

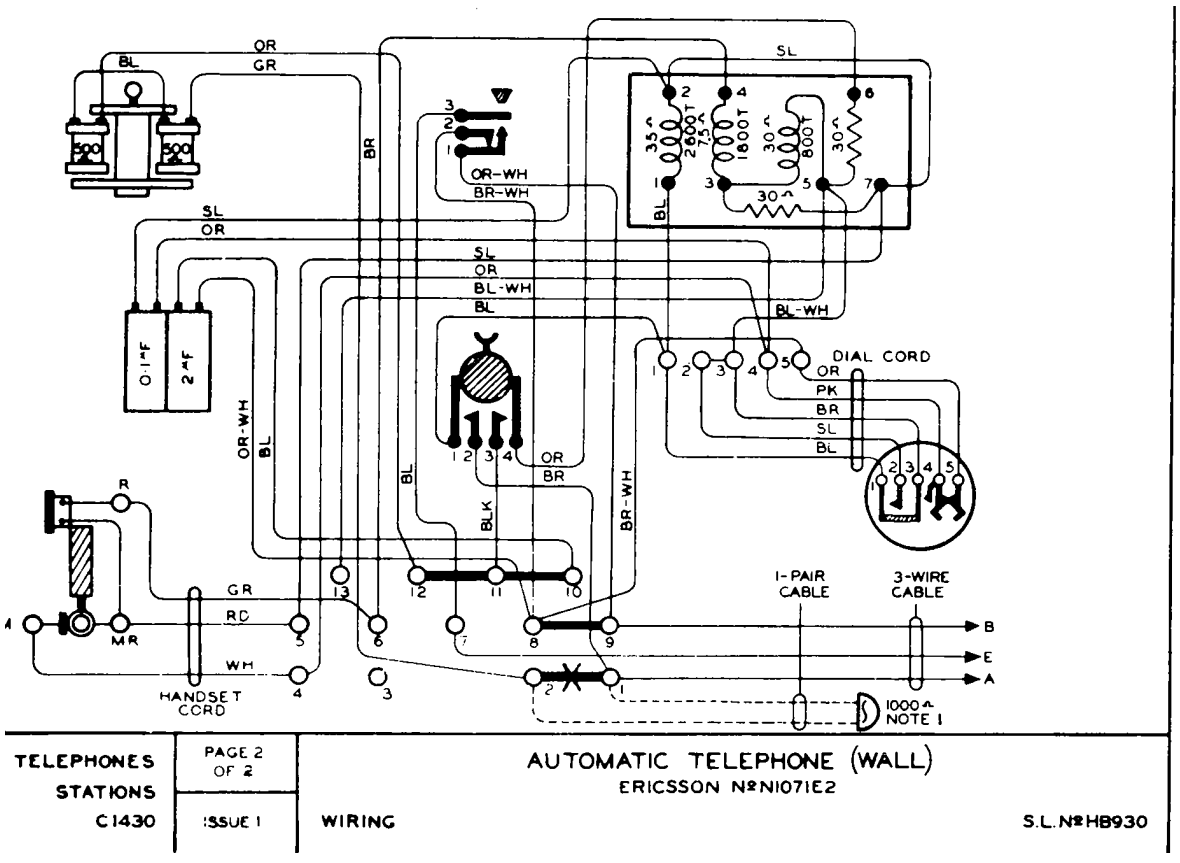
AUTOMATIC TELEPHONE, WALL, ERICSSON No. N1071A2



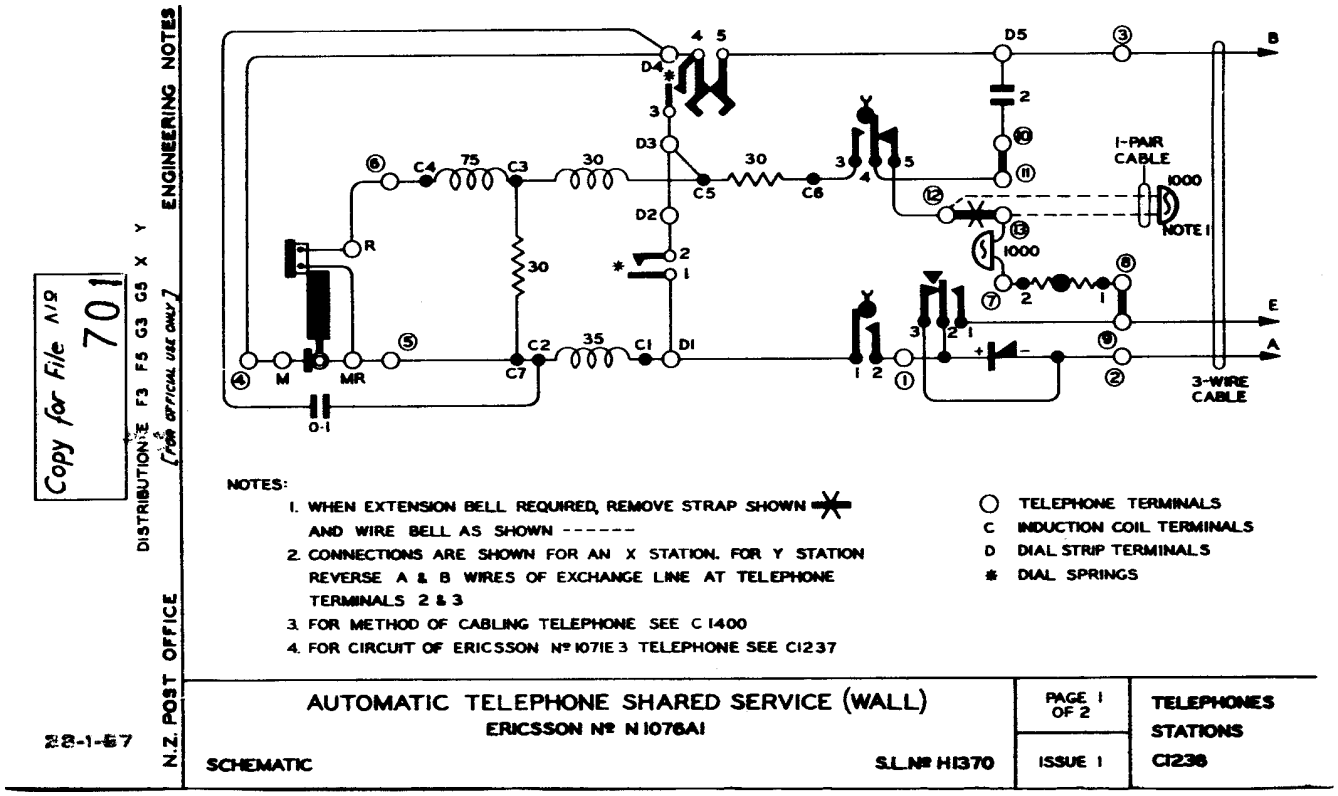


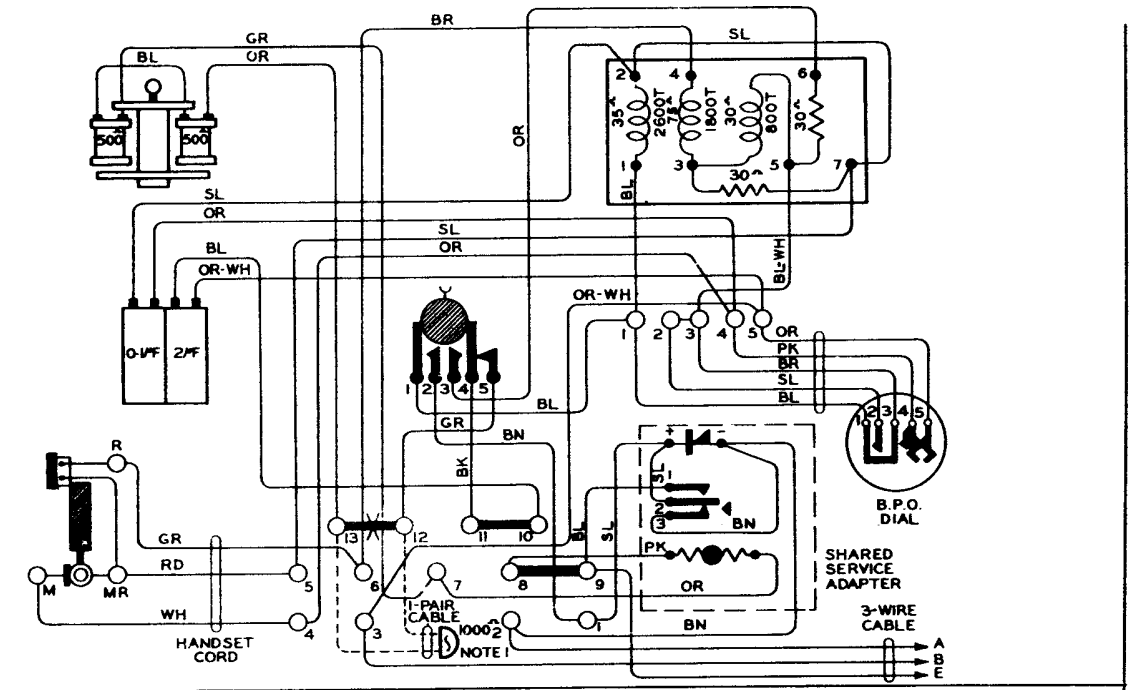
AUTOMATIC TELEPHONE, WALL, WITH PABX RECALL, ERICSSON No. 1071E2





AUTOMATIC TELEPHONE, SHARED SERVICE, WALL, ERICSSON No. N1076A1





PRINCIPLE OF AUTOMATIC 2-PARTY LINE OPERATION

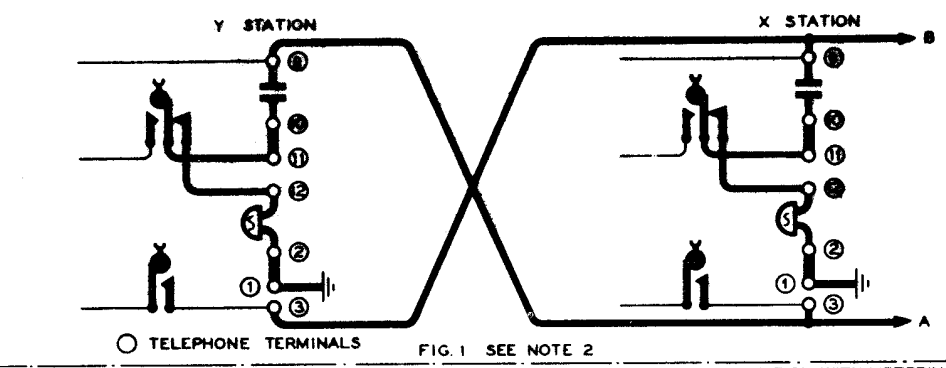


FIG. 1 SEE NOTE 2

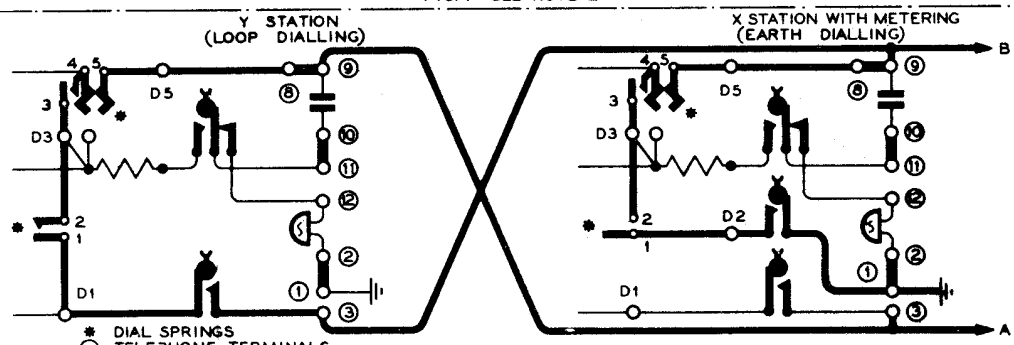


FIG. 2. SEE NOTE 3

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ENGINEERING NOTES

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12 5 52

PRINCIPLE OF AUTOMATIC 2-PARTY LINE OPERATION
USING EARTHED RINGING
STEP-BY-STEP AND ROTARY SYSTEMS

SCHEMATIC

PAGE 1 OF 2

ISSUE 1

TELEPHONES
STATIONS
C1118

1. CLASSIFICATION OF STATIONS: For all new exchange installations, as is the case with the majority of existing exchanges, each group of 100 2-party lines will comprise 200 subscriber's numbers such as 86800-899 and 86900-999. In the case of each 2-party line an even hundred number is paired with the equivalent odd hundred number. Stations in the first or even hundred number group are known as X stations and those in the second or odd hundred number group as Y stations.

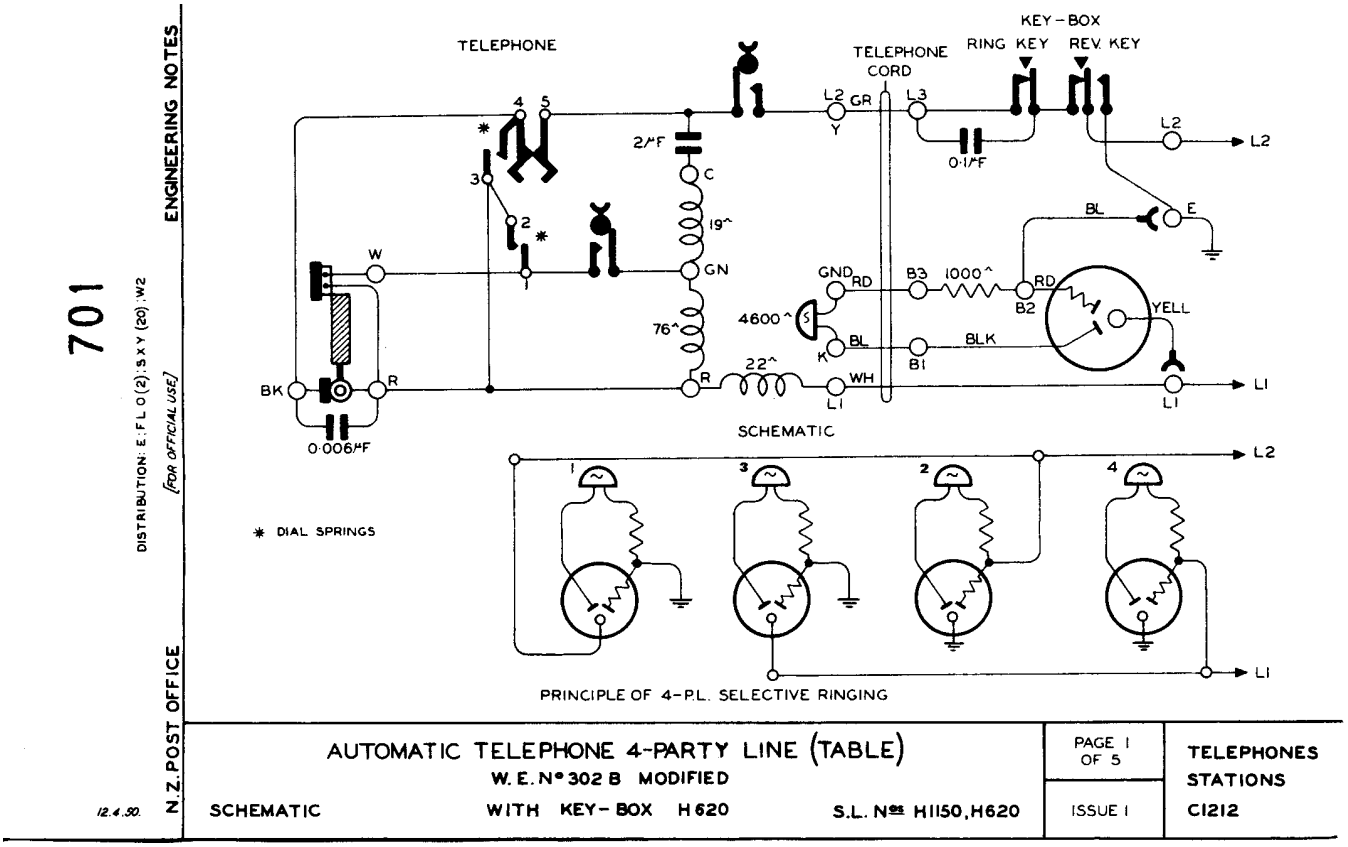
2. RINGING: The two telephones (stations) of a 2-party line are wired as shown in Fig. 1 so that one, the X station, responds to ringing applied to the B-wire and the other, the Y station, to ringing applied to the A-wire. At Y stations, connection of the bell circuit to the A-wire is achieved by reversing the A and B-wires of the exchange line at the telephone.

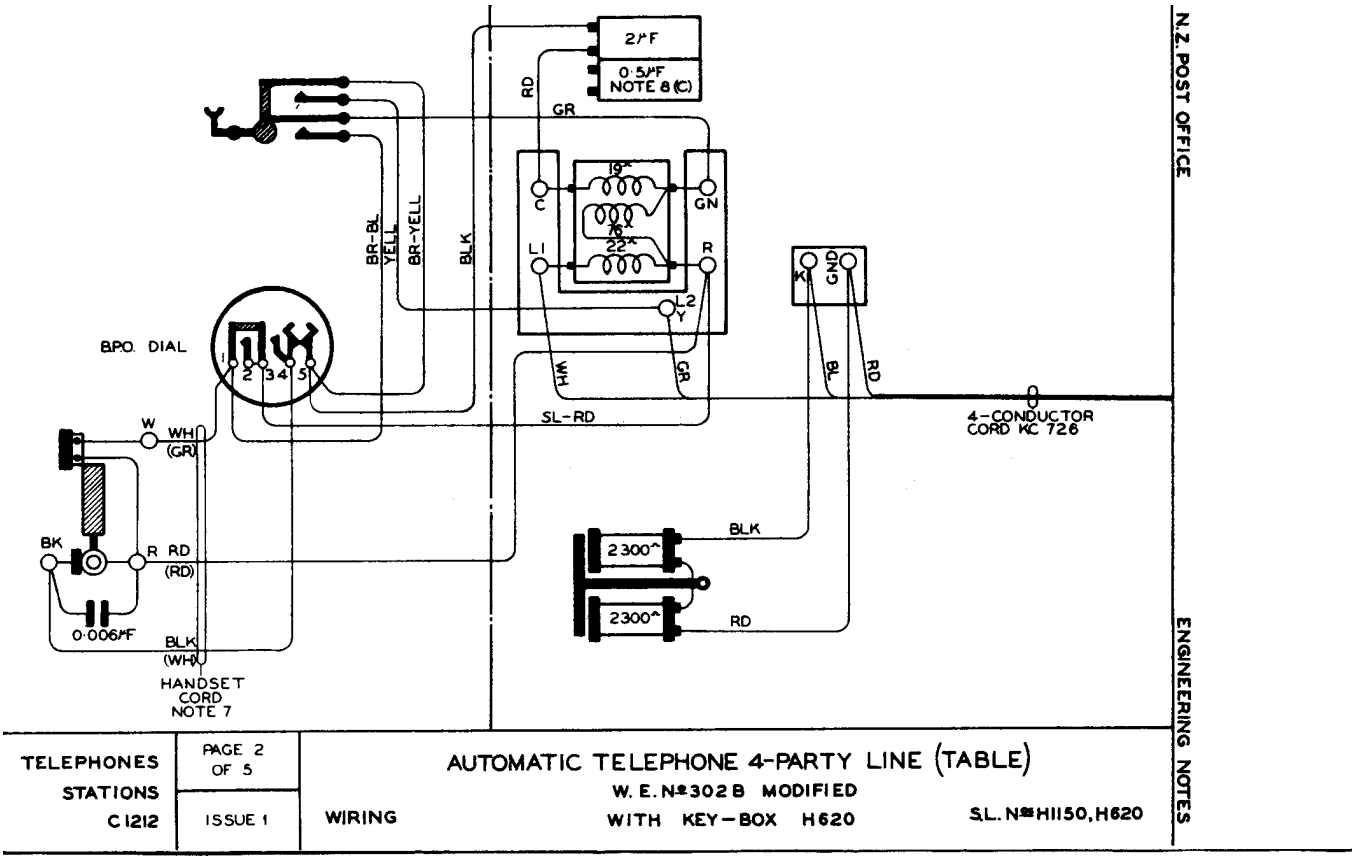
3. DIALLING CONDITIONS: 2-party line telephones are normally arranged for loop dialling but when selective 2-party line metering is provided, X stations are connected for earth dialling. See Fig. 2.

4. REVERTIVE CALLING ARRANGEMENTS: In step-by-step exchange areas and 7A2 rotary exchange areas revertive calling is carried out merely by dialling. In 7A and 7A1 rotary exchange areas the operation of a key to earth the B-wire after dialling is necessary. In cases where the revertive calling key is fitted in the telephone it is necessary to reverse the key wiring at Y stations in order that the earth will still be applied to the B-wire even although the A and B-wires of the exchange line have been reversed at the telephone.

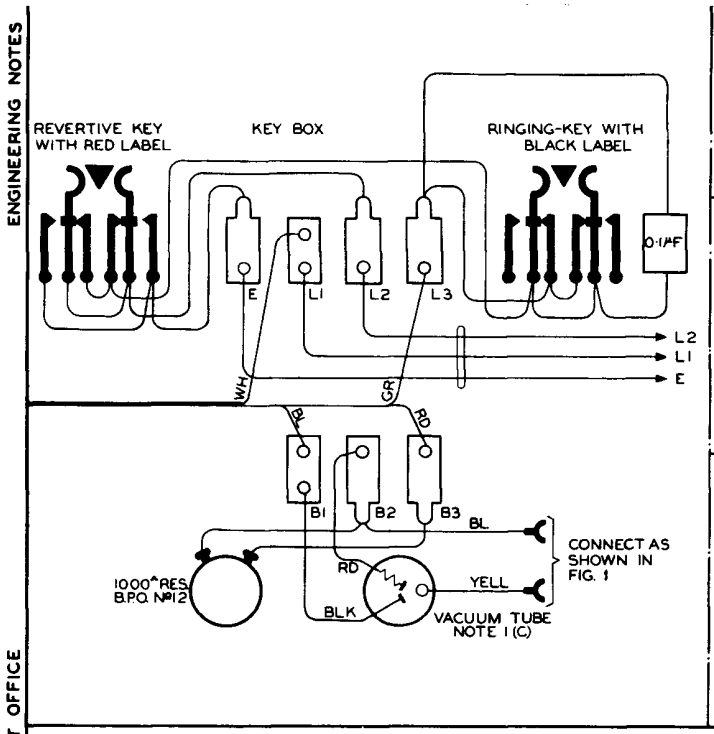
5. 2-PARTY LINE INSTRUMENTS AVAILABLE: See E.I. C 3211.

AUTOMATIC TELEPHONE 4-PARTY LINE, TABLE, W.E. No. 302B MODIFIED WITH KEY-BOX H620





AUTOMATIC TELEPHONE 4-PARTY LINE,TABLE W.E. No. 302B MODIFIED WITH KEY-BOX H620 (Continued)



STATION	RINGING	YELLOW LEAD	BLUE LEAD
1	- ON L2	L2	E
2	+ ON L2	L1	E
3	- ON L1	E	L2
4	+ ON L1	E	L1

FIG. 1

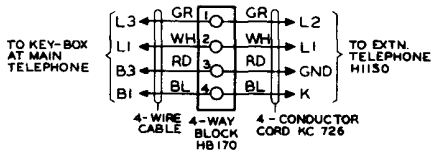


FIG. 2 WIRING OF EXTN. TELEPHONE (RINGING) TO MAIN. NOTE 5

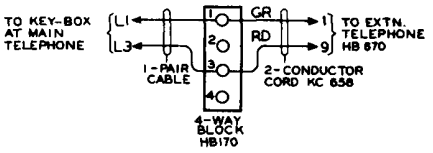


FIG. 3 WIRING OF EXTN. TELEPHONE (NON-RINGING) TO MAIN. NOTE 6

WIRING	AUTOMATIC TELEPHONE 4-PARTY LINE (TABLE) W.E. No 302B MODIFIED WITH KEY-BOX H620	SL.Nos H1150, H620	PAGE 3 OF 5 / ISSUE 1	TELEPHONES STATIONS C1212

1. **MATERIAL REQUIRED:**
   - *(a)* Telephone H 1150
   - *(b)* Key-box H 620
   - *(c)* Tube H 1148

2. **KEY-BOX CONNEXIONS:** Connect 4-conductor cord and tube as shown.

3. **BELL MAGNET POLARITY:** When bell magnet incorrectly polarised, reverse BLK and RD bell wires at telephone terminals K and GND.

4. **EXTENSION BELL:** When extension bell required, disconnect wire soldered to key-box terminal B3 and wire biassed bell between key-box terminals B2 and B3.

5. **EXTENSION TELEPHONE (RINGING):** Use telephone H 1150 and a 4-way block HB 170. Wire as shown in Fig. 2.

6. **EXTENSION TELEPHONE (NON-RINGING):** Use telephone HB 670, remove strap between telephone terminals 1 and 2 and wire as shown in Fig. 3.

7. **HANDSET CORD:** When replacement handset cord required, use cord KC 676. Remove binding at long strain cord end and rebind so that conductor tails are 6 in. long. Connect colours as shown in brackets.

8. **CONVERSION OF TELEPHONE H 1100 TO TELEPHONE H 1150:**
   - *(a)* Replace 2-conductor cord and external 4-way block with a 4-conductor cord KC 726. Connect end of cord with strain cord to telephone as shown.
   - *(b)* Fit dial mounting H 1111.
   - *(c)* Remove from terminals L2 and K the YELL and SL conductors from the 0.5 μF condenser and fold these back under the condenser clamp.
   - *(d)* Transfer the RD conductor from terminal L1 to GND.

TELEPHONES STATIONS C 1212	PAGE 4 OF 5 / ISSUE 1	NOTES	AUTOMATIC TELEPHONE, 4-PARTY LINE (TABLE) W.E. No. 302B MODIFIED WITH KEY-BOX H 620 S.L.Nos. H 1150, H 620

(e) Transfer the SL-RD conductor from terminal L1 to R.

(f) Paint '4-P.L.' in one inch characters on base of telephone.

