

CIRCUIT DESCRIPTION
SYSTEMS DEVELOPMENT DEPARTMENT
PRINTED IN U.S.A.

CD-66437-01
Issue 4-D

P.B.X. SYSTEMS
NO. 750A
STATION CIRCUIT

CHANGES

B. CHANGES IN APPARATUS

B.1 Added

- 1 - 6021-P-3 Key Figs. 9, 10 & 11
- 1 - 462 BB or 462 BC Telephone Set Fig. 8
- 1 - 206M, 206N or 206P Type Hand Telephone Set
Fig. 9
- 1 - 684BS Subset Figs. 9 and 11
- 1 - 213 Type Hand Telephone Set Fig. 11
- 1 - 653BS Subset Fig. 10

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1** Fig. 8 was added to provide the 462 BB or 462 BC telephone set.
- D.2** Figs. 9, 10 and 11 were added to specify the 6021-P-3 key which provides for four trunks.
- D.3** The rating was changed from "A.T.&T.Co. Standard" to "Mfr. Disc."
- D.4** Fig. 5 was changed to provide for connecting to Figs. 9, 10 or 11.

All other headings under "Changes," no change.

1. PURPOSE OF CIRCUIT

- 1.1** This circuit shows the station equipment for the No. 750A P.B.X.

2. WORKING LIMITS

- 2.1** None.

3. FUNCTIONS

- 3.1 To provide a telephone equipped with keys for connecting to any one of three or four central office trunks, a key for applying a holding condition to any one of the trunks, and a key for releasing the trunk keys and connecting the station to a local intercommunicating circuit.
- 3.2 To provide an audible signal to indicate an incoming local call or an incoming central office call when the station is conditioned for emergency service.
- 3.3 To provide means for extending trunk calls to stations not equipped with trunk keys, for ringing the bells at such stations, and for monitoring on the connections.
- 3.4 To provide a dial by means of which any local station can effect a connection with any other local station or with an outside subscriber if in a dial central office area.
- 3.5 To provide for the use of a local talking battery subset and a hand generator at a hand set key station in order to provide for emergency service to a magneto central office when the auxiliary two way manual trunk is located at the P.B.X.

4. CONNECTING CIRCUITS

- 4.1 No. 750A P.B.X. Trunk Circuit.
- 4.2 No. 750A P.B.X. Line and Link Circuit.
- 4.3 No. 750A P.B.X. Tone, Ringing, Alarm and Common Timing Circuit.
- 4.4 No. 750A P.B.X. Emergency Transfer Key Circuit.
- 4.5 Standard Dial Station.

DESCRIPTION OF OPERATION

5. LOCAL CALLS

Figs. 1, 2, 3, 4 and 7 provide for a maximum of 3 trunk keys, one hold key and one local key. Figs. 8, 9, 10 and 11 provide for a maximum of four trunk keys, one hold key and one local key. To make a local call, the (L) key is operated and the receiver removed from the switchhook or the handset removed from the cradle; at stations not

equipped with trunk keys the receiver is removed from the switchhook or the handset removed from the cradle. Dial tone will be heard in the receiver as an indication that dialing may proceed.

Incoming calls will be indicated by the ringing of the bell in the subset. In answering, the (L) key must be depressed at stations equipped with trunk keys.

6. TRUNK CALLS

6.1 Outgoing

To make a call to central office, one of the trunk keys (1), (2), (3) or (4) is depressed and the receiver removed from the switchhook or the handset removed from the cradle. If the trunk chosen is busy, a busy tone will be heard in the receiver.

6.2 Incoming

An incoming call will be indicated by the ringing of a bell and the lighting of a lamp (when provided) in the trunk circuit. These signals are distinctive, in order to indicate on which trunk the call is being made. To answer the call, the trunk key (1), (2), (3) or (4) according to the trunk signal operated, must be depressed and the receiver removed from the switchhook or the handset removed from the cradle.

7. TRANSFERRED CALLS

To transfer a call, either incoming or outgoing, the (H) key is depressed for a short interval. The station to which the call is to be transferred may then be called locally by depressing the (L) key and dialing. The station called must then be informed to which trunk the call is connected. To connect to the trunk, the station must then operate the proper trunk key (1), (2), (3) or (4) after being released from the local connection.

