TROUT DESCRIPTION

CD-2196.-02 Issue 5-D Appendix 2-D Dwg. Issue 11-D

PANEL SISTEMS TRUNK CIRCUITS PROM DISTRICT OR OFFICE MULTIPLE AND FROM FINAL MULTIPLE TO REPAIR SERVICE DESK NO. 2 ARRANGED FOR TRANSFER AT ORIGINATING END TO A SWITCHBOARD LOCATED IN A DIFFERENT BUILDING THAN THE REPAIR SERVICE DESK

CHANGES

B.

9249

D. DESCRIPTION OF CIRCUIT CHANGES

B.1 | Superseded

CHANGES IN APPARATUS

Relay 14900 Relay 178CH Relay 149AR Relay 178DT

Superceded By

D.2 The above relays are added to Note 105.

D.1 The use of relays 149CG and 178CH is rated "Mfr. Disc." to show realistic rating for obsolescent apparatus.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3440-CHD-ENO-J2

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D.1 The use of relays 15960 and 17868 is rated "Mrr. Disc." to show realistic rating for obsolessest opparatus. D.2 The above relays are added to Mrs. 105.

All other headings, no change

8. CHANGES IN APPARAT

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80

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PANEL SYSTEMS TRUNK CIRCUITS FROM DISTRICT OR OFFICE MULTIPLE AND FROM FINAL MULTIPLE TO REPAIR SERVICE DESK NO. 2 ARRANGED FOR TRANSFER AT ORIGINATING END TO A SWITCHBOARD LOCATED IN A DIFFERENT BUILDING THAN THE REPAIR SERVICE DESK

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Prior to this issue the Equipment Designation formerly read "(REP SERV OGT)".

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-CEM-RLL-AK

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NEWFILING DEVELOPMENT DEPARTMENT

0D-21364-02 Issue 5-0 Appendix 1-0 5. Issue 10-0

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 D.1 Frior to this issue the Equipment Designation formerly read "(REP SERV OGT)".

All other headings, no change.

BELL TELE PIONE LABORATORIES, INC

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PANEL SYSTEMS TRUNK CIRCUITS FROM DISTRICT OR OFFICE MULTIPLE AND FROM FINAL MULTIPLE TO REPAIR SERVICE DESK NO. 2 ARRANGED FOR TRANSFER AT ORIGINATING END TO A SWITCHBOARD LOCATED IN A DIFFERENT BUILDING THAN THE REPAIR SERVICE DESK

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 Provision is made for operation in Crossbar Offices.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 A multiple of the T, R and S leads to the panel district or office selector, Fig. 1, is added to connect to the T, R and S1 leads of the crossbar secondary office multiple.

D.2 Circuit notes 102 & 103 are changed to include reference to crossbar secondary office multiple.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit is developed for use as a trunk circuit from district or office multiple and from final multiple in panel office and from secondary office multiple in crossbar office to a repair service desk No. 2 and is arranged to transfer the trunk at the originating end to a switchboard.

1.2 The circuit may be arranged to transfer trunks from panel district or office multiple and crossbar secondary office multiple only, or to transfer one trunk from panel district or office multiple and crossbar secondary office multiple and one line from. final multiple to the same trunk to the switchboard.

2. WORKING LIMITS

2.1 Maximum external circuit resistance for relays (B) and (B1)

| 247 | 48V |
|-----------|-------------------|
| Relay (B) | Relays (B) & (B1) |
| 1715 ohms | 4650 ohms |

Minimum insulation resistance 30,000 ohms.

3. FUNCTIONS

3.1 Provides means for transferring the repair service trunks to a switchboard.

3.2 Supplies battery and ground for operating a signal at the repair service desk No. 2 or at the switchboard when seized.

3.3 Provides a path for conversation.

3.4 When the trunk from the panel district or office multiple and crossbar secondary office multiple is not transferred, places a busy potential on the trunk sleeve terminal if the trunk key at the desk is not in its normal position either before the trunk is seized for a call or, if the trunk has been seized, when the calling party disconnects.

3.5 When used as a combination transfer trunk, places a busy potential on the final multiple sleeve terminal when seized by a panel district or office selector, or by a crossbar secondary office, or places a busy potential on the panel district or office and crossbar secondary office multiple sleeve terminals when seized by a final selector.

3.6 Trips machine ringing in the incoming selector when the operator at the switchboard answers a call through the final multiple.

3.7 Gives the repair clerk, or operator, a disconnect signal when the calling subscriber disconnects on calls through the panel district or office multiple or crossbar office secondary multiple.

3.8 Provides means for preventing the release of the transfer relay during the progress of a call.

4. CONNECTING CIRCUITS

When this circuit is listed on a key sheet, the connecting information thereon is to be followed.

