

## IDLE TRUNK AND POSITION INDICATING EQUIPMENTS MANUAL OFFICES

### 1. GENERAL:

- 1.1 The Idle Trunk Indicating and the Idle Trunk and Position Indicating equipments provide lamp signals at "A", Toll or Tandem switchboard positions to aid originating operators in selecting idle Straightforward Trunks outgoing to Automatic Listening positions of completing "B", Tandem or Toll-Tandem operators.
- 1.2 The need of such equipments may be realized by considering the following description of the various methods of locating idle Straightforward Trunks.
- 1.3 A definition of terms and abbreviations, which are used throughout this section, will be found at the conclusion of the section.
- 1.4 **Completing a Call:** When an originating operator, such as an "A" operator, desires to further the completion of a call by using a trunk circuit outgoing to a completing operator, such as a "B" operator, she must be informed by some means as to what trunk of a group of trunks is idle and ready for her use.
- 1.5 **Call-Circuit Method:** If the Call-Circuit method of trunking is followed, the originating operator passes the called subscriber's number over a call-circuit to a completing operator. The completing operator, in turn, verbally assigns an idle trunk to the originating operator. The originating operator then plugs her calling cord into an O.G.T. jack of the assigned trunk.
- 1.6 **Straightforward-Trunking Method:** If the Straightforward method of trunking is followed, the originating operator has no means other than a trunk circuit to enable her to communicate the called number to the completing operator and, therefore, she is required to select a trunk without the aid of the completing operator.
- 1.7 **Individual Busy Test:** The originating operator may, in the case of Straightforward-Trunking operation, locate an idle trunk by testing the sleeve of each O.G.T. jack of the group of trunks until the test of one of the jacks does not cause a busy-test click in her telephone receiver. The originating operator would then plug her calling cord into the jack of the idle trunk

and listen for the spurts of high-tone that indicate the connection of her telephone set, by means of the trunk, to the completing operator's telephone set.

- 1.8 **Preferential Markings:** If the group of trunks from the originating office to the completing office is rather large, the originating operator will, during the heavy traffic periods, lose considerable time in making the individual busy-tests described above. This condition may be improved by theoretically dividing the group of trunks into sub-groups of several trunks each and so marking the first jack of each sub-group that the originating operator can readily see, by the particular type of marking, at what trunk jacks she should start making the individual busy-tests. These markings are known as "preferential test markings"; the marked jacks are known as "preferential jacks".
- 1.9 **Group Busy Tone:** A further decrease in the time required by the originating operator to locate an idle trunk may be effected by providing an auxiliary circuit that will connect a "group busy tone" (low tone) to the left-hand jack of each sub-group of five trunks when all trunks of that sub-group are busy. This sub-group of trunks is known as a "tone sub-group". If the originating operator finds one tone sub-group busy, she will then test the left-hand jack of another tone sub-group. If any of the trunks of this second sub-group are idle, a group-busy tone will not be heard and the originating operator will then make an individual busy-test of each jack of this sub-group until an idle trunk is found. The left-hand jack, or "master busy jack", is indicated by a conspicuous marking so that it may be located, as soon as possible, by the originating operator.
- 1.10 **Idle Trunk Indicating:** The use of any of the aforementioned methods makes it necessary for the originating operator to make one or more individual busy-tests before she can locate an idle trunk to the desired office. The necessity of making even one busy test may be eliminated if the scheme known as Idle Trunk Indicating is followed. When this scheme is followed, the group of trunks to a given completing office is divided into sub-groups of several trunks each. The idle

trunk is indicated by the lighting of a lamp that is in place above the trunk jack at the originating board. The indicating lamps, which are set in combination lamp and designation strips having a capacity of twenty lamps each, appear in multiples on the 6-, 12- or 18-panel basis. In most instances, a light will appear above the jack of the lowest-numbered idle trunk of each sub-group. As soon as the originating operator plugs her calling cord into the jack of an idle trunk, the light associated with that trunk is extinguished and a light appears at the next lowest-numbered idle trunk of the sub-group. If all trunks of a sub-group are busy, all indicating lamps of that sub-group are extinguished. Idle Trunk Indicating may be suspended during light traffic hours by the use of a key in the switchboard. If the indicating lamps are arranged on the 6-panel basis, a lamp will be in place above each trunk jack and its multiples. If the 12- or 18-panel arrangement is used, there will be certain multiple appearances of trunk jacks that will not have lamps associated with them and, therefore, the group-busy tone feature will be provided to facilitate the locating of idle trunks by the originating operators sitting in front of the "non-indicated jacks."

