

OUTSIDE SOURCE TELEPHONE PANEL PA8/308

Introduction

The panel PA8/308 contains the equipment required for the termination of one outside source control line and associated cue line on a Type-D sound-control desk. It incorporates a cue feeding amplifier AM4/8, a 17-Hz detector unit UN20/18, a throw-back delay unit UN14/8 and an isolating amplifier AM1/43.

The PA8/308 (Fig. 1) is normally used in conjunction with a telephone panel PA8/309 or PA8/310, and a typical complete telephone circuit for a continuity cubicle or studio is shown on Fig. 2.

The equipment is mounted in a CH1/37G chassis having overall dimensions of 7 by 2¼ by 10½ inches.

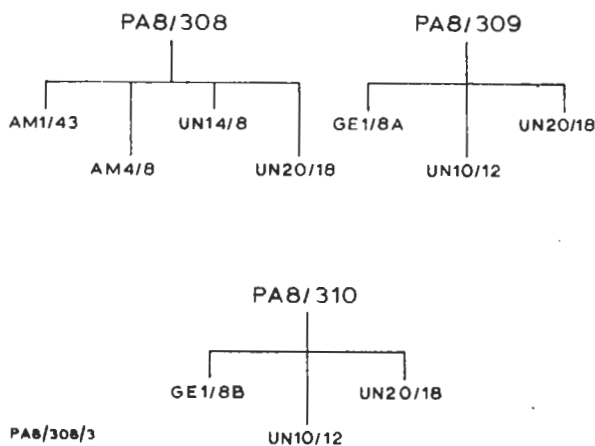


Fig. 1. PA8/308, PA8/309 and PA8/310: Subunit Codes

Facilities

The panel provides the following facilities:

On the Control Line

- Ringling out and ring reception.
- Answering the line on either of two busbars.
- Selecting and sending cue programme, or clean feed.
- Sending talkback; sending tone.
- Delayed throwback of control line to EMX.

On the Cue Line

- Sending cue programme or clean feed.
- Sending talkback; sending tone.

On the Music Line

- Switching external circuits for prehear.

Additional Facilities

- Radio car control circuit.
- Remote indication of circuits connected to control and cue lines.
- Transfer of calling to EMX for use during temporary closedown periods.

General Description

Controls on Front Panel

The controls mounted on the front panel, starting from the top, are:

- (a) 11-way rotary switch for cue programme selection.
- (b) Non-locking illuminated pushbutton switch for ringing (incorporating call lamp).
- (c) 2 three-position locking keys to connect clean feed or cue programme to cue line or control line.
- (d) Three-position locking key for answering.
- (e) Three-position locking/non-locking key to connect prehear to music line or talkback to control and cue lines, and three-position locking key to substitute tone or talkback for clean feed.