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Page 1

- 4.01 Panel Office Selector Circuit, Three Wire - ES-240252.
- 4.02 Panel District Selector Circuit -SD-21627-01, SD-21630-01.
- 4.03 Incoming Trunk Circuit One-way Automatic at Repair Service Desk No. 2 - SD-90036-01.
- 4.04 Final Selector Multiple -SD-21200-01.
- 4.05 Office Link and Connector Circuit in Crossbar Office - SD-25033-01.
- 4.06 Subscriber Line Circuit in Panel Office - SD-21712-01.
- 4.07 Two-way Trunk Circuit to Subscriber Line Circuit at Repair Service Desk No. 2 - SD-90615-01.
- 4.08 Transfer and Make Busy Circuit -SD-90209-01.
- 4.09 Transfer and Make Busy Key Circuit - SD-90620-01.
- 4.10 Repair Service Trunk Arranged for Transfer from Repair Service Desk No. 2 - SD-90451-01.
- 4.11 Outgoing Trunk Test Board Test and Make Busy Jack Circuit -SD-96376-01.

DESCRIPTION OF OPERATION

- 5. TRUNK FROM PANEL DISTRICT OR OFFICE MULTIPLE AND CROSSBAR SECONDARY OFFICE MULTIPLE TO REPAIR SERVICE DESK NO. 2 (FIG. 1)
- 5.1 Seizure

When this circuit is seized, relay (A) operates. Seizure by a panel district or office selector places busy potential on the "Sl" lead toward the crossbar office secondary multiple seizure by a crossbar secondary office switch places busy potential on the "S" lead toward the panel district or office multiple. With relay (A) operated, battery and ground are connected thru the windings of relay (B) to the outgoing tip and ring conductors. Relay (B) does not operate under this condition but a lamp is lighted at the repair service desk as a signal that a call awaits attention.

5.2 Repair Clerk Answers

The repair clerk answers the call by operating the trunk key which substitutes a low-resistance bridge for the normal high resistance bridge. This reduction in resistance permits relay (B) to operate. Relay (B) in turn operates relay (C). Relay (C) operated connects ground to the "S" lead of the panel selector multiple and to the "S!" lead of the crossbar secondary office multiple. This ground will be used later on disconnect to maintain a busy condition on the sleeve terminal in the panel district or office multiple or crossbar secondary office multiple if the key at the repair desk is not restored. The operation of the listening key also completes a circuit for the repair clerk to communicate with the calling party.

5.3 Disconnection

When the calling subscriber dis-connects, relay (A) releases and removes battery and ground from the outgoing tip and ring conductors which releases relay (B). If the trunk key at the repair service desk is in its normal position, relay (B) will remain released thus re-leasing relay (C) which in turn removes the ground from the sleeve multiple terminal and permits the trunk to be seized for a succeeding call. If the trunk key at the repair service desk is not in the normal position when discon-nection by the calling party occurs, relay (B) is reoperated by the battery and ground which is supplied by the incoming trunk circuit immediately after relay (A) has released. Because of a delay which is introduced by relay operation in the incoming trunk circuit at the repair service desk under this condition, the battery and ground is not supplied simultaneously with the release of the (A) relay and therefore relay (B) will release momentarily. Hence, in order to prevent reseizure of this circuit when disconnection occurs and the trunk key at the repair service desk is not normal, relay (C) remains operated momentarily. It is sufficiently slow release to permit the trunk relays at the desk to function and supply battery and ground to the circuit for reoperating relay (B). Re-lay (B) reoperated will then hold relay (C) operated. Thus the trunk is guarded against reseizure by a succeeding call.

5.4 Trunk Key at Repair Service Desk Operated When Trunk is Idle

If the trunk key at the desk is operated when the trunk is idle, the incoming trunk circuit at the desk functions to supply battery and ground to the trunk thus operating relay (B) which in turn operates relay (C) and causes the sleeve terminal to be made busy so that the trunk will not be seized. As long as the trunk key at the desk remains in an off-normal position, the sleeve multiple terminal is made busy. When the trunk key is restored to normal, battery and ground will be removed from the trunk and relays (B) and (C) will then release.

6. TRUNK FROM PANEL DISTRICT OR OFFICE MULTIPLE AND CROSSBAR SECONDARY OFFICE MULTIPL TRANSFERRED TO SWITCHBOARD (FIG. 1 ANL FIG. 2)

When the repair service desk is not attended, relay (TT) is operated thru the medium of the transfer and make busy circuit or transfer and make busy key circuit. With relay (TT) operated, calls for repair service are transferred to a position of a switchboard. The circuit functions as outlined above in paragraph 5 with the exception that no busy potential is placed on the sleeve multiple terminal if the operator should fail to disconnect at the conclusion of a call. A secondary winding on relay (TT) is provided to hold the relay operated as long as the transferred trunk is involved in a connection even though the circuit thru the primary winding is opened to restore the trunk to regular service.