- 1.11 **Idle Trunk and Position Indicating:** The Idle Trunk Indicating Circuit indicates an idle trunk to the originating operator, but it does not indicate that the idle trunk appears before an idle completing operator who can give it immediate attention. An arrangement that will indicate an idle trunk that terminates at the trunk position of an idle completing operator is obtained by placing the Idle Trunk Indicating Circuit of the originating office under the control of Idle Position Indicator Circuits associated with the trunk positions of the completing operators. This plan is known as Idle Trunk and Position Indicating.
- 1.12 Under this plan, a lighted indicating lamp indicates that the associated trunk is idle and that one of the following conditions exists: The trunk terminates before an idle completing operator; the trunk terminates before one of a "team" of completing operators, all of whom are simultaneously busy; the trunk terminates before one of a team of completing operators, some of whom are busy while the rest have "all-trunks-busy" conditions on the sub-groups of trunks incoming from the particular originating office; the trunk terminates in an indicating position that is "unoccupied" but grouped to another

indicating position that is "idle" and has an all "trunks-busy" condition on its sub-groups of trunks incoming from the particular originating office; the trunk terminates in an indicating position that is unoccupied but grouped to a PCI or a PCITS position that is "occupied" and idle. It will be noted that, under any of these conditions, the connection to the completing operator will result either immediately or very soon after the originating operator plugs into the idle trunk. If the trunks terminate in completing positions that are unoccupied and not grouped to another position arranged for Position Indicating, or if all trunks of a sub-group of trunks have been selected, none of those trunks will be indicated. The Position Indicator Circuit is so arranged that it will continue to function when the trunks are split and grouped into various combinations at the completing positions. The Idle Trunk and Position Indicator Circuits not only serve to indicate idle trunks that appear before idle operators, but also serve to distribute or concentrate traffic over straightforward trunks in a very efficient manner.

## 2. TYPICAL LAYOUT OF IDLE TRUNK AND POSITION INDICATING EQUIPMENTS:

- 2.1 The following is a brief explanation of the typical layout of Idle Trunk and Position Indicating Equipments shown in Figure 1.
- 2.2 In this explanation we will consider the facilities for the completion of calls over Automatic Listening Straightforward Trunks that originate in a certain "A" office, the "L" office, and terminate in a certain "B" office having the "B" positions 5, 6 and 7.
- 2.3 **Completing Office:** A total of 30 Automatic-Listening Straightforward (ALSF) Trunks are provided between the "A" and "B" offices. This group of trunks is known as a "trunk group", the definition and example of which are given in definition (1), of Figure 1. This trunk group of 30 trunks is distributed evenly among the "B" positions 5, 6 and 7, which arrangement insures more efficient completion of calls than would be possible if all 30 trunks terminated in but one "B" position.
- 2.4 Each of the three sets of 10 trunks that terminate in "B" positions 5, 6 and 7 is known as a "trunk sub-group", the definition and example of which are given in definition (2) of Figure 1. This trunk

sub-group will be referred to as the L sub-group, because it originates at the "L" office. The trunks of each trunk sub-group are associated with but one of the five Trunk Splitting Circuits of a "B" position in order to provide the proper indications at the "A" board ends of these trunks when the "B" positions are split and grouped. The trunks of any indicated trunk sub-group should not be so arranged that the operation of any Trunk Splitting Key would split the trunk sub-group. If the trunk sub-group in "B" position 5 consisted of trunks 1 to 15, instead of trunks 1 to 10, the Splitting Key 10/11 would be made ineffective and the 20/21 key would be used for splitting that trunk sub-group from the next trunk sub-group.