Internal Equipment

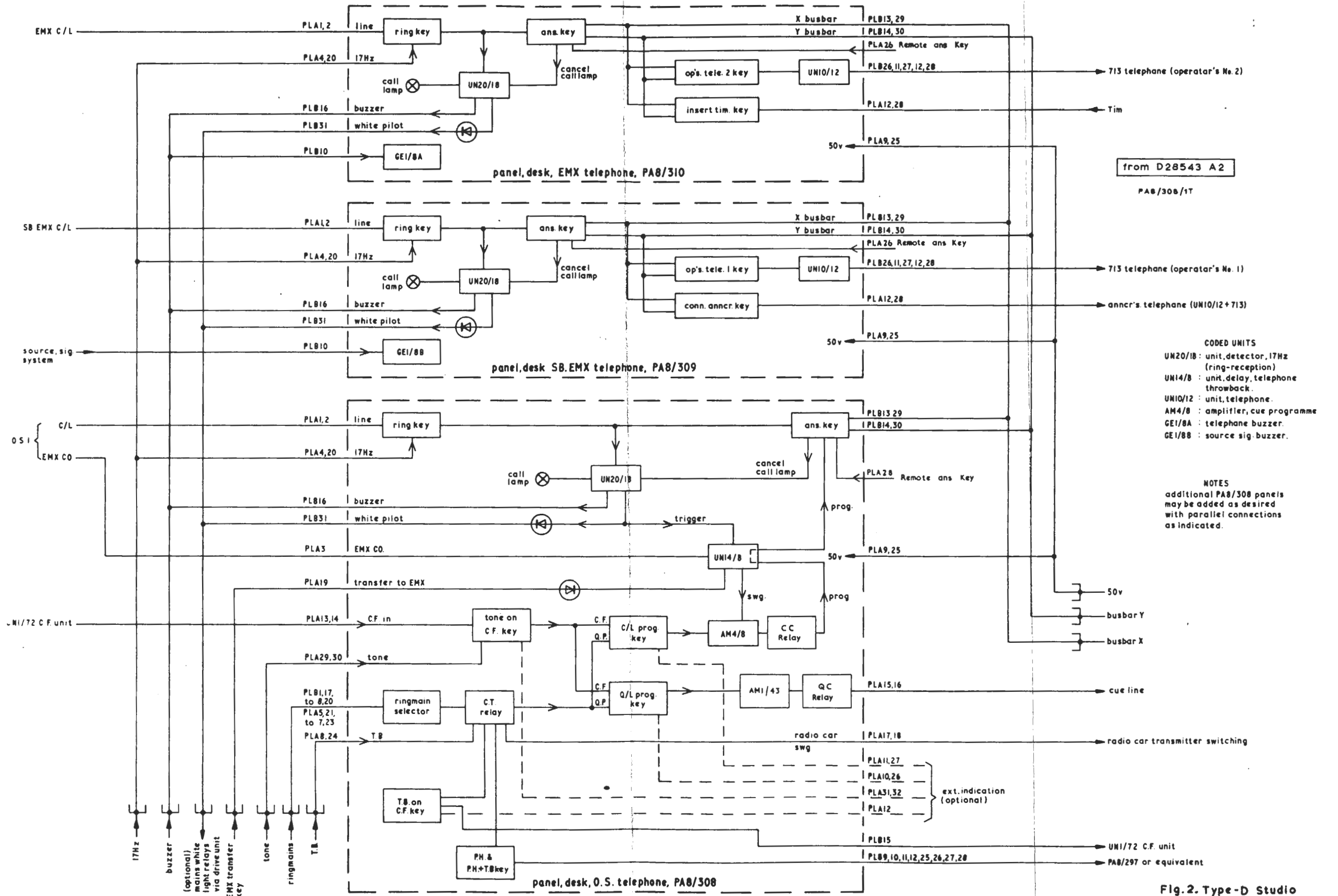
On the left-hand side of the chassis are mounted the throwback unit UN14/8, cue amplifier AM4/8, and relays QC, CC. On the right-hand side is the isolating amplifier AM1/43, and on the base the 17-Hz detector UN20/18 and a printed circuit mounting the relay CT circuit.

Circuit Description (Fig. 3)

The panel is powered by the normal 50-volt d.c. desk supply.

17-Hz ringing tone is connected to the control line by key KRO and in the normal position of this key the control line is connected to busbar X or Y by operating the answer key KOX, KOY. The 17-Hz detector connected across the line lights the call lamp when a ring is received and operation of the answer key extinguishes this. The detector also operates an externally mounted buzzer GE1/8. Connection of the *Transfer to EMX* pin (PLA19) to 0 volts causes incoming calls to ring EMX directly, and such calls will also light the panel call lamp as well. This facility enables the operator, when leaving the studio unattended, to transfer all source telephones to the permanently manned EMX, and to have a record on his return of those sources which have rung in. The diode D4 makes it possible to parallel all the transfer circuits on one key, and similarly D5 provides isolation for the parallel-connected white pilot relay circuits fed to the white pilot relay drive unit.

With the answer key normal and with no call incoming, the control line is connected to the output of the cue amplifier AM4/8 via isolating components in the delay unit UN14/8, provided that relay CC has been energised by the selection of cue programme or clean feed by key KQC, KCC. Cue programme selected by the ring main switch on the panel is connected over the contacts of relay CT and talkback may be substituted for it by relay CT energised by the *PH and TB* key KPT.



from D28543 A2
PA8/308/1T

- CODED UNITS**
- UN20/18 : unit, detector, 17Hz (ring-reception)
 - UN14/8 : unit, delay, telephone throwback.
 - UN10/12 : unit, telephone.
 - AM4/8 : amplifier, cue programme
 - GE1/8A : telephone buzzer.
 - GE1/8B : source sig. buzzer.

