Switchboards

Western Electric

No. 507 Type Cordless PBX Switchboards

(H-297-444)

No. 507A Private Branch Exchange Switchboard

Single position key operated self-contained units for establishing telephone connections between local stations also between these stations and a manual or dial central office. Through use of a tie trunk, housed in an auxiliary unit, connections may be made to an associated PBX. Switchboard housings are small, all-metal assemblies with sloping surfaces and rounded corners providing a pleasing over-all appearance. Finished in neutral beige with gray trim. Fine wrinkle texture is employed to minimize glare.

Capacities of No. 507 Type Switchboards

	Code No. 507A	507B
Station Lines	7	12
Central Office Trunks	3	5
Connecting Circuits	5	5

A telephone set is required for the attendant and not included as part of PBX switchboard. This set is associated with the right-hand vertical row of keys enabling attendant to talk on any connecting path. Where central office serving the PBX is the dial type, a telephone set equipped with dial is required. The ringer in the set is employed as the switchboard audible auxiliary where PBX is supplied with continuous 20-cycle ringing power, special cording of ringer is required to connect ringer to auxiliary signal circuit of switchboard.

Unusual traffic conditions may occur on the 507B PBX when an incoming call is indicated by a trunk lamp and all five connecting paths are busy. Prompt answering of incoming call may be obtained by use of a 565 type telephone set with six pick-up keys for attendant in place of general purpose 500 type telephone set. In such installation, the first five keys are arranged to connect telephone set directly to the five trunks and the sixth key arranged to associate the telephone set with attendant's connecting keys in the PBX. With sixth key depressed PBX operation is normal. When trunk lamp lights indicating incoming trunk call and all connecting paths are busy, attendant can answer trunk call directly by depressing pick-up key associated with that trunk. Prompt answering of incoming call is attained. Trunk lamp which remains lighted may be extinguished by momentary operation of night service key. When a connecting path becomes available trunk call may be completed to station in usual manner. In the meantime, the trunk can be held by operation of hold key in PBX associated with that trunk.

Ringer sounds whenever switchboard lamp lights unless silenced by turning buzzer key at lower left of key panel to "off" position.

When continuous 20-cycle power is not available, (i.e.) when a hand generator is employed for ringing, a d-c buzzer must be used. The d-c buzzer and associated filter are available, housed in 105 type box with the hand generator. Hand generator, dc buzzer and filter are not furnished as part of PBX switchboard and must be ordered separately.

Night connections are set up on connecting keys between station lines and trunks. To avoid having lamps lighted all night and impairing service because of burned out lamps, the night service key should be operated at night. This key located at bottom extreme right of key panel cuts off battery supply to switchboard lamps and locking circuits of trunk ring up relays.

Ringing current supply for cordless PBX's is usually supplied from central office ringing machine over single pair of cable conductors. Occasionally a static frequency converter driven from commercial 60-cycle power is used.

Switchboards
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No. 507 Type Cordless PBX Switchboards (H-297-444)—Cont'd

In these cases, if desired, failures of ringing power may be covered by locally installed hand generator. Required hand generator is available in 105 type apparatus box arranged for mounting either on right or left side of desk. A set of contact springs on generator automatically actuated by turning crank, connects armature of generator to PBX. Switchboard is not, therefore, equipped with generator transfer key.

Battery supply for 507 PBX will ordinarily be supplied from 48-volt central office battery over cable conductors. In manual areas where 48-volt supply is not available feeders from 24-volt battery will be used. Where the 507 PBX is located in an office building equipped with a building battery, direct feeders from the building battery may be employed. A single pair of house cable conductors will usually provide conductivity required.

