

NOTES ON 551 TYPE P.B.X. SWITCHBOARDS

1. GENERAL

1.01 The manufacture of 551 type P.B.X.'s has been resumed to replenish the stocks of certain sizes and arrangements. Therefore, minor circuit and equipment changes have been made to apply to the newly manufactured boards.

1.02 The circuit and equipment changes involved are described herein.

2. 551-A AND 551-B TYPES

(A) Circuit Changes

2.01 A J-12 relay has been substituted for the 186-A ring-up relay in the cord circuit. The use of this relay is expected to reduce maintenance and to improve the reliability of toll re-ring signalling.

2.02 A pendulum J-48 relay is employed in the trunk circuit in place of the E-4 relay. This change will minimize the possibility of false operation of the trunk lamps. It will also permit the use of tungsten filament lamps in the trunks so that B-2 lamps may be employed throughout the board.

2.03 The modified battery cut-off circuit is arranged to disconnect the battery supply complete from the switchboard instead of from the lamps and splitting relays only, as formerly, in order primarily to insure more reliable operation of the battery on switchboards employing small capacity local batteries. This arrangement will prevent unnecessary drain on the battery at night in cases where a cord is used to plug out a permanent line lamp signal or where the night and through dial keys are accidentally restored.

2.04 Since the new battery cut-off key when in the off position opens the feeder, a convenient means is provided for boards having direct feeders which can generally be used for making the series connection of the feeder required for the ammeter element of the Battery Feeder Test Set per KS-7114 as described in Bell System Practices, Section E204.441. A pair of punchings is provided at the rear of the key position to facilitate the connection of this instrument to the feeder.

2.05 The front and back cord supervisory relays are replaced by relays having a permalloy structure which results in an improvement in the extension line range of the P.B.X. i.e., the allowable external circuit loop resistance is increased from 150 ohms to 300 ohms. The use of permalloy relays does not affect the permissible trunk range of these P.B.X.'s but the longer extension range has the advantages that the number of installations requiring long line equipment will be reduced.

(B) Equipment Changes

2.06 A change in the design of the key shelf consisting of the use of a one-piece smooth top shelf in place of the previous four-piece structure enhances the appearance of the shelf and improves its usefulness for writing purposes.

2.07 In order to minimize the possibility of loosening of the trunk jacks, double lug jacks are being applied to the new boards.

2.08 Strip lamp sockets are being employed for the trunk lamps, the trunk wiring has been rearranged and the trunk jacks relocated in the panel to facilitate the use of the modified sections in multiple installations.

2.09 A group of punchings formerly provided in the attendant's telephone and dial circuit were intended to permit, by suitable strapping, the omission of the dial circuit relays where they were not required. Supply conditions, however, made it desirable to always furnish the dial equipment so that the principal use made of the punchings has been in the application of position grouping circuits to these boards. This minor use does not justify the installation of the punchings and in the modified boards they are

being omitted. To provide an easy method of installing position grouping key circuits in these boards, the attendant's telephone set leads are looped in the key shelf at the position of the grouping key. This arrangement, in conjunction with the 35A connecting block which can be installed in a blank space in the key shelf provides a ready means for grouping adjacent positions.

(C) Drawings

2.10 The circuit drawings of the 551 type P.B.X. have been redrawn and the equipment drawings have been reissued to cover the new arrangements. The new and the corresponding present circuit drawings are as follows:

<u>Circuit Drawings</u>	<u>New</u>	<u>Old</u>
Key Sheet	SD-66270-01	SD-66464-01
Station Line	SD-66181-01	SD-66110-01
Cord	SD-66179-01	SD-66022-01
Telephone and Dial	SD-66180-01	SD-66023-01
Position Grouping	SD-66193-01	SD-66143-01
Trunk	SD-66163-01	SD-66109-01
Ringling	SD-66182-01	SD-65113-01
Aux. Signal & Battery Cut-off	SD-66183-01	SD-66123-01

(D) Surveying and Ordering Information

2.11 Where 551-A or 551-B switchboard positions are to be added to existing installations, survey men will check the existing installation to determine whether it is an old or a new type board. The equipment changes listed in preceding paragraphs will serve to identify the board.

2.12 If the existing installation is of the new type the requisition clerk will be advised to order (number) position 551-A or B P.B.X. "per J specification, do not substitute." If the existing installation is one of the old type the requisition clerk will be advised to order (number) position 551-A or B P.B.X. "per T specification, do not substitute."

2.13 On new installations the survey man will not specify the type of board to be requisitioned.

(E) Reporting

2.14 Upon completion of the installation of a new type 551-A or B P.B.X., the installer will report "One 551-A or B P.B.X., cord circuits equipped with permalloy relays." This will serve to indicate to the dispatcher that 300 ohm loop resistance may be used on extension stations.

(F) Miscellaneous

2.15 If the night and through dial keys are accidentally restored while night connections are established on the new 551 type P.B.X's, the E-804 relays will vibrate. If any trouble is experienced with pitted contacts due to this condition, the matter shall be referred to the General Plant Supervisor's office through the lines of organization.

2.16 Where the buzzer is mounted on the cord shelf, it may be necessary to dismount it in order to adjust the retractile spring. When remounting the buzzer it shall be placed so that the retractile spring is toward the cord lugs.

2.17 When removing a trunk jack it will be necessary to unsolder a ground strap. This strap is looped over the lug and can be removed by sliding the strap off the lug after it has been heated.

3. 551-D TYPE

3.01 The 551-D P.B.X. switchboard was developed to care for the needs of customers whose ultimate requirement would not be greater than 300 extension stations and 60 central office trunks.

3.02 The 551-D P.B.X. is composed of 551-B P.B.X. sections arranged for multiple service. The following circuit and equipment changes are made to convert a non-multiple 551-B P.B.X. to a multiple 551-D P.B.X.

(a) The trunk circuit is equipped with an additional relay (R-1785) which operates through make contacts of the trunk jack. A trunk busy lamp is also added.

(b) The trunk and station wiring is arranged for multiple operation.

(c) A fuse alarm circuit is added.

(d) A distributing frame is connected to the originating position of the P.B.X.