

SIGNAL CABINET FOR TOUCH OPERATION GENERAL DESCRIPTION 550- AND 551- TYPE PBX

1. GENERAL

1.01 This section describes a signal cabinet for attachment to 550 and 551 type PBX's to permit blind persons to act in the capacity of switchboard attendants where the conditions are such as to make it desirable to employ this type of equipment.

1.02 The attachment of the signal cabinet to a PBX switchboard does not affect the normal operation except that the regular position buzzer is disconnected from the back cords and an additional buzzer, located in the signal cabinet, is provided for both front and back cord signals. The lamps associated with the lines, trunks and cord circuits are all retained and therefore a PBX switchboard so equipped may be operated in the regular way by a person with normal sight as well as by blind attendants.

2. GENERAL DESCRIPTION

2.01 The signal cabinet is approximately 16-1/2"x13"x5-1/2" and is arranged to mount on the left side of the PBX switchboard on a level with the top of the keyshelf. The general arrangement of the signal cabinet attached to a PBX switchboard is shown in Fig. 1.

2.02 The top or indicator shelf of the signal cabinet has a panel insert in which are mounted bushings through which the signal indicators operate.

2.03 One indicator is provided for each line and each trunk and one for each of the cord supervisory signals, the cabinet being arranged with 11 rows of indicators, 10 to a row, which accommodates a maximum of 80 lines, 10 trunks and 10 cords.

2.04 Adjacent to each indicator are Braille characters to permit the blind attendant to determine by touch the number of the associated line, trunk or cord supervisory signal.

2.05 The arrangement of the indicators and associated Braille characters are shown in Fig. 2.

2.06 On the indicator panel the Braille character for "F" is used to designate the front cords, the Braille character for "B" for the back cords and the Braille character for "-" is used to designate trunks. In all cases where the number of the circuit is 10 the Braille character for "O" is used.

2.07 The indicator consists of a small plunger, which is caused to protrude above the indicator shelf by the operation of a magnetic signal mounted inside of the cabinet directly below it. The signal is energized whenever the corresponding line, trunk or cord supervisory lamp is lighted.

2.08 The indicators are adjusted so that they are flush with the upper surface of the indicator shelf in the normal position and project upward about one-eighth inch in the operated position.