- 2.5 The Trunk Splitting Keys 48/1 and 10/11, in the case of "B" position 5, not only control the Trunk Splitting Circuits of the "B" position but also control the Indicator Splitting Circuit associated with that position. The Indicator Splitting Circuit serves to split the "Sub-Group Indicator Circuit", associated with the L sub-group, from all other Sub-Group Indicator Circuits of the "B" position when the L sub-group of trunks is split from all other trunk sub-groups of the position.
- 2.6 The Sub-Group Indicator Circuit of a "B" position is normally under the control of the Operator's Control Circuit of the position and the Common Equipment and "Office Circuits" that are common to the Sub-Group Indicator Circuits of the L sub-groups in all "B" positions. A Sub-Group Indicator Circuit may be placed under the control of an "indicating" ALSF position on the left or on the right, or, under the control of a PCI or PCITS position on the left or on the right.
- 2.7 The completing operators at "B" positions 5, 6 and 7 are known as a team; the definition of an "L" team is given in definition (3) of Figure 1.
- 2.8 **Originating Office:** Each of the three L sub-groups are sub-divided at the "A" board into "lamp sub-groups", the definition and example of which are given in definition (4) of Figure 1. This subdivision of each of the trunk sub-groups into two lamp sub-groups of five trunks each makes it possible to distribute a trunk sub-group among more than one "A" operator. The indicating lamps appear on a 12-panel basis and, therefore, the "A" board panels 2, 4 and 6 are not equipped with combination lamp and designation strips. To facilitate the testing of these

non-indicated appearances of trunks, the jacks 80, 85, 90 and 95 in panels 2, 4 and 6 may be used as master busy jacks and the Group Busy Tone feature be provided. The sleeve relay equipment for 120 O.G.T. jack circuits and all their multiples is assembled in the form of a unit known as the Idle Trunk Indicator Circuit Unit. The sleeve relay circuits are subdivided in the same manner as the associated trunks and each subdivision of five SL relays has individual control leads connecting it to the particular Indicator Control Circuit that has been assigned to a certain trunk sub-group. Each Indicator Control Circuit of the "A" office is connected by means of a cable pair to the "B" office Sub-Group Indicator Circuit that is associated with the same trunk sub-group.

### 3. TYPICAL OPERATION OF IDLE TRUNK AND POSITION INDICATING EQUIPMENTS:

- 3.1 **Traffic Operation:** We will not consider the completion of a call over an Automatic-Listening Straightforward-Trunk that is arranged for Idle Trunk and Position Indicating in accordance with Figure 1.
- 3.2 The "A" operator has just received, from a calling subscriber, the office name and station number of a called subscriber whose telephone set is connected to the "B" office having the ALSF positions 5, 6 and 7.
- 3.3 With the TALK key of the Subscriber's Cord Circuit operated and the calling cord in hand, the "A" operator scans the multiple appearances of the group of trunks outgoing to the desired "B" office for a lighted indicating lamp. She sees a lighted indicating lamp over jack 90 in panel 3 of the "A" board and directly plugs the calling cord into that jack.
- 3.4 With the insertion of the calling cord into the trunk jack, the indicating light at jack 90 is extinguished immediately; the "A" Operator's Telephone Set is automatically connected, by means of the Straightforward Trunk and the associated Sequence Circuit of the trunk position, to the "B" Operator's Control Circuit which sends the order-passing signal of two spurts of high-tone to the "A" operator and then completes the talking circuit between the "A" and "B" operators for order-passing; the "A" operator verbally passes the called station number to the "B" operator who may, or may not, acknowledge receipt of the order, depending upon the local oper-