Where cable conductors for battery feeders are unavailable due to cable shortages or are too costly because of remoteness of PBX from the central office, a local power plant installed at the PBX may be employed. Two power plants are available for the purpose, namely, 101A and 101G. The 101A plant consists of storage batteries in steel cabinet charged by a local rectifier or single cable pair from central office battery. To meet minimum voltage requirement of PBX (16 volts) at least 9 cells of battery must be used. The 101G power plant consists of rectifier and filter and may be used with the 507 PBX where battery reserve to cover commercial power failure is not required.

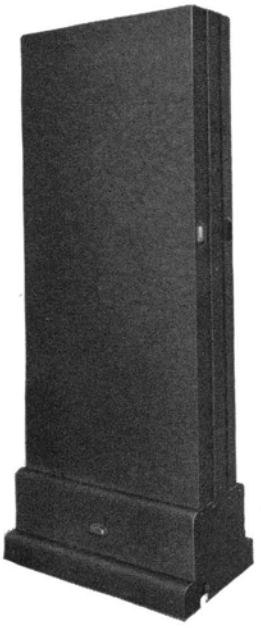
No. 552A PBX Switchboard

A manual single position switchboard designed to be used as an attendant cabinet for dial PBX's and may be used as an individual manual PBX switchboard.

Capacity of this switchboard as given in the following table is for one position.

Dial Station Lines	300
Central Office, Tie, Intrecepting, and Attendant trunks and Manual Station Lines	
(10 per strip)	40
(20 per strip)	80
Night Jacks	
(Manual Trunks)	20
(Combination Trunks)	10
Cord Circuits	15

No. 755A PBX Switchboard



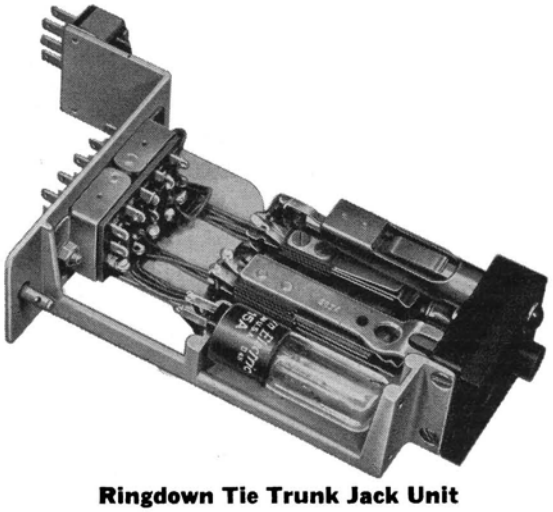
A small dial equipment developed to replace the 750A PBX. Provides secret intercommunication service and outside trunk service without an attendant. Local calls are dialed and central office trunk connections are made by operating keys at the stations. Has a capacity of 20 lines and 4 trunks and has been designed for both residential and business service. Three local intercommunicating paths are provided in addition to the 4 trunk paths so that 7 talking connections may be set up simultaneously.

The equipment is arranged on a low, floor supported relay rack which is enclosed and provided with removable casings front and rear to afford access to apparatus and wiring. The associated power equipment, including storage batteries is housed in separate compartment in base of rack. Cross connections between the station leads and relay equipment associated with the line may be made within the PBX.

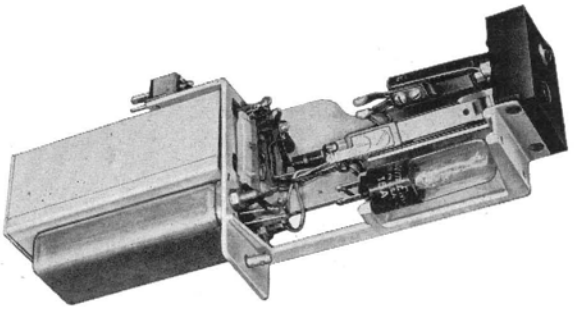
To provide flexibility in equipping lines, trunks and links as required, apparatus associated with these circuits is arranged on unit basis. Complete PBX's are stocked in certain equipment sizes but where a stock size does not meet specific requirements, it may be modified, by addition of one or more equipment units. Units are assembled, wired and tested in factory so they may be readily added.