NOTES	AUTOMATIC TELEPHONE 4-PARTY LINE (TABLE) W.E. No. 302B MODIFIED WITH KEY-BOX H 620 S.L.Nos. H 1150, H620	PAGE 5 OF 5 ISSUE 1	TELEPHONES STATIONS C 1212

701

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ENGINEERING NOTES

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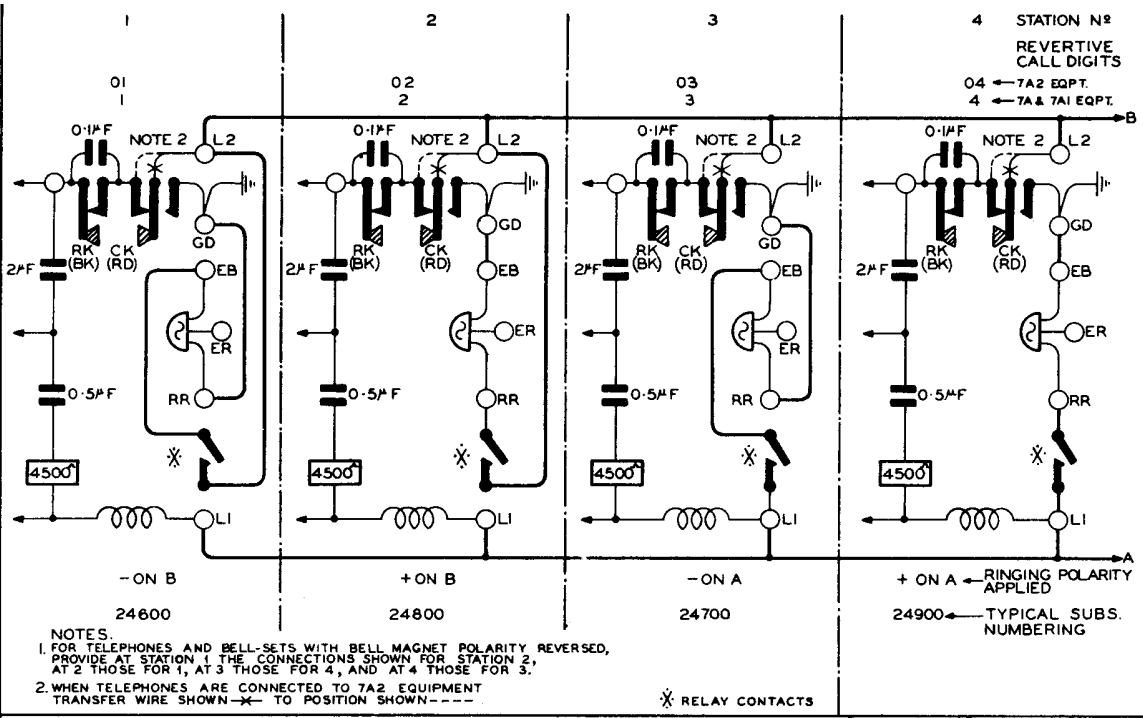
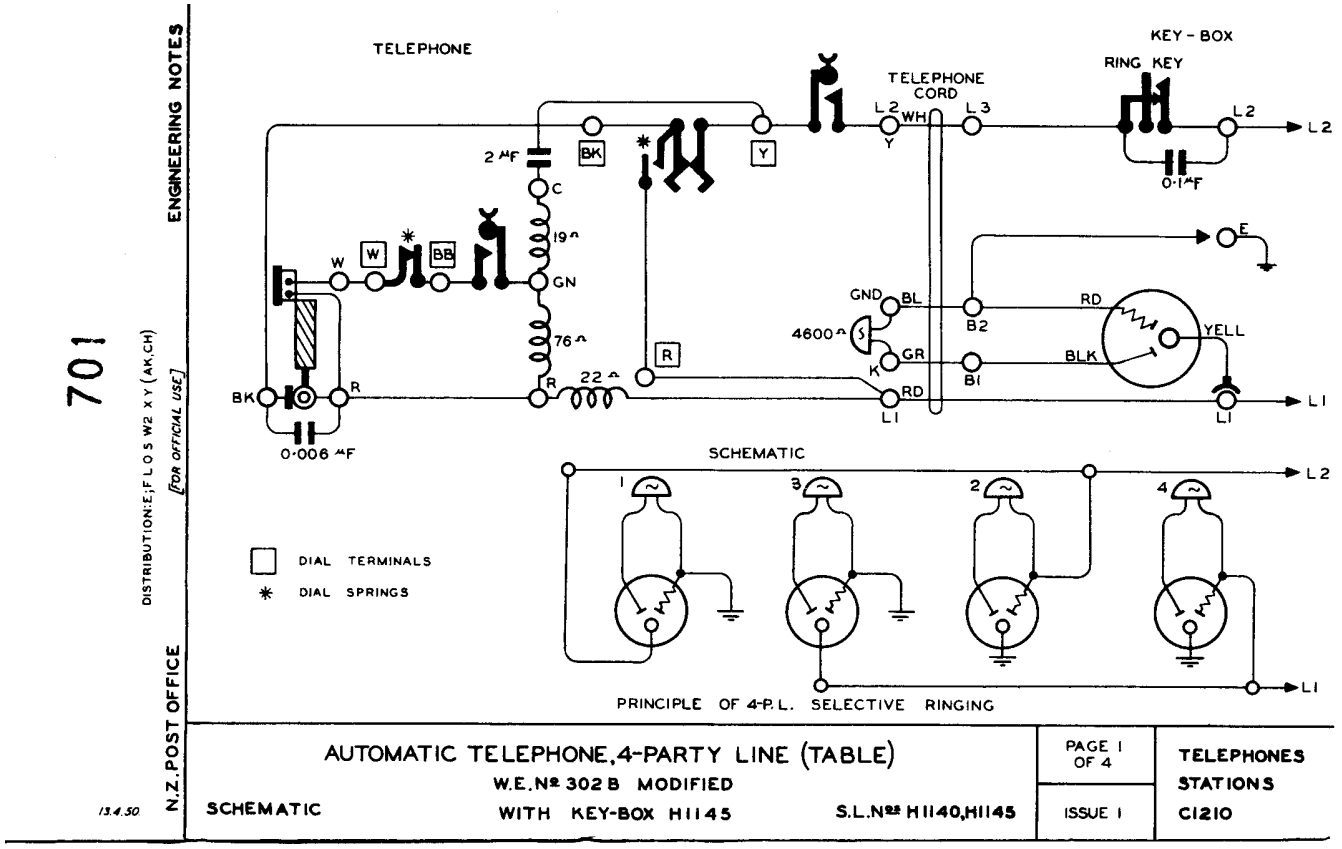
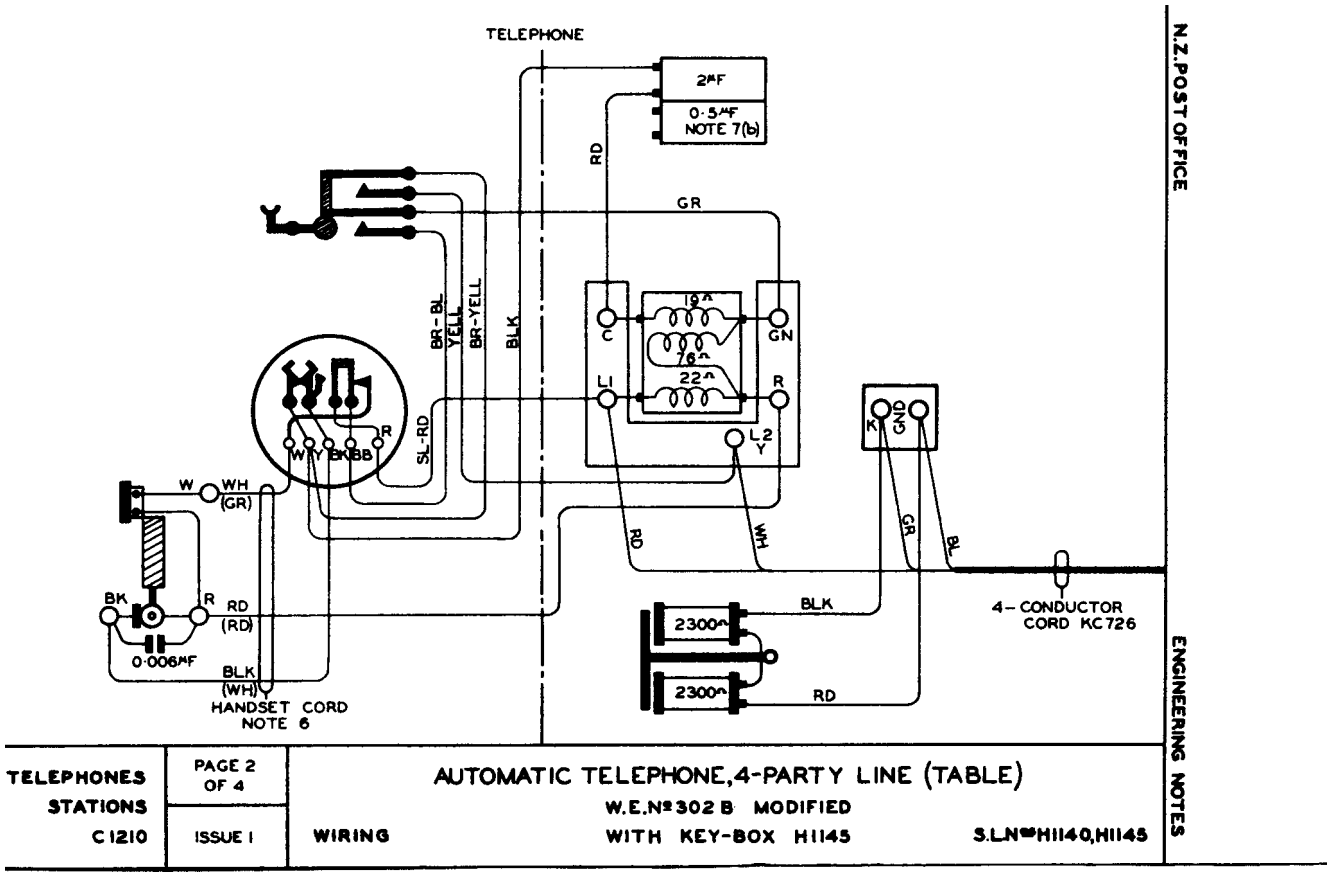


30·10·50	PRINCIPLE OF 4-PARTY LINE SELECTIVE RINGING 7A ROTARY SYSTEM SCHEMATIC 4-P.L. RINGING	PAGE 1 OF 1 ISSUE 1	TELEPHONES STATIONS C1144

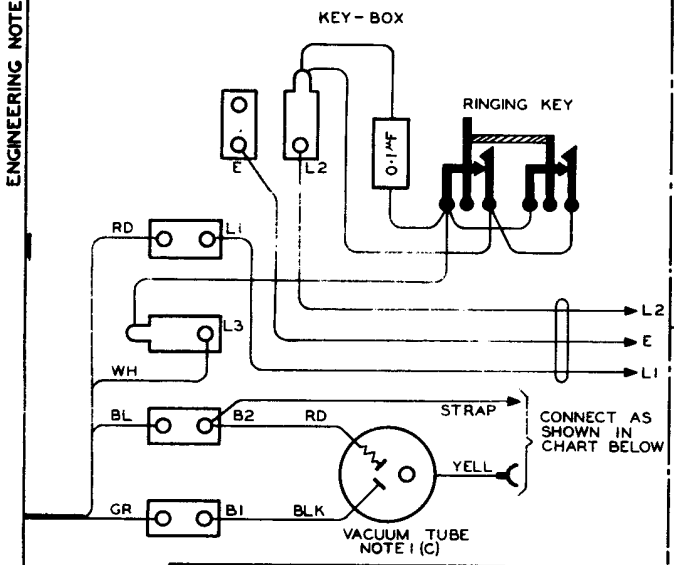
AUTOMATIC TELEPHONE, 4-PARTY LINE, TABLE, W.E. No. 302B MODIFIED WITH KEY-BOX H1145





AUTOMATIC TELEPHONE, 4-PARTY LINE, TABLE W.E. No. 302B MODIFIED WITH KEY-BOX H1145 (Continued)

ENGINEERING NOTES



CONNECT AS SHOWN IN CHART BELOW

STATION	RINGING	YELLOW LEAD	STRAP
1	- ON L2	L2	B2-E
2	+ ON L2	L1	B2-E
3	- ON L1	E	B2-L2
4	+ ON L1	E	B2-L1

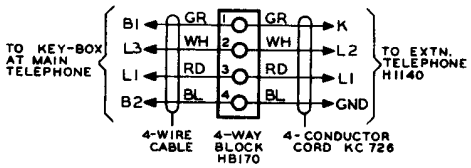


FIG. 1 WIRING OF EXTN. TELEPHONE (RINGING) TO MAIN. NOTE 4

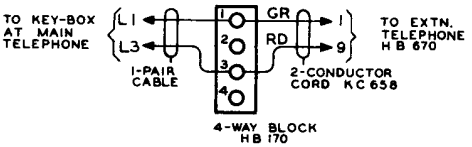


FIG. 2 WIRING OF EXTN. TELEPHONE (NON-RINGING) TO MAIN. NOTE 5

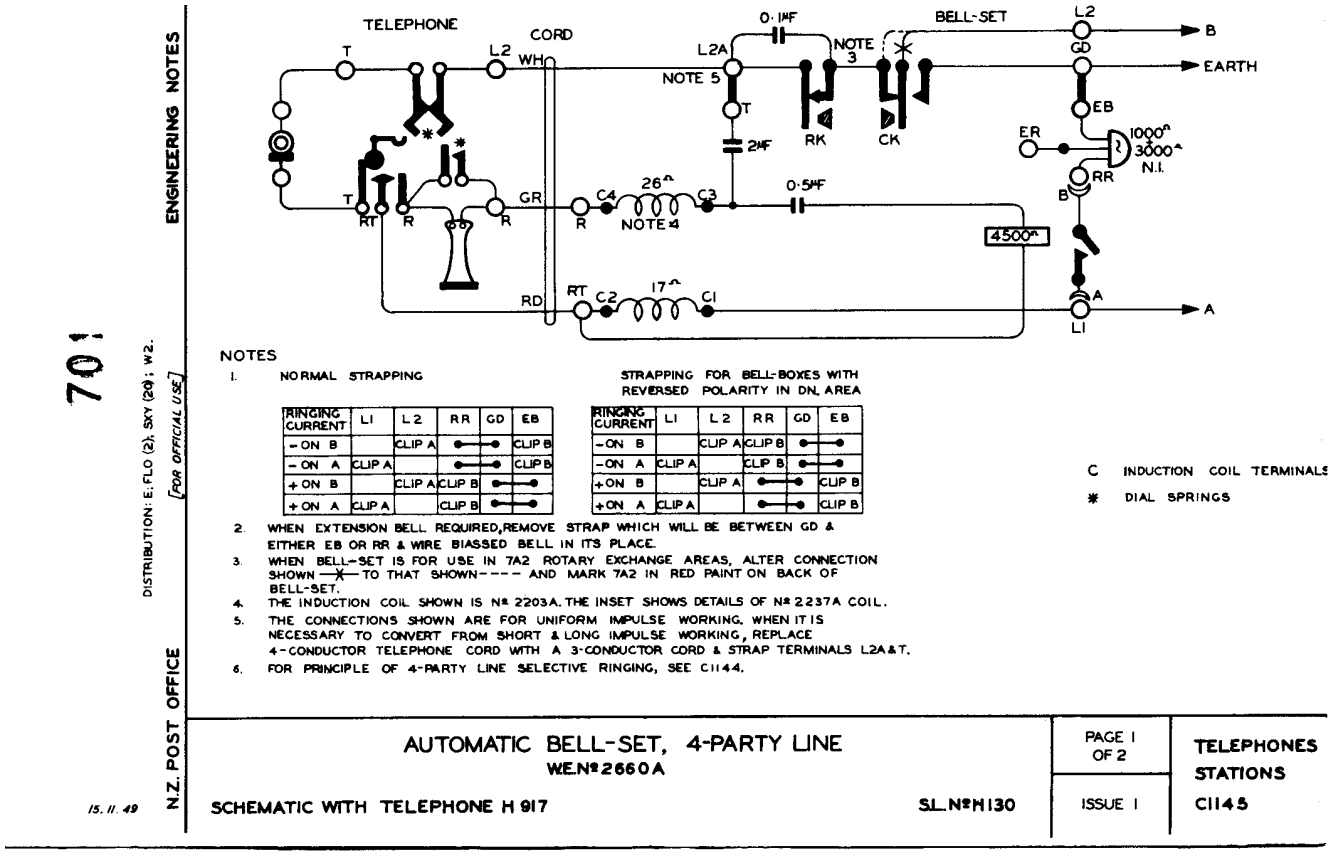
N.Z. POST OFFICE

AUTOMATIC TELEPHONE, 4-PARTY LINE (TABLE) W.E. No 302 B MODIFIED WITH KEY-BOX H1145		PAGE 3 OF 4	TELEPHONES STATIONS C1210
WIRING	S.L.Nos H1140, H1145	ISSUE 1	

1. MATERIAL REQUIRED:
   - (a) Telephone H 1140.
   - (b) Key-box H 1145.
   - (c) Tube H 1148.
2. KEY-BOX CONNEXIONS: Connect 4-conductor cord and tube as shown.
3. BELL MAGNET POLARITY: When bell magnet incorrectly polarized, reverse BLK and RD bell wires at telephone terminals K and GND.
4. EXTENSION TELEPHONE (RINGING): Use telephone H 1140 and a 4-way block HB 170. Wire as shown in Fig. 1.
5. EXTENSION TELEPHONE (NON-RINGING): Use telephone HB 670, remove strap between telephone terminals 1 and 2 and wire as shown in Fig. 2.
6. HANDSET CORD: When replacement handset cord required, use cord KC 676. Remove binding at long strain cord end and rebind so that conductor tails are 6 in. long. Connect colours as shown in brackets.
7. CONVERSION OF TELEPHONE H 1100 TO TELEPHONE H 1140:
   - (a) Replace 2-conductor cord and external 4-way block with a 4-conductor cord KC 726. Connect end of cord with strain cord to telephone as shown.
   - (b) Remove from terminals L_2 and K the YELL and SL conductors from the 0.5μF condenser and fold these back under the condenser clamp.
   - (c) Transfer the RD conductor from terminal L_1 to GND.
   - (d) Transfer the BLK condenser wire from dial terminal BK to dial terminal Y.
   - (e) Paint '4-P.L.' in one inch characters on base of telephone.

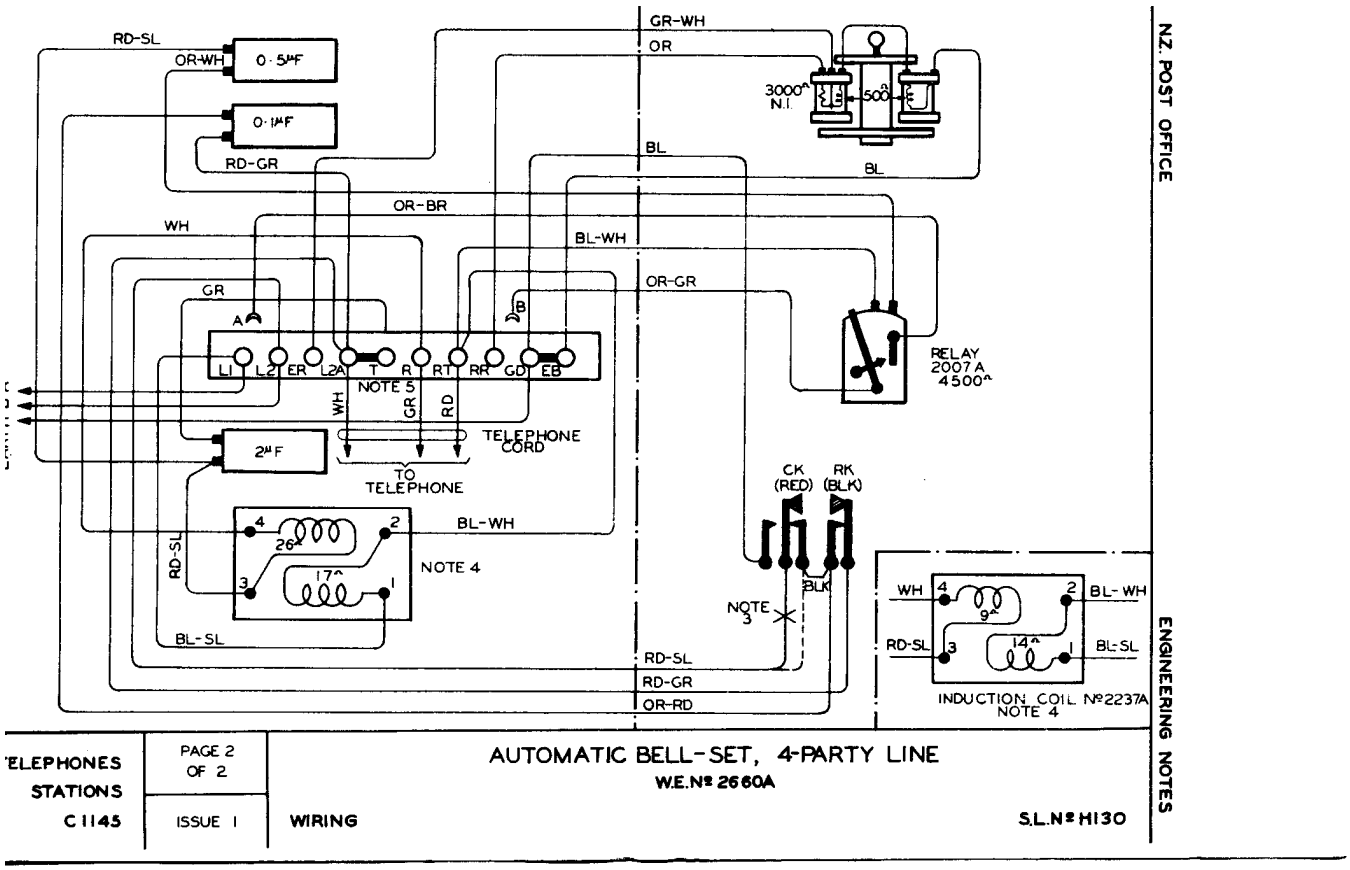
TELEPHONES STATIONS C 1210	PAGE 4 OF 4 ISSUE 1	AUTOMATIC TELEPHONE, 4-PARTY LINE (TABLE) W.E. No. 302B MODIFIED WITH KEY-BOX H 1145 S.L.Nos. H 1140, H 1145	NOTES

AUTOMATIC BELL-SET, 4-PARTY LINE, W.E. No. 2660A



RINGING CURRENT	LI	L2	RR	GD	EB
-ON B		CLIP A			CLIP B
-ON A	CLIP A				CLIP B
+ON B		CLIP A	CLIP B		
+ON A	CLIP A		CLIP B		

RINGING CURRENT	LI	L2	RR	GD	EB
-ON B		CLIP A	CLIP B		
-ON A	CLIP A		CLIP B		
+ON B		CLIP A			CLIP B
+ON A	CLIP A				CLIP B



EYEBALL INDICATOR INSTEAD OF EXTENSION BELL

N.Z. POST OFFICE ENGINEERING NOTES

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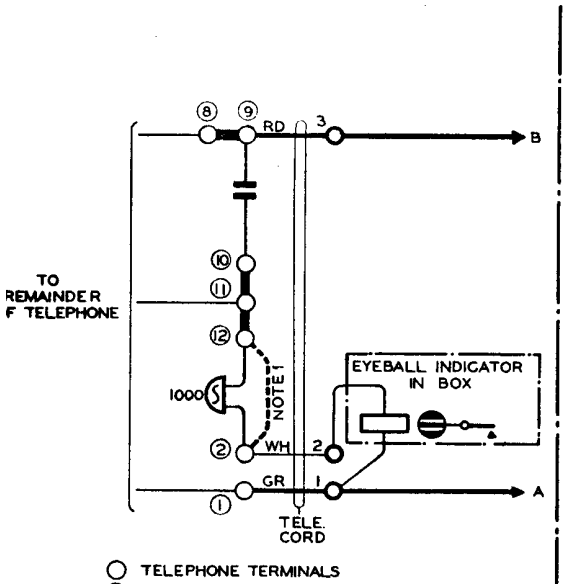
1. If required, an eyeball indicator GA 170, mounted in a suitable box, may be provided instead of an extension bell. The bell in the telephone may be silenced if required. Fig. 1 shows the arrangement with telephone HB 670.

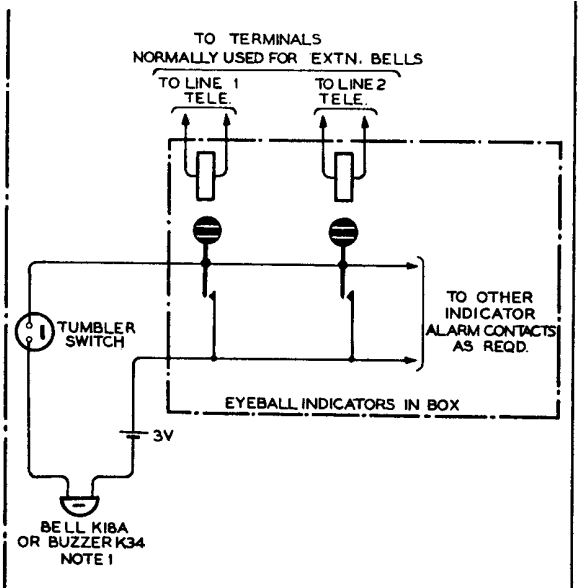
Where more than one indicator is required, i.e., where more than one exchange line is equipped, a common alarm may be provided. The circuit is shown in Fig. 2.

EYEBALL INDICATOR INSTEAD OF EXTENSION BELL AUTO & C.B. INDIVIDUAL LINES AUTO & C.B. 2-PARTY LINES	Page 1 of 2	TELEPHONES Stations C 1100
NOTES	Issue 1	



NOTE 1 PROVIDE STRAP SHOWN- - - - - TO SILENCE TELE. BELL

FIG. 1. EYEBALL INDICATOR WITH TELE. HB 670.



NOTE 1: STRAP BELL OR BUZZER COILS FOR PARALLEL WORKING. SEE A5115.

FIG. 2. COMMON ALARM CIRCUIT.

TELEPHONES STATIONS C1100	PAGE 2 OF 2 ISSUE 1	EYEBALL INDICATOR INSTEAD OF EXTENSION BELL AUTO. & C.B. INDIVIDUAL LINES AUTO. & C.B. 2-PARTY LINES

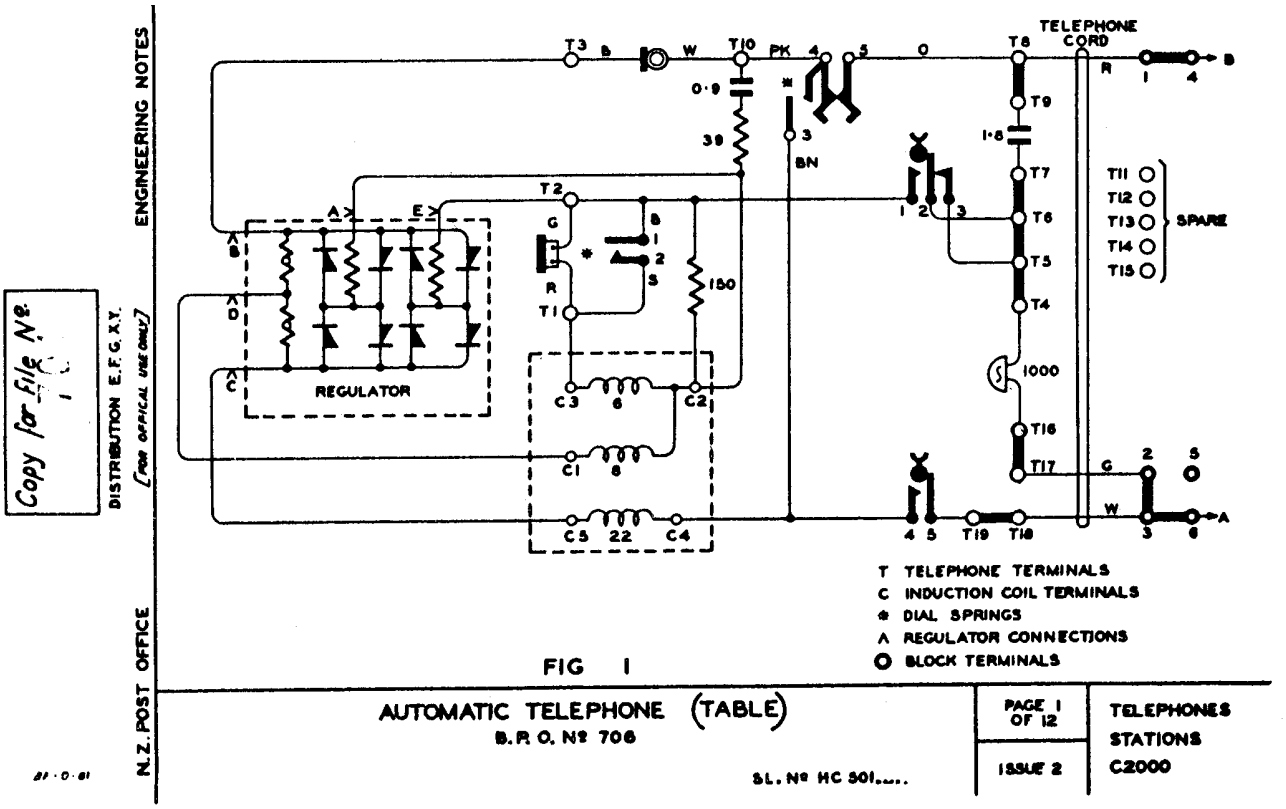


FIG 1

AUTOMATIC TELEPHONE (TABLE)
B.P.O. No. 706

PAGE 1 OF 12	TELEPHONES STATIONS C2000
ISSUE 2	

SL. No HC 501....

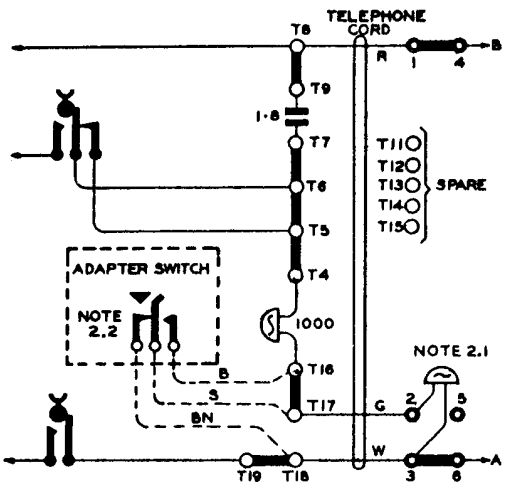


FIG. 2
NORMAL EXTN. BELL : SEE NOTE 2

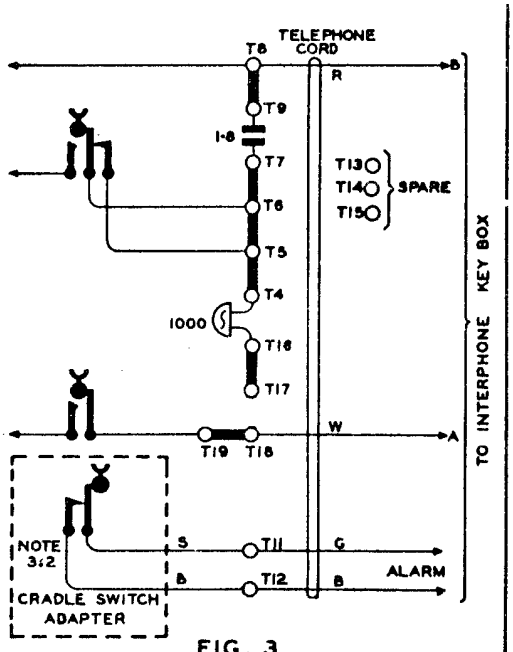


FIG. 3
N.Z.P.O. INTERPHONE : SEE NOTE 3

TELEPHONES STATIONS C2000	PAGE 2 OF 12	
	ISSUE 2	SL. No HC 501....

ENGINEERING NOTES

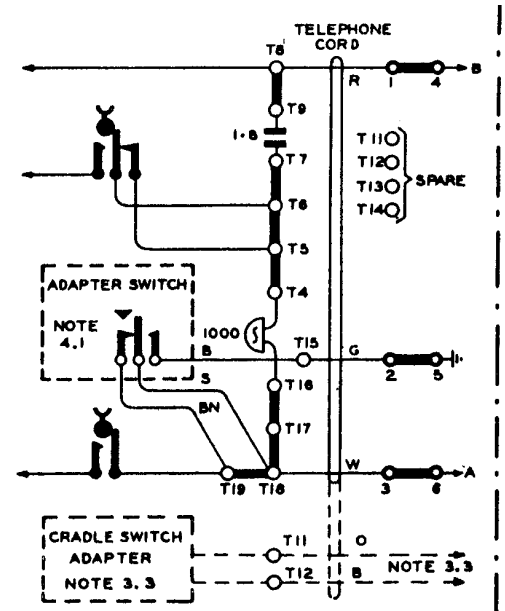


FIG 4
P.A.B.X. RECALL : SEE NOTE 4

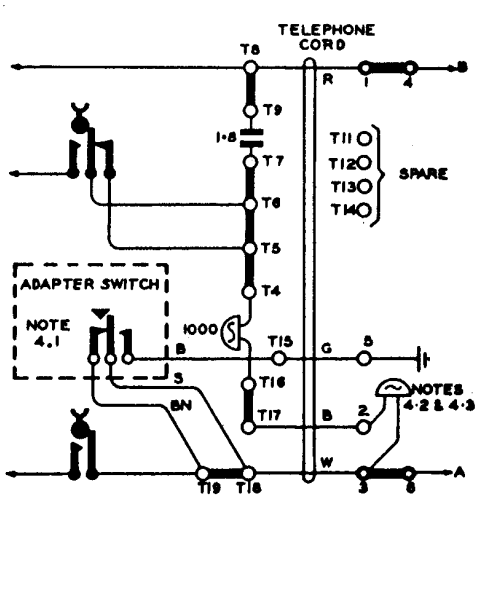


FIG 5
P.A.B.X. RECALL WITH EXTENSION BELL : SEE NOTE 4

N.Z. POST OFFICE

AUTOMATIC TELEPHONE (TABLE)
B.P.O. No. 706

SL. No HC 501 ....