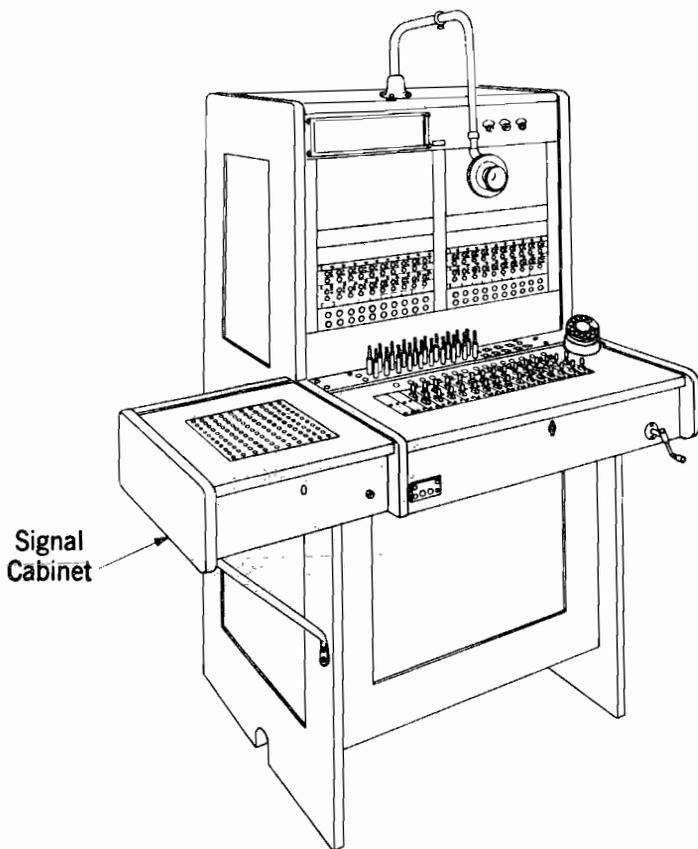


Fig. 1—PBX Modified for Touch Operation

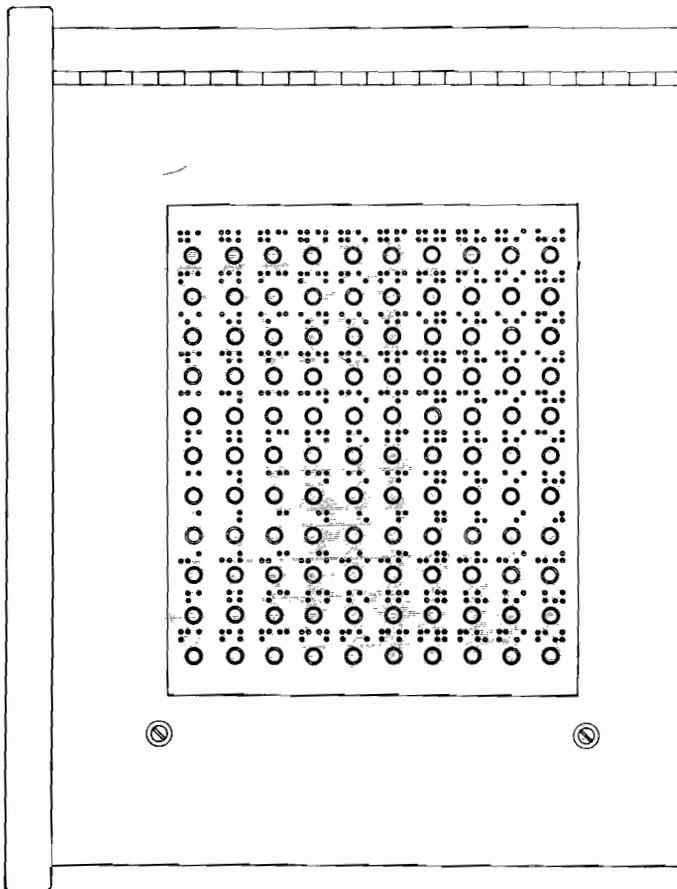


Fig. 2—Indicator Shelf

2.09 The indicator plungers are equipped at the lower end with a threaded stud to permit an adjustment of length. This adjustment may be made without opening the indicator shelf by lifting up the indicator and turning it to the right to shorten it or to the left to lengthen it. The screw is held stationary in this operation by the engagement of the flattened portion of the screw with the notches in the indicator bushing.

2.10 The signal and indicator are shown in Fig. 3.

2.11 Inside of the cabinet is also mounted a buzzer which acts as a signal when any cord supervisory lamp is lighted. Also there is a turn button key mounted in the front rail of the cabinet which acts as a cutoff key for this buzzer.

2.12 When the indicator shelf is raised access is had to the terminals and wiring of the signals, the indicator screws and actuating levers and mounting screws. The signal cabinet with the indicator shelf open is shown in Fig. 4.

2.13 The bottom of the cabinet is closed by a removable sheet metal plate held in place by screws. When this plate is removed access is had to the armatures of the signals. Also the circuit label is pasted to the inner surface of this plate.

3. CIRCUIT MODIFICATIONS

Station Line Circuit

3.01 The station line signals are designed to operate in multiple with the regular B2 or 2W line lamps on lines equipped with a line relay and in series with a low voltage E1 lamp on lines not equipped with line relays.

Central Office Trunk

3.02 The signals for use with the trunk circuits are designed to operate in series with E1 lamps, the series combination being connected in multiple with the lock-up winding of the trunk ring-up relay.

3.03 These signals are wound to a higher resistance than those used for station lines in order to provide an impedance in multiple with the lock-up winding of the ring-up relay substantially equal to the impedance of the 2W lamp normally used in this circuit so as to avoid any reaction due to coupling of the relay windings which might require a change in the relay adjustment and also to reduce the current through the lamp to avoid undue burn-outs.

Tie Trunks

3.04 Either station line or central office trunk signals may be associated with the tie trunk circuits, depending upon the location of the tie trunk in the face of the board. Signals which are used with tie trunks should be wired in multiple with the existing tie trunk lamps.

Cord Circuits

3.05 The cord circuit signals are designed for use in multiple with the existing cord circuit lamps and are the same as those used for station line circuits. Since a buzzer is provided in the signal cabinet for use exclusively with the cord signals, the connection from the P B X position buzzer to the rear cord lamps and the battery supply to the front cord lamps must be disconnected and the battery supply for both cord lamps must be obtained through an added auxiliary relay.

Auxiliary Signal Circuit

3.06 An auxiliary relay is added in the P B X for use with the cord lamps and is connected to operate the buzzer located in the signal cabinet when the buzzer cutoff key is in the normal position. With this modification the regular P B X position buzzer will operate whenever a line, trunk or tie trunk lamp is lighted. The regular P B X position buzzer cutoff key serves to silence the position buzzer when desired and the signal cabinet buzzer cutoff key provides for silencing the cord buzzer when desired.

Attendant's Telephone Set and Dial Circuit

3.07 The attendant's telephone set and dial circuit are not involved nor is the operation changed by the addition of the signal cabinet to the P B X

Power and Ringing Supply

3.08 No changes are required in the method of supplying battery to the P B X nor do the power requirements of the added signals necessitate any change in the amount of copper in direct cable feeders or in the charging rate of local batteries. The buzzer in the signal cabinet for use with the cord supervisory signals is arranged for a-c operation.