NOTES
additional PA8/308 panels may be added as desired with parallel connections as indicated.

Fig.2. Type-D Studio & Continuity Telephone System

Note that if more than one position selects the same source only the position sending programme has its amplifier connected across the control line, thus preventing the attenuation of cue programme by the low output impedance of a second amplifier across the line.

The cue line is connected to the output of the isolating amplifier AM1/43 when relay QC is energised by the operation of key KQQ, KQC, and cue programme, clean feed, talkback or tone can be connected to the amplifier input by the operation of the appropriate keys as for the control line.

When an incoming call is answered by operating the answer key the control line is connected to either telephone busbar X or Y. At the same time the output from the cue amplifier AM4/8 is cue by the interruption of the supply to relay CC. Other contacts on the answer key apply 0 volts (a) to pin 3 on the UN14/8, muting the AM4/8, and (b) to pin 10 on the UN20/18 to extinguish the call lamp. These latter two operations may be performed by a remote answer key.

If the call is not answered within 30 seconds the delay unit UN14/8 transfers subsequent rings to the EMX and the cue amplifier AM4/8 is muted.

External circuits and a Radio Car circuit can be switched either by the *Prehear and Talkback* key or by relay contact CT3.

There are separate Technical Instructions for the coded subunits fitted in the panel, and a full description of the system is given in D.D. Tech. Mem. No. 3 104(70).

Test Procedure

Apparatus Required

Tone Source TS/10
 Test Meter ATM/1
 50-volt d.c. supply
 17-Hz ringing supply
 500-ohm 3000-type relay
 Meter, f.s.d. 1 mA d.c.
 6-volt P.O. No. 2 lamp

Connections

1. Connect the 1-mA meter to tags B16 and A25 (positive)
2. Connect the 500-ohm relay coil between tags A3 and A9.
3. Connect the 50-volt supply to tags A9 and A25 (positive).

Tests

1. Set the programme selection switch to position 1. Apply 1-kHz tone at zero level to tags B1, 17. Set the cue line key to cue programme. The level measured at tags A15, 16 (with high-impedance ATM/1) should be about 0 dB.
2. (a) Set the control line key to cue programme. The level measured with the 600-ohm ATM/1 input at tags A1, 2 should be about 1.5 dB.

- (b) Repeat test 2(a) with the input connected to tags B2, 18; B3, 19; B4, 20; B5, 21; B6, 22; B7, 23; B8, 24; A5, 21; A6, 22; A7, 23 in turn, with the programme select switch connected to points 2 to 11 correspondingly.
3. (a) Apply 50 volts to tags B11 and 12 (negative) to operate relay CT, with conditions as in test 2. Check that tone has disappeared from A1, 2.
 (b) Transfer the tone input to A8, 24. Check that tone appears on A1, 2 as before. Check the continuity between A17 and A18. Release the relay.
4. Apply tone at zero level to tags A13, 14. Set the cue line key to clean feed. The level measured with high-impedance ATM/1 at tags A15, 16 should be about 0 dB.
5. Set the control line key to clean feed. The level measured with the 600-ohm ATM/1 input should be about +1.5 dB at tags A1, 2.
6. Apply tone to tags A29, 30. Operate the tone on clean feed key. Repeat test 5.
7. (a) Apply 17-Hz ringing tone briefly to tags A1, 2. The call lamp should light. The current measured by the 1-mA meter should be 0.5 to 0.6 mA during the ring.
 (b) The 500-ohm relay (simulating the EMXLC relay) is already operated. After 30 ± 5 seconds from the time of the ring, the relay should release, and the tone should have been removed from tags A1, 2.
 (c) Operation and release of the answer key should cancel the call lamp, restore the tone and re-energise the relay.
 (d) Connect A3 to A25. Tone should still be present on A1, 2.
 (e) Operate and release the answer key. The tone should not be present on A1, 2.
 (f) Remove the connection between A3 and A25. The tone should be restored to A1, 2.
 (g) Connect A19 to A25. The external relay should release.
8. Connect the 6-volt lamp with series resistor for 50 volts (1.2 kilohms) to the following tags, It should light when the indicated key is operated.