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ISSUE 2	STATIONS
	C2000

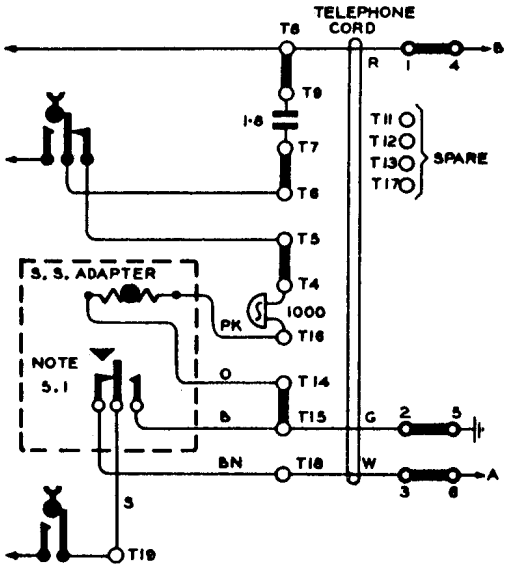

FIG 6
SHARED SERVICE : SEE NOTE 5

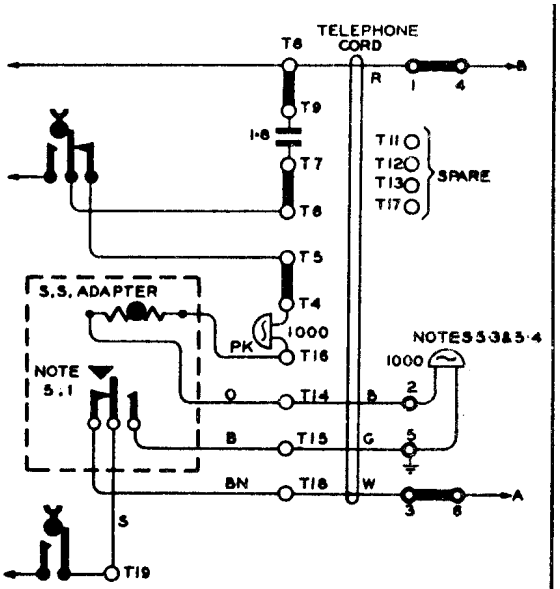

FIG 7
SHARED SERVICE WITH EXTENSION BELL : SEE NOTE 5

TELEPHONES STATIONS C2000	PAGE 4 OF 12	ISSUE 2	SL. No HC 501....

ENGINEERING NOTES

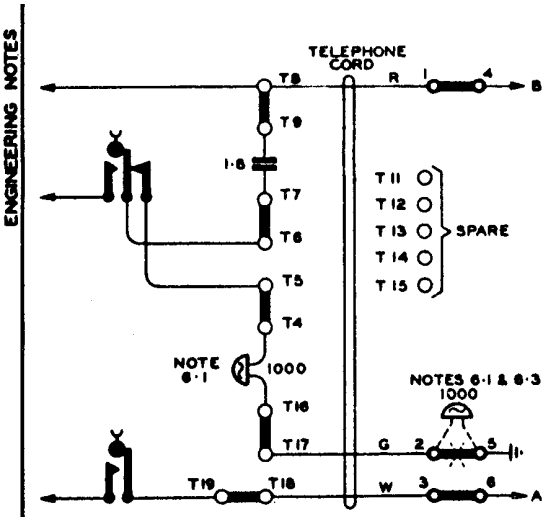

FIG. 8
2 - PARTY : SEE NOTE 6

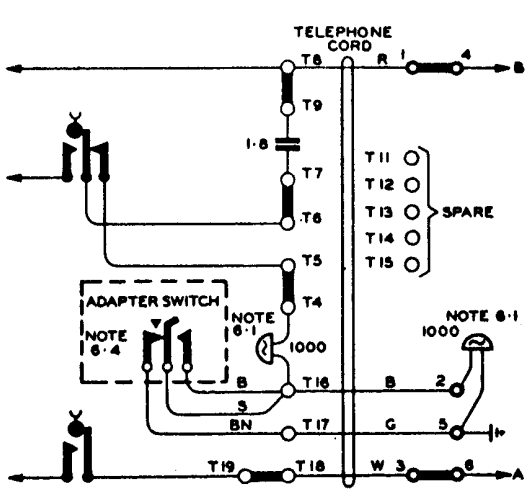

FIG. 9
2 - PARTY WITH EXTN BELL CUT-OFF KEY:
SEE NOTE 6

N.Z. POST OFFICE

AUTOMATIC TELEPHONE (TABLE)
B.P.O. Nº 706

SL. Nº HC 501....

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	C2000

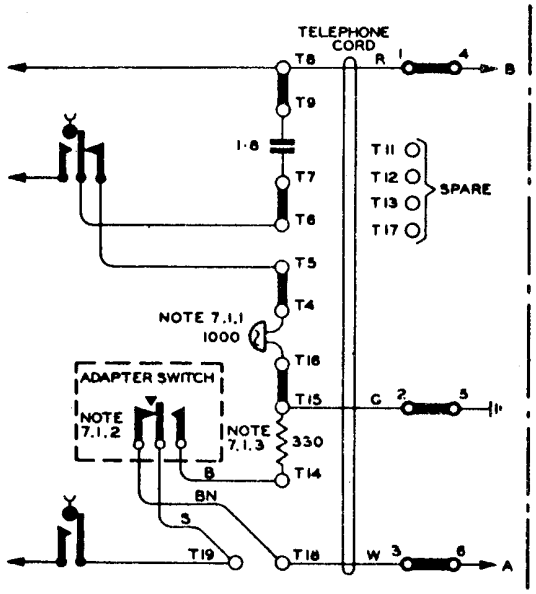


FIG. 10
2 - PARTY, WITH REVERTIVE CALL KEY:
SEE NOTE 7

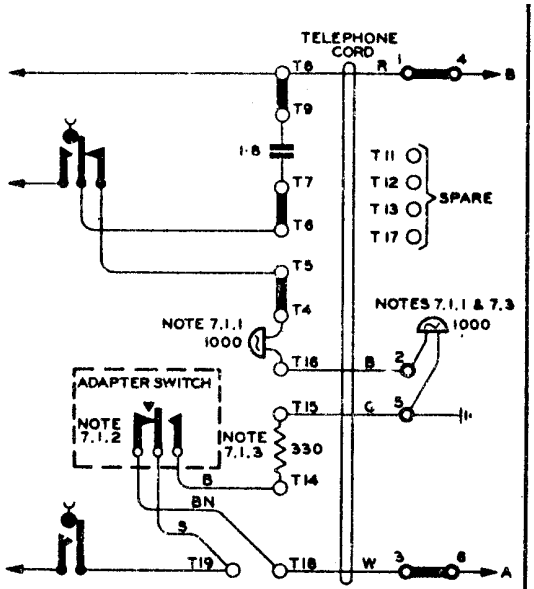


FIG. 11
2 - PARTY, WITH REVERTIVE CALL KEY & EXTENSION BELL:
SEE NOTE 7

TELEPHONES	PAGE 6 OF 12	
STATIONS		
C 2000	ISSUE 2	SL.Nº HC 501....

ENGINEERING NOTES

N.Z. POST OFFICE

1. GENERAL. The No. 706 telephone may be used for the following services:-

Individual automatic lines	2-Party
N.Z.P.O. Interphone	2-Party, with revertive call key
P.A.B.X. Recall	M-Party at U.A.X.
Shared Service	Central Battery

2. NORMAL TELEPHONES.

2.1 Extension Bell. Remove strap and connect extension bell between block terminals 2 & 3 (Fig. 2).

2.2 Extension Bell Cut-Off Key.

2.2.1 Fit adapter switch HC 140 (locking) with label HC 142.... (colour) to mounting bracket in telephone. Remove dummy button from case. Connect leads as shown - - - - in Fig. 2.

2.2.2 To silence the telephone bell when the extension bell is switched on move the B adapter switch wire from T16 to T4 in Fig. 2.

3. N.Z.P.O. INTERPHONE.

3.1 Without holding key alarm.

3.1.1 Use normal telephones (Fig. 1) without the terminal block. Connect the green cord conductor to spare terminals in the telephone and keybox to disconnect bell.

3.1.2 When P.A.B.X. recall facilities are required, connect the telephone as shown in Fig. 4, omit the terminal block and the strap T17-T18.

3.2 Holding key alarm with normal telephone (Fig. 3).

3.2.1 Fit cradle switch springset HC 100 to the vertical bracket opposite the normal cradle switch springset.

3.2.2 Connect the leads from the additional springset as shown in Fig. 3.

3.2.3 Replace the 3-wire cord HC 543.... with a 4-wire cord KC 729.... and connect as shown in Fig. 3.

3.3 Holding key alarm with P.A.B.X. recall telephone (Fig. 4).

3.3.1 Fit cradle switch adapter as in Fig. 3 and Note 3.2.

3.3.2 Fit adapter switch as in Fig. 4 and Note 4.1.

3.3.3 Replace the 3-wire cord HC 543.... with a 5-wire cord KC 739...., wire as shown in Fig. 4 including connections shown - - - -, omitting the terminal block.

4. P.A.B.X. RECALL.

4.1 Fit adapter switch HC 110 (non-locking), with label HC 112.... (colour) to mounting bracket in telephone, remove dummy button from case. Connect leads as shown in Fig. 4.

4.2 Extension Bell. Replace the 3-wire cord HC 543.... with a 4-wire cord KC 729.... and connect as shown in Fig. 5.

4.3 Extension Bell Cut-off Key. Use a No. 710 telephone, see C 2010, Fig. 2.

ENGINEERING NOTES

N.Z. POST OFFICE

5. SHARED SERVICE.

5.1 Fit adapter shared service HC 105 with label HC 107.... (colour), to the mounting bracket in the telephone, remove dummy button from case. Connect leads as shown in Fig. 6.

5.2 Connections for an "X" station are shown in Fig. 6 or 7. For a "Y" station, reverse A & B wires of exchange line at block terminals 4 and 6.

5.3 Extension Bell. Replace the 3-wire cord HC 543.... with a 4-wire cord KC 729.... and connect as shown in Fig. 7.

5.4 Extension Bell Cut-off Key. Use a No. 710 telephone, see C 2010, Fig. 3.

6. 2-PARTY.

6.1 Fit a bias spring assembly HC 509 and HC 509A to the telephone bell, and to any extension bells.

6.1.1 Method of fitting bias spring assembly (see E.I. C 3213).

(a) Remove dial and regulator.
(b) Remove the bell armature clip, fit new clip and bias spring.
(c) Fit the tension plate under the bell coil nuts:
At X stations face the lip of the plate towards the armature;
At Y stations face the lip of the plate away from the armature.
(d) Replace dial and regulator.
(e) Adjust bias as required.

6.2 Connections for an "X" station are shown in Fig. 8 or 9. For a "Y" station, reverse A & B wires of exchange line at block terminals 4 and 6.

6.3 Extension Bell. Remove strap shown and connect bell as shown - - - - in Fig. 8.

6.4 Extension Bell Cut-off Key.

6.4.1 Fit adapter switch HC 140 (locking) with label HC 142.... (colour) to mounting bracket in telephone. Remove dummy button from case. Replace the 3-wire cord HC 543.... with a 4-wire cord KC 729.... and connect as shown in Fig. 9.

6.4.2 To silence the telephone bell when the extension bell is switched on move the blue adapter switch wire from T16 to T4 in Fig. 9.

7. 2-PARTY, WITH REVERTIVE CALL KEY.

7.1 Assembly of telephone with revertive call key Fig. 10 and 11.

7.1.1 Fit a bias spring assembly, HC 509 and HC 509A to the telephone bell, and to any extension bells. See par. 6.1.1.

7.1.2 Fit adapter switch HC 110 (non-locking), with label HC 109.... (colour) to mounting bracket in telephone, remove dummy button from case. Connect leads as shown in Fig. 10 or 11.

7.1.3 Connect a 330 ohm 1-watt carbon resistor, S.L. No. ER 419, between terminals T14 and T15. Enclose the resistor in insulated sleeving.

7.2 Connections for an "X" station are shown in Fig. 10 or 11.
For a "Y" station:
(a) Reverse A & B wires of exchange line at block terminals 4 and 6; and
(b) Reverse the adapter switch wires, brown and slate on T18 and T19.

ENGINEERING NOTES

7.3 Extension Bell. Replace the 3-wire cord HC 543.... with a 4-wire cord KC 729.... and connect as shown in Fig. 11.

8. M-PARTY (U.A.X.).

When required for "M" party service at a U.A.X., remove the strap and connect a valve K 995D, between terminals T16 and T17 (Fig. 1).

9. CENTRAL BATTERY.

9.1 For wired telephones (plastic base).

9.1.1 Remove the existing number ring and fit the dial dummy HC 300.... to the case.

9.1.2 Remove the dial from the clamp.

9.1.3 Remove the wires from the dial.

9.1.4 Push the BN, S and B wire tags into the holes provided in the insulated base and connect the O and PK wires together under the screw provided.

N.Z. POST OFFICE

9.2 For Printed Circuit Telephones (metal base). A terminal plate HC 599 is required in addition to the dial dummy for this instrument.

9.2.1 Remove the existing number ring and fit the dial dummy HC 300.... to the case.

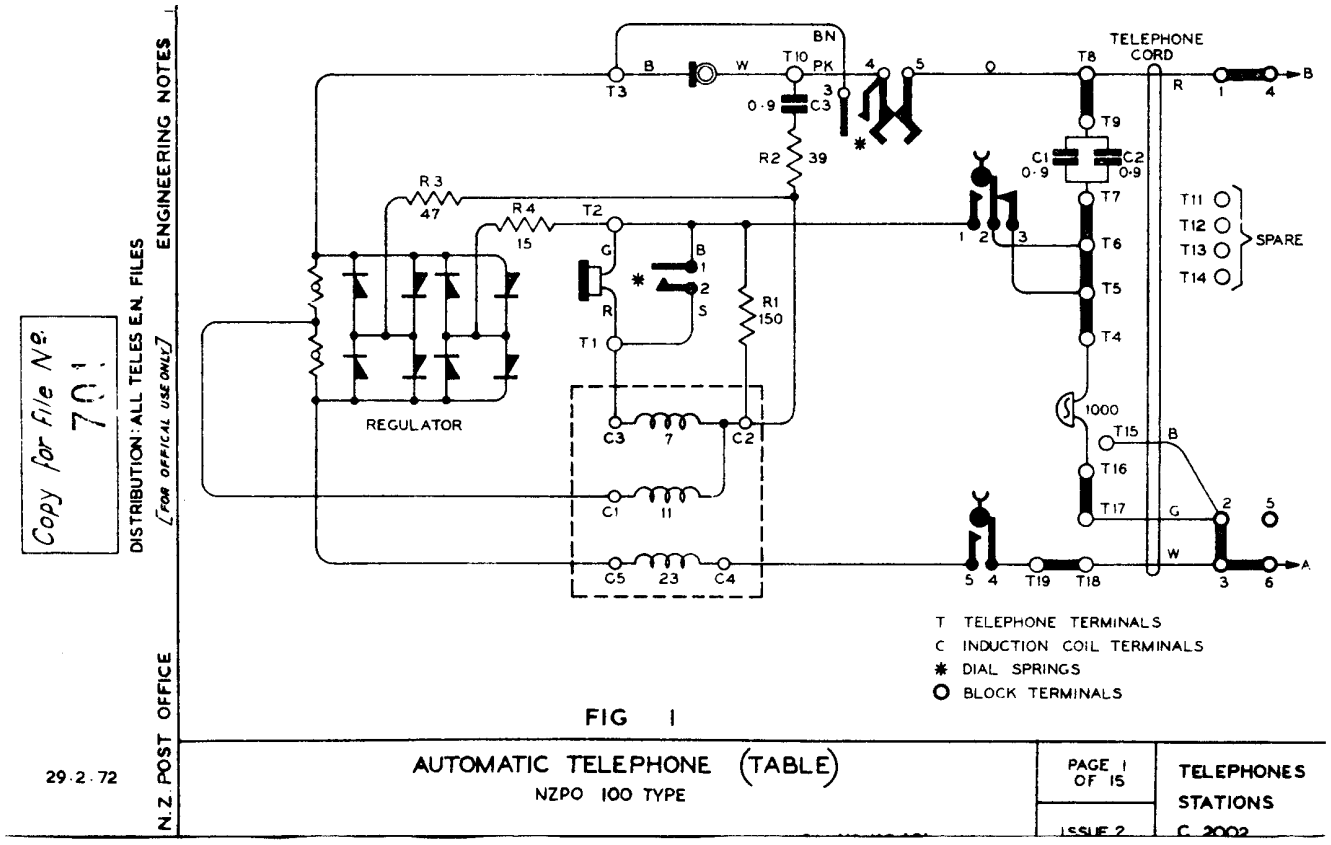
9.2.2 Remove the dial from the clamp.

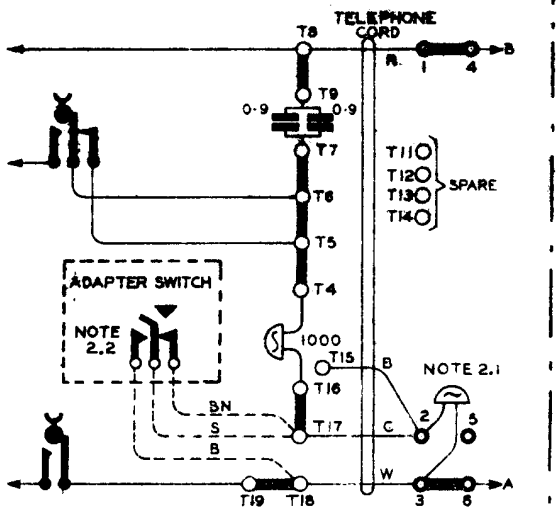
9.2.3 Remove the wires from the dial.

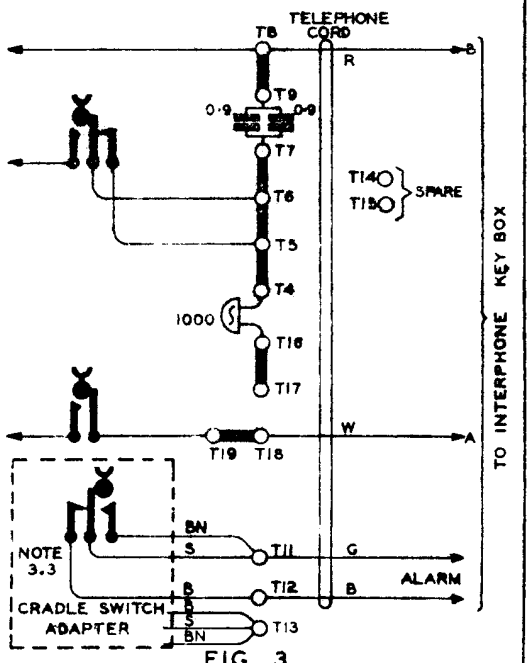
9.2.4 Mount the additional terminal plate (HC 599) in the dial clamp.

9.2.5 Push the BN, S and B wire tags into the holes provided in the insulated terminal plate and connect the O and PK wires together under the screw provided.

AUTOMATIC TELEPHONE, NZPO 100 TYPE







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ENGINEERING NOTES

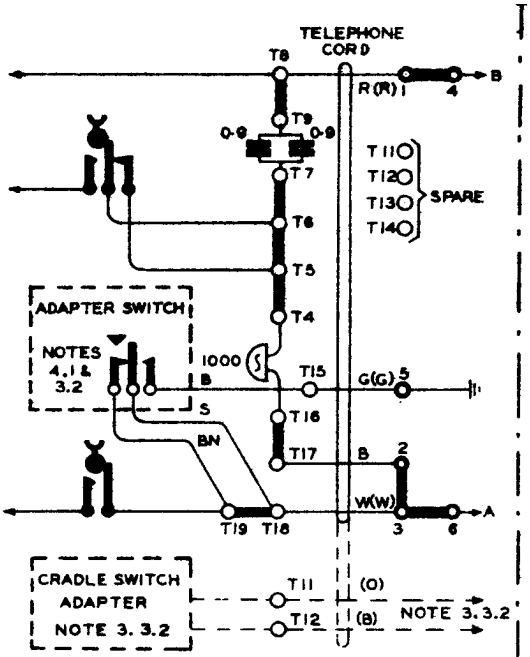

FIG 4

P.A.B.X. RECALL : SEE NOTE 4

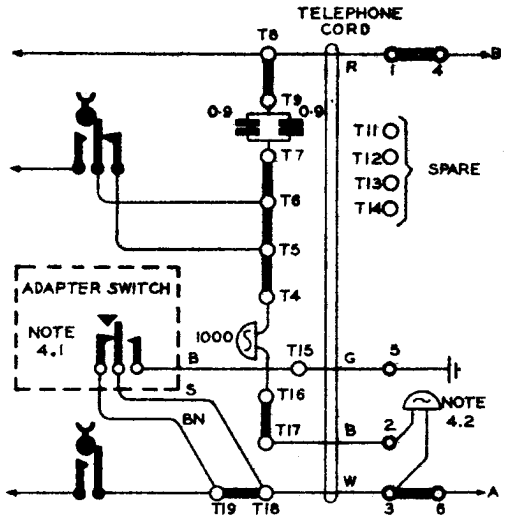

FIG 5

P.A.B.X. RECALL WITH EXTENSION BELL : SEE NOTE 4

N.Z. POST OFFICE

AUTOMATIC TELEPHONE (TABLE)

NZPO 100 TYPE

SL. Nº HC401....

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ISSUE 2	

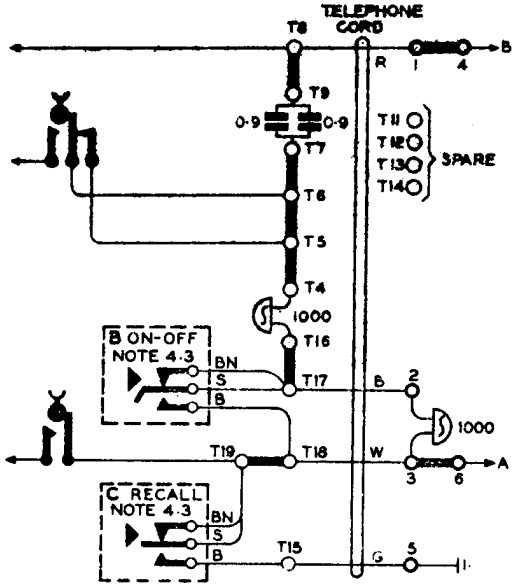

FIG 6

P.A.B.X. RECALL WITH EXTN BELL CUT-OFF KEY: SEE NOTE 4

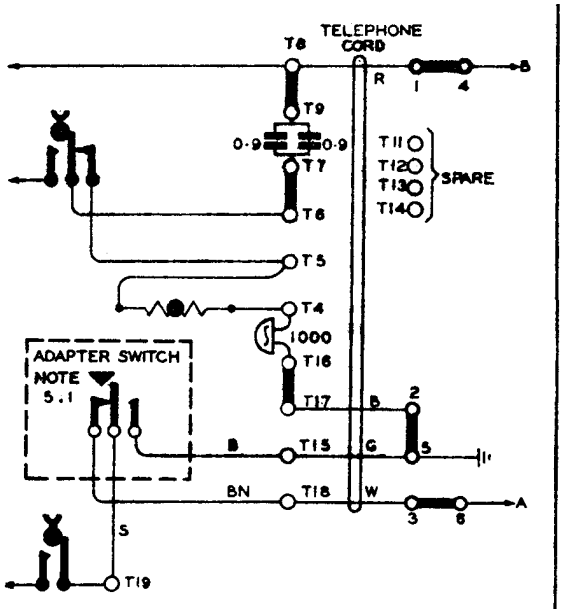

FIG 7

SHARED SERVICE: SEE NOTE 5

TELEPHONES STATIONS C 2002	PAGE 4 OF 15	
	ISSUE 2	SL Nº HC401....

ENGINEERING NOTES

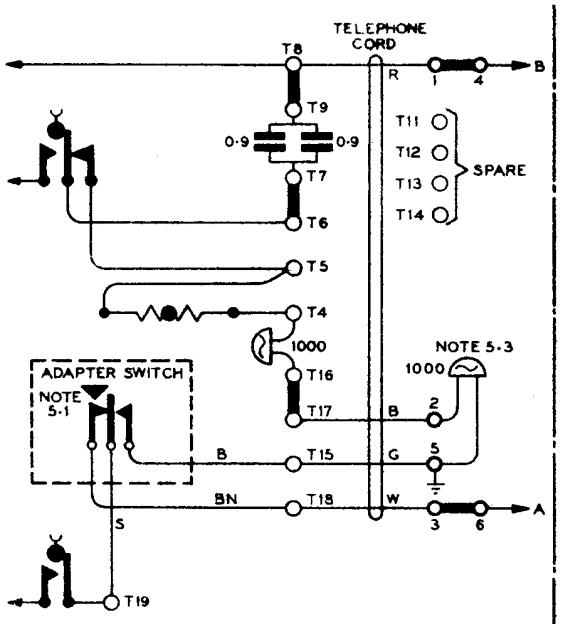

FIG. 8
SHARED SERVICE WITH EXTN BELL: SEE NOTE 5

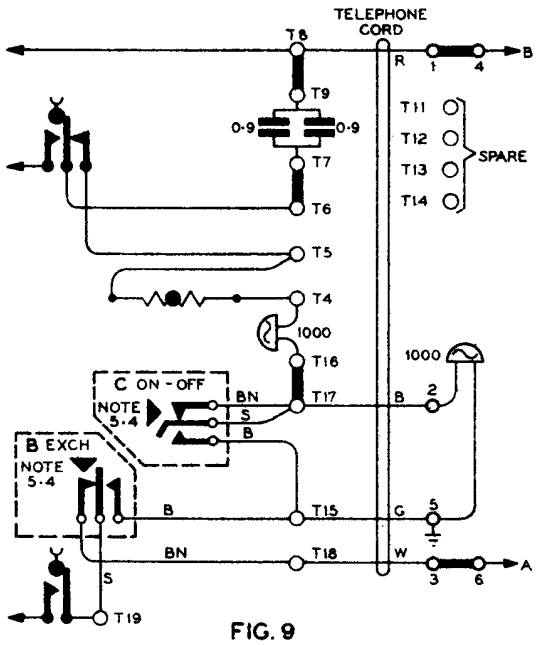

FIG. 9
SHARED SERVICE, WITH EXTN BELL CUT-OFF KEY: SEE NOTE 5

N.Z. POST OFFICE

AUTOMATIC TELEPHONE (TABLE)
NZPO 100 TYPE

SL. N° HC 401....

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ISSUE 2

TELEPHONES
STATIONS
C 2002

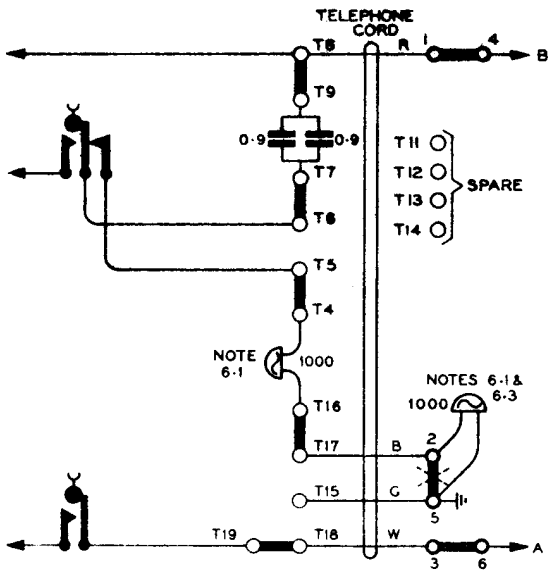

FIG. 10
2 PARTY: SEE NOTE 6

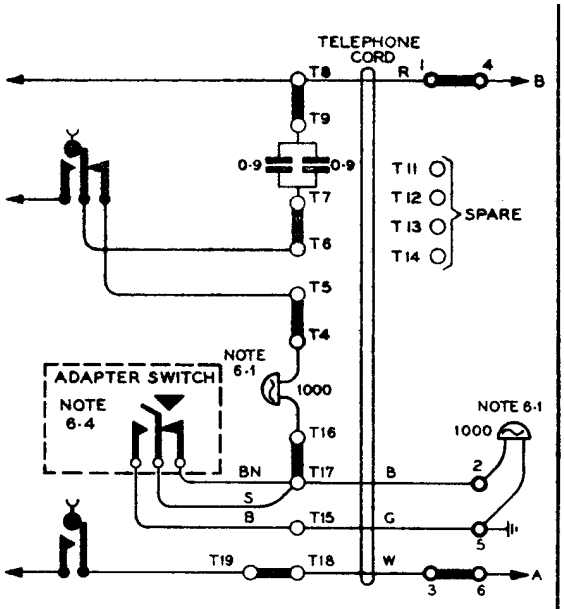

FIG. 11
2-PARTY WITH EXTN BELL CUT-OFF KEY: SEE NOTE 6

TELEPHONES
STATIONS
C 2002

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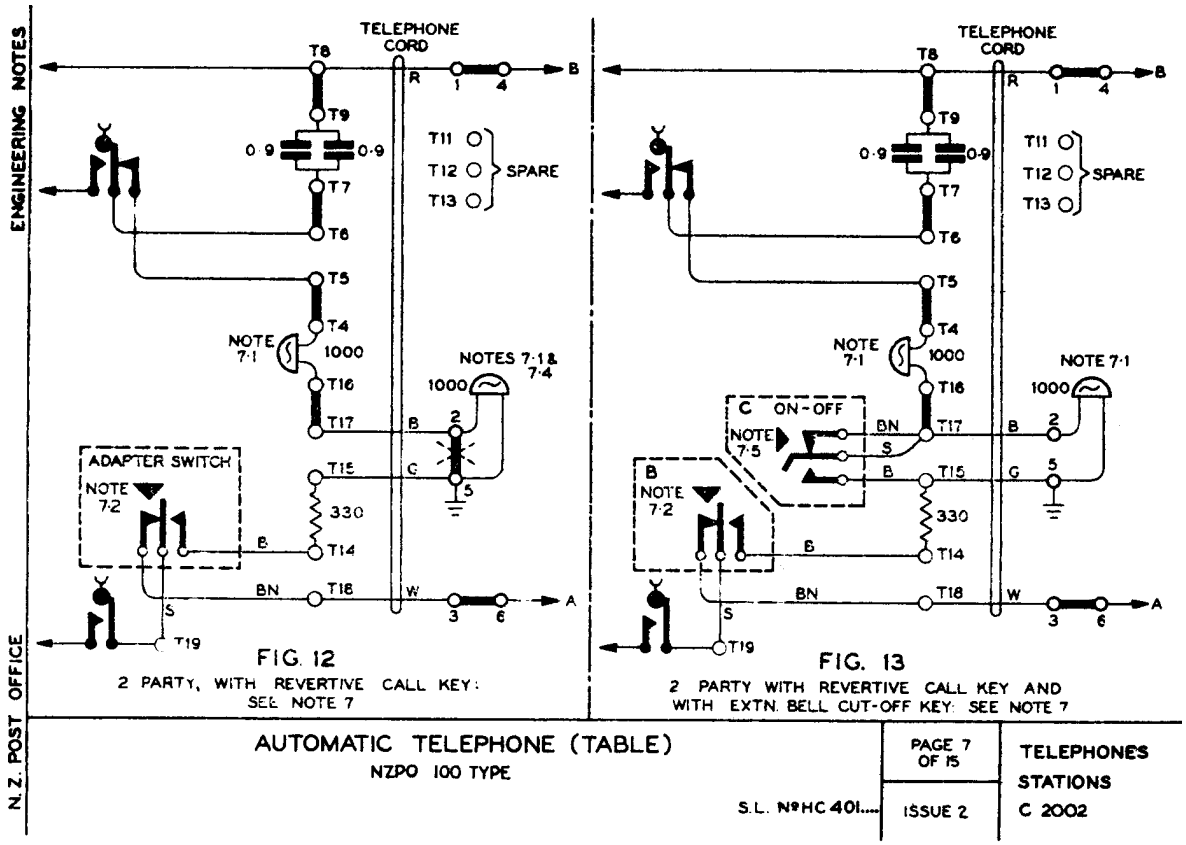
SL.N° HC 401....