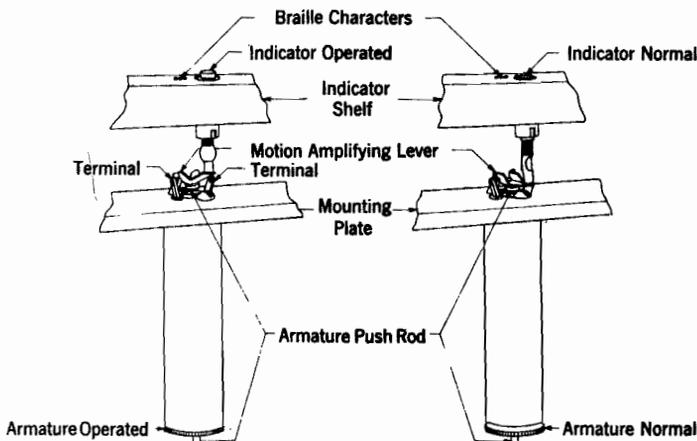


Fig. 3—Signal and Indicator

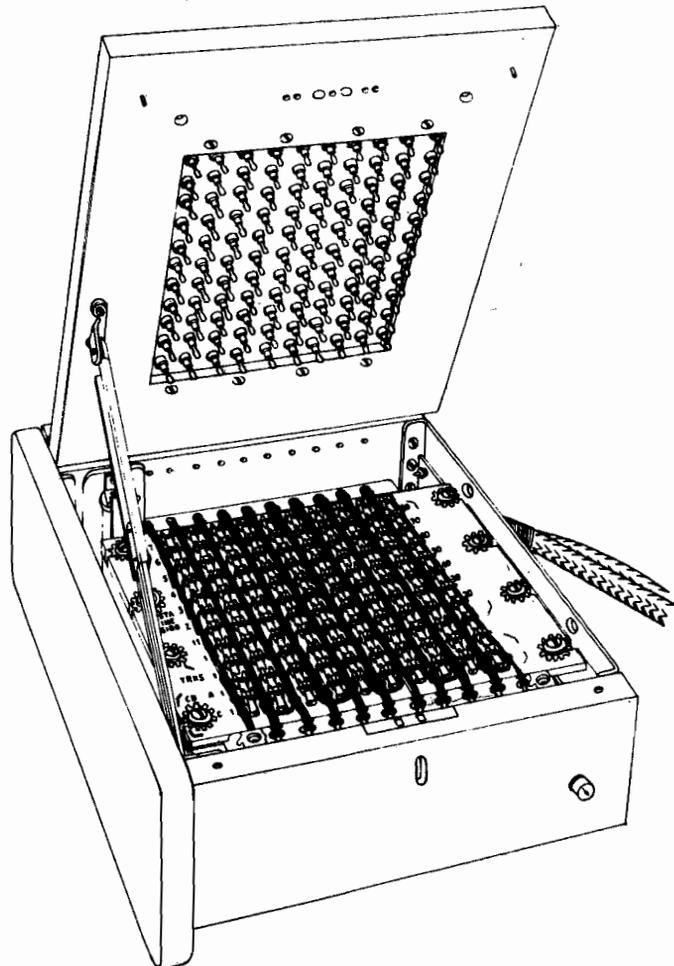


Fig. 4—Signal Cabinet—Indicator Shelf Open

4. EQUIPMENT MODIFICATIONS

4.01 The following equipment changes are required in the P B X switchboard by the attachment of the signal cabinet.

- (1) Replacement of the station line lamps in lines not equipped with line relays by E1 lamps.
- (2) Replacement of the trunk lamps by E1 lamps.
- (3) Addition of a B10 auxiliary relay for the cord circuit buzzer.

(The additional relay need not be provided in those few 550-B and 550-C switchboards which already have two B10 relays in the auxiliary circuit.)

- (4) Replacement, when desired, of the transparent facings in the line and trunk designation strips by transparent cellulose acetate strips embossed with Braille numbers.

5. GENERAL OPERATION

5.01 Operating practices and procedures for a P B X equipped with a signal cabinet are the same as for a

normal P B X, the indicators with their associated Braille characters merely serving to identify to a blind operator the location of a lighted lamp in the P B X

5.02 The facing strips embossed with Braille characters which may be placed in the line and trunk designation strips permit the blind attendant to identify any line or trunk jack in the face of the P B X switchboard. These strips are transparent and the information on the existing designation card is easily visible so as not to interfere with the operation of the P B X by a person with normal sight.

5.03 No means is provided for making the signals inoperative when the P B X is operated by a person with normal sight.

6. CIRCUIT DESCRIPTION

6.01 Drawing SD-66493-01 shows the circuit modifications necessary for attachment of the signal cabinet to a 550 or 551 type P B X. A detailed circuit description will be found in the associated CD sheets.