Used with 566MBRW-3 Telephone Sets.

No. 555 PBX Switchboard



Ringdown Tie Trunk Jack Unit

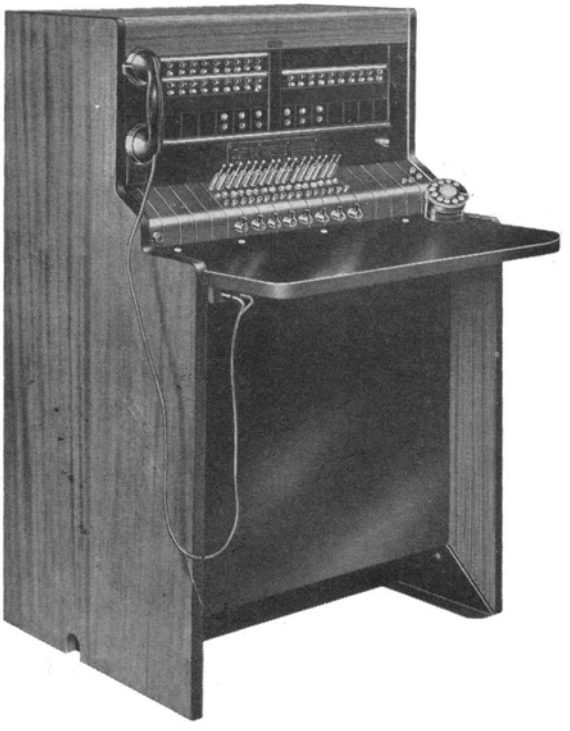


Central Office Trunk Unit

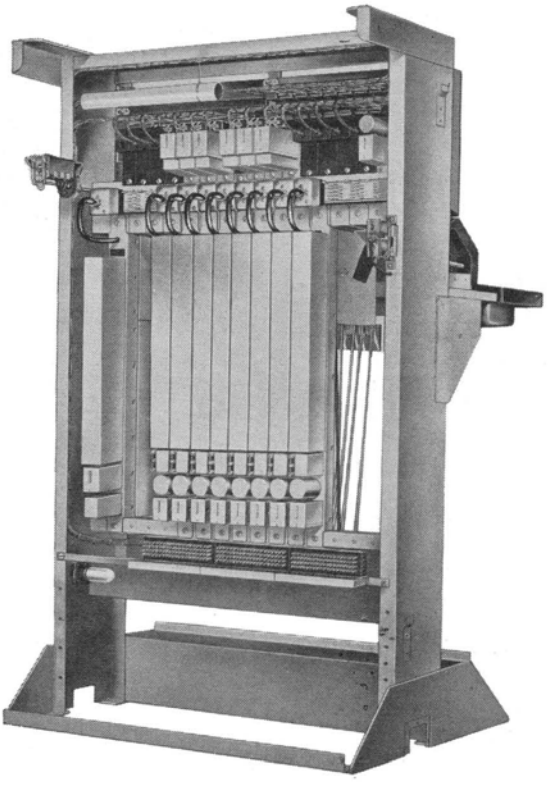
Switchboards

Western Electric

No. 555 PBX Switchboards—(Cont'd)



No. 555 PBX Switchboard



Rear View of Switchboard with Wooden Casing Removed

The No. **555 PBX** is a small manual single position non-multiple switchboard. Used to establish connections manually between local stations or from these stations to a manual or dial central office or another PBX. Dial is provided for completing calls to a dial central office or dial PBX.