AUTOMATIC TELEPHONE (TABLE) NZPO 100 TYPE	PAGE 7 OF 15	TELEPHONES STATIONS C 2002
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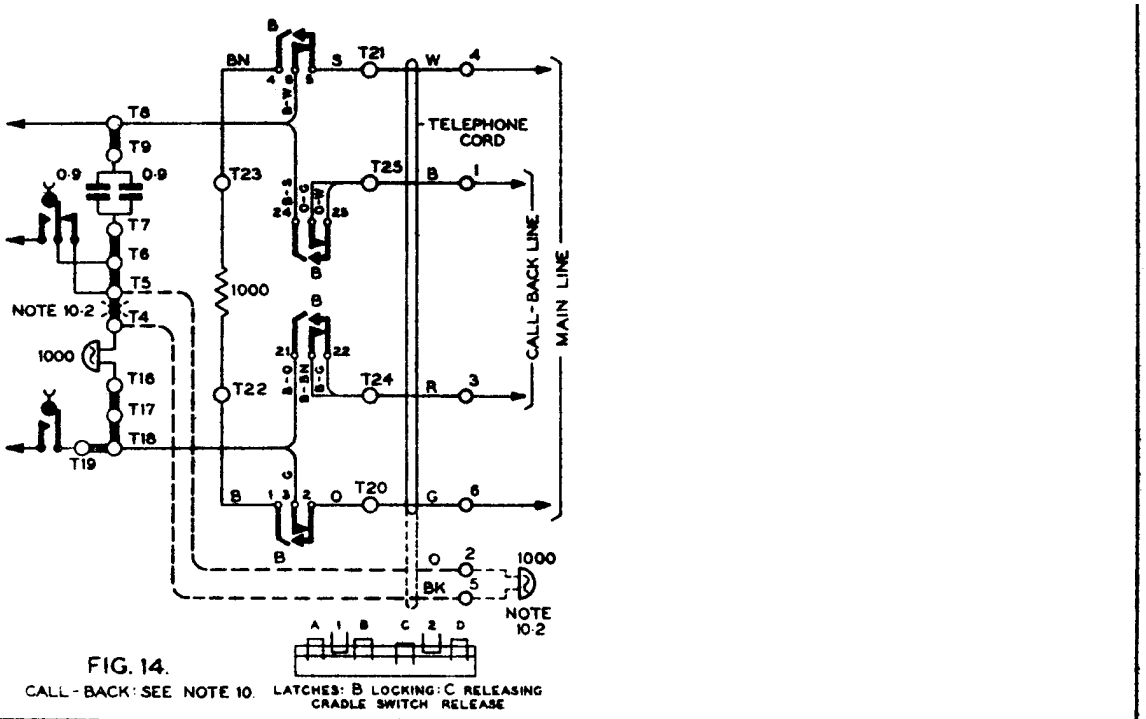

FIG. 14.
CALL-BACK: SEE NOTE 10. LATCHES: B LOCKING: C RELEASING CRADLE SWITCH RELEASE

TELEPHONES STATIONS C 2002	PAGE 8 OF 15	SL.NºHC401....
	ISSUE 2	

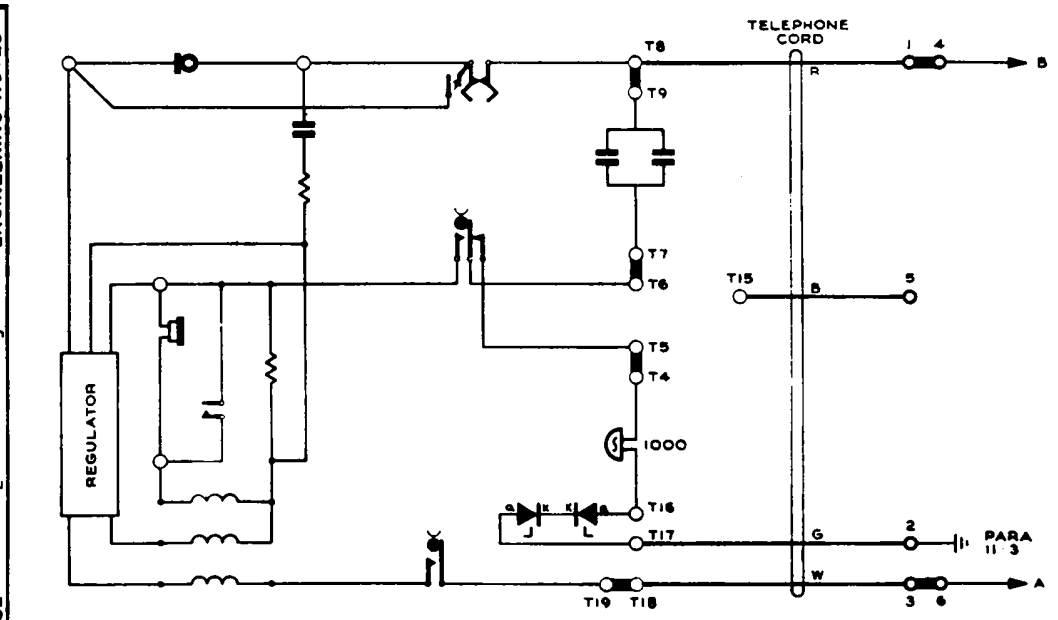

FIG. 15 M PARTY FROM CROSSBAR EXCHANGE (SEE PARA 11 PAGE 8.2)

AUTOMATIC TELEPHONE (TABLE)
NZPO 100 TYPE

PAGE 8.13
ISSUE 1

TELE STATI C 2002

10-11-78

NZ POST OFFICE ENGINEERING NOTES
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11. M-PARTY FROM CROSSBAR EXCHANGE

11.1 Apparatus

Telephone	Zenner Diode
HC 400 - 406	CC 925 (2)

Table 1

Ringing Code	Revertive No.
A	131
D	132
M	133
R	134
S	135

11.2 Connections for the A, D and M subscribers are shown in fig. 15. For R and S subscribers, reverse the A and B line wires at block terminals 4 and 6. A revertive call will prove a correct connection. Revertive numbers are shown in table 1. (See para. 11.4).

11.3 Present restrictions of one bell per subscriber still apply, extension bell arrangements are to be wired via a ring detector (NZPO 34739).

11.4 Rural Carrier Channels - All M-party subscribers connected to Rural Carrier Channels are to be wired as per Step by Step M-party, (i.e., they are to be made loop ringing).

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TELEPHONES Stations

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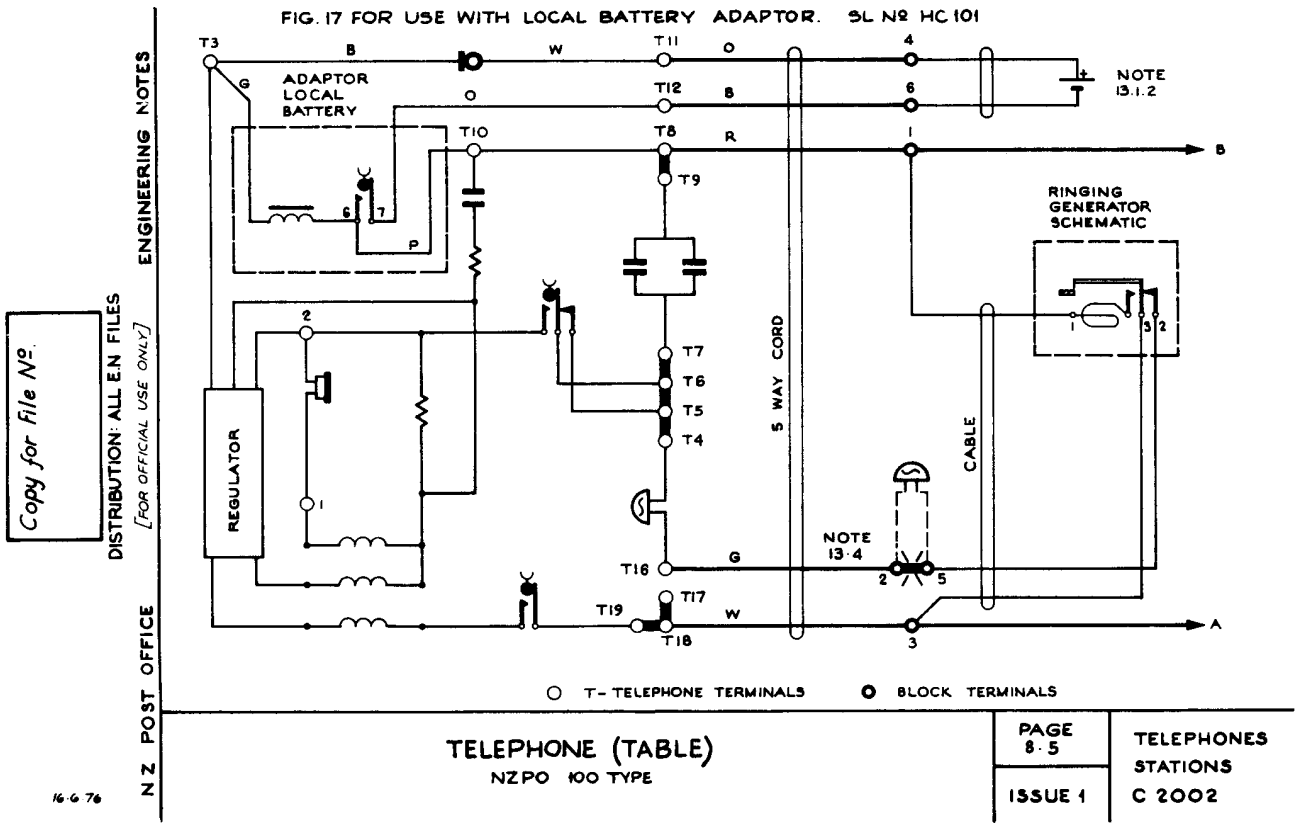

13. LOCAL BATTERY ADAPTORS.

13.1 General.

13.1.1 Normal plan extension requirements may be applied except in the case of party lines where only one bell should be provided.

13.1.2 For line lengths 0-600Ω provide a 3V battery. For line lengths 600-1000Ω provide 4½V and local arrangement battery box.

13.2 Apparatus

Cord	Block	Adaptor L.B.	Screws	Hand Generator
XC739A-F	HC200A-F	HC101	S1012x2	G215A

Battery Box	Telephone	Dial
G104(2 Cell)	HC401-406	HC300A-F

13.3 Connections.

13.3.1 Telephone. Remove dial and fit dummy dial (HC 300). Strap T8 to T10. Transfer wire from T10 to T11. Fit adaptor HC101 as per Fig. 17. Remove all straps on Block (HC 200), strap BT2 to BT5.

13.3.2 Generator. As per Fig. 17.

13.3.3 Local Battery. As per Fig. 17.

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13.4 Extension Bells.

13.4.1 See para. 13.1.1.

13.4.2 Connect extension bells in place of BT 2 and 5.

13.4.3 No more than four bells may be placed across an individual line.

13.4.4 On party lines extra extn bells must be wired via a ring detector.

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AUTOMATIC TELEPHONE (TABLE) NZPO 100 TYPE

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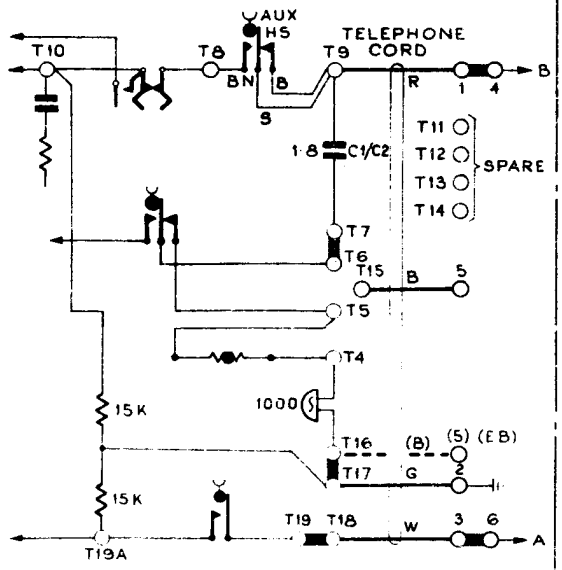

FIG 16A

2-PARTY X SUBSCRIBER X BAR SEE NOTE 10

INCLUDES CONNECTIONS FOR 22 TERMINAL P.C.B.

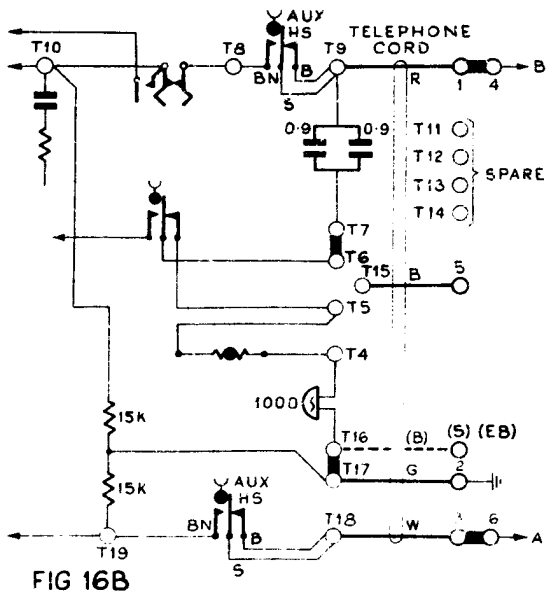

FIG 16B

2-PARTY X SUBSCRIBERS X BAR SEE NOTE 10

INCLUDES CONNECTIONS FOR 19 TERMINAL P.C.B

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AUTOMATIC TELEPHONE (TABLE)

NZPO 100 TYPE

HC 750 ....
SL. Nº HC 401 ....

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TELEPHONES STATIONS C 2002

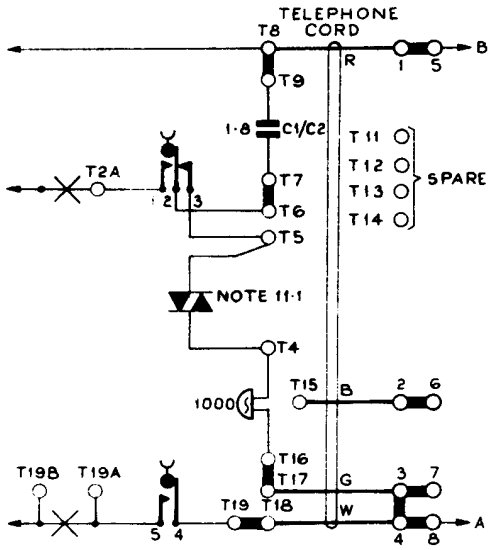


FIG 17

M-PARTY STEP BY STEP SEE NOTE 11

INCLUDES CONNECTION FOR 8 WAY BLOCK

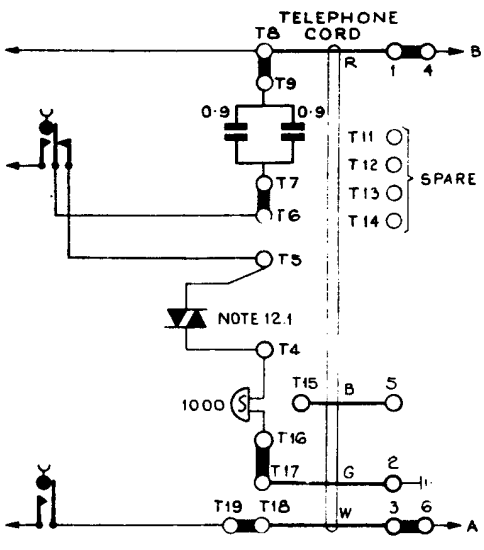


FIG 18

M-PARTY CROSSBAR SEE NOTE 12

TELEPHONES STATIONS C 2002	PAGE 10 OF 22 ISSUE 4	HC 750.... SL. Nº HC 401....

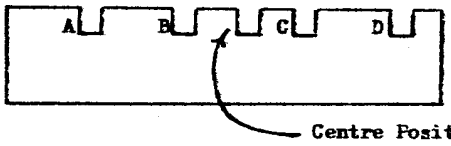
ENGINEERING NOTES

1. GENERAL.

1.1 The NZPO 100 Telephone may be used for these services -

Individual automatic lines	2 - Party
NZPC Interphone	2 - Party, with revertive call key
P.A.B.X. Recall	M - Party
Shared Service	Central Battery
	Call Back

1.2 Centre Position: For the purposes of this or other E.N.s the term centre position for mounting adapters is as shown in the following diagram:



Centre Position (not marked on plate)

2. NORMAL TELEPHONES.

2.1 Extension Bell, Fig. 2. Connect extension bell in place of strap 2-3 in the block.

2.2 Extension Bell Control Key. Fit adapter switch HC 405, in the centre position and button HC 416 with two retaining pins HC 680 in place of the dummy.

2.2.1 For cut-off, extension bell, wire as shown .... in Fig. 2.

2.2.2 For change-over, main to extension bell, move the BN switch wire from T17 to T4.

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AUTOMATIC TELEPHONE (TABLE) NZPO 100 S.L. No. HC 401....	Page 9 of 15 Issue 2	TELEPHONES Stations C 2002

3. NZPO INTERPHONE.

3.1 Use normal telephone Fig. ' without the terminal block. Connect the green and blue spare cord conductors to a spare keybox terminal, leaving the telephone bell disconnected.

3.2 For P.A.B.X. Recall. Fit into the centre position the following:

Adapter HC 408, Plunger HC 375, Spring HC 684. Remove dummy and fit button HC 422 and two button retaining pins HC 680. Connect as shown in Fig. 4, omit the terminal block, anchor the spare blue cord wire to a spare keybox terminal.

3.3 Holding Key Alarm. Fit cradle switch springset HC 407.

3.3.1 Normal telephones connect as shown in Fig. 3.

3.3.2 P.A.B.X. recall. Add adapter, button and springset as in pars. 3.2 and 3.3. Replace the 4-wire cord with a 5-wire cord KC 739....connect as shown in Fig. 4, use the cord wiring shown in brackets.

4. P.A.B.X. RECALL.

4.1 Fit into the centre position the following:

Adapter HC 408, Plunger HC 375, Spring HC 684. Remove dummy and fit button HC 422 and two button retaining pins HC 680. Connect as shown in Fig. 4.

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Para. 3.2.1

Fujitsu and NEC PABX Systems Use Switchhook flash for recall.

Recall (Earth) should only be provided on mains fail and permanent night switch extensions on these systems.

ENGINEERING NOTES

4.2 Extension Bell, Fig. 5. Connect extension bell in place of strap 2-3 in the block.

4.3 Extension Bell Control Key. Fit key assemblies as follows:

Button	Pins Button Ret.	Adapter	Plunger	Springs	Position	Latch
HC 458 On/Off	HC 680	HC 409			B	Locking
HC 464 Recall	HC 680	HC 408	HC 375	HC 684	C	Non-locking

4.3.1 For cut-off, extension bell, wire as shown in Fig. 6.

4.3.2 For change-over, main to extension bell, move the BN switch wire from T17-T4.

5. SHARED SERVICE.

5.1 Fit into the centre position the following:

Adapter HC 408, Plunger HC 375, Spring HC 684. Remove dummy and fit button HC 422 and two button retaining pins HC 680. Fit a thermistor K 972A and connect as shown in Fig. 7.

5.2 Connection for an "X" station are shown in Figs. 7, 8 and 9. For a "Y" station reverse the A and B line wires at block terminals 4 and 6.

5.3 Extension Bell, Fig. 8. Connect extension bell in place of strap 2-5 in the block.

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5.4 **Extension Bell Control Key.** **Fit assemblies as follows:**

Button	Pins Button Ret.	Adaptor	Plunger	Springs	Position	Latch
HC 470 Exch	HC 680	HC 408	HC 375	HC 684	B	Non-locking
HC 458 On/Off	HC 680	HC 409			C	Locking

5.4.1 For cut-off, extension bell, wire as shown in fig. 9.

5.4.2 For changeover, main to extension bell move BN switch wire from T17 - T4.

6. TWO PARTY.

6.1 Fit thermistor S.L. No. K 972A where shown between T4 and T5.

6.2 Connections for an "X" station are shown in Figs 10 and 11, for a "Y" station reverse the A and B line wires at block terminals 4 and 6.

6.3 For exchange areas where party, code, leg ringing is employed, omit thermistor and fit a bias spring assembly HC 509 and HC 509A to each telephone and extension bell. The method of fitting bias springs is shown in E.I. TELS Stns C 3213.

6.4 Extension Bell Fig. 10. Connect extension bell in place of strap 2-5 in the block.

6.5 Extension Bell Control Key. Fit adaptor switch HC 409 in centre position and button HC 416 with two button retaining pins HC 680 in place of dummy.

6.5.1 For cut-off, extension bell, wire as shown in Fig. 11.

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ENGINEERING NOTES

6.5.2 For changeover, main to extension bell, move BN switch wire from T17 to T14.

7. TWO PARTY, WITH REVERTIVE CALL KEY

7.1 Fit thermistor S.L. No. K 972A where shown between T4 and T5.

7.2 Connections for an "X" station are shown in Figs 12 and 13, for a "Y" station:

(a) Reverse the A and B line wires at block terminals 4 and 6, and

(b) Reverse the adaptor switch wires, brown and slate on T18 and T19.

7.3 For exchange areas where party, code, leg ringing is employed, use bias springs as detailed in para. 6.3 above.

7.4 Fit in the centre position the following:

Adaptor HC 408, Plunger HC 375, Spring HC 684
Remove Dummy and fit button HC 410 and two button retaining pins HC 680. Also fit a resistor 330 ohm 1 watt carbon, S.L. No. ER 419; enclose the resistor in insulated sleeving.

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7.4 Extension Bell, Fig. 12. Connect extension bell in place of strap 2-5 in the block.

7.5 Extension Bell Control Key. Fit key assemblies as follows:

Button	Pins Button Ret.	Adapter	Plunger	Spring	Position	Latch
HC 440	HC 680	HC 408	HC 375	HC 684	B	Non-locking
HC 458 On/Off	HC 680	HC 409			C	Locking

7.5.1 For cut-off, extension bell, wire as shown in Fig. 13.

7.5.2 For change-over, main to extension bell move the BN switch wire from T17 to T4.

8. M-PARTY.

8.1 For M-Party service, connect a valve K995 D in place of strap T4-T5, Fig. 1.

8.2 Extension Bell. An extension bell may be connected to the main telephone as required, but a switch must be connected to allow only one bell to ring at each subscriber's premises.

8.3 If more than one bell is required to ring at a subscriber's premises fit ringing detector NZPO 34739. NOTE: this item is not stock listed and is required to be made up from stock listed parts.

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ENGINEERING NOTES

ENGINEERING NOTES

9. CENTRAL BATTERY - MANUAL.

9.1 Remove dial complete with cord from the telephone.

9.1.1 Strap terminals T8 and T10 together, Fig. 1.

9.1.2 Fit dial dummy HC 300.... to the case.

10. CALL BACK.

10.1 Fit apparatus as follows:
Latching bracket
Latch plate HC 682, Plungers HC 375 and Springs HC 684.

Button	Pins Button Ret.	Springset	Position	Latch Fig. 14	Cradle	Terminal Strip	Resistor
HC 464 Recall	HC 680	HC 687	B	Locking	Switch	HC 695	ER 425
HC 440	HC 680	HC 689A	C	Releasing	Release		

10.1.1 Connect as shown in Fig. 14. Enclose the 1000 ohm 1 watt resistor in insulated sleeving.

10.2 Extension Bell, Fig. 14. Replace the 4-wire cord with a 6-wire cord KC 745....
Remove the strap shown
Connect cord as shown.... in Fig. 14.

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ENGINEERING NOTES

10. 2-PARTY, XBAR , X SUBSCRIBER

10.1 Apparatus

Telephone	Aux. S/Hk (2)	Thermistor	Screws (2)	Resistors
HC 401 or 750....	HC 407 (2)	K 972A	S 1012	ER 856K (2)

10.2 Connect X Party, as shown in Fig. 16A or 16B: Fit the thermistor between T4-T5: Use the specified close tolerance 15K, LINE IDENTIFICATION RESISTORS.

10.3 To fit two auxiliary hookswitches, remove one microswitch from its bracket and mount it adjacent to the other microswitch on the second bracket, use two screws S.L. No. S 1012, 8BA RH 19 mm. The second ZBar then operates both microswitches, and the complete unit can be mounted in the normal manner.

10.4 Extension bell is permitted, max. 4 bells in circuit at any one time. Fig. 16 A-B. Remove strap T16-T17, connect Blue cord wire to T16 and EB to Block terms 2-5.

10.5 Extension Bell control key is permitted as in Fig. 10-11 with one bell minimum at any time.

10.6 Revertive Test, dial 136: Sub LT.

10.7 2-PARTY, XBAR , Y SUBSCRIBER: Use standard 2-Party (SxS) telephone, see Fig. 10 and Note 6.

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AUTOMATIC TELEPHONE, NZPO 100 TYPE (Continued)

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11. M-PARTY, SxS

11.1 For M-Party service, connect a diac, HC 759, in place of strap T4-T5, Fig. 17.

11.2 Extension Bell. An extension bell may be connected to the main telephone as required, but a switch must be connected to allow only one bell to ring at each subscriber's premises.

11.3 If more than one bell is required to ring at a subscriber's premises fit ringing detector NZPO 34739. NOTE: This item is required to be made up from stock listed parts.

12. M-PARTY, XBAR

12.1 For M-Party service connect a diac S.L. No. HC 759 in place of strap T4-T5, Fig. 18.

12.2 One bell per subscriber is permitted. An extension bell may be connected to the main phone as required but a switch must be connected to allow only one bell to ring at each subscriber's premises at one time.

12.3 If more than one bell is required to ring at a sub's premises fit ringing detector NZPO Drg 34739. NOTE: This item is required to be made up from stock listed parts.

12.4 Connections for A, D and M sub are shown in Fig. 18. For R & S subs, reverse the A & B line wires at block terminals 4 & 6.

Revertive numbers are: A-131: D-132: M-133: R-134: S-135.

Identification of leg, proof of connection and correct code is best checked by dialled call than by the use of the Revertive call feature.

12.5 RURAL CARRIER CHANNELS - All M-Party telephones on Rural Carrier Channels connect as for M-Party SxS, Fig. 17, Note 11, i.e., connect for use on loop ringing.

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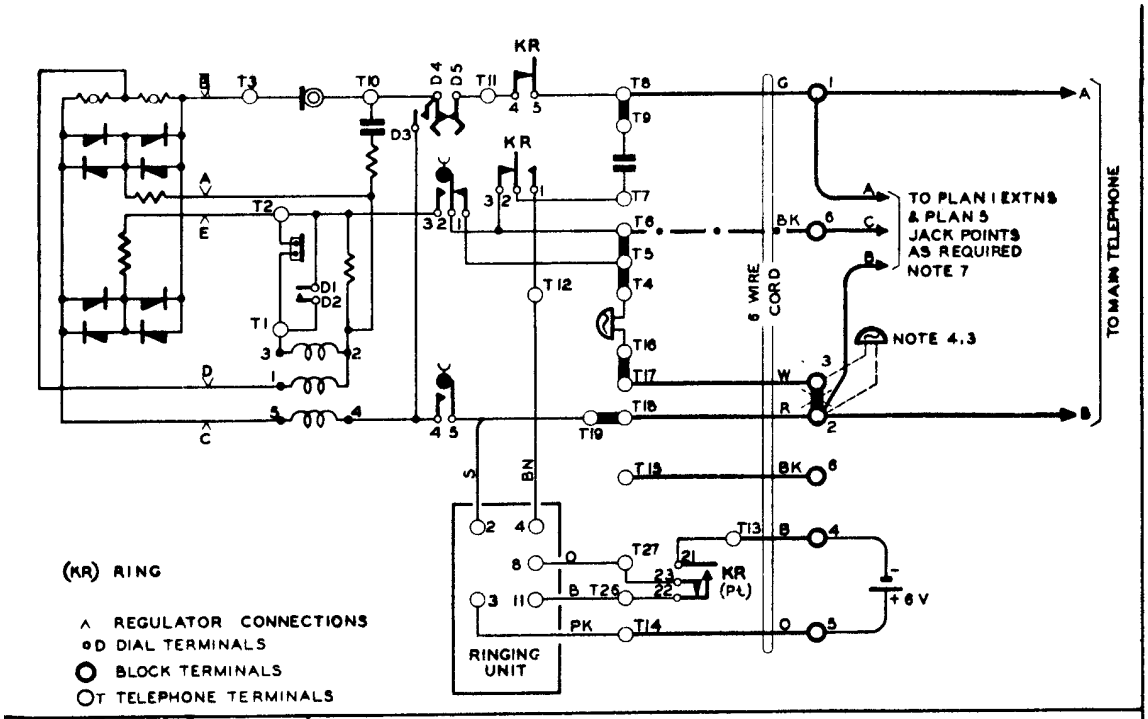
12.4 If more than one bell is required to ring at a subscriber's premises fit ringing detector NZPO 34739. NOTE: This item is required to be made up from stock listed parts.

12.5 Connections for A, D and M sub are shown in Fig. 18. For R and S subs, reverse the A and B line wires at block terminals.

Revertive numbers are: A-131 D-132 M-133 R-134 S-135. Identification of leg, proof of connection and correct code is best checked by dialled call than by the use of the revertive call feature.

12.6 Rural Carrier Channels - All M-Party telephones on Rural Carrier Channels are connected as for M-Party SXS, Fig 17, ie., connected for use with loop ringing.