- ating practices; no light appears at any jack of either of the first and second lamp sub-groups, trunks 90 to 94 and 85 to 89 in panels 3 and 5 respectively, unless, for example, all of the "B" positions 5, 6 and 7 are busy or "B" positions 5 and 6 are busy while there is an all-trunks-busy condition on the L sub-group of "B" position 7.
- 3.5 As soon as the "B" operator receives the called number, she releases her Operator's Control and Telephone Circuits from the Straightforward Trunk by either momentarily depressing a release key or plugging the trunk cord into the called subscriber's line jack. The indicating lamps at the jacks of the lowest-numbered idle trunks of the first and second lamp sub-groups will now light, if the Operator's Control Circuit of "B" position 6 has not been made busy by the selection of another trunk of that position.
  - 3.6 With the connection of the trunk cord to the subscriber's line, ringing current is automatically connected to that line to ring the called subscriber's bell. When the called subscriber answers, ringing is stopped and the subscriber-to-subscriber talking circuit is established over the Straightforward Trunk.
  - 3.7 When the "A" operator disconnects the calling cord from jack 90, after the two subscribers have finished their conversation, the indicating lamp above jack 90 will light, if "B" position 6 is idle or is indicating under one of the various conditions previously mentioned in paragraphs 1.11 and 1.12.
  - 3.8 **Circuit Operation:** The following explanation, together with Figure 2, gives the details of the operation of the Idle Trunk and Position Indicating Circuits when a call is completed over an Automatic-Listening Straightforward-Trunk in accordance with the description previously given under "Traffic Operation".
  - 3.9 The lighting of the indicating lamp at jack 90, in panel 3 of the "A" board, indicates that the trunk associated with that jack is idle and, in this case, terminates in an idle trunk position—"B" position 6.
  - 3.10 The Splitting Keys 48/1 in "B" positions 6 and 7 are operated so that position 6 will not be grouped to either "B" position 5 or 7. The 48/1 keys operate the S-1 relays of the Indicator Splitting Circuits associated with those keys and thus open the L leads between trunk positions 5, 6 and 7.
  - 3.11 The selected trunk is in the first of the two lamp sub-groups of the trunk sub-group that terminates in trunk cords 11 to 20 of "B" position 6. Therefore, the indications at the originating end of that trunk are under the control of the second Sub-Group Indicator Circuit of Position 6.
  - 3.12 Since position 6 is occupied, its transmitter relay T is operated and, consequently, the C and PO relays of the Indicator Splitting Circuit are operated. The C relay now causes the G-2 and I-2 relays of the second Sub-Group Indicator Circuit to operate. The operation of the I-2 relay supplies battery, from the winding of the TB-2 relay, over the ring side of an interoffice cable pair to operate the L relay in circuit 2 of the Indicator Control Circuit equipment at the "A" office. The operating circuit of the L relay is completed to ground by means of the tip side of the interoffice cable pair, which is grounded at the M.D.F. of the "B" office. The TB-2 relay does not operate at this time because of the 24,000 ohms of resistance offered by the secondary winding of the L relay in the "A" office.
  - 3.13 The operation of the L relay of Indicator Control Circuit 2 causes the L-1 relay of the same circuit to operate. The L-1 relay now supplies battery over an individual battery lead B-1 to each of the two subdivisions of sleeve relays that are associated with the two lamp sub-groups appearing as trunks 90 to 94 and 85 to 89 in panels 3 and 5, respectively, of the "A" board.
  - 3.14 Since trunk 90 is idle, the associated SL relay is normal. The upper contact of this SL relay now connects B-1 lead battery, over an L lead, to the indicating lamp above the jack of trunk 90, thus lighting the lamp.
  - 3.15 When the "A" calling cord is plugged into the idle trunk jack 90, the associated SL relay, which has one terminal of its winding connected to relay-rack ground, is operated by battery through resistance in the sleeve circuit of the calling cord, over a sleeve lead of the O.G.T. multiple, to the SL relay. The operation of the SL relay extinguishes the light of the indicating lamp by transferring the B-1 battery lead from that lamp to the SL relay of the succeeding trunk 91. If trunk 91 is idle, its SL relay will be normal and, therefore, its indicating lamp will be lighted, indicating that trunk 91 is the lowest-numbered idle trunk of the first lamp sub-group.