8. CALLS TO KEYLESS STATIONS

Trunk calls may be extended to stations which do not have trunk keys by a station which is equipped with the keys shown in Figures 5 and 6. To

extend an incoming call, the (Mon) key must first be operated in order to determine whether or not the station is busy. If the station is idle, the (Talk) and (Ring) keys should then be operated to ring the station bell. When the station answers, a talking connection will be completed to the central office. During talking, the station at which the keys are located may not make another call, but may listen in or hang up as desired. When the trunk call is terminated, the (TALK) key should be restored to normal.

9. CALLS FROM KEYLESS STATIONS

In order to originate a trunk call, keyless stations must dial the station equipped with keys per Figures 5 and 6. The trunk key (1), (2), (3) or (4) and the (Talk) key at that station are then operated, connecting the calling station to the trunk.

10. EMERGENCY SERVICE TO CENTRAL OFFICE

10.1 Common Battery Central Office

A station equipped per Fig. 1, 2, 3, 8, 9, 10 or 11 may be arranged for emergency service to a common battery central office by equipping it with an emergency transfer key. With the key normal, incoming and outgoing central office calls are handled in the normal manner through one of the P.B.X. trunks. When the emergency transfer key is operated however, the trunk is disconnected and the station is connected directly to the central office line, thereby enabling the station to function as a common battery subscriber's line for receiving and originating central office calls. It is unnecessary to operate any of the trunk keys at the station in order to receive or originate central office calls, when the emergency transfer key is operated.

10.2 Magneto Central Office

A station equipped per Fig. 4 or Fig. 7 and with an associated emergency transfer key, is provided only when emergency service to a magneto central office is required and the auxiliary two way manual trunk is located at the P.B.X. With the key normal, incoming and outgoing central office calls are handled in the normal manner through one of the P.B.X. trunks and an auxiliary two way manual trunk to the magneto central office. When the emergency transfer key is operated, however,

the P.B.X. trunk and auxiliary two way manual trunk are disconnected and the station is connected directly to the magneto central office line, thereby enabling the station to function as a magneto subscriber's line, that is, on incoming calls the bell of the subset is run directly from the magneto central office and on outgoing calls, the hand generator of the 299F subset is used to ringdown a signal to the magneto central office. Local talking battery for this station is supplied from dry cells. It is unnecessary to operate any of the trunk keys at the station in order to receive or originate central office calls, when the emergency transfer key is operated.

BELL TELEPHONE LABORATORIES, INC.

CIRCUIT DESCRIPTION
AMERICAN TELEPHONE & TELEGRAPH CO.,
DEPT. OF DEVELOPMENT & RESEARCH.
BELL TELEPHONE LABORATORIES, INC.
PRINTED IN U.S.A.

CD-66437-01
Issue 2-D
April 18, 1932
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P.B.X. SYSTEMS
NO. 750-A
STATION CIRCUIT

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 None.

B. CHANGES IN APPARATUS

Removed

Replaced By

Added

B.1

6009-D Key Figs. 2 & 3
(Optional)

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLYING TO
ADDED OR REMOVED APPARATUS

C.1 None.

D. DESCRIPTION OF CIRCUIT CHANGES

- D.1 The optional use of the 6009-D key has been specified for Figs. 2 and 3 until the 6021-D3 key becomes available.
- D.2 Notes 102 and 104 applying to Figs. 2 and 3 respectively have been added, together with references.
- D.3 The detailed modification information formerly covered in Note 102 applying to Fig. 4 has been removed.

DEVELOPMENT

1. PURPOSE OF CIRCUIT

- 1.1 This circuit shows the station equipment for the No. 750-A P.B.X.

2. WORKING LIMITS

- 2.1 None.

OPERATION

3. FUNCTIONS

- 3.1 To provide a telephone equipped with keys for connecting to any one of three central office trunks, a key for applying a holding condition to any one of the trunks, and a key for releasing the trunk keys and connecting the station to a local inter-communicating circuit.
- 3.2 To provide an audible signal to indicate an incoming local call or an incoming central office call when the station is conditioned for emergency service.
- 3.3 To provide means for extending trunk calls to stations not equipped with trunk keys, for ringing the bells at such stations, and for monitoring on the connections.
- 3.4 To provide a dial by means of which any local station can effect a connection with any other local station or with an outside subscriber if in a dial central office area.
- 3.5 To provide for the use of a local talking battery subset and a hand generator at a hand set key station in order to provide for emergency service to a magneto central office when the auxiliary two way manual trunk is located at the P.B.X.