- 7. COMBINATION TRANSFER TRUNK FROM PANEL DISTRICT OR OFFICE, AND FINAL MULTIPLES (FIGS. 1, 2 AND 3)
- 7.1 Trunk Seized by District or Office Selector

With the (TT) and (TT1) relays operated thru the medium of the trans-fer and make busy circuit or transfer and make busy key circuit, the ground potential placed on the "S" lead of the trunk by the panel district or office selector or on the "Sl" lead by the crossbar office link and connector circuit causes relays (DS) and (DS1) to operate. Seizure by either the panel district or office selector or crossbar secondary office switch places busy potential on both the "S" and "Sl" leads as described in paragraph 5.1. Relay (DS1) locks to the trunk sleeve, opens the start circuit for calls originated thru the final and puts a busy poten-tial on the sleeve terminal in the final multiple. This causes relay (FS) to operate but with relay (DS1) already operated, the operation of relay (FS) has no reaction except to release relay (DS). When relay (A) operates as de-scribed in paragraph 5.1, battery and ground are connected thru the windings of relay (B) to the outgoing tip and ring conductors. Relay (B) does not operate at this time but a lamp is lighted at the switchboard as a signal that a call awaits attention. When the operator answers the call by inserting the plug of a cord circuit into the trunk answering jack, a low-resistance bridge is substituted for the normal high resistance bridge. This reduction in resistance permits relay (B) to oper-ate. Relay (B) in turn operates relay (C). When the calling subscriber disconnects at the end of conversation and the district advances, relay (A) releases and removes battery and ground from the trunk conductors extending to the switchboard. This causes relay (B) to release and also gives a disconnect signal to the operator. Relay (C) releases following the release of relay (B) and removes ground from the sleeve terminal in the panel district or office multiple and crossbar secondary office

7.2 Trunk Seized by Final Selector

When the transfer trunk is seized by a final selector, relay (FS) operates. With relay (FS) operated and relay (DS1) normal a busy potential is placed on the sleeve terminals of the district or office multiple and crossbar secondary office multiple and a circuit is closed for operating relay (D). Relay (D) locks under control of relay (T) and operates relay (TR). Relay (TR) in turn operates relay (E). Relay (E) operated extends the battery and ground thru the windings of relay (B1) to the outgoing tip and ring conductors. Re-lay (B1) does not operate thru the nor-mal high resistance bridge in the trunk circuit incoming to the switchboard but a lamp is lighted at the switchboard as a signal that a call awaits atten-tion. The operator answers the call by inserting the plug of a cord circuit into the trunk jack. This results in into the trunk jack. the substitution of a low resistance bridge, for the normal high resistance bridge across the trunk circuit. Relay (B1) operates under this condition, in turn operating relay (F) which holds under control of the supervisory relay (G). Relay (F) operated bridges relay (T) and resistance (B) across the originating end of the trunk to trip the machine ringing in the incoming selector. When ringing is tripped and the incoming selector is advanced to the talking position relay (T) operates, releasing relay (D). With relay (D) released, the operating circuit of relay (TR) is opened. Relay (TR) is slow to release to allow time for the tripping relay in the incoming selector to function. With relay (TR) released, relay (T) and re-sistance (B) are disconnected from across the tip and ring conductors. Relay (E) now is held operated thru a front contact of relay (F). The re-lease of relay (TR) also closes a circuit for operating relay (CT) which locks to ground thru the front contact of relay (FS). With relay (CT) operated the conversational path is com-pleted and relay (G) is bridged across the vip and ring conductors at the incoming end. Relay (G) operates in this circuit, holds relay (E) and releases relay (F). When the operator withdraws

the plug of the cord circuit from the trunk jack at the end of conversation relay (E) releases. The release of relay (E) disconnects both relays (G) and (B1) from the trunk. Relay (FS) releases when the final selector re-stores to normal, in turn releasing relay (CT) and removing busy potential from the sleeve of the trunk in the panel district or office multiple, or

crossbar secondary office multiple. It will be noted that with relay (E) operated the (TT1) relay is held oper-ated. This provision is made to pre-vent the release of relay (TT1) while the transferred trunk is involved in a connection and thereby interrupt a con-versation even though the regular oper-ating circuit is opened to restore the trunk to regular service. trunk to regular service.

for repair service are transferred to a position of a switchboard. The strauti functions as outlined above in paragraph with the exception that no busy poten-test is placed on the eleve multiple disconnect at the conclusion of a call, a secondary winding on relay (TT) is provided to hold the relay operated at ing at the transferred trunk is involve the connection seen though the circuit thru the primery winding is opened to reasore the trunk to regular service.

for and make busy circuit or transfer and make busy circuit, the ground potential placed on bhe "5" lead of the artunk by the panol district of office aslector of on the "51" lead by the crossbor office link and connector cir-cut causes relays (b5) and (b51) to cont causes relays (b5) and (b51) to contic causes relays (b5) and (b51) to district or office aslactor or crossbar district or office aslactor or crossbar secondary office astech places bey as described in paragraph 5.1. Aslay (b51) locks to the trunk sleave, creas

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Page 4 4 Pages