- 3.16 The connection of the "A" calling cord to trunk jack 90 also causes the selected trunk to be automatically connected to the Operator's Control Circuit of "B" position 6. The AL relay of the Operator's Control now operates and short-circuits the winding of the C relay of the Indicator Splitting Circuit of "B" position 6. The release of the C relay permits the G-2 and I-2 relays of the second Sub-Group Indicator Circuit to release. The release of the I-2 relay causes the L and L-1 relays of the associated Indicator Control Circuit of the "A" office to release. The L-1 relay now disconnects B-1 lead battery from the contacts of the SL relays of the two lamp sub-groups of the trunk sub-group to "B" position 6. Therefore, while the AL relay of the "B" Operator's Control Circuit is operated, battery will not be supplied to any of the indicating lamps of the trunk sub-group, except: When both the I-1 and I-3 relays (shown in Figure 1) of "B" positions 5 and 7, respectively, are normal simultaneously, or, as another example, when the TB-3 of "B" position 7 is operated while the I-1 relay of "B" position 5 is normal.
- 3.17 When the operator at "B" position 6 releases her Operator's Control Circuit from the incoming trunk, the AL relay is released. The release of the AL relay removes the short circuit from around the C relay of the Indicator Splitting Circuit and allows that relay to reoperate. The C relay then supplies battery to reoperate the G-2 relay, which, in turn, reoperates the I-2 relay. The operation of the I-2 relay is followed by the reoperation of the L and L-1 relays of the Indicator Control Circuit of the "A" office. The L-1 relay supplies battery to the contacts of the SL relays of the two lamp sub-groups, and, if any of the trunks associated with these relays are idle, an indicating light will appear over the jack of that trunk.
- 3.18 The connection of the trunk cord to the called subscriber's line, after the trunk circuit has been disconnected from the Operator's Control Circuit, does not affect the operation of the Idle Trunk and Position Indicating Circuits.
- 3.19 When the "A" operator disconnects the calling cord from O.G.T. jack 90, after the subscribers have finished their conversation, the SL relay associated with that jack will release. This SL relay will then transfer B-1 lead battery from the SL relay of the succeeding trunk to the indicating lamp of trunk 90, which will relight. Trunk 90 is now idle and may be used in completing another call to the completing office in which it terminates.
- 3.20 If an all-trunks-busy condition had occurred on the trunk sub-group terminating in "B" position 6 while the "A" calling cord was connected to the O.G.T. jack of trunk 90, the O-1 and O-2 relays of Indicator Control Circuit 2 would have been operated by B-1 lead battery through the make contacts of the SL relays associated with the two lamp sub-groups having jacks 90 to 94 and 85 to 89 respectively, in panels 3 and 5 of the "A" board. The make contacts of the O-1 and O-2 relays, in series, provide a short circuit around the 24,000-ohm winding of the associated L relay. This reduces the L relay's resistance to the resistance of its P winding, which is 160 ohms, and thus allows the TB-2 relay in the "B" office to operate. One of the functions of the TB-2 relay is to supply battery, from the C relay of the Indicator Splitting Circuit of a trunk position, for operating the G relay of the next Sub-Group Indicator Circuit on the left or on the right, for example, the G-1 relay of "B" position 5 or the G-3 relay of "B" position 7; or to operate both of these G relays. When a Sub-Group Indicator Circuit in the position on the left or in the position on the right is controlled by the TB relay of the home position, the trunk sub-group associated with the Sub-Group Indicator Circuit of the trunk position on the left or on the right is considered as an "overflow sub-group". The 48/1 key of a "B" position must be released before a trunk sub-group of that position can function as an "overflow sub-group".
4. **FLEXIBILITY OBTAINED BY THE USE OF CROSS-CONNECTIONS:**
- 4.1 Because of changing traffic requirements, it will be necessary, from time to time, to change the number and location of the terminating appearances of Straightforward Trunks outgoing from an originating office to a completing office.
- 4.2 In order to facilitate such changes, the Idle Trunk and Position Indicating units in the originating and completing offices are provided with terminal strips arranged for the termination of cross-connections, as well as permanent cabling.
- 4.3 By rearranging cross-connections, changes may be made in any of the following:
- (a) Number of trunks in a lamp sub-group in the O.G.T. multiple of an originating office.