4. CONNECTING CIRCUITS

- 4.1 No. 750-A P.B.X. Trunk Circuit.
- 4.2 No. 750-A P.B.X. Line and Link Circuit.
- 4.3 No. 750-A P.B.X. Tone, Ringing, Alarm and Common Timing Circuit.
- 4.4 No. 750-A P.B.X. Emergency Transfer Key Circuit.
- 4.5 Standard Dial Station.

DETAILED DESCRIPTION

5. LOCAL CALLS

(205 SET)

Stations equipped with handsets as shown in Figures 1 and 4 have five keys designated (1), (2), (3), (H) and (L) located in the handset base. Stations equipped with desk stands as shown in Figure 2 or wall sets as shown in Figure 3 will have auxiliary keys of the same designations as in the handset. To make a local call, the (L) key is operated and the receiver removed from the switchhook or the handset removed from the cradle; at stations not equipped with trunk keys the receiver is removed from the switchhook or the handset removed from the cradle. Dial tone will

be heard in the receiver as an indication that dialing may proceed.

Incoming calls will be indicated by the ringing of the bell in the subset. In answering, the (L) key must be depressed at stations equipped with trunk keys.

6. TRUNK CALLS

6.1 Outgoing

To make a call to central office, one of the trunk keys (1), (2), or (3) is depressed and the receiver removed from the switchhook or the handset removed from the cradle. If the trunk chosen is busy, a busy tone will be heard in the receiver.

6.2 Incoming

An incoming call will be indicated by the ringing of a bell and the lighting of a lamp (when provided) in the trunk circuit. These signals are distinctive, in order to indicate on which trunk the call is being made. To answer the call, the trunk key (1), (2) or (3) according to the trunk signal operated, must be depressed and the receiver removed from the switchhook or the handset removed from the cradle.

7. TRANSFERRED CALLS

To transfer a call, either incoming or outgoing, the (H) key is depressed for a short interval. The station to which the call is to be transferred may then be called locally by depressing the (L) key and dialing. The station called must then be informed to which trunk the call is connected. To connect to the trunk, the station must then operate the proper trunk key (1), (2) or (3) after being released from the local connection.

8. CALLS TO KEYLESS STATIONS

Trunk calls may be extended to stations which do not have trunk keys by a station which is equipped with the keys shown in Figures 5 and 6. To extend an incoming call, the (Mon) key must first be operated in order to determine whether or not the station is busy. If the station is idle, the (Talk) and (Ring) keys should then be operated to ring the station bell. When the station answers, a talking connection will be completed to the central office. During talking, the station at which the keys are located may not make another call, but may listen in or hang up as desired. When the trunk call is terminated, the (TALK) key should be restored to normal.

9. CALLS FROM KEYLESS STATIONS

In order to originate a trunk call, keyless stations must

dial the station equipped with keys per Figures 5 and 6. The trunk key (1), (2) or (3) and the (Talk) key at that station are then operated, connecting the calling station to the trunk.

10. EMERGENCY SERVICE TO CENTRAL OFFICE

10.1 Common Battery Central Office

A station equipped per Fig. 1, 2, or 3 may be arranged for emergency service to a common battery central office by equipping it with an emergency transfer key. With the key normal, incoming and outgoing central office calls are handled in the normal manner through one of the P.B.X. trunks. When the emergency transfer key is operated however, the trunk is disconnected and the station is connected directly to the central office line, thereby enabling the station to function as a common battery subscriber's line for receiving and originating central office calls. It is unnecessary to operate any of the trunk keys at the station in order to receive or originate central office calls, when the emergency transfer key is operated.

10.2 Magneto Central Office

A station equipped per Fig. 4 and with an associated emergency transfer key, is provided only when emergency service to a magneto central office is required and the auxiliary two way manual trunk is located at the P.B.X. With the key normal, incoming and outgoing central office calls are handled in the normal manner through one of the P.B.X. trunks and an auxiliary two way manual trunk to the magneto central office. When the emergency transfer key is operated however, the P.B.X. trunk and auxiliary two way manual trunk are disconnected and the station is connected directly to the magneto central office line, thereby enabling the station to function as a magneto subscriber's line, that is, on incoming calls the bell of the subset is rung directly from the magneto central office and on outgoing calls, the hand generator of the 299-F subset is used to ringdown a signal at the magneto central office. Local talking battery for this station is supplied from dry cells. It is unnecessary to operate any of the trunk keys at the station in order to receive or originate central office calls, when the emergency transfer key is operated.

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