Capacity of No. 555 PBX as follows:

Station Lines	
(10 per strip)	60
(20 per strip)	120
Central Office and Tie Trunks	14
Cords	15

The PBX is constructed with steel inner framework on which equipment is carried. Easily removable wooden casing panels are provided in oak and mahogany-walnut finishes to enclose frame, facilitating repairs and changes in the field. Wooden parts upon which apparatus is mounted and which are more subject to wear, as front panel and writing shelf, are phenol fiber faced. Size of PBX is 2-ft. 5⅜-in. wide, 3-ft. 10 1/16-in. high, and 2 ft. 5 7/16-in. deep. Top of writing shelf is 30-in. above floor.

Single-circuit equipment units are used in this PBX. Equipment for cord, trunk and telephone circuits is on single, self-contained units which may be entirely assembled and wired on bench. These units are placed in framework as required and unequipped spaces are provided with blanks to maintain an appearance uniform with equipped units. All connections between cord and telephone units are made by means of plugs which make contact with a common bus bar type connector at rear of board. Trunk units occupy space just above piling rail and are connected to outgoing terminal strip through plug mounted on unit and socket connected to local cable. By these means, a PBX may be equipped in any combination, as required, to meet a particular traffic condition, within the limits of its capacity, without providing excess equipment.

A convenient writing shelf is used instead of conventional hinged keyshelf. Keys, plugs and lamps have been located in sloping panel in face of board at convenient height, leaving space for large unobscured writing surface for clerical purposes. The elimination of keys in horizontal surface permits more comfortable knee well space for operator than dose usual keyself. Writing shelf so constructed that it may be removed from framework proper and shipped separately.

Station line jacks may be spaced on either ½-in. or 1-in. centers. Station line capacity is 120 lines on ½-in. center (20 per strip) basis or 60 lines on 1-in. center (10 per strip) basis.

Wiring is not provided for top strips of jacks on 120 line capacity board, making basic capacity of local cable, in this case, 80 lines. If more than 80 station lines are required, the necessary jack and lamp strips, terminal strip and connecting local cable may be obtained as a separate list.

Circuits for the 555 PBX have been designed to operate over extremely wide voltage range from 16 to 50 volts. With this range, the majority of non-multiple installations will require only one or two pairs of battery feeders from the central office. Long range of circuit loops will practically eliminate the need for long line equipment. The re-ring feature has been made a function of the trunk circuit where, by means of thermistors, the ring-up relay is made to do double duty. Various means have been employed to keep current drain to lowest possible figure, including use of UA relays where possible and varistors across the supervisory relay instead of usual non-inductive winding or resistor.

No. 555 PBX Switchboard replaces the No. 551A and No. 551B Switchboards.

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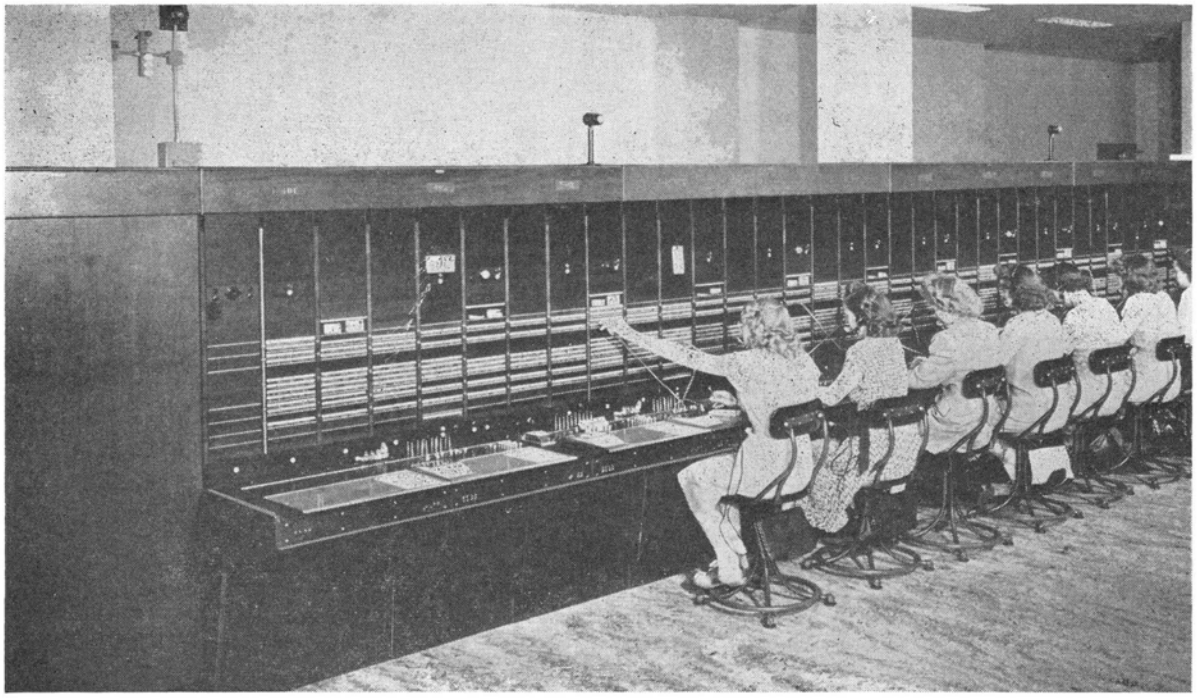
No. 3CL Toll Switchboard