- (b) Number of lamp sub-groups in a trunk sub-group.
  - (c) Number of trunk sub-groups in a trunk group.
  - (d) Number of trunk positions in a team of trunk positions.
  - (e) Location of appearances of lamp sub-groups in O.G.T. multiple.
  - (f) Location of trunk sub-groups in trunk positions of a completing office.
- 4.4 Some of the changes mentioned above are explained in the following:
- 4.5 **Change in the Number of Trunks in a Lamp Sub-Group:** When the number of trunks in a lamp sub-group is to be increased or decreased, the connections that terminate on certain C-1 and C-2 punchings of the Idle Trunk Indicator Circuit unit shall be so arranged that the sleeve relays of the O.G. Trunks to be added or removed will be included in or excluded from the lamp sub-group respectively. The C-1 and C-2 punchings and associated connections are shown in Figure 2.
- 4.6 **Change in the Number of Lamp Sub-Groups in a Trunk Sub-Group:** A change in the number of lamp sub-groups in a trunk sub-group necessitates the addition or removal of cross-connections between certain B and TG punchings on the horizontal and vertical sides of the I.D.F.; also between certain B, TG, C-1 and C-2 punchings of the Idle Trunk Indicator Circuit unit. (See Figure 2.)
- 4.7 If a lamp sub-group is added to a trunk sub-group, it will be necessary to use an additional O relay of the Indicator Control Circuit, for example, on O-3 relay.
- 4.8 **Change in the Number of Trunk Sub-Groups in a Trunk Group:** If a trunk sub-group is added to a trunk group, it will be necessary to use an additional Indicator Control Circuit in the originating office and an additional Sub-Group Indicator Circuit in the completing office. These two circuits will be connected together by means of cross-connections at the main distributing-frames of the originating and completing offices and by a cable pair between these offices.
- 4.9 The connection of the Indicator Control Circuit to the lamp sub-groups that it is to serve will be effected at the B, TG, C-1 and C-2 punchings previously mentioned in paragraph 4.6.
- 4.10 The connection of the Sub-Group Indicator Circuit to the Indicator Splitting Circuit of the trunk position in which the new sub-group of trunks is terminated, and to the Common Equipment and Office Circuits, directly or through the Sub-Group Indicator Circuit of another trunk position, will be effected at the relay rack by means of cross-connections.
5. **DEFINITION OF TERMS:**
- 5.1 "All-trunks-busy" is that condition of a trunk sub-group that exists when the TB relay of the associated Sub-Group Indicator Circuit is operated. In service, the TB relay operates when all trunks of a trunk sub-group are selected at the "A", Toll or Tandem Board.
- 5.2 "Busy" is that condition of a trunk position which exists when the AL relay (TA relay, if Tandem) of its Operator's Control or the SL Relay (SA relay, if Tandem) of its Emergency Listening Circuit is operated.
- 5.3 "Idle" is that condition of a trunk position which exists when the AL relay (TA relay, if Tandem) of its Operator's Control or the SL relay (SA relay, if Tandem) of its Emergency Listening Circuit is normal.
- 5.4 "Indicating" is that function of a trunk position which takes place when the I relay of a Sub-Group Indicator Circuit of that position is operated.
- 5.5 "Lamp sub-group" is a subdivision of a trunk sub-group at the "A", Toll or Tandem board.
- 5.6 "No indicating" is that function of a trunk position which takes place when the I relay of a Sub-Group Indicator Circuit of that position is normal.
- 5.7 "Non-indicated jacks" are those jacks, in the O.G.T. multiple of the originating office, that have no indicating lamps directly above them to indicate when any of the associated trunks are idle.
- 5.8 "Occupied" is that condition of a trunk position which exists when the transmitter relay of the Operator's Telephone Circuit of that position is operated.
- 5.9 "Office Circuit" is that circuit of three relays, such as the PL, RL and TL, which is common to all Sub-Group Indicator Circuits associated with trunks incoming from a particular "A", Toll or Tandem Office.