Tags	Key
A10, 25	Cue to cue line
A11, 25	Cue to control line
A12, 9	T.B. on C.F.
A26, 25	Clean feed to cue line
A27, 25	Clean feed to control line

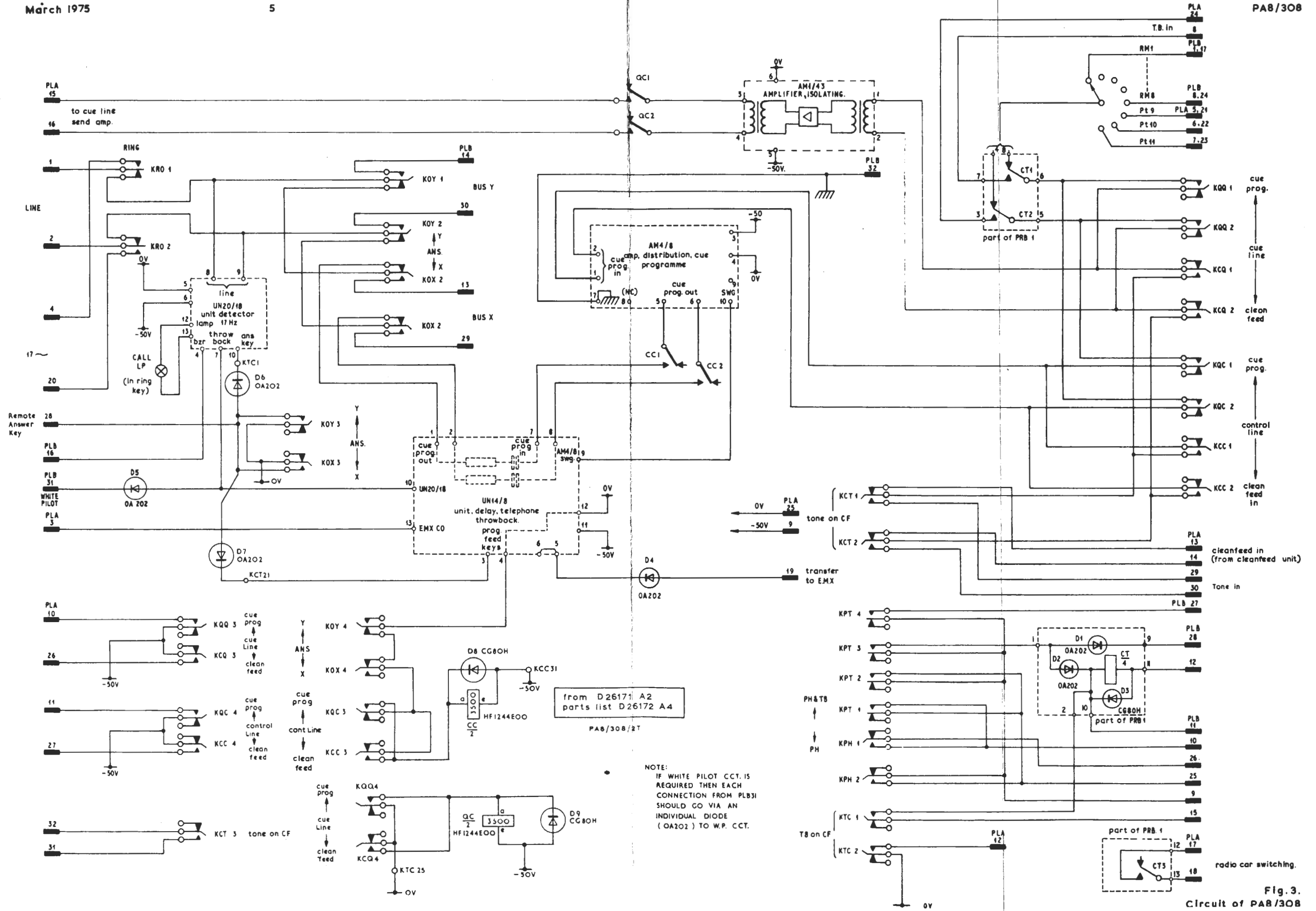


Fig. 3. Circuit of PAB/308