

**S.B. TELEPHONE PANEL PA8/309  
EMX TELEPHONE PANEL PA8/310**

**Introduction**

The panel PA8/309 contains the equipment required for the termination of one EMX telephone line, normally that connected to the S.B. EMX position, together with an operator's circuit and other facilities. It incorporates a 17-Hz ringing detector unit UN20/18, a low-pitch tone generator GE1/8B and a telephone unit UN10/12. The PA8/309 is normally used in conjunction with telephone panels PA8/308 and PA8/310, and a typical complete telephone circuit is given in the Instruction on the PA8/308.

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

**Facilities**

The panel provides the following facilities.

1. Ringing out and ring reception.
2. Answering the line on either of two busbars.
3. Connection of the operator's No. 1 telephone to either of the two busbars.
4. A telephone unit for the operator's telephone.
5. An audible tone generator for the source signalling circuit.
6. Connection of the announcer's telephone to either of the two busbars.

There is no provision for ringing on the announcer's telephone circuit, since it is assumed that any communication necessary when connecting the announcer to an external circuit would be made on the local intercom circuit.

A switching wire for the white pilot light relay is provided through an isolating diode.

**General Description**

Mounted on the front panel from the top there are:

- (a) Low-pitch tone generator unit GE1/8B.
- (b) Non-locking illuminated pushbutton switch for ringing (incorporating call lamp).
- (c) Three-position locking key for answering.
- (d) Three-position locking keys to connect operator's telephone and announcer's telephone to X or Y busbars.

Mounted on the floor of the chassis are the telephone unit UN10/12 and 17-Hz detector unit UN20/18.

**Circuit Description (Fig. 1)**

The panel is powered by the normal 50-volt d.c. desk supply. 17-Hz ringing tone is connected to the line by key KRS, and in the normal position of this key the line is connected to busbar X or Y by operating the answer key KSY, KXS. The 17-Hz detector unit connected across the line lights the call lamp when a ring is received, and operation of the answer key extinguishes this. The GE1/8B connection from the detector unit is made externally, and there is a connection for the white pilot light relay through diode D1.

The operator's telephone is connected via its telephone unit to busbar X or Y by the operation of key KXO, KYO and the announcer's telephone directly by the operation of key KXA, KYA.

**Test Procedure**

- Apparatus Required**
- Tone Source TS/10
  - 50-volt d.c. supply
  - 17-Hz ringing supply
  - Telephone Type 713
  - Meter, f.s.d. 1 mA

**Connections**

1. Connect the handset transmitter to tags B11, 27, the receiver to tags B12, 28 and the switch-hook traveller to tag B26.

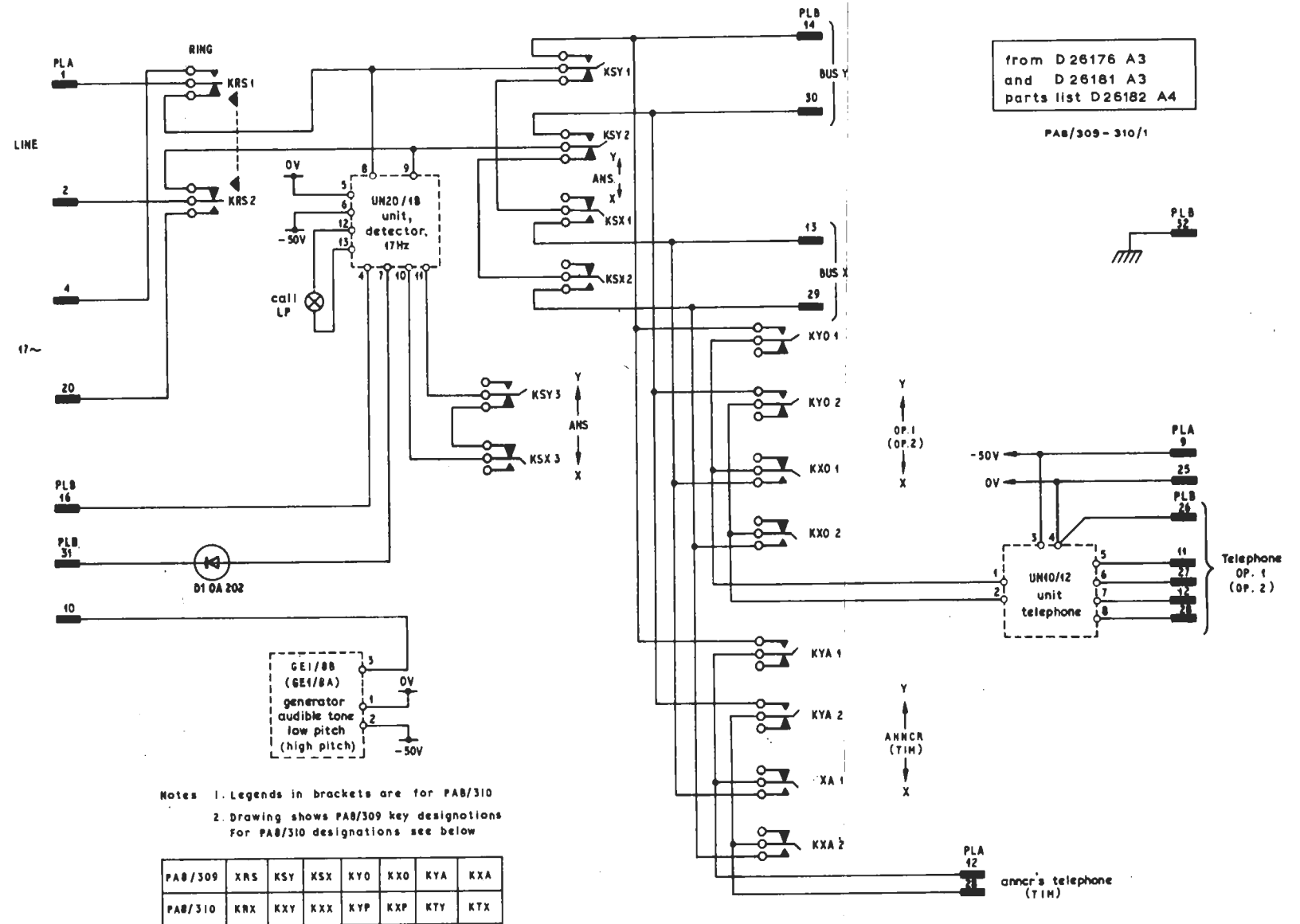


Fig. 1. Circuit of the PA8/309 and PA8/310

2. Connect the 50-volt supply to tags A9 (negative) and A25.
3. Connect the milliammeter between tags B16 and A25 (positive).

**Tests**

1. Apply tone to tags B13, 19 at zero level. With the operator's key at X, the tone should be heard in the handset. Transfer the tone to B14, 30 and check similarly with the key at Y.
2. Replace the tone by headphones or loudspeaker and check for satisfactory speech in each case from the handset.
3. Apply 17-Hz ringing current to tags A1, 2. The milliammeter should read 0.5 to 0.6 mA for the period of the ring, and the call lamp should be lit.

Operate the answer key; the lamp should go out. Remove the meter and connect tags B16 and 10 together; the GE1/8B should sound for the duration of the ring.

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The circuit (Fig. 1) and equipment of the PA8/310 are identical to those of the PA8/309, except that the PA8/310 has a high-pitch tone generator GE1/8A, its operator's telephone key is engraved OP2 and it has a key to connect TIM to the telephone busbars in place of an announcer's key.