No. 3CL Toll Switchboard

The No. 3CL Toll and Combined Toll and DSA Switchboard has been designed with a 30 inch keyshelf height permitting operator to work with feet on the floor without use of a platform, and allowing utilization of low type 18 inch operators' and 25 inch service assistants' chairs. Front panel of switchboard below keyshelf is sloped away from operator, the bottom of this panel is cut out to provide a maximum of leg and foot room.

Since the maximum height of multiple above the keyshelf is only 27⅝ inches, an unusually deep keyshelf has been used in this board providing more writing and bulletin space for operator.

Overall height of switchboard is 5 feet 4 inches for boards which do not require pneumatic tube receiving valves. For boards requiring receiving valves a section 6 feet 2 inches in height is available. This section is designed to enclose tubes to receiving valves in upper part of switchboard behind the molding improving operating room appearance. Common return tubes are run under keyshelf to rear of lock rail and lock rail is brought forward approximately to outer edge of keyshelf, providing easy access to operators' and service assistants' set jacks.

Low height of No. 3CL board results in an improvement in operating room ventilation, light and appearance as compared with older type boards.

Due to poor visibility of green lamp caps, only red and slate cords and red and white lamp caps are used. A third color is not required with cord quantities provided in the No. 3CL board.

Where two lines of board of approximately equal length make up an operating unit or single unit office, it is desirable in cases where pneumatic tubes are required to install receiving valves which are usually in delayed calls position in one line of board only. This permits using the 5 foot 4 inch section for the other line of board. If one line of board is run along an outside wall and the other along an inside wall, the 5 foot 4 inch height board should be located along the outside wall permitting maximum of light and ventilation.

In offices having small multiple requirements but arranged for pneumatic tubes, such as outward boards in large cities obtaining access to intertoll trunks via tandem trunks to toll crossbar equipment or manual toll tandem, the 5 foot 4 inch height section may be used with receiving valves where use of the 6 foot 2 inch height section results in considerable excess face space. Where this is done the No. 3C tube arrangement is used with the receiving valve mounted in the jack opening and the sending tubes run immediately above the section roof. The receiving valve in this case utilizes 8 inches of the 24⅛ inch jack opening so that this arrangement should be used only in offices where ultimate jack opening requirement does not exceed 16 inches.

Cords on regular No. 3CL positions are universal, permitting handling of all types of traffic on any position where necessary face equipment has been made available. No lamp caps are used in the multiple of the board, combined lamp and designation strips being used for answering lamps throughout. Idle trunk lamp indication is normally provided for out-going trunk multiple and plastic lamp caps are used for cord supervisory lamps.