AUTOMATIC TELEPHONE, PLAN 7A, DETAILS OF RINGING GENERATOR UNIT



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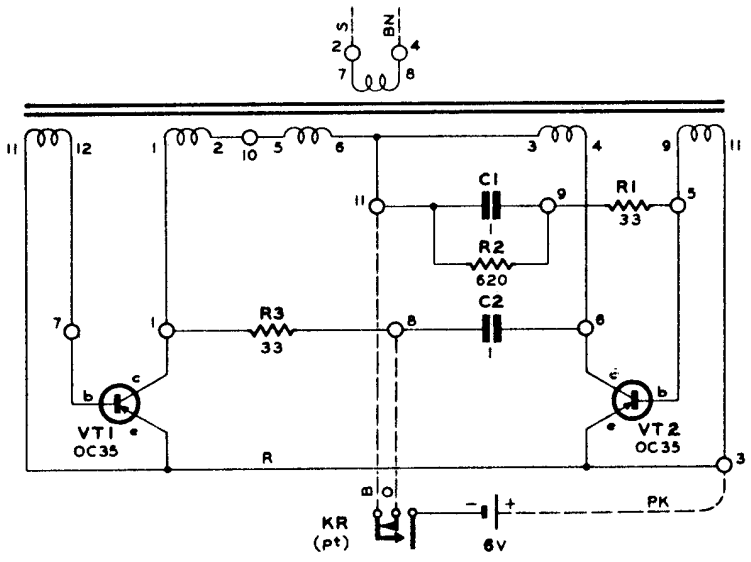

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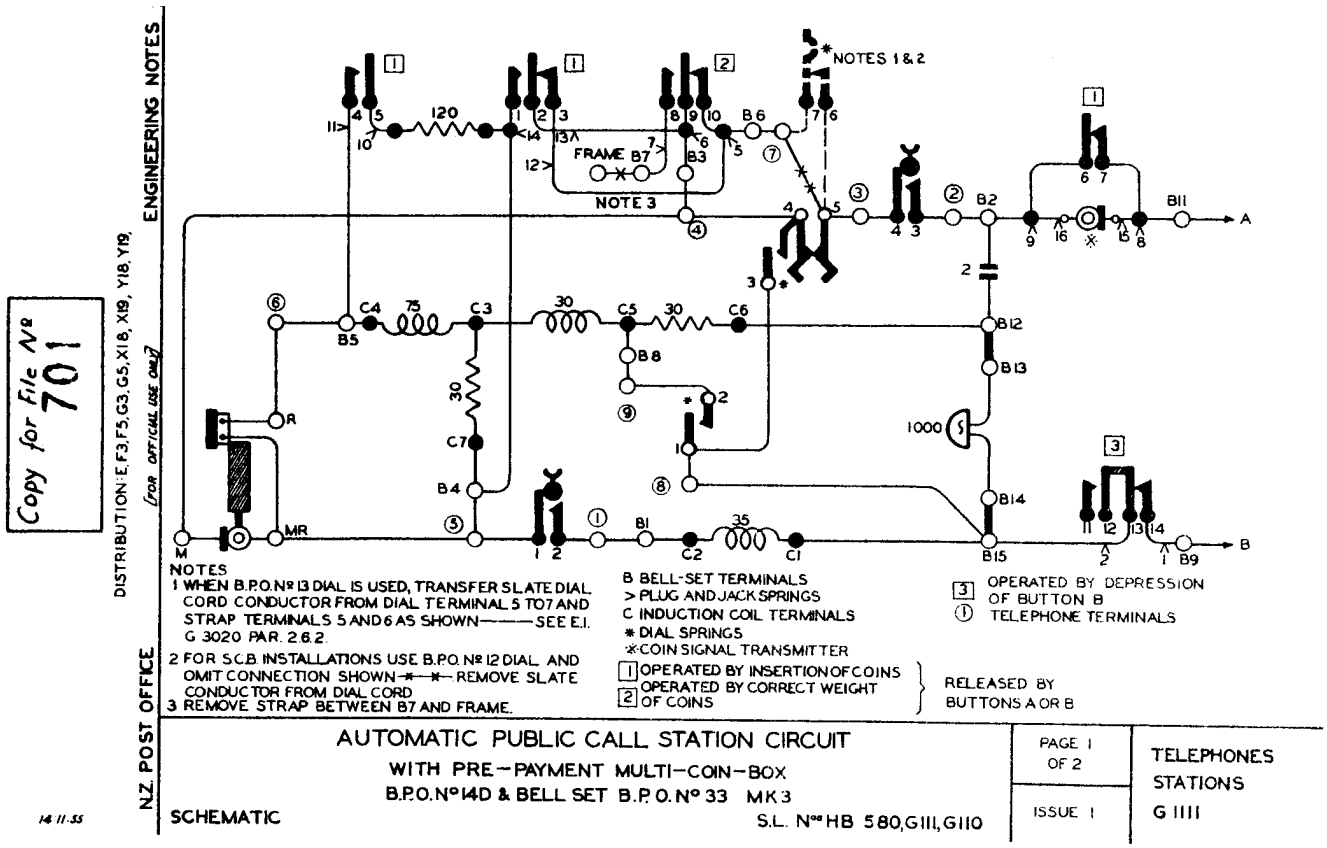
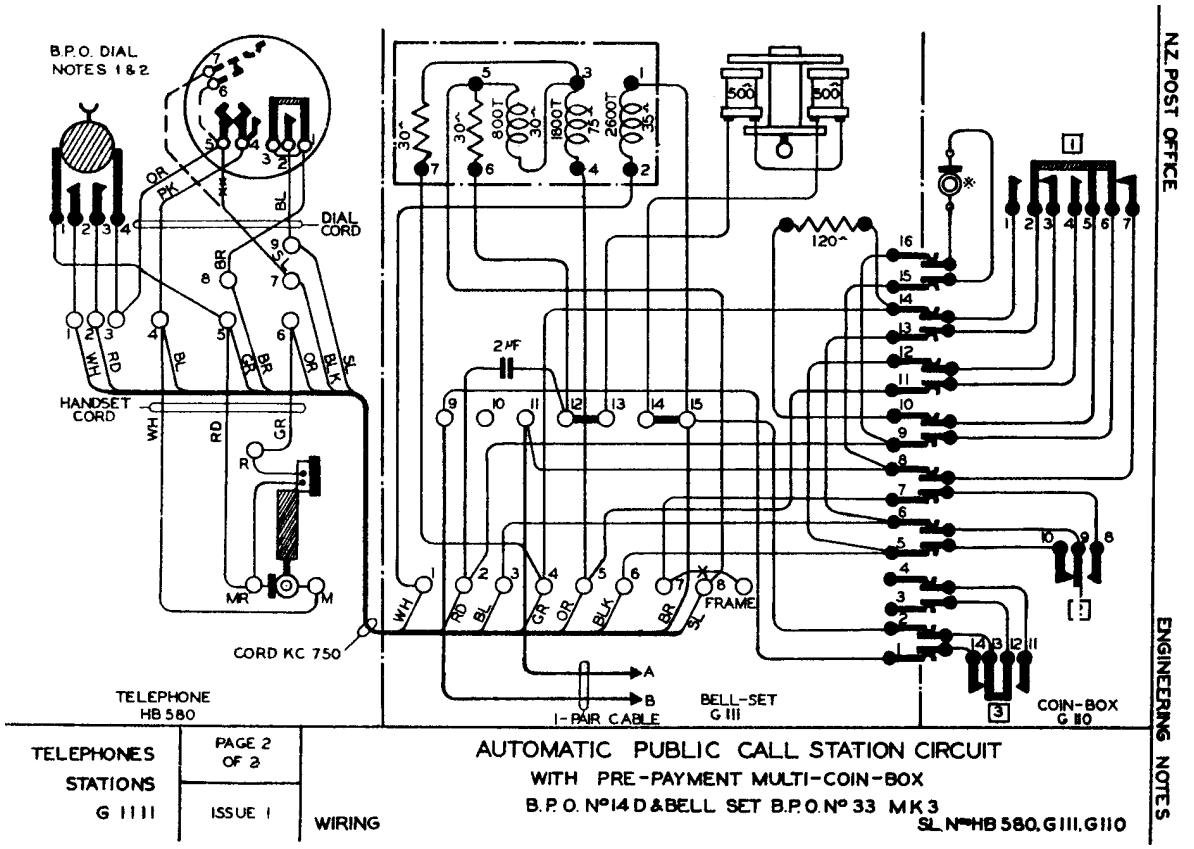
	ISSUE 1	PLAN 7A

AUTOMATIC P.C.S. WITH PRE-PAYMENT MULTI-COIN-MECHANISM B.P.O. No. 14D, BELL-SET No. 33 MK3





AUTOMATIC P.C.S.WITH PRE-PAYMENT MULTI-COIN-MECHANISM B.P.O. No. 14D, BELL-SET No. 33 & NZPO 100 TYPE TELEPHONE.

N.Z. POST OFFICE ENGINEERING NOTES (For Official Use Only)

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11.12.72

1. GENERAL.

1.1 Because of the difficulty in obtaining adapter plates for connecting NZPO 100-type telephones to the 14D coinbox the bell set BPO 33 is to be retained and connected as detailed in this Engineering Note.

2. APPARATUS FOR PUBLIC CALL STATION (PCS).

Telephone	Cord	Dial	Dial Cord	Click Sup.	Bell Set	Coin Collecting Box	Resistor
HC 402....	KC 751	HC 306	KC 731H	GA 344	G 111	See E.I. G 3020	KB 56

3. CONNECTIONS FOR PUBLIC CALL STATION (PCS).

3.1 Connect telephone as shown on page 2.

3.2 Disconnect wiring at 120 ohm resistor shown -o-o- and replace 120 ohm resistor with a 30 ohm resistor S.L. KB 56. Connect this resistor as shown -1-1-1- on Page 3.

3.3 Remove coil connections as shown -x-x- on Page 3.

3.4 Remove strap between B14 and B15 as shown ✳ on Page 3.

3.5 Cord connections to bell set are shown on Page 3.

4. SUBSCRIBERS' COIN BOX (SCB).

4.1 Use apparatus as above but omit Dial Cord KC 731 H. Connect as shown on Pages 2 and 3, but omit BK dial cord connection from D6 to T11.

AUTOMATIC PUBLIC CALL STATION CIRCUIT
WITH PRE-PAYMENT MULTI-COINBOX
BPO NO. 14D AND BELL SET BPO 33 CONNECTED
TO AN NZPO 100-TYPE TELEPHONE

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TELEPHONES Stations G 1112

5. **Cord KC 751 is to be suitably attached to prevent vandalism.**

Cords are to be clipped or strapped down where applicable.

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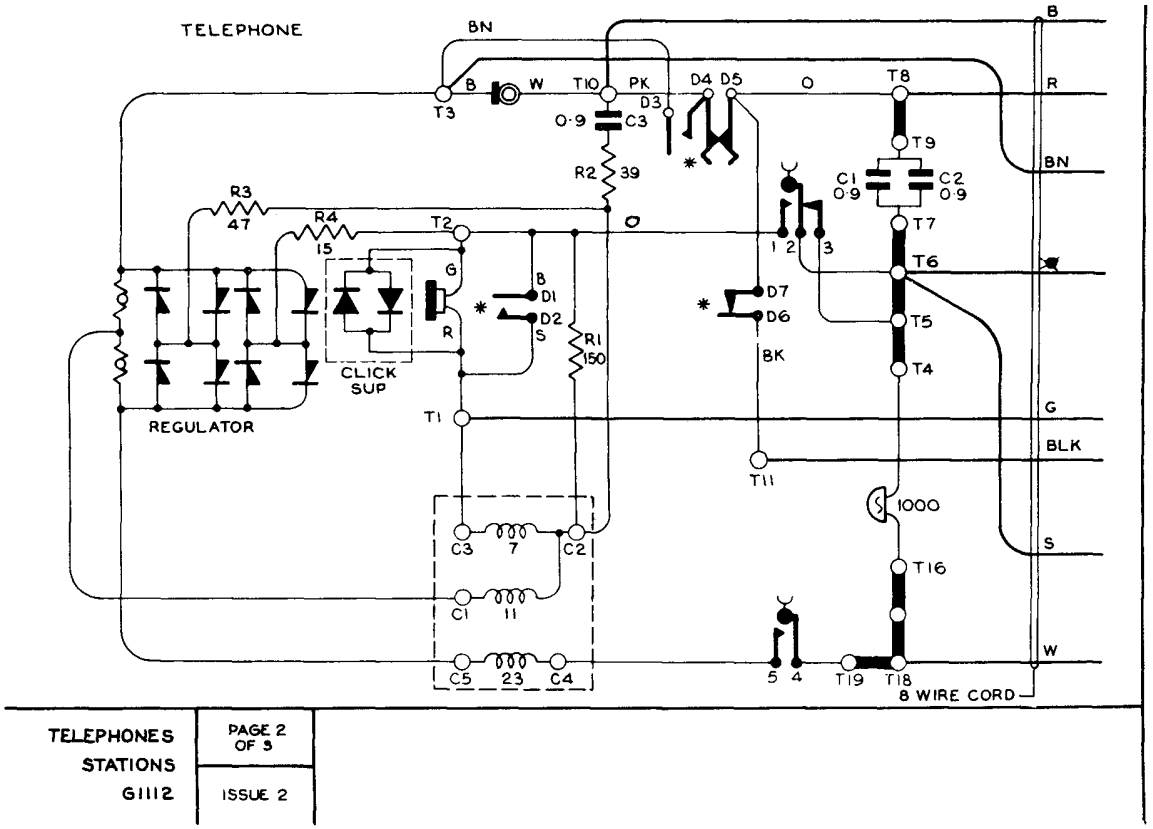
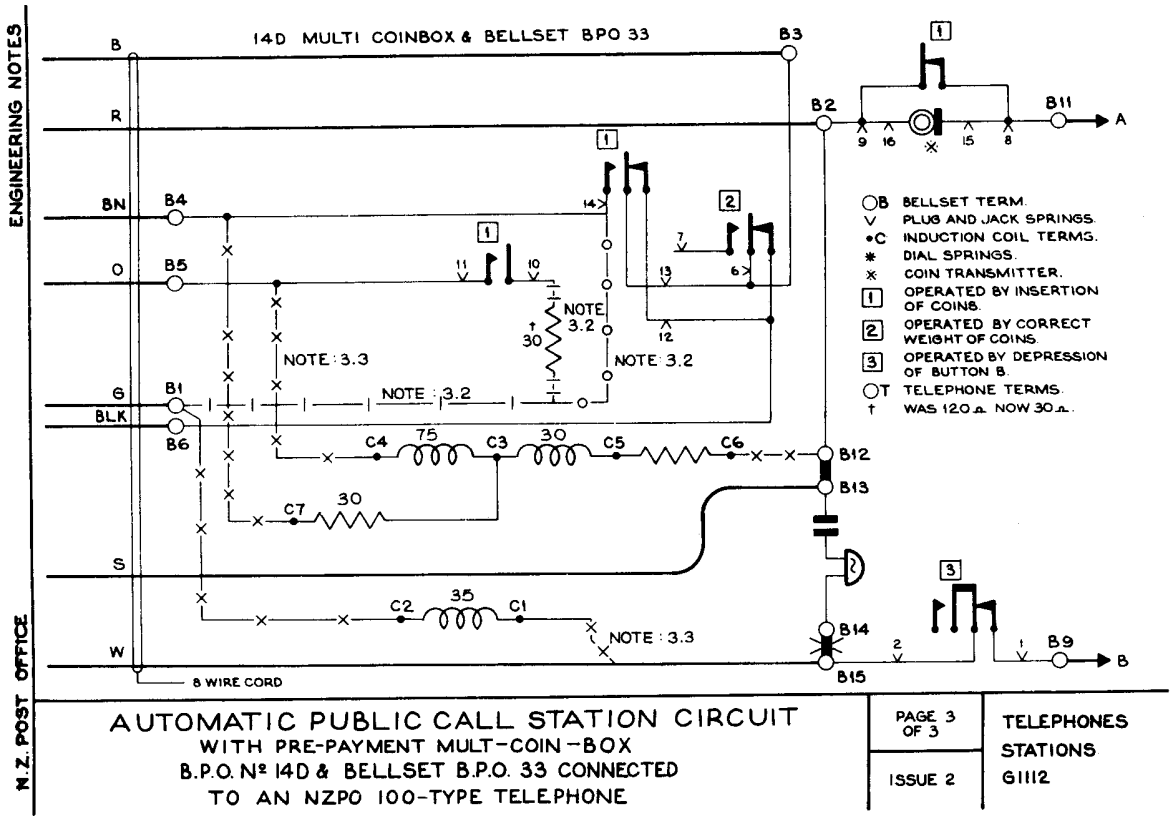
AUTOMATIC PUBLIC CALL STATION CIRCUIT

With Pre-payment mult-coinbox BPO 14D and Bell Set BPO 33 connected to a NZPO 100-type telephone.

AUTOMATIC P.C.S.WITH PRE-PAYMENT MULTI-COIN-MECHANISM B.P.O. No. 14D, BELL-SET No. 33 & NZPO 100 TYPE TELEPHONE. (Continued)





AUTOMATIC P.C.S. WITH PRE-PAYMENT MULTI-COIN-MECHANISM B.P.O.No.14D & TELEPHONE B.P.O. No. 706

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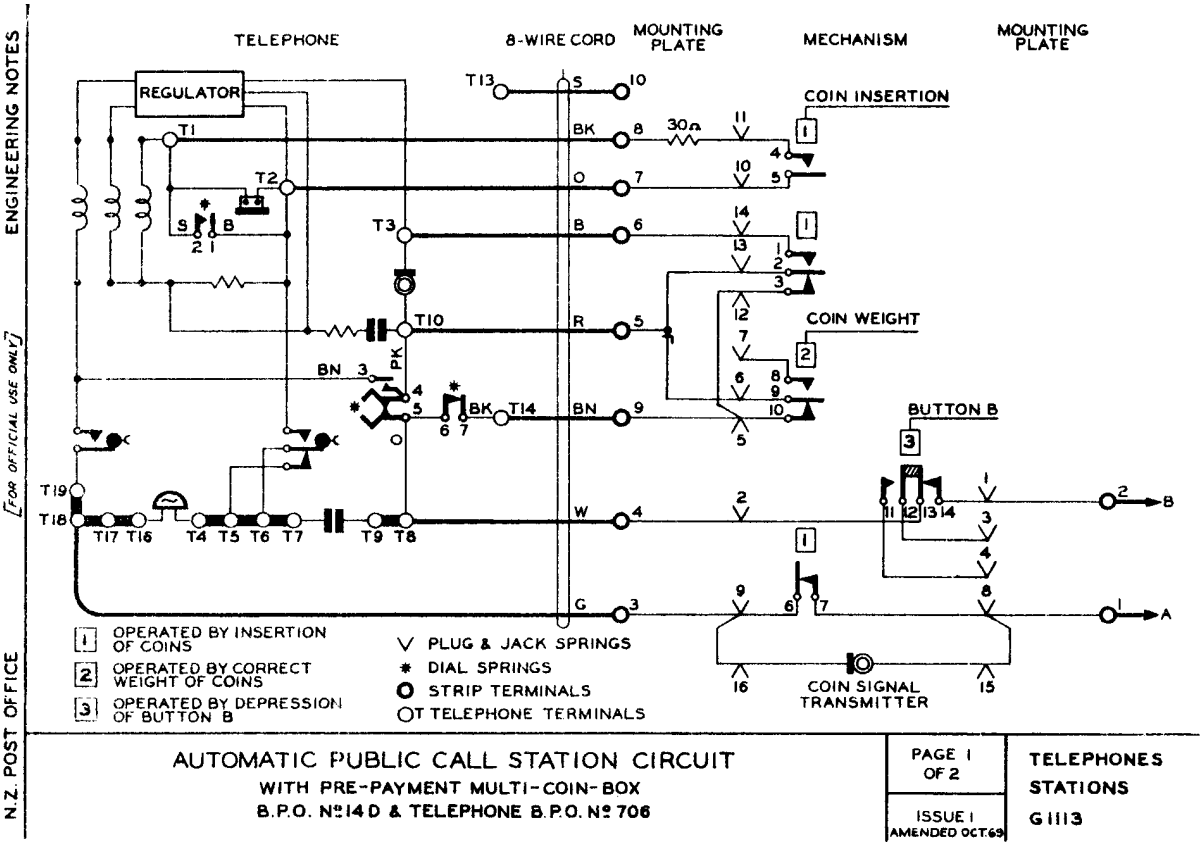


1. PUBLIC CALL STATION (P.C.S.)

	Telephone	Cord	Dial	Dial Cord	Mounting Plate	Coin Collecting Box
Apparatus	HC 501....	KC 751	HB 330	KC 731H	G 1110	Refer E.I. G 3020

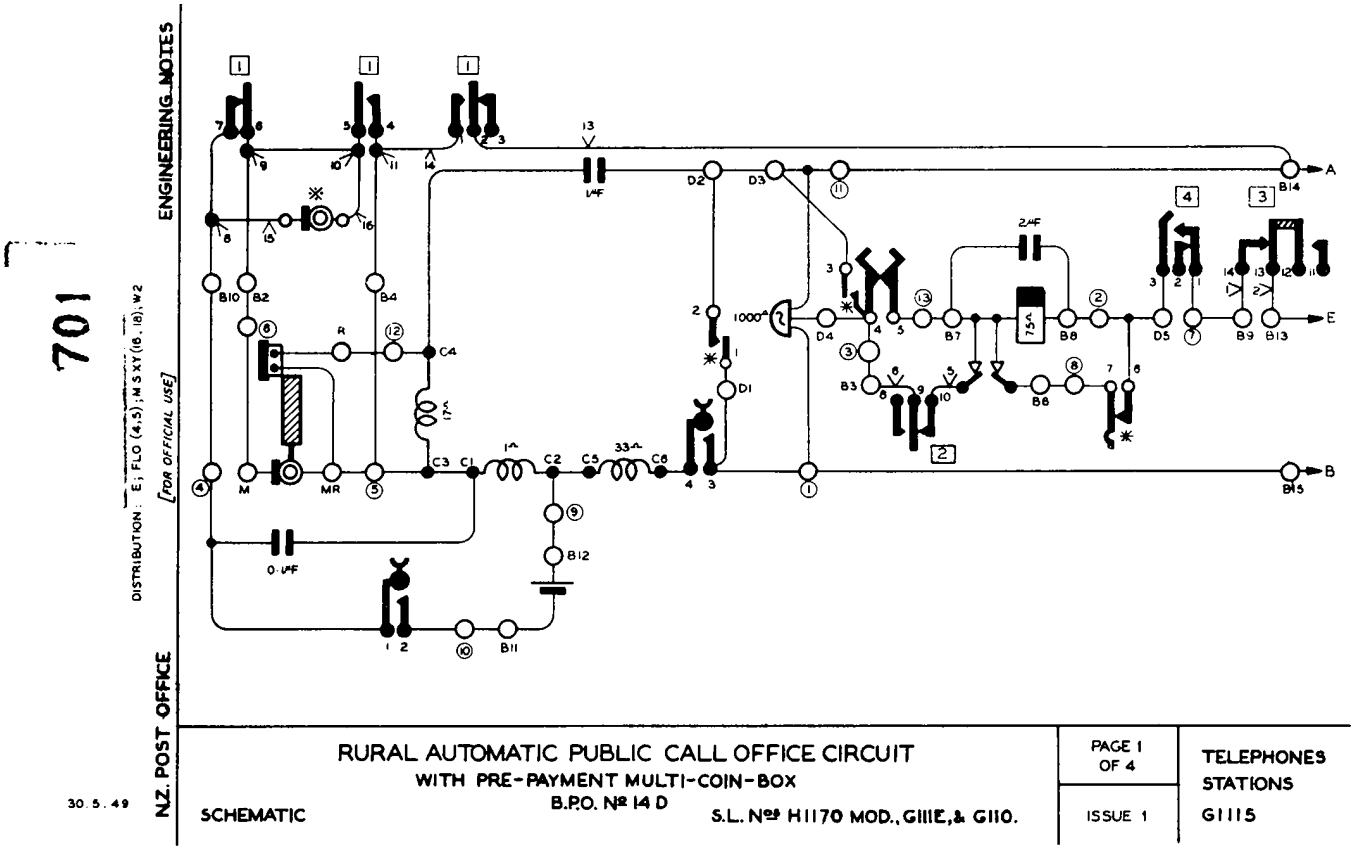
Connect as shown on page 1.

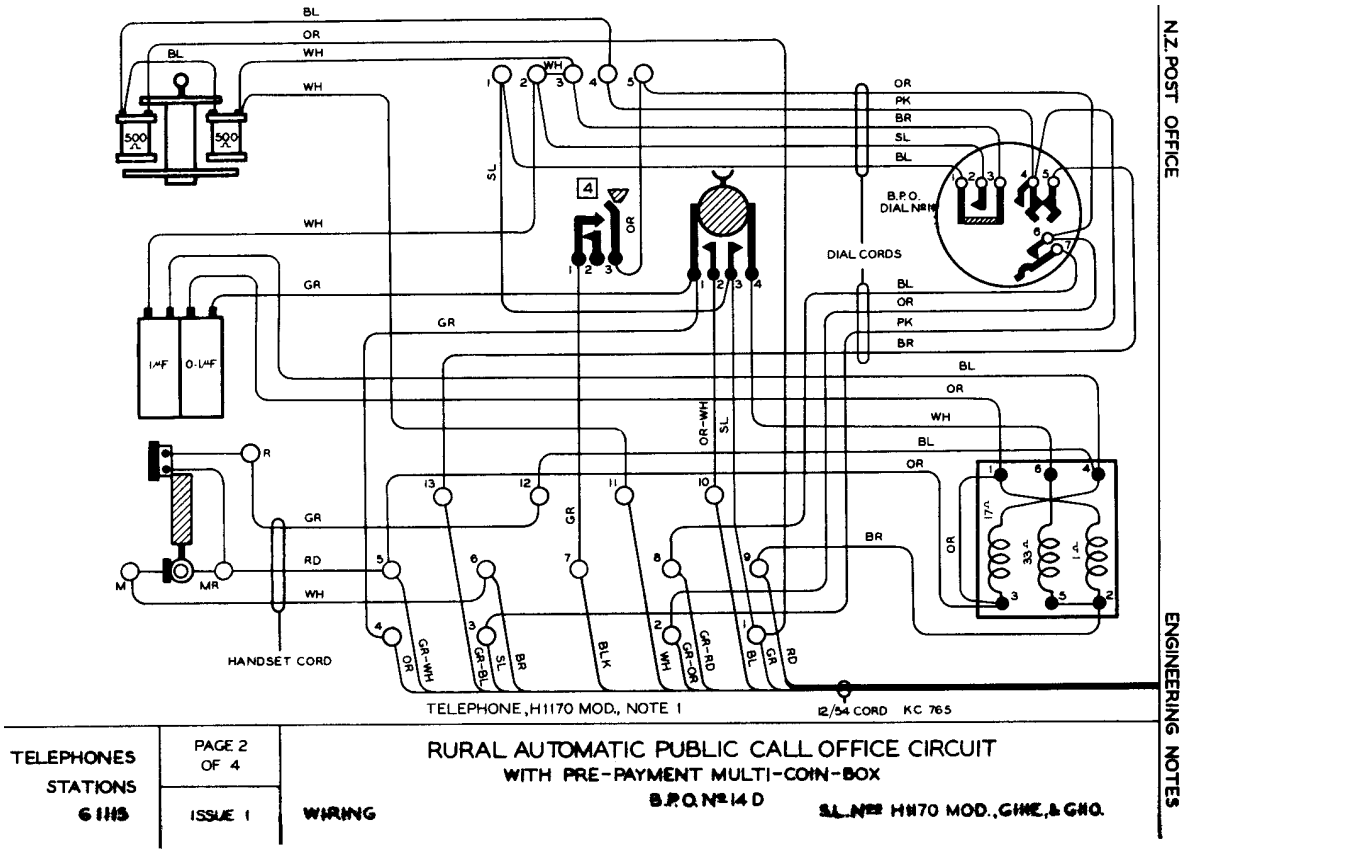
2. SUBSCRIBERS' COIN BOX (S.C.B.)

	Telephone	Cord	Mounting Plate	Coin Collecting Box
Apparatus	HC 501....	KC 745....	G 1110	Refer E.I. G 3020

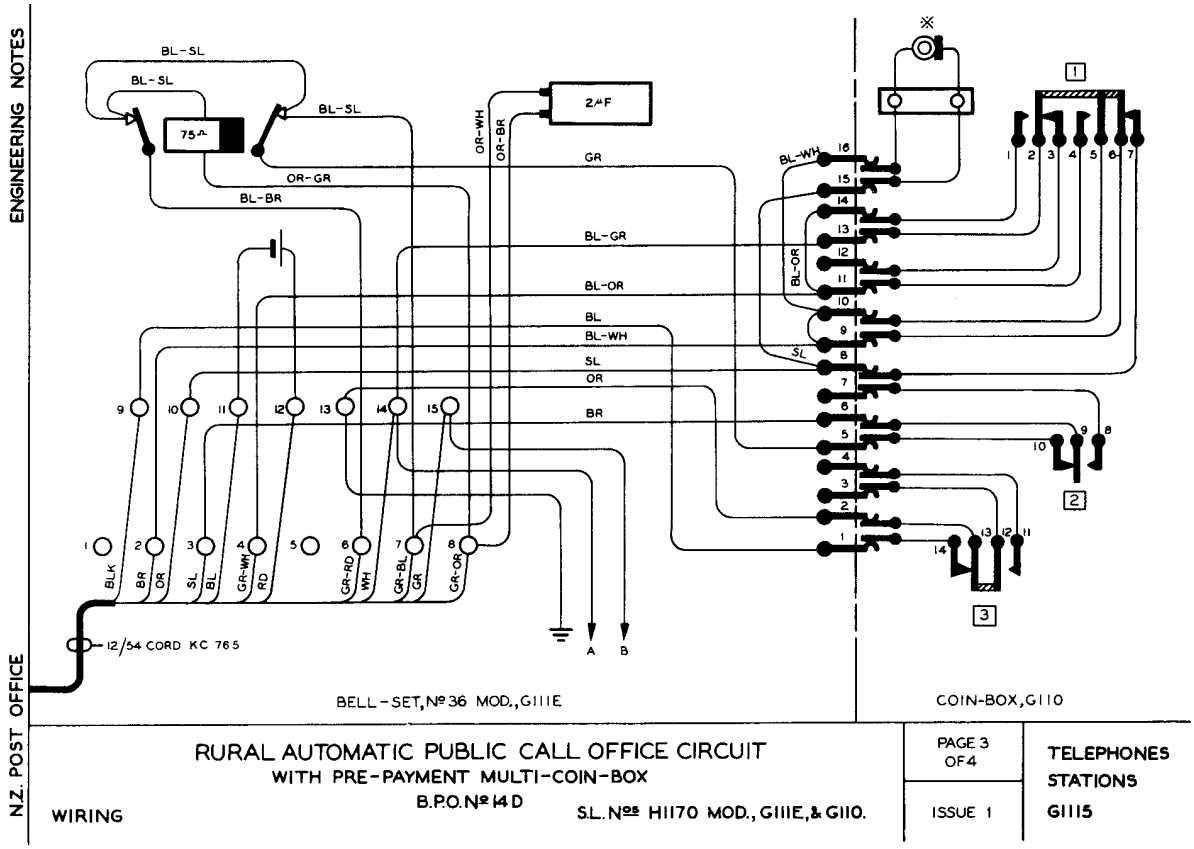
Connect as shown on page 1, omit BN and S cord connections, and connections to dial terminals 6 and 7.