- 5.10 "PCI" is now used instead of "RCI" as the standard abbreviated designation for Call Indicator trunks or positions that are to be operated in connection with Panel offices.
- 5.11 "PCITS" is now used instead of "CITS" as the standard abbreviated designation for Call Indicator trunks or positions that are designed for ultimate operation with Panel offices, but are temporarily arranged for straightforward operation with Manual offices.
- 5.12 "Sub-Group Indicator Circuit" is that circuit of three relays, such as the I-1, G-1 and TB-1, which provides indications on the associated trunk sub-group.
- 5.13 "Team" is that group of trunk operators in a completing office whose services are required in the completion of all calls incoming to that office over the trunk group from a certain originating office. If five "B" operators serve all trunks incoming from five different "A" offices, such as offices L, M, N, O and P, this group of five trunk operators may be referred to as the L, M, N, O or P team.
- 5.14 "Tone sub-group" is a subdivision of a trunk sub-group, at the "A", Toll or Tandem board, that has low-tone connected to its first or master-busy jack when all its trunks are selected or busy at the originating office.
- 5.15 "Trunk group" is all of the trunks from a given "A", Toll or Tandem office to a given "B", Tandem or Toll-Tandem office.
- 5.16 "Trunk sub-group" is that portion of a trunk group that terminates in a single "B", Tandem or Toll-Tandem position.
- 5.17 "Unoccupied" is that condition of a trunk position which exists when the transmitter relay of the Operator's Telephone Circuit is normal.