RURAL AUTOMATIC P.C.S. WITH PRE-PAYMENT MULTI-COIN-MECHANISM
B.P.O. No. 14D





RURAL AUTOMATIC P.C.S. WITH PRE-PAYMENT MULTI-COIN-MECHANISM
B.P.O. No. 14D (Continued)



SYMBOLS.

- B BELL-SET, Nº 36 MOD., BLOCK TERMINALS.
- > PLUG AND JACK SPRINGS.
- C INDUCTION COIL TERMINALS.
- ※ DIAL SPRINGS.
- D DIAL STRIP TERMINALS.
- [1] OPERATED BY INSERTION OF COINS. } RELEASED BY BUTTONS A OR B
- [2] OPERATED BY CORRECT WEIGHT OF COINS. } RELEASED BY BUTTONS A OR B
- [3] OPERATED BY DEPRESSION OF BUTTON B.
- [4] OPERATED BY AUTOMATIC BUTTON ON TELEPHONE.
- (1) TELEPHONE TERMINALS.
- ※ COIN SIGNAL TRANSMITTER.

NOTES.

1. TO ADAPT TELEPHONE (H1170) FOR USE WITH THIS CIRCUIT :-

(A) REPLACE 6-CONDUCTOR CORD AND EXTERNAL 8-WAY BLOCK WITH A 12-CONDUCTOR CORD (KC765). END WITH STRAIN CORD TO BE TERMINATED ON TELEPHONE.

(B) TRANSFER WHITE CONDUCTOR OF HANDSET CORD FROM TERMINAL (4) TO TERMINAL (6)

(C) TRANSFER ORANGE WIRE FROM TERMINAL (2) TO TERMINAL (1)

(D) FIT ADDITIONAL 4-CONDUCTOR DIAL CORD MADE FROM A CORD (KC734) WITH SLATE CONDUCTOR REMOVED. RUN THIS FROM TOP TO BOTTOM OF TELEPHONE CHASSIS THROUGH HOLE IN CHASSIS CLOSE TO CONDENSER. ENSURE CORD DOES NOT IMPEDE OPERATION OF BELL.

N.Z. POST OFFICE ENGINEERING NOTES

RURAL AUTOMATIC PUBLIC CALL OFFICE CIRCUIT
WITH PRE-PAYMENT MULTI-COIN-BOX
B.P.O. Nº 14 D
NOTES
S.L. Nºs H1170 MOD., G111E, & G110.
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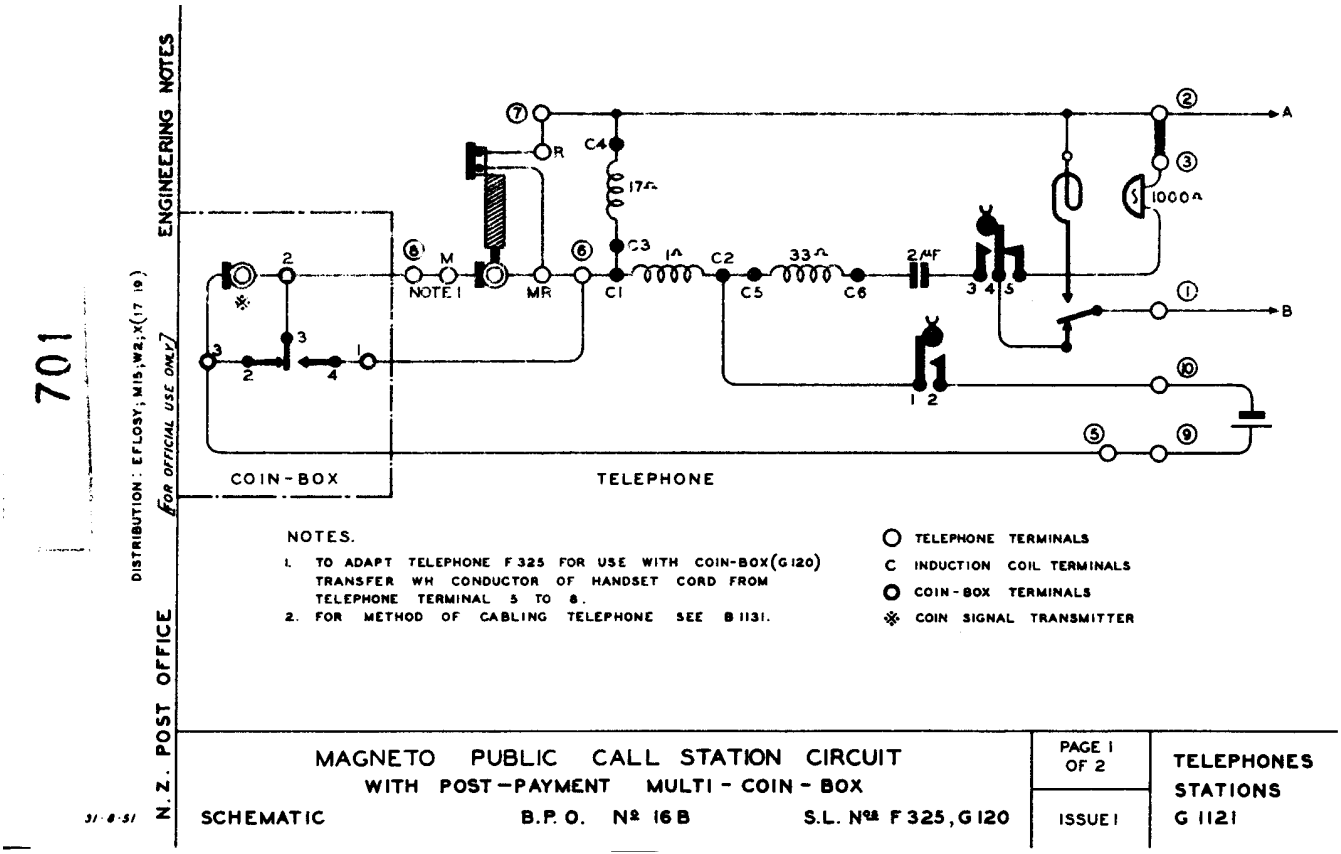
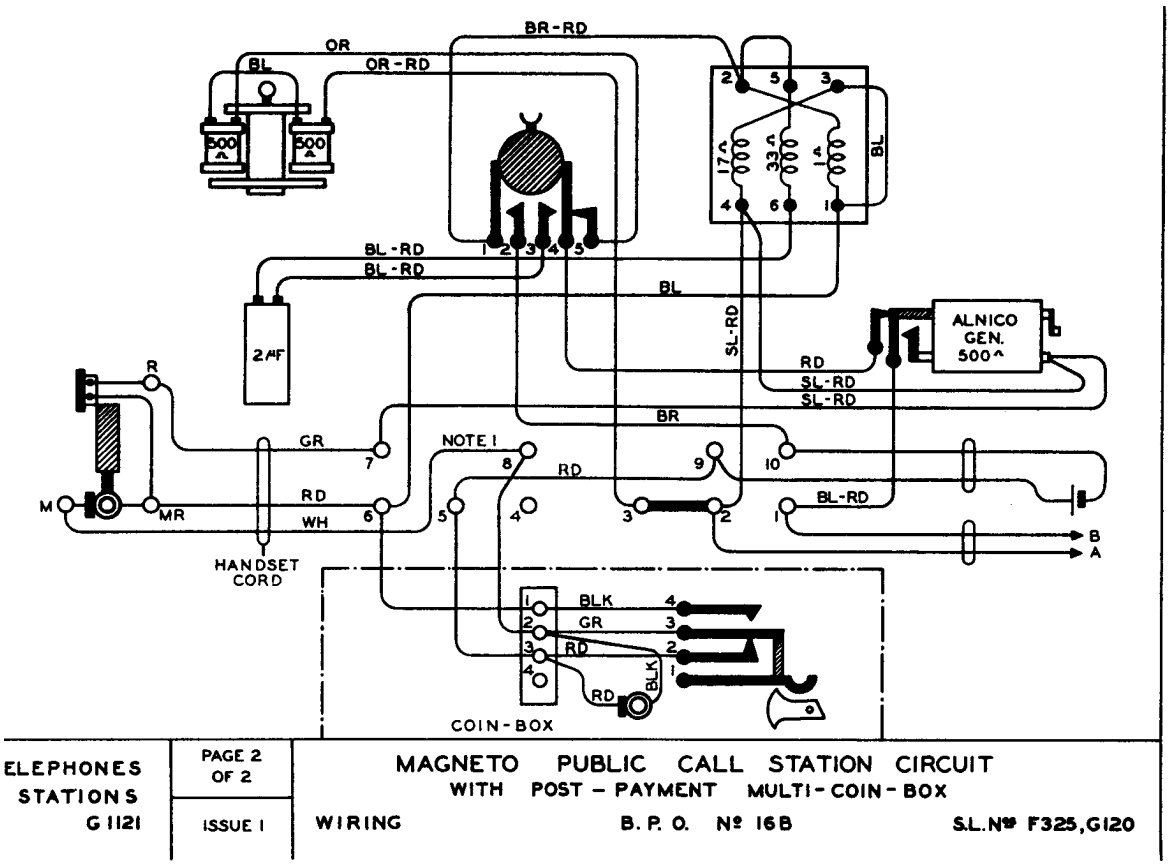
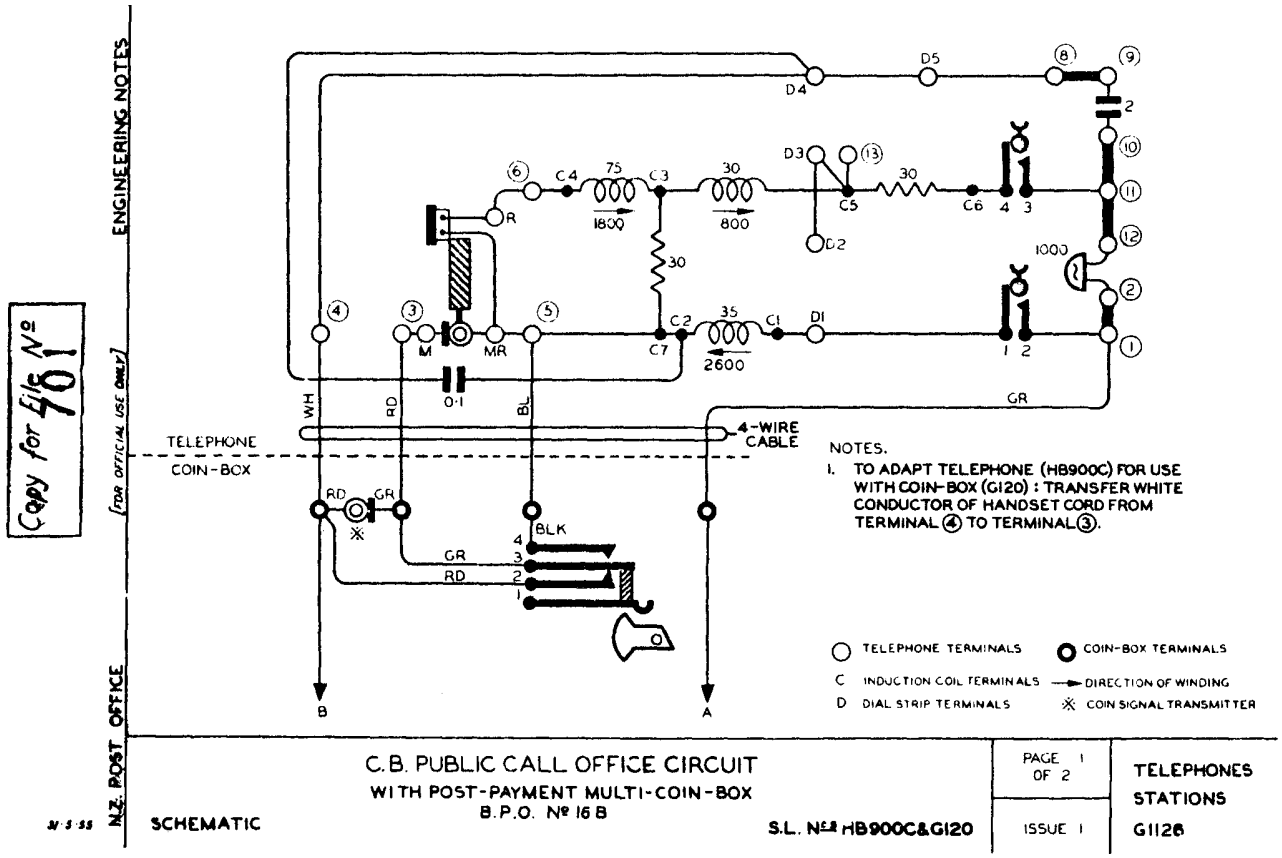
G1115

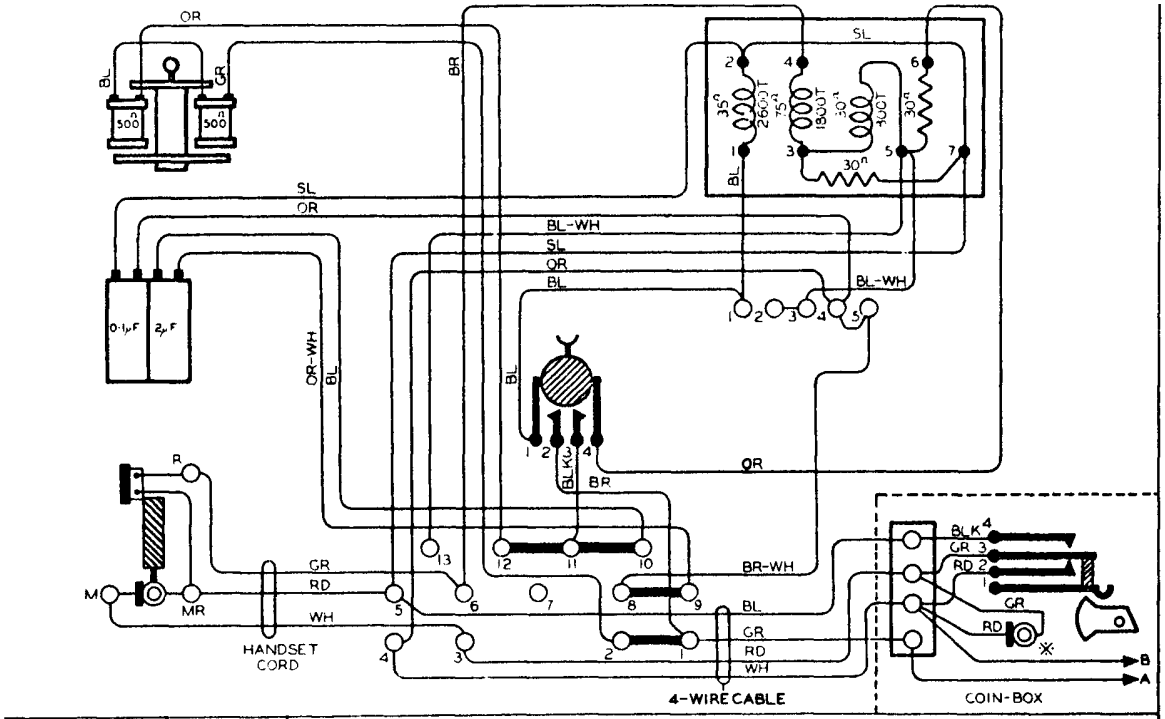
MAGNETO P.C.S. WITH POST-PAYMENT MECHANISM B.P.O. No. 16B





CENTRAL BATTERY P.C.S. WITH POST-PAYMENT MULTI-COIN-MECHANISM
B.P.O. No. 16B.





SCHEME F FIRE CALLOUT CIRCUIT.

ENGINEERING NOTES

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1. APPARATUS.

1.1 Telephone at Fire Station

	Telephone	Cord	Block	Dial Dummy
Normal	HC 630E	KC 729E	HC 200E	HC 300E
Ring 2 to third wire	HC 630E	KC 729E	HC 200E	HC 300E

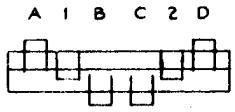
1.2 Telephone at Fireman's Premises

	Telephone	Cord	Block	Term Strip	Dial Dummy
Normal	HC 630E	KC 745E	HC 200E	HC 695	HC 300E
Ring 2 to third wire	HC 630E	KC 745E	HC 200E	HC 695	HC 300E

1.3 Telephone at Fire Station

KEY ASSEMBLIES

	Press Buttons	Springsets	Posns	Latches	
Position C see Note 3	HC 633E RING 1	HC 688	B	Free	No cradle switch rel.
	HC 633E RING 2	HC 110	C	Free	



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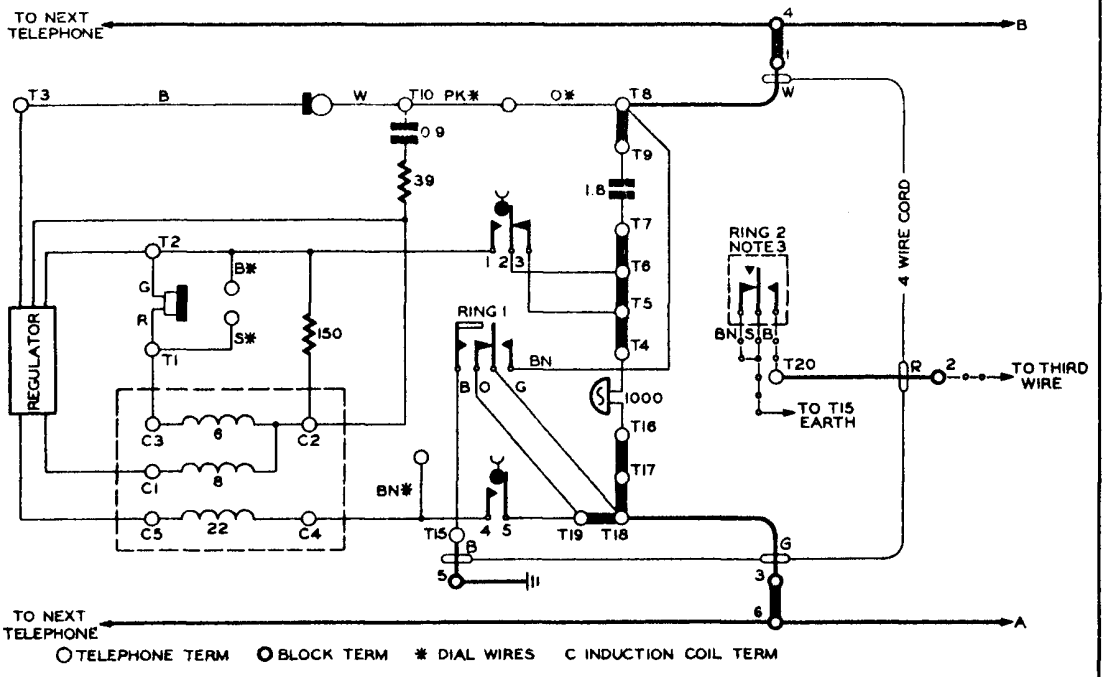
N.Z. POST OFFICE

SCHEME F FIRE CALL OUT
CB-USING B.P.O. RED 700-TYPE TELEPHONES

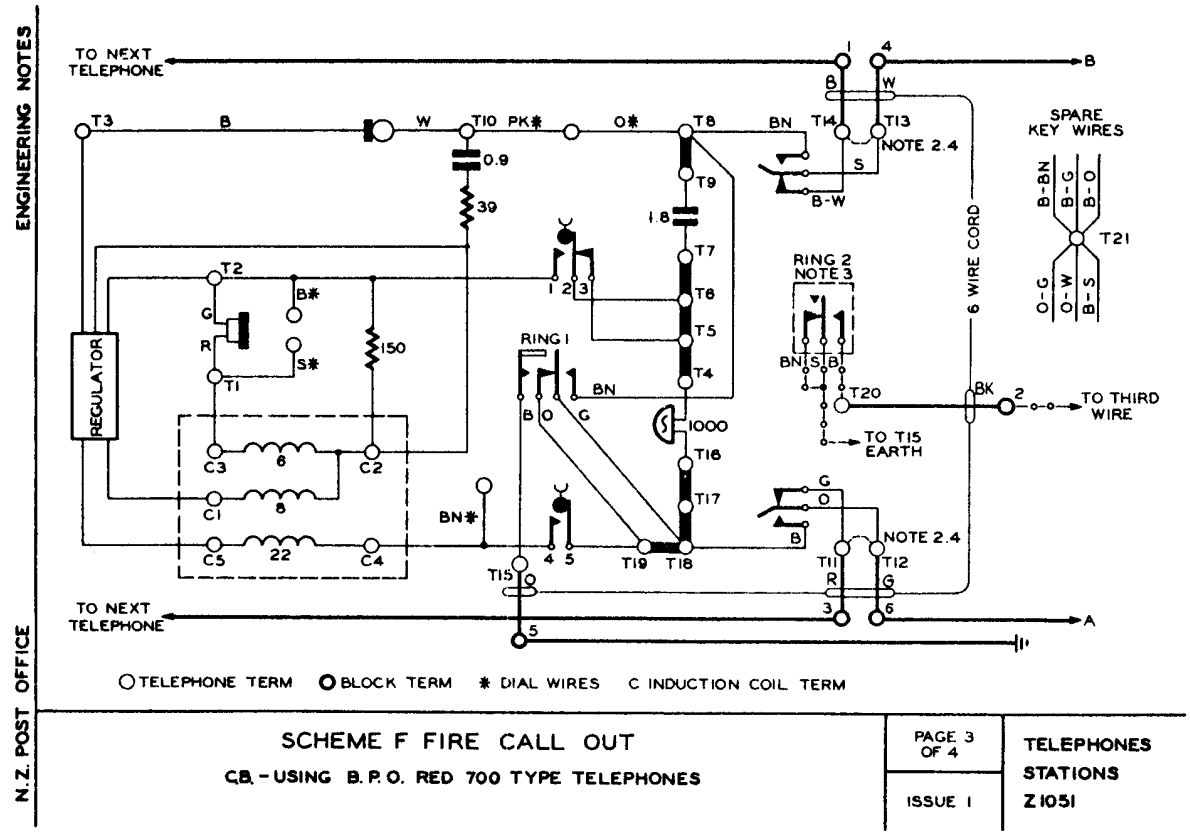
Page 1 of 4
Issue 1

TELEPHONES Stations Z 1051



TELEPHONES STATIONS Z1051 | PAGE 2 OF 4 | ISSUE 1 | SCHEME F FIRE CIRCUIT

SCHEME F FIRE CALLOUT CIRCUIT (Continued)



SCHEME F FIRE CALL OUT

C.B. - USING B.P.O. RED 700 TYPE TELEPHONES

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TELEPHONES STATIONS Z1051

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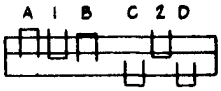
1.4 Telephone at Fireman's Premises

	Buttons	Springsets	Posns	Latches	
	HC 635E EXCH	HC 686	A	Locking	No cradle switch rel.
	HC 633E REL	HC 689B	B	Non-locking	
	HC 653E RING 1	HC 688	C	Free	
Position D see Note 3	HC 653E RING 2	HC 110	D	Free	



2. CONNECTIONS.

2.1 All connections are shown on pages 2 and 3.

Page 2 shows telephone at Fire Station. Page 3 shows telephone at Fireman's premises.

2.2 Remove dial, fit dummy and anchor dial wires for C.B. use. See C 2000.

2.3 For series-working phones at Fireman's premises, wire as shown on page 3.

2.4 For parallel working at Fireman's premises insert strap shown on page 3 as - - - -.

2.5 Combinations of series and parallel working may be used but only 6 phones are to be connected to the line at any time, provided loop to furthest extn, does not exceed 1000 ohms.

3. THIRD WIRE is provided when a second siren is required. Connections shown on pages 2 and 3 as - o - o -.

4. To PREVENT UNAUTHORISED INTERFERENCE the telephone is to be mounted not less than 5 ft 6 in. from the floor.

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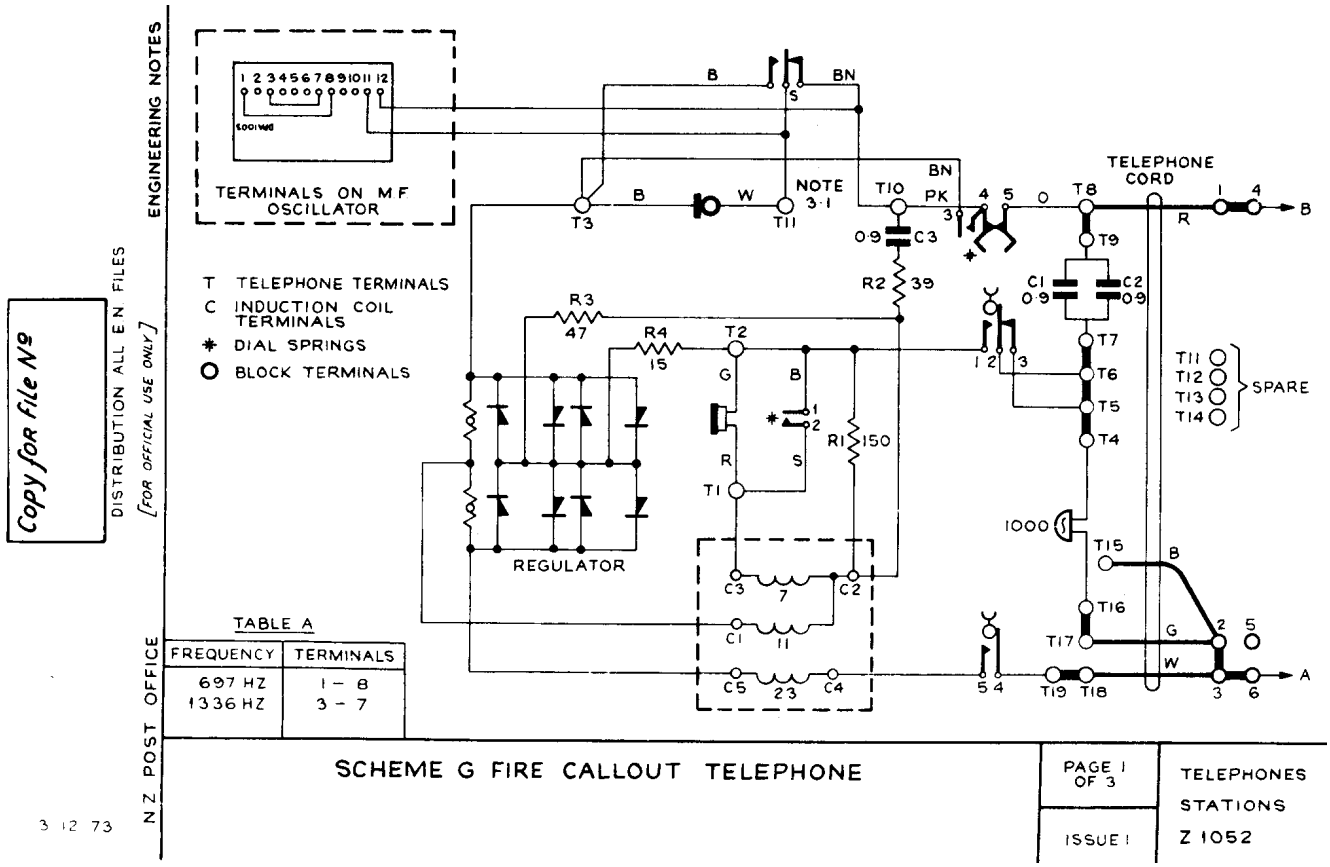
ENGINEERING NOTES

TELEPHONES Stations Z 1051	Page 4 of 4 Issue 1	Scheme F Fire Circuit

SCHEME G FIRE CALLOUT CIRCUIT



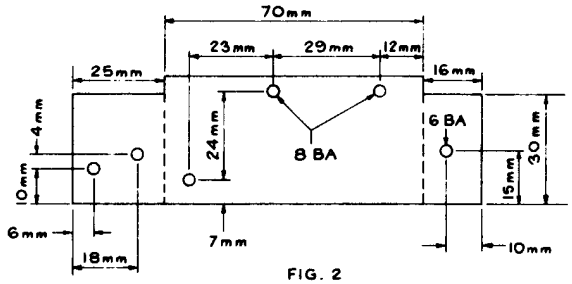


FIG. 2

FIG. 3

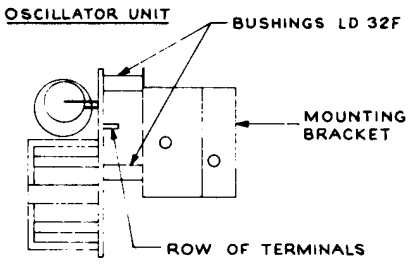


FIG. 4

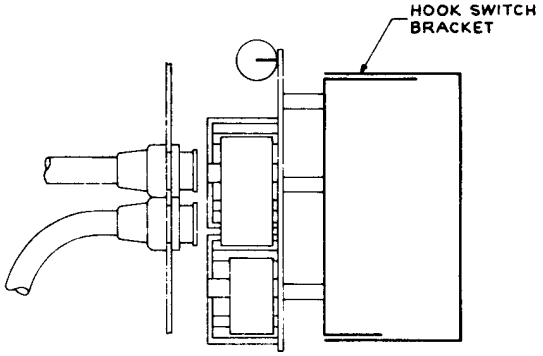


FIG. 5

TELEPHONES STATIONS Z 1052 | PAGE 2 OF 3 | ISSUE 1

ENGINEERING NOTES

1. GENERAL.

1.1 This E.N. describes the method of adapting an NZPO 100-type telephone for use as a Scheme G fire telephone.

2. APPARATUS.

Telephone	Oscillator	Adapter	Plunger	Spring	Button *
HC 401-406	HC 226	HC 408	HC 375	HC 684	HC 410

Requisition for three of the following:

Screw 8 B.A.	Screw 6 B.A.	Nut 8 B.A.	Nut 6 B.A.	Washer 8 B.A.	Bushes
S 1012	S 991	S 339	S 337	S 2009	LD 32F

* Engrave as required.

3. ARRANGEMENT.

3.1 Wiring details are shown in Fig. 1. NOTE: Microphone wire changed to T11.

3.2 Strap oscillator terminals as shown in Fig. 1. The frequencies used are given in Table A. Terminals number left to right when they are at the top of the board as shown in Fig. 1. NOTE: Avoid using excessive heat on the printed circuit board terminals.