**"A" BOARD (NO. 1 TYPE)**  
"L" OFFICE

**"B" BOARD (NO. 1 TYPE)**

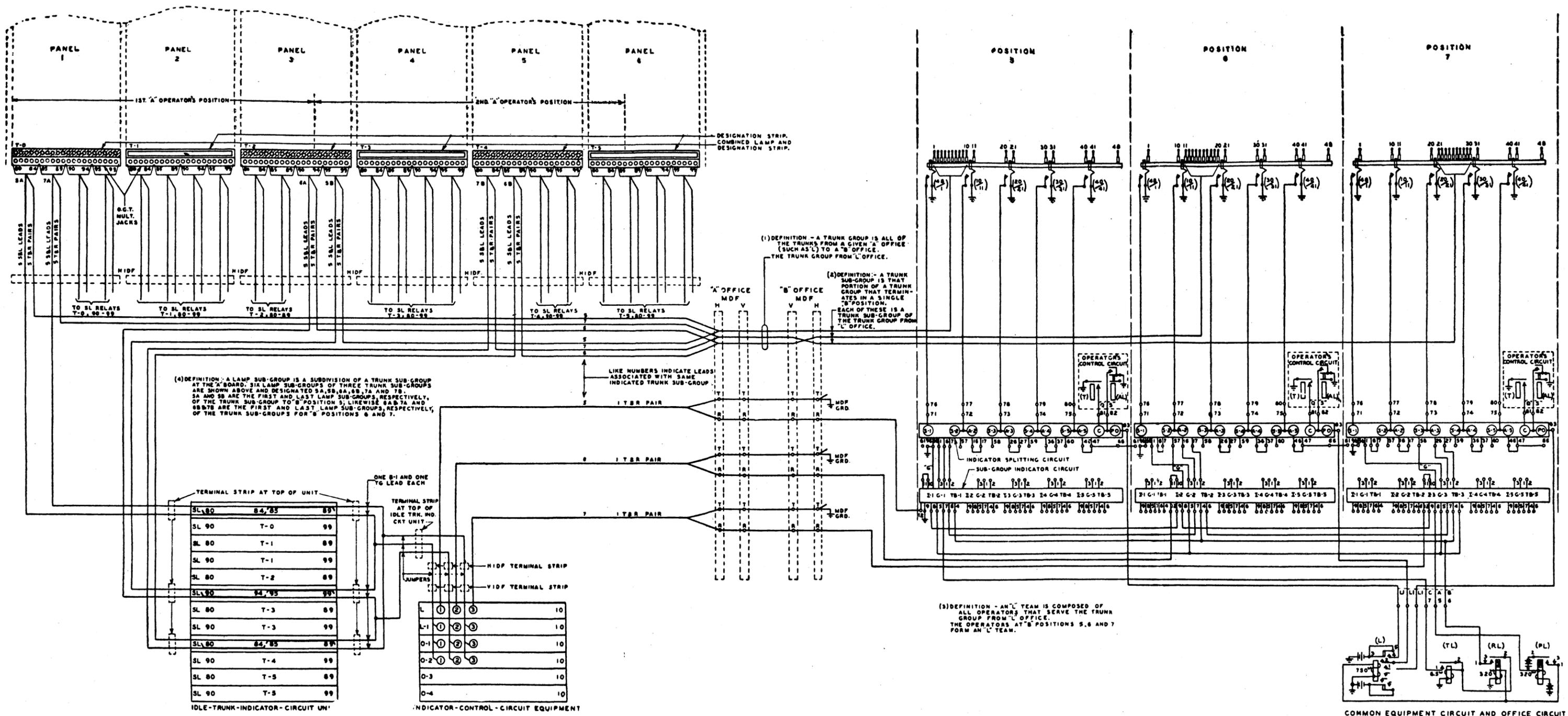


FIG. 1. TYPICAL LAYOUT OF IDLE TRUNK AND POSITION INDICATING EQUIPMENTS

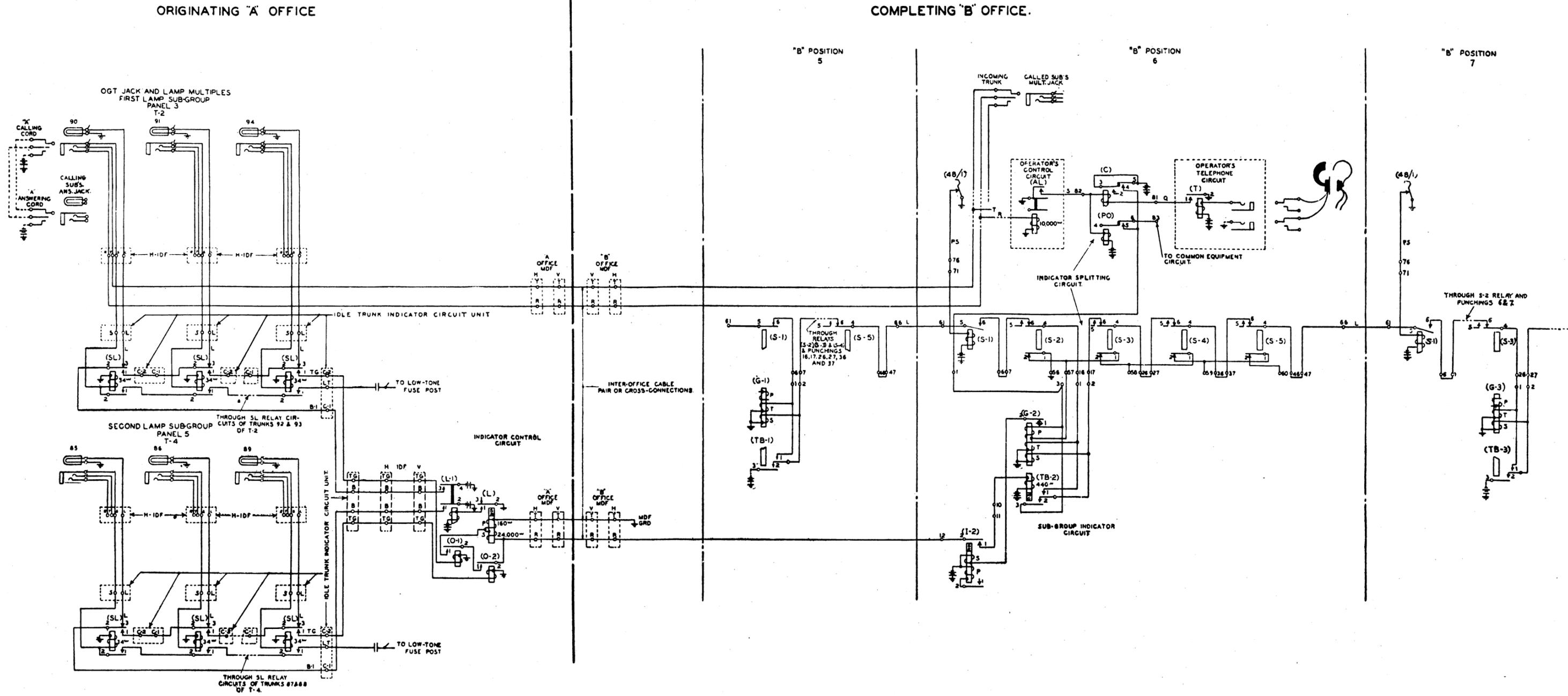


FIG. 2. PARTIAL SCHEMATIC OF IDLE TRUNK AND POSITION INDICATING EQUIPMENTS