3.3 Manufacture bracket from a light gauge steel sheet to dimensions in Fig. 2. Bend to shape as in Fig. 3.

3.4 Mount oscillator on bracket as shown in Fig. 4.

3.5 Fig. 5 shows the completed unit mounted in relationship to the cord entry and hookswitch bracket.

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SCHEME G FIRE CALL-OUT TELEPHONE

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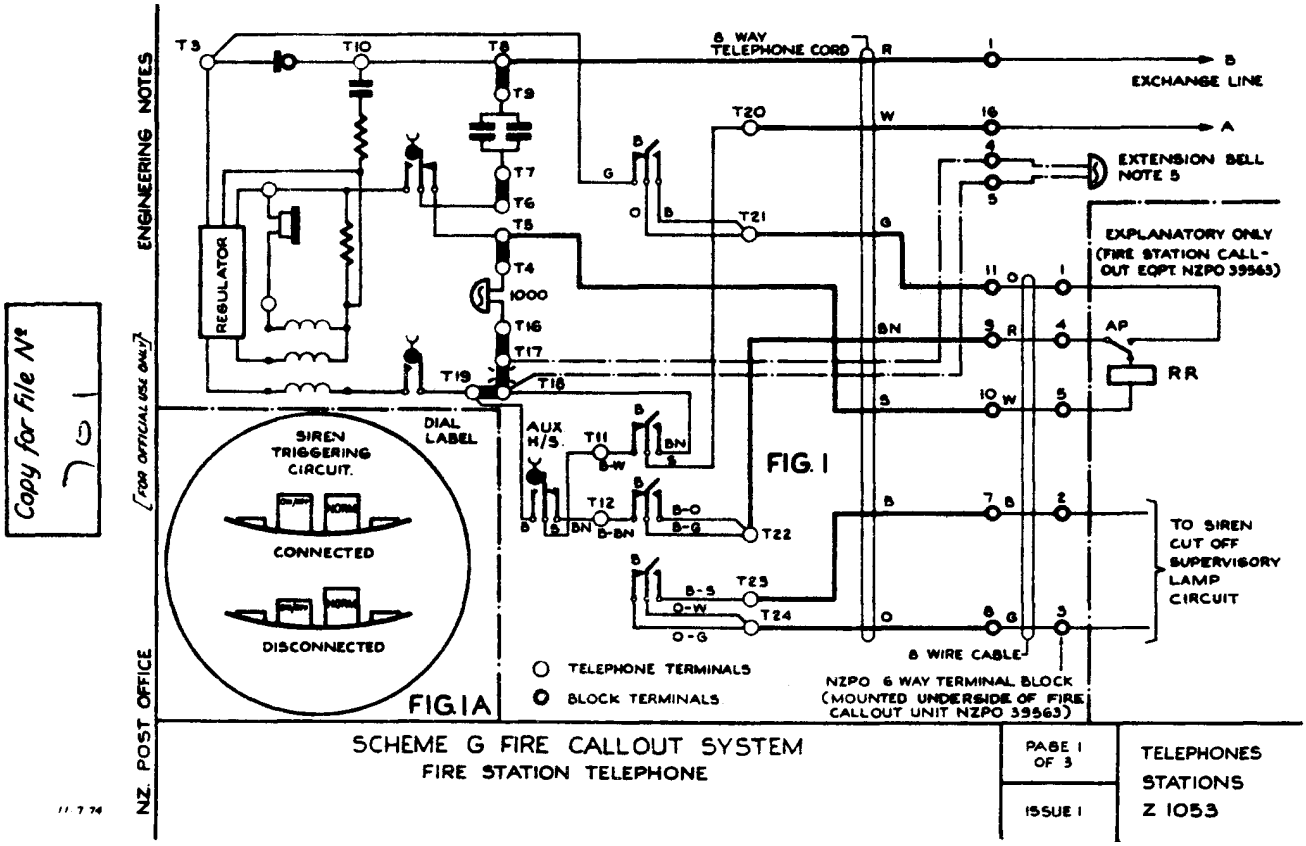
TELEPHONES Stations Z 1052

ENGINEERING NOTES



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SCHEME G FIRE CALLOUT SYSTEM
FIRE STATION TELEPHONE

PAGE 1 OF 3 | ISSUE 1

TELEPHONES STATIONS Z 1053

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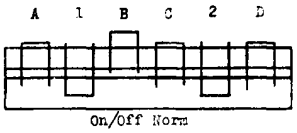
1. GENERAL.

1.1 This E.N. describes the method of adapting an NZPO 100-type telephone for use as a Scheme G Fire Station answer telephone.

2. APPARATUS.

Telephone	Cord	Block	Block	Term Strip	Aux. H/Switch	Dummy Dial
HC 608-609	KC 754	HC 210	HC 200A-F	HC 695	HC 407	HC 300C-D

Springset	Button	Button Fig. 2
HC 686	HC 629B on/off	HC 624 Norm



On/Off Norm

Fig. 2

3. ARRANGEMENT.

3.1 Wire as shown on page 1.

3.2 Remove dial and strap T10-T8. Fit dummy dial and make dial label as shown in Fig. 1A and insert in place.

ENGINEERING NOTES

ENGINEERING NOTES

4. MAINTENANCE DEMARCATION.

4.1 The NZPO 6 way terminal block is to be regarded as the point of demarcation.

5. EXTENSION BELL.

5.1 Remove strap shown  and connect as shown — • — • — when required.

6. EXTENSION TELEPHONES.

6.1 In addition to the Fire Station Alarm TELEPHONE one other extension telephone may be connected elsewhere in the Fire Station or via an LDC to a fireman's residence (Plan 1 or 8).

6.2 As transmission is required between the Fire Station Alarm Telephone and extension telephone, the line length from the exchange to the furtherest point is limited to 750 ohms.

6.3 A standard red telephone is to be provided for the extension and where interference by children could occur, it is to be wall mounted no less than 1.8M from the floor.

6.4 The extension telephone is additional to the normal automatic telephone at the residence concerned.

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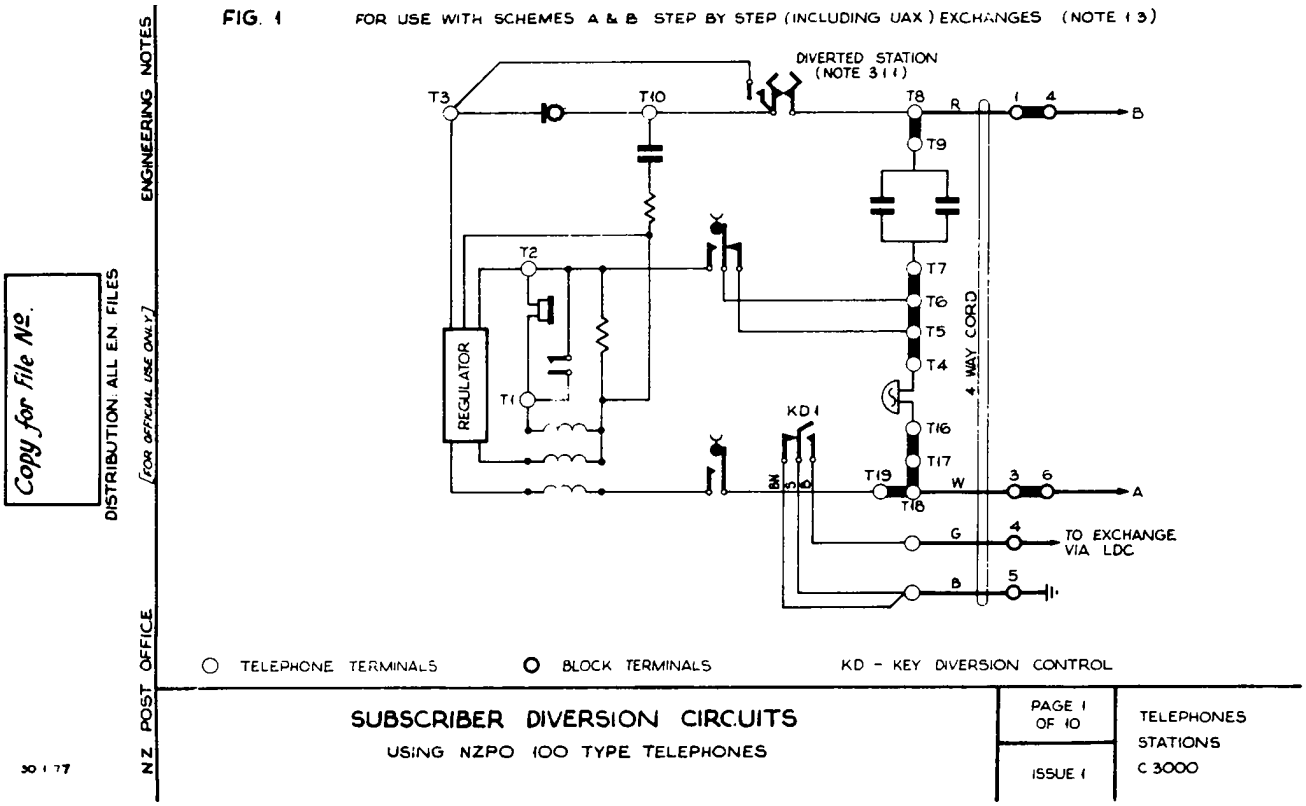
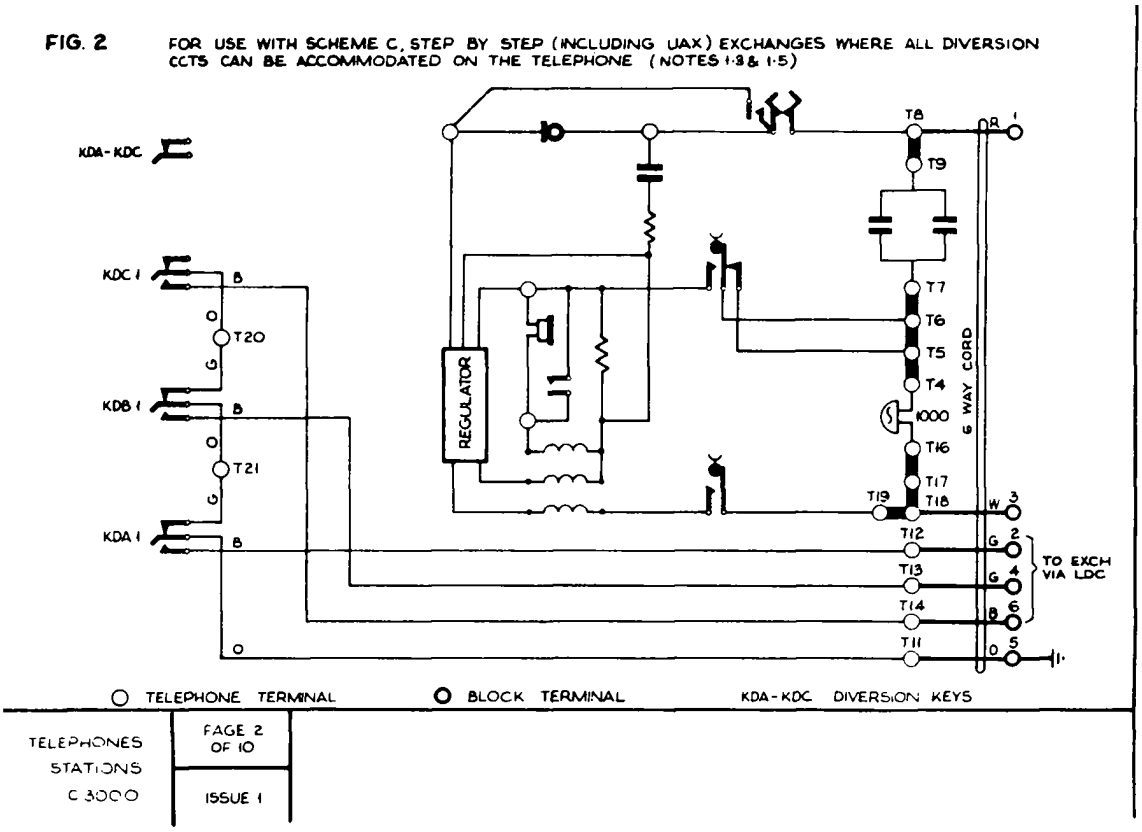
SUBSCRIBER DIVERSION CIRCUITS

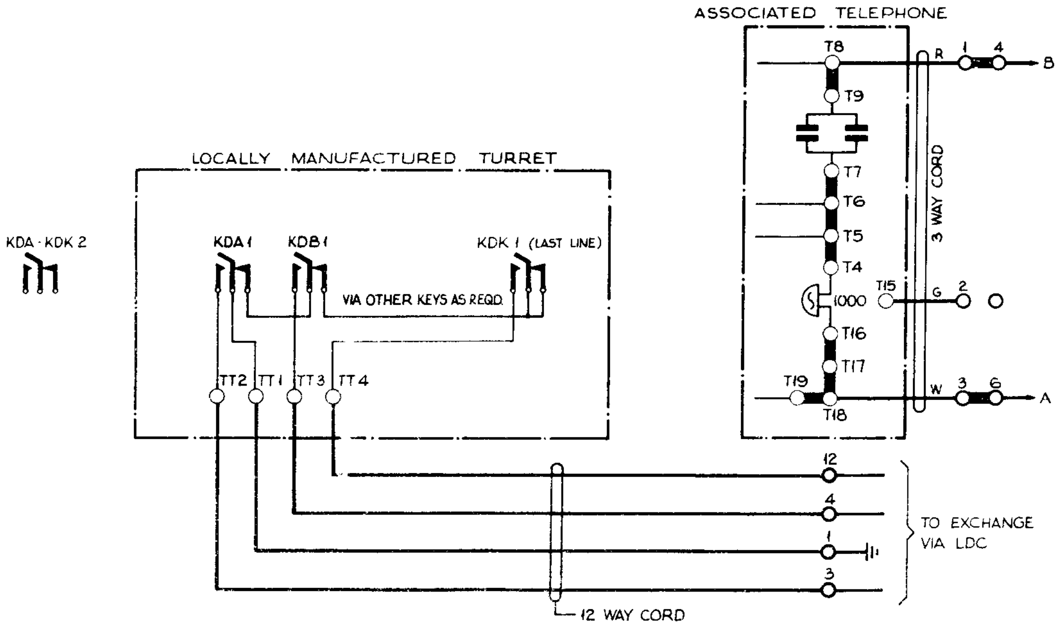




SUBSCRIBER DIVERSION CIRCUITS (Continued)

ENGINEERING NOTES

FIG. 3 FOR USE WITH SCHEME C, STEP BY STEP (INCLUDING UAX) EXCHANGES WHERE ALL DIVERSION CCTS CANNOT BE ACCOMMODATED ON THE TELEPHONE (NOTES 1·3 & 1·5)



○ TELEPHONE TERMINAL **O** BLOCK TERMINAL ○ TT TURRET TERMINALS

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SUBSCRIBER DIVERSION CIRCUITS USING NZPO 100 TYPE TELEPHONES	PAGE 3 OF 10	TELEPHONES STATIONS C 3000
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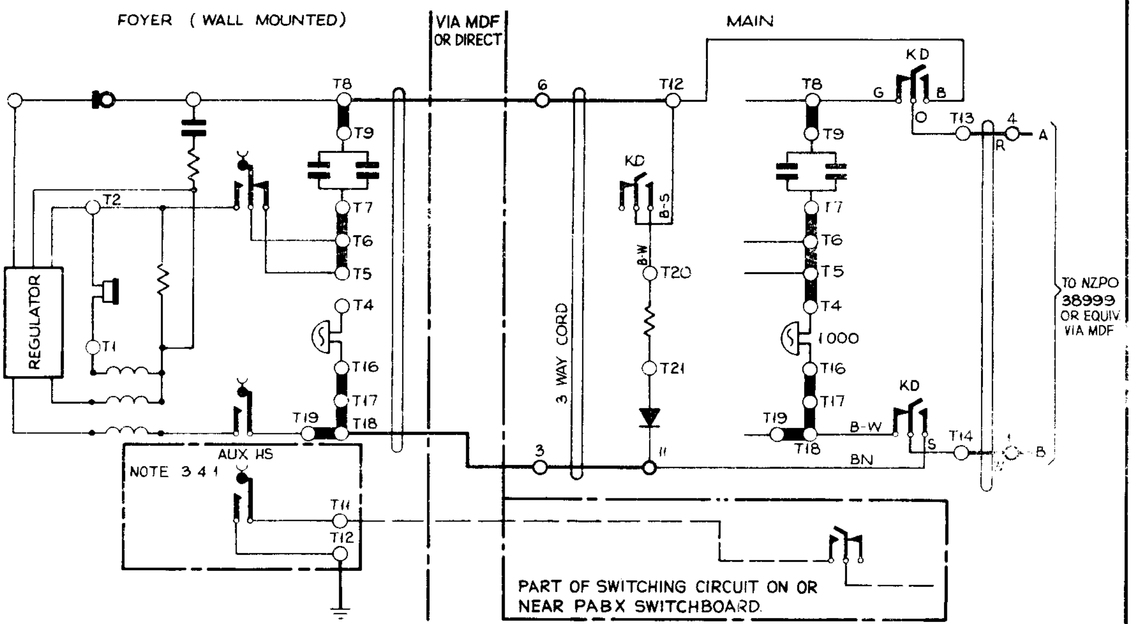

FIG. 4 FOR USE WITH NZPO 38999 OR EQUIV. ○ TELEPHONE TERMINAL **O** BLOCK TERMINAL

TELEPHONES STATIONS C 3000	PAGE 4 OF 10
	ISSUE 1

SUBSCRIBER DIVERSION CIRCUITS (Continued)

ENGINEERING NOTES

1. GENERAL

1.1 This E.N. describes the wiring for Diversion Ccts in all step by step exchanges (including UAX's).

1.2 For Crossbar exchanges Diversions are done by dialling an access number and normal telephones only are required.

1.3 In the case of Diversions on a PABX Trunk, wiring for the Diversion Key will be provided by the Senior Technician PABX.

1.4 Fig. 1 Refers to Scheme A and B Diversions as wiring for these are the same at the telephone.

1.5 Fig. 2 Refers to Scheme C Diversions when all diversions can be accommodated on the telephone.

1.6 Fig. 3 Refers to Scheme C Diversions when all diversions cannot be accommodated on the telephone.

1.7 Fig. 4 is for use with drawing NZPO 38999 or equivalent (See Para 3.4.1)

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7.6.77	SUBSCRIBER DIVERSION CIRCUITS USING NZPO 100 TYPE TELEPHONES	Page 5 of 10 Issue 1	TELEPHONES Stations C 3000

2. APPARATUS

2.1 Fig. 1

Telephone	Button	Adaptor	Pin	Plunger	Spring Restore Plunger
HC401-406	HC410	HC409	HC480A	HC681	HC684

2.1.1 Local conditions may require the use of other suitable components.

2.1.2 Engrave Button, HC410, "DIVERT" locally.

2.2 Fig. 2

Telephone	Cord	Block	Buttons(1-3)	Button	Aux Term Strip
HC608,609	KC754C,D	HC210	HC620-622	HC3	HC695

S/Set

HC688x3

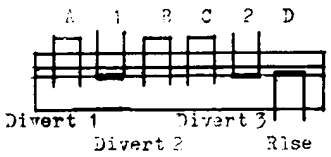

Fig. 2a

2.2.1 Local Conditions may require the use of other suitable components.

2.2.2 Engrave 3 Buttons "Divert 1" "Divert 2" "Divert 3" locally.

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ENGINEERING NOTES

TELEPHONES Stations C 3000	Page 6 of 10 Issue 1	SUBSCRIBER DIVERSION CIRCUITS USING NZPO 100 TYPE TELEPHONES	7.6.77

ENGINEERING NOTES

2.3 Fig. 3 Description of Turret only.

Turret	Keys	Term Strip	Cord	Block
JG891	K520x(No. Req.)	HC695x2	KC767 or suitable	HC210

2.3.1 Turret to be engraved to suit local conditions.

2.4 Fig. 4

2.4.1 Main

Telephone	Cord	Block	Button	Latching Plate	Pins
HC400-406	KC754	HC210	HC440x2	HC682	HC680Ax2

Plunger	Diode	Resistor	Springset	Aux term Strip
HC684x2	K905	ER241	HC686	HC695

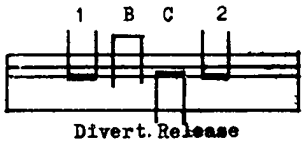

Fig. 4a

Buttons to be engraved "DIVERT" and RLSE Locally.

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2.4.2 Foyer Telephone

Telephone	Dial Dummy	Wall Mounting Kit	Aux Hs
HC400-406	HC300 A - F	HC490	HC407 (See para 3.4.1)

3. WIRING

3.1 Fig. 1 For Schemes A and B Step by Step (including UAX) wire as per diagram.

3.1.1 In the case of Scheme B wiring at both stations is the same.

3.1.2 Fit Adaptor HC409 to position C.

3.2 Fig. 2 Wiring for Scheme C Step by Step (including UAX) exchanges where all circuits can be accommodated on the telephone.

3.2.1 Any other arrangement on the telephone must be compatible to latch plates arranged for non-hook switch release.

3.3 Fig. 3 Wiring for Scheme C Step by Step (including UAX) where all diversion circuits cannot be accommodated on the telephone. Wire as per diagram. Turret to be manufactured locally.

N.Z. POST OFFICE ENGINEERING NOTES

ENGINEERING NOTES

3.4 Fig. 4 for use with NZPO Drg 38999 or equivalent only.

3.4.1 In some cases the Main telephone is not provided and the Foyer telephone is switched directly to a PABX Trunk. In this case provide and wire only the foyer telephone to the MDF. Other wiring for the circuit will be provided by the PABX Technicians Branch.

In the above case, if the PABX trunk is earth calling, provide and mount an Auxiliary Hookswitch S.L. No. HC 407 and additional wiring to the MDF.

3.4.2 Main — Mount S/S S.L. No. HC 686 in "B" position
Mount Plunger S.L. No. HC 634 in "C" position
Mount resistor and diode.

Foyer — Remove strap T4–T5
Mount dummy dial
Mount auxiliary hookswitch if required.

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4. OTHER FACILITIES

4.1 Other plan facilities may be adopted locally (provided they are compatible).

5. ADVICE TO SUBSCRIBERS

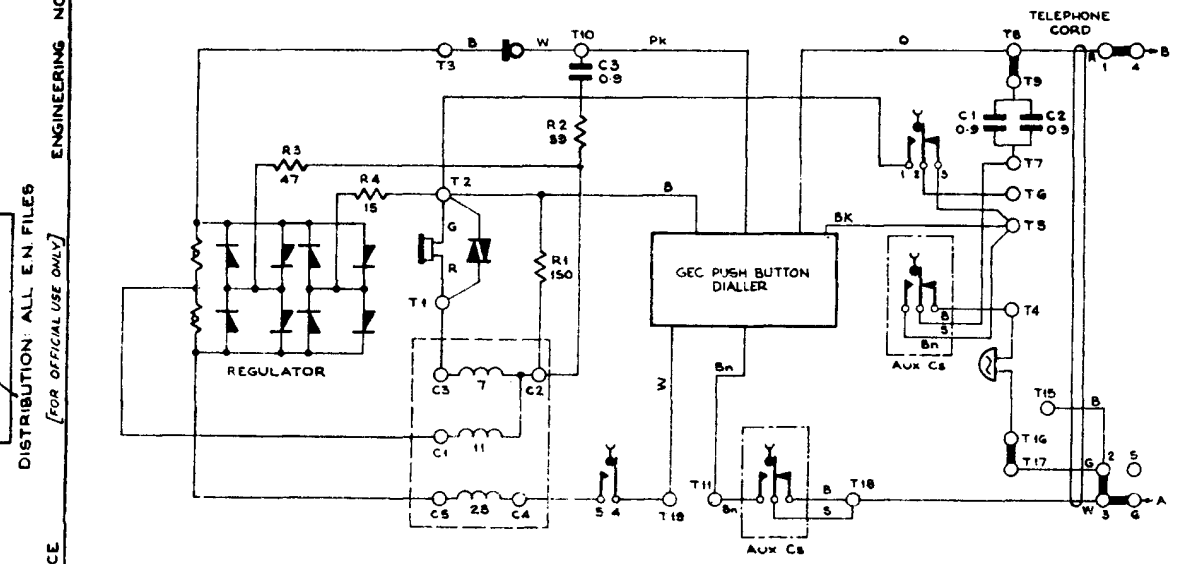
5.1 Subscribers should be advised that in the case of multiple diversion circuits only one diversion can be operated at one time.

END

ENGINEERING NOTES

CONNECTIONS FOR DECADIC KEYPADS

FIG. 1. CONNECTIONS FOR TELEPHONES WITH 19 TERMINAL P.C. BOARDS



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ENGINEERING NOTES

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CONNECTIONS FOR DECADIC PUSH BUTTON DIALLERS
USING NZPO 100 & 101 TELEPHONES

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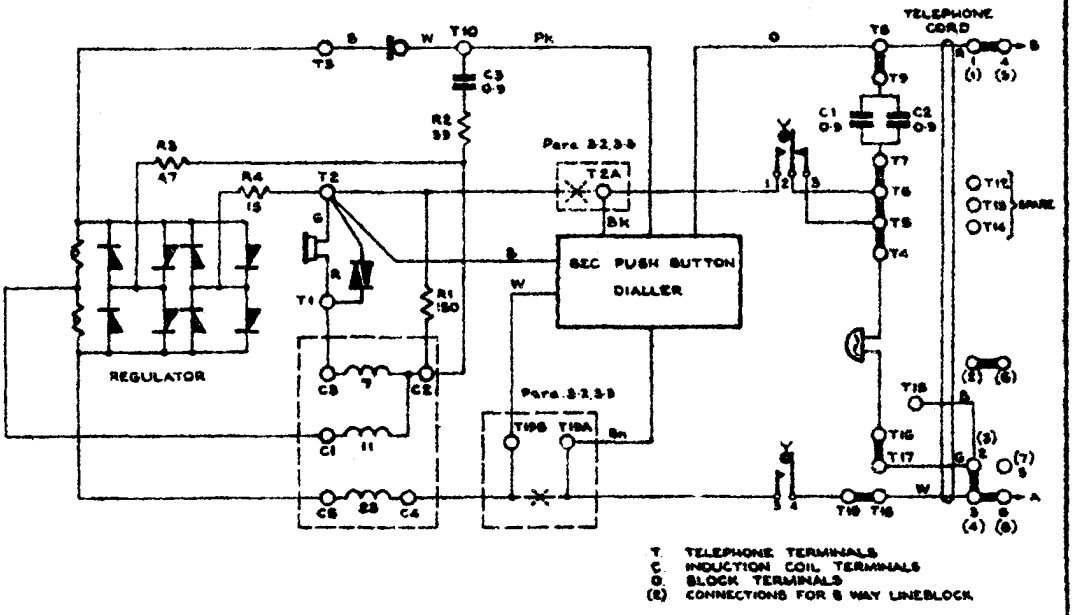
FIG.2. CONNECTIONS FOR TELEPHONES WITH 22 TERMINAL P.C. BOARDS



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	ISSUE 1

CONNECTIONS FOR DECADIC KEYPADS (Continued)

ENGINEERING NOTES

1. GENERAL

1.1 This E.N. outlines the connection of the GEC Decadic Push Button Dialler Unit.

1.2 A kit is provided with the decadic unit, except for the click suppressor these kits are not used when the unit is fitted into a 22 terminal printed circuit board telephone. This kit should be returned to Plan Assembly depots for use to best advantage.

2. APPARATUS

2.1

Telephone	Decadic Unit	Escutcheon Plate	Terminals
NZPO 100 HC 401-405	HC 58	HC 221-225	-
NZPO 101 HC 750-754	HC 58	HC 221-225	-

3. CONNECTIONS

3.1 Fig. 1 outlines the connections for a telephone with a 19-terminal printed circuit board (in general the 100-type telephone). Connect components as shown in Fig. 1.

N.Z. POST OFFICE

3.2 Fig. 2 outlines the connections for a telephone with a 22-terminal printed circuit board (in general 101-type telephones).

To fit terminal 19A, terminal 11 is sacrificed.
Remove T-11 from the PC Board by gently levering underneath with a screwdriver.
Place the terminal in the slot allocated on the PC Board.
T2A and T19B are pin-type terminals which have push-in connectors.
Terminal 19B is placed directly in the hole provided.
Terminal 2A requires a 2 mm hole to be drilled in the PC Board in the position indicated on the copper side of the board.
All terminals are to be soldered to the PC Board.

3.3 Disconnect the copper circuit in the places marked >×<. Use a screwdriver, gently scrape away the copper conductor from the PC Board.

3.4 Fit the click suppressor across T1 and T2.

4. WALL CONVERSION

4.1 Use the conversion procedure outlined in E.N. TELEPHONES Stations C 2003 as a guide.

5. OTHER FACILITIES

5.1 For wiring of other facilities, see E.N. TELEPHONES Stations C 2002.

END

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ENGINEERING NOTES

CONNECTIONS FOR DECADIC KEYPADS (Continued)

N.Z. POST OFFICE ENGINEERING NOTES

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1. GENERAL

1.1 The DECADIC keypad S.L. No. HC50 is a direct replacement for the rotary dial fitted to NZPO 100 series and plastic base BPO 706 telephones.

1.2 The keypad will not fit BPO 710 or metal base 706 telephones.

1.3 The keypad cannot be used in telephones used on Interphone or Plans 7A or 7B.

1.4 On some PABX and longer step exchange lines the receiver mute circuit on early production keypads may allow pulsing to be heard.

1.5 From Serial No. 77300 onwards the keypads have been modified and the receiver muting should be effective on all lines except some Pentomat PABX extension lines. In cases where the receiver mute drops out during pulsing a click suppressor (GA 344) should be fitted.

2. APPARATUS

2.1 The HC50 DECADIC keypad uses the same escutcheon as the HC80 and HC801 DTMF keypads.

Keypad	HC50			
Escutcheon	HC81	Blue	HC84	Ivory
	HC82	Green	HC85	Red
	HC83	Grey		

DECADIC KEYPAD
CONNECTIONS FOR NZPO 100 TYPE TELEPHONES

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Issue 1

TELEPHONES Stations F 1021

?.2.85

3. INSTALLATION

3.1 The HC50 wiring follows the same colour code as the rotary dial cord:

Slate - T1, Blue - T2, Brown - T3, Orange - T8, Pink - T10

3.2 The rotary dial should be returned to MRS.

3.3 The keypads are converted from table to wall mounting as follows:

(1) Lift the keypad off the mounting plate;

(2) Undo the screw securing the circuit board to the mounting plate, turn the mounting place 180 degrees and replace the screw. Make sure that the serrated washer between the circuit board and mounting plate is replaced.

(3) Replace the keypad on its mounting pins.

4. MAINTENANCE

4.1 Faulty keypads should be replaced and the faulty unit labelled and sent to MRS Wellington.

4.2 No maintenance of Decadic keypads is to be carried out in the districts.

N.Z. POST OFFICE ENGINEERING NOTES

TELEPHONES Stations F 1021

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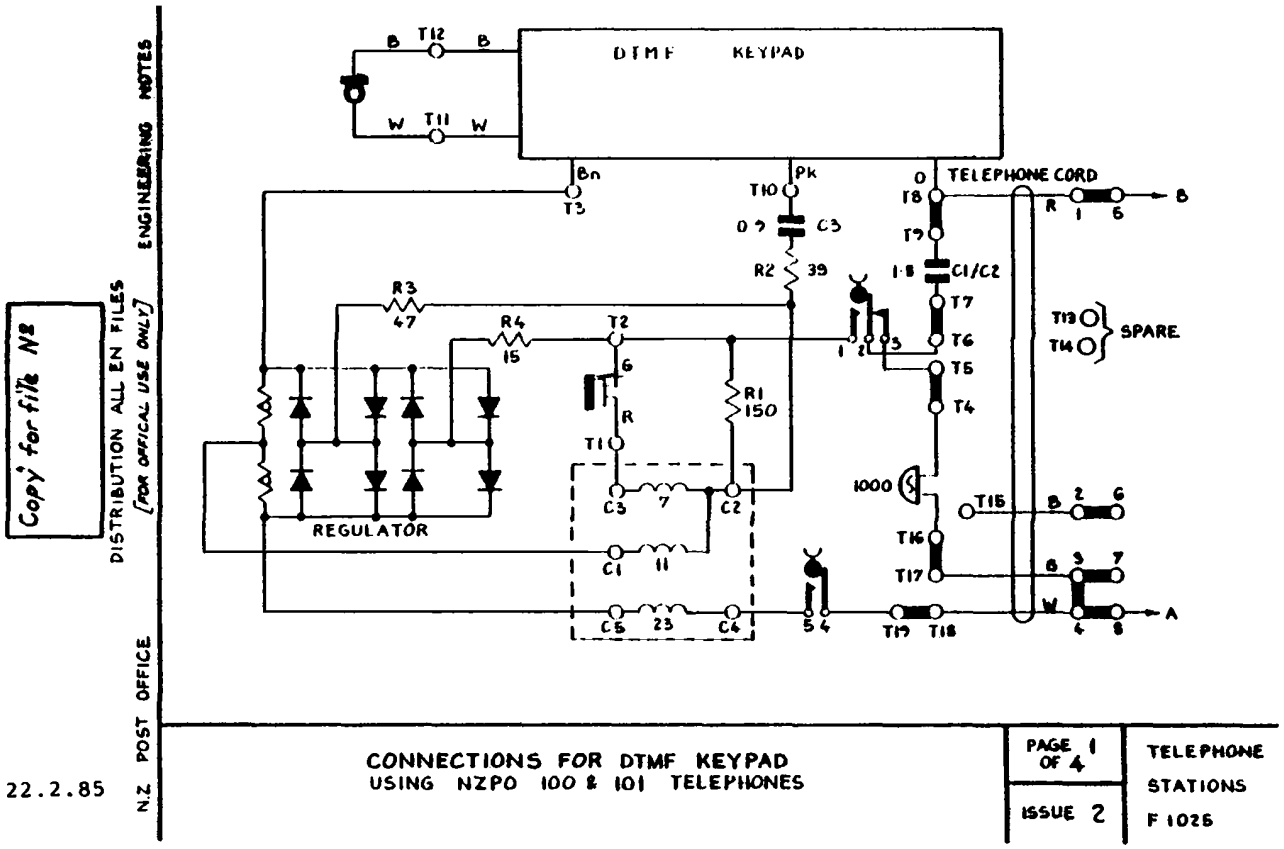
Issue 1

CONNECTIONS FOR DTMF KEYPADS



1. GENERAL

1.1 The DTMF keypad and escutcheon replace the rotary dial in telephones that are connected to exchange or PABX lines equipped for DTMF signalling.

1.2 The keypads will fit NZPO 100 series and plastic base BPO 706 telephones.

1.3 The keypads will not fit BPR 710 telephones or metal base BPO 706 telephones.

1.4 The keypads cannot be used in telephones used on Interphone or plans 7A or 7B.

2. APPARATUS

2.1 There are two versions of DTMF keypad produced by different manufacturers. Both versions of the keypad perform the same function but there are differences in the design and mounting of the circuit board.

2.2 The same escutcheon is used with both keypads.

Keypad	Escutcheon
Type A HC 80	HC 81 Blue
	HC 82 Green
Type B HC 801	HC 83 Grey
	HC 84 Ivory
	HC 85 Red

N.Z. POST OFFICE ENGINEERING NOTES

CONNECTIONS FOR DTMF KEYPADS (Continued)

ENGINEERING NOTES — N.Z. POST OFFICE

3. INSTALLATION

3.1 The DTMF keypads are wired as shown in Fig. 1.

3.2 The completed telephone should be tested to ensure correct operation of the keypad, ref. A3100.

3.3 The rotary dial complete with dial cord and clamp should be returned to MRS in the cardboard box supplied with the keypad. The stocklist number of the keypad should be crossed out and replaced with the S.L. No. of the dial.

4. WALL MOUNTING

4.1 The two types of keypad differ in the conversion from table to wall mounting.

Type A: Lift the keypad off the mounting pins and give it a half turn clockwise before replacing it on the mounting pins.

Type B: Early — Remove the four screws and nuts securing the keypad and circuit board to the mounting plate. Turn the mounting plate 180 degrees and replace the screws and nuts.

Late — Lift keypad off the mounting pins. Undo the screw securing the circuit board to the mounting plate and turn the mounting plate 180 degrees. Make sure the serrated washer between the circuit board and the mounting plate is replaced. Replace the keypad on its mounting pins.

N.Z. POST OFFICE — ENGINEERING NOTES

4.2 On the telephone case reverse the station label. Do not reverse the escutcheon plate.

5. MAINTENANCE

5.1 Faulty keypads should be replaced. The faulty unit should be labelled and sent to MRS Wellington.

5.2 No maintenance of DTMF keypads is to be carried out in the districts.

6. DEAF AND AMPLIFIER

6.1 Amplifiers S.L. No. HC15 or Inductive Couplers S.L. No HC16 are combined with DTMF keypads as follows:

(1) Wire HC15 or HC16 amplifier as shown in Teles Stns D1107 or D1108 without terminating the handset BLUE and WHITE wires.

(2) The keypad is wired as follows:

ORANGE wire	- T8
PINK	- T10
BROWN	- T13
WHITE	- T14 with handset cord WHITE
BLUE	- T15 with handset cord BLUE

PARALLEL WIRING SYSTEM

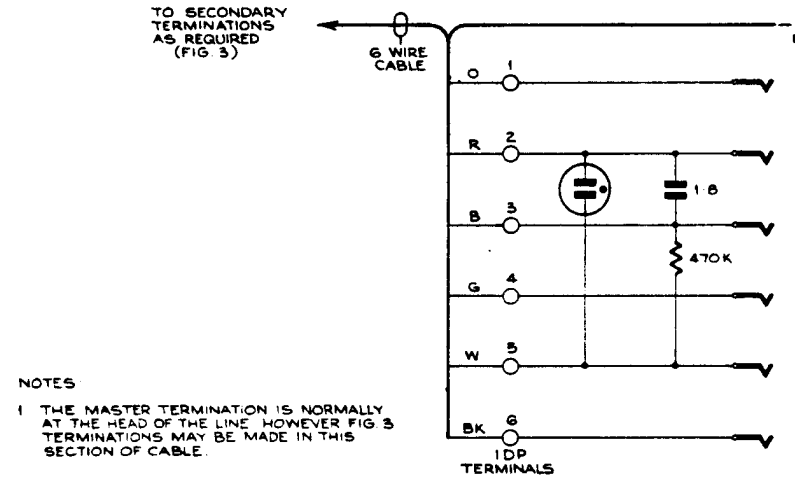


FIG. 1 MASTER JACK / BLOCK

N.Z. POST OFFICE ENGINEERING NOTES

TELEPHONES STATIONS E 2000	PAGE 2 OF 8	NZPO PARALLEL WIRING SYSTEM
	ISSUE. 1	MASTER JACK / BLOCK

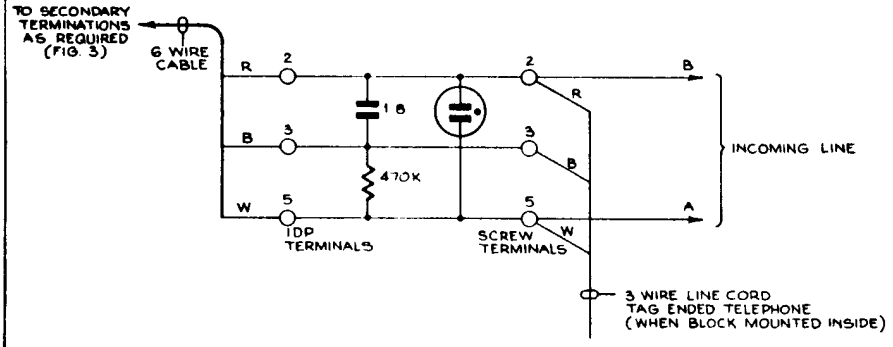


FIG. 2 WEATHERMASTER BLOCK

N.Z. POST OFFICE ENGINEERING NOTES

NZPO PARALLEL WIRING SYSTEM	PAGE 3 OF 8	TELEPHONES STATIONS E 2000
WEATHERMASTER BLOCK	ISSUE 1	

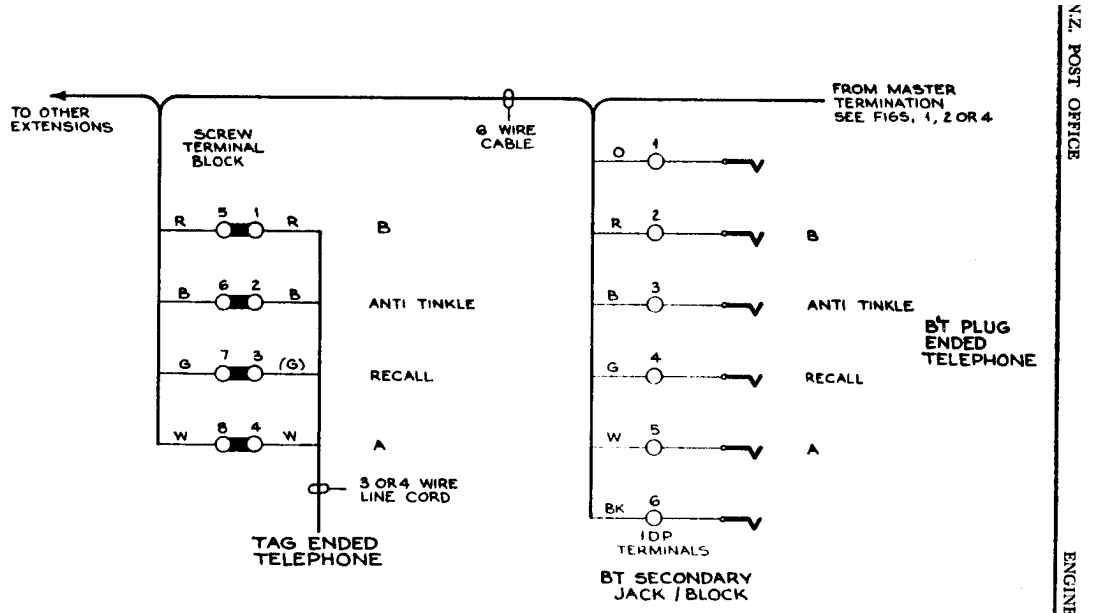


FIG. 3 SECONDARY TERMINATIONS

TELEPHONES STATIONS E 2000	PAGE 4 OF 8 ISSUE. 1	NZPO PARALLEL WIRING SYSTEM SECONDARY TERMINATIONS	N.Z. POST OFFICE ENGINEERING NOTES

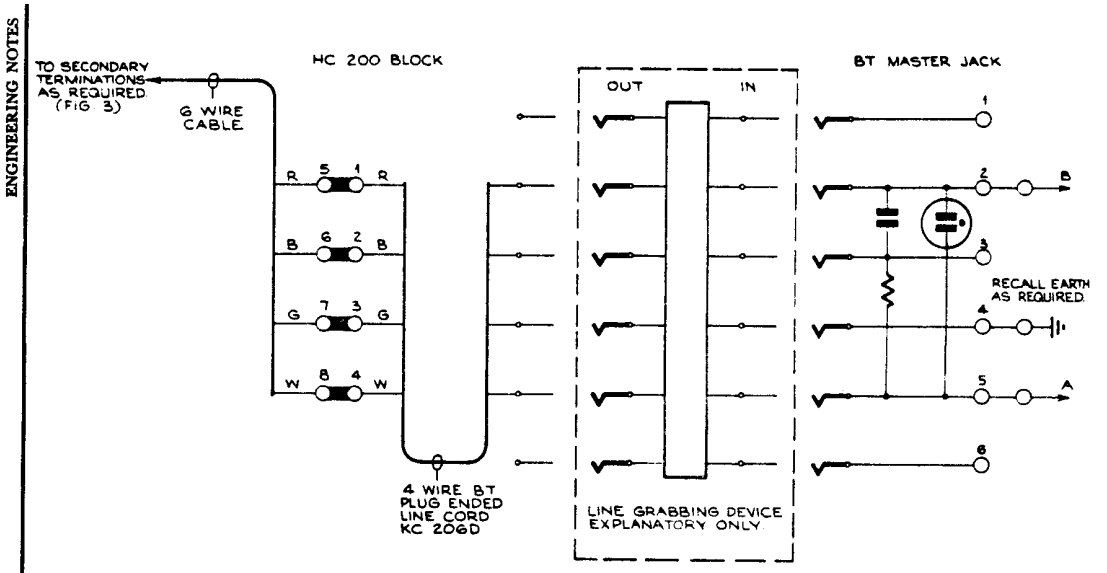
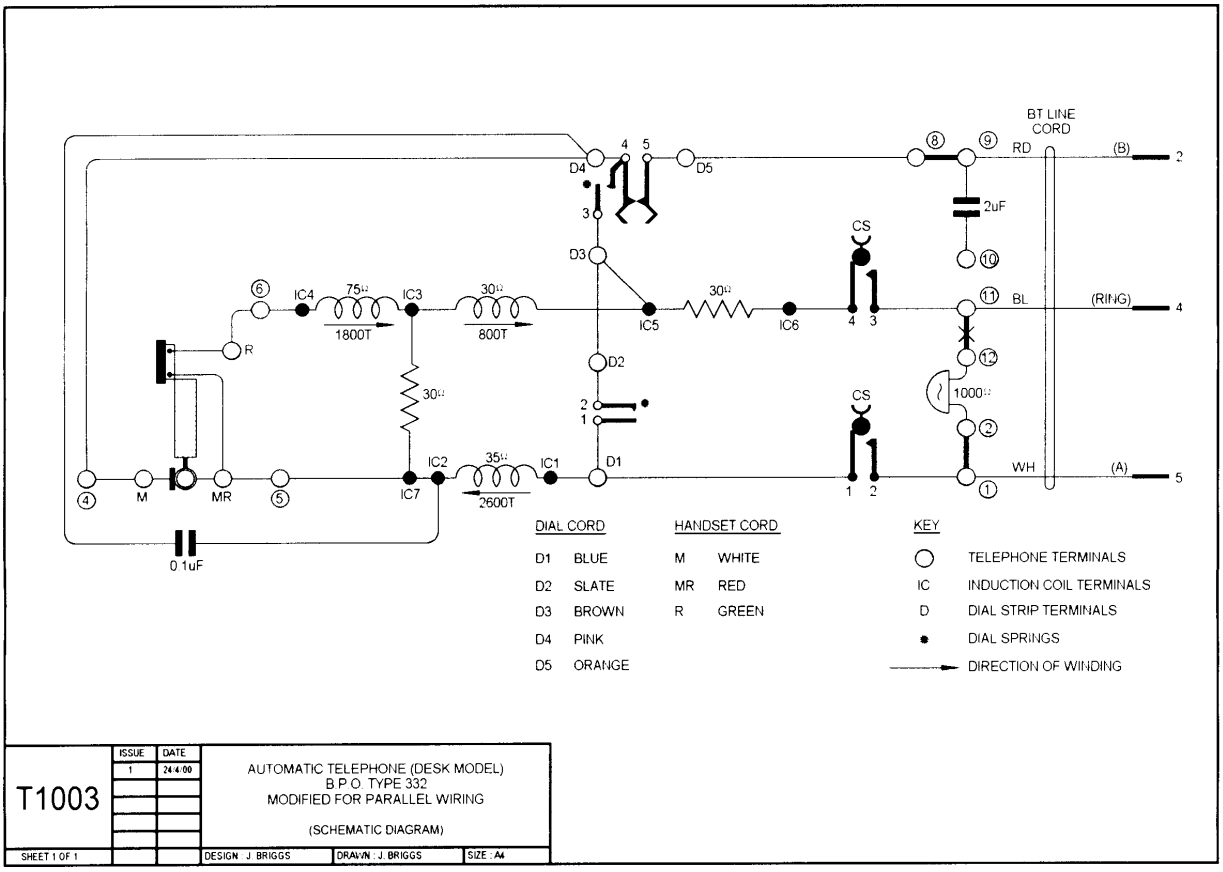


FIG. 4 LINE GRABBING ACCESS

N.Z. POST OFFICE ENGINEERING NOTES	NZPO PARALLEL WIRING SYSTEM LINE GRABBING ACCESS	PAGE 5 OF 8 ISSUE .1	TELEPHONES STATIONS E 2000

AUTOMATIC TELEPHONE, MODIFIED TO PARALLEL WIRING



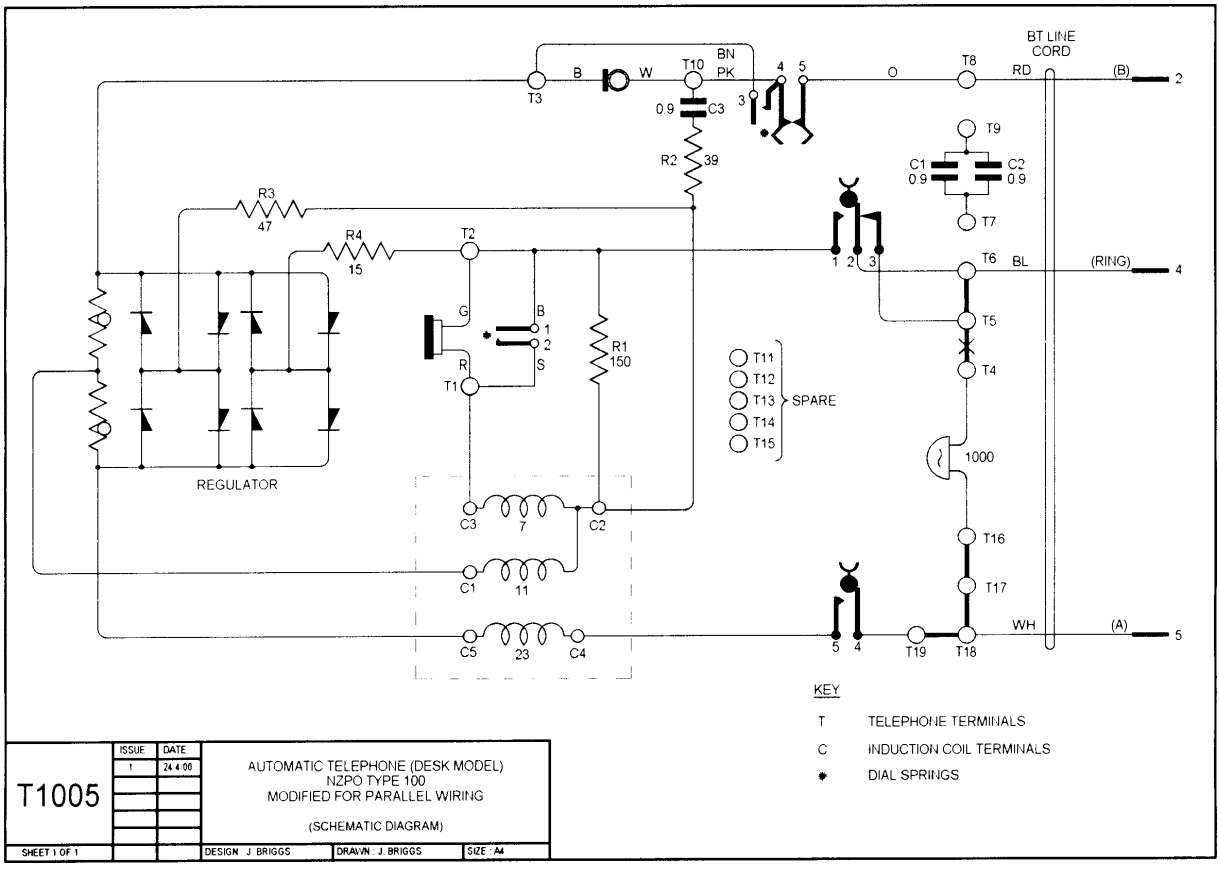


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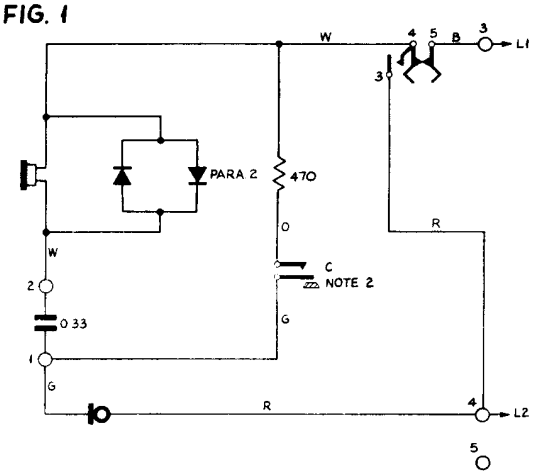
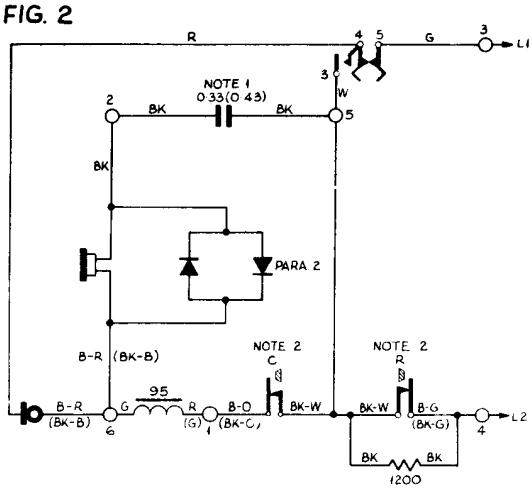
FIG. 1



TELEPHONES ATE Nºs L 11310 & KG 710

FIG. 2



NOTES

1 CAPACITOR VALUE AND CONDUCTOR COLOURS SHOWN IN BRACKETS APPLY TO KD 406.
2 C & R KEYS NON-LOCKING. ON KG 710, KG 711, ATE L 11310 MAY BE MECHANICALLY LOCKED IN OPERATED POSITION
3 1200Ω RESISTOR OF KD 406 WOUND ON TERMINAL STRIP

○ TELEPHONE TERMINALS

TELEPHONES SL Nºs KG 711 KD406

TELEPHONES (HANDTESTING)
STANDARD TYPES
SCHEMATIC
SL Nºs KG 710, KG 711, KD406, ATE L 11310

PAGE 1 OF 3
ISSUE 4

TELEPHONES
STATIONS
C1900

16 5 75

1. GENERAL.

1.1 This E.N. describes the circuits and modifications to the Technicians handtesting telephones S.L. No. KD 406, KG 710 and KG 711.

1.2 This E.N. is for maintenance purposes only as these items are no longer being placed on stock.

1.3 The modification is required to equip all these telephones with click suppressors to reduce the intensity of an acoustic shock. Further, the KG 710 telephone requires the shifting of a wire and placing of a resistor to improve received speech.

2. MODIFICATION.

2.1 All Telephones (Fig. 1 and 2).

2.1.1 Solder two wires to the spade terminals on a click suppressor S.L. No. GA 344 and insulate the bare conductors.

2.1.2 Terminate the two wires to the receiver terminals of the handset and fold the click suppressor and extra wire into the dial recess.

2.2 Extra Modification for Standard Technicians Telephone (without retard coil) Fig. 1.

2.2.1 Remove orange wire from terminal two and remove from lace.

ENGINEERING NOTES

2.2.2 Connect resistor 470Ω S.L. No. ER 713 between one receiver terminal (Note 2.2.3) and the orange wire, insulate conductors and lay resistor alongside springset.

2.2.3 Both receiver terminals have white wires terminated, the correct one is the one with the wire which forms back into the dial recess.

TELEPHONES, HANDTESTING, A.T. & E. No L111373

ENGINEERING NOTES

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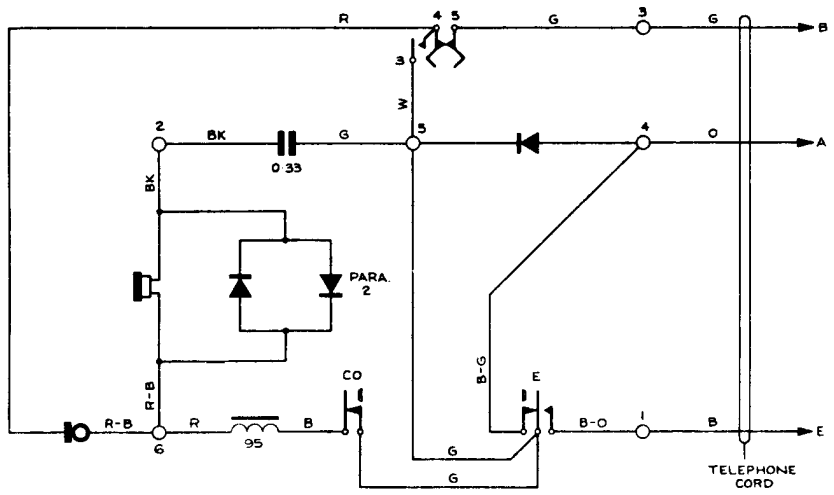


NOTES -

1 CO & E KEYS NON-LOCKING BUT CAN BE MECHANICALLY LOCKED IN OPERATED POSITION

T ○ TELEPHONE TERMINALS

N.Z. POST OFFICE

HANDTESTING TELEPHONE

A.T. & E. Nº L 11373

SCHEMATIC

S.L Nº KG 720 (SUPERSEDED BY KG 750)

PAGE 1 OF 2

ISSUE 2

TELEPHONES STATIONS C 1905

15 5 75

1. GENERAL.

1.1 This E.N. describes the circuit and modification to the Lineman's handtesting telephone S.L. No. KG 720.

1.2 This E.N. is for maintenance purposes only as the item is no longer being placed on stock.

1.3 The modification is required to equip the telephone with a click suppressor to reduce the intensity of an acoustic shock.

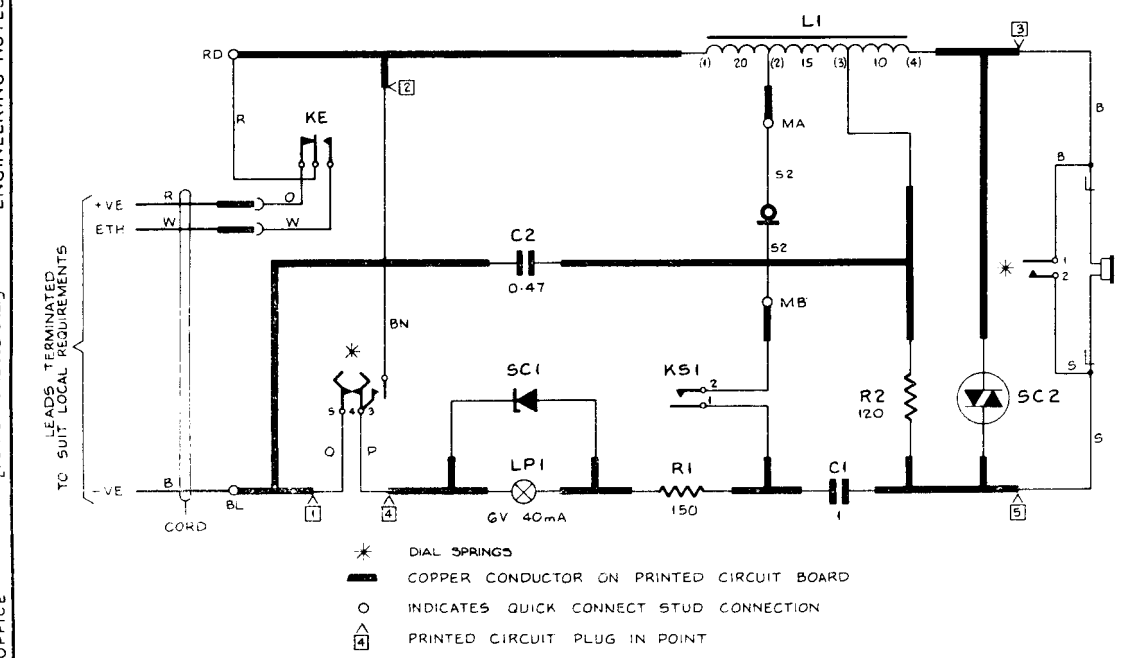
2. MODIFICATION.

2.1 Solder two wires to the spade terminals on a click suppressor S.L. No. GA 344 and insulate all bare conductors.

2.2 Terminate the two wires to the receiver terminals of the handset and fold the click suppressor and extra wire into the dial recess.

N.Z. POST OFFICE ENGINEERING NOTES

TELEPHONE, HANDTESTING, A.P.O. No 4 (RED)



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ENGINEERING NOTES

N Z POST OFFICE

22 3 77

HAND TESTING TELEPHONE APO Nº 4 (RED)	PAGE 1 OF 2	TELEPHONES STATIONS C 1910
S.L Nº KC 750	ISSUE 1	

1. CANCELLATIONS. Nil.

2. GENERAL.

2.1 This E.N. shows the circuit of the Hand-Testing telephone APO No. 4 S.L. No. KG 750.

2.2 The lamp indicates a reversal of the negative and positive wires.

2.3 When an answer reversal occurs the lamp will glow.

3. FACILITIES.

3.1 The control key KS has three positions:

(i) Normal. (ii) Operated locking. (iii) Operated non-locking.

3.2 The earth key KE is provided for earth signalling.

4. MAINTENANCE.

4.1 The hand-testing telephone is fitted with a standard dial, type 13C transmitter, and type 4T receiver. Repairs other than the replacement of these components must not be carried out in the field. Faulty units should be forwarded under cover of a Stores 23 to Wellington Workshops for repair.

END

N.Z. POST OFFICE

ENGINEERING NOTES

TELEPHONES Stations C 1910	Page 2 of 2	Issue 1

7.6.77