

## POSITION INDICATOR CIRCUIT

### NO. 1 OFFICE

#### 1. GENERAL:

- 1.1 This routine describes an operation test of the position indicator circuit which is associated with straight-forward B positions for the purpose of controlling trunk indicating lamps at A boards. Some features of the circuit which would give obvious indications of trouble in service are not checked by this routine as it is designed primarily to detect troubles which would not be readily apparent, or which would not be readily located, if noticed under service conditions.
- 1.2 Two testers will be required, one at the A end and one at the B end, with a talking circuit for communication between them. It will not be advisable to test from more than one A office at a time as the various steps of the test would overlap and cause confusion.
- 1.3 The test should be made at night during a period of practically no traffic. It will be necessary to instruct the A operators at all offices having trunks equipped with trunk indicating lamps which are controlled by the positions under test, to disregard the lamps entirely and to follow the operating practice of making a busy test in the usual manner before selecting a trunk on non-indicating trunk groups. In order to eliminate the possibility of improper attention being given to subscriber's calls during the test, it will be desirable to restrict the traffic from these offices to a few trunks which appear on a B position nearest to the occupied B positions.
- 1.4 Any calls to the B positions during the progress of the test will affect the operation of the circuit being tested. The B operator and the tester should be alert to note any calls which do not appear in regular sequence with the test, particularly any which may appear on indicating trunks which have been assigned for service or on non-indicating trunks appearing on the positions under test since these will probably be subscriber's calls and should be disposed of promptly. The tester at the A end should be advised of any such calls in order to prevent their causing a false report of trouble.
- 1.5 If the trunks are regular two-wire trunks, the guard lamp should not light on any trunk where, as prescribed under "Method," the A cord should be only partially inserted. Accordingly, trunks selected for subscriber's calls should be readily noticed by the tester. If a cord is fully inserted in error on one of the trunks under test, the call may be disposed of by inserting the plug of the trunk cord in the busy-back jack after listening in on the trunk and ascertaining that it is not a subscriber's call. If the trunks are three-wire local trunks, the guard lamp will light on each trunk as it is plugged up at the A end, regardless of whether or not the cord is fully inserted. In this case, where it is stated that the A cord should be partially inserted, it will be necessary for the B tester to operate the release key as the guard lamp lights on each trunk. If this is not done, the control circuit is connected to the trunk and the position is made busy, in which case the circuit will not function as described. Where it is stated that the A cord should be fully inserted, the release key should not be operated.
- 1.6 Throughout the description of the method of making the test, the term "sub-group" has been used to designate trunk sub-groups, i.e., trunks from an A office which appear on the same B position. Where the sub-groups are further divided into lamp sub-groups at the A board, it should be understood that two or more lamps will light within each trunk sub-group. In this case the statement that the first lamp in the sub-group should light means that the first lamp in each lamp sub-group should light.
- 1.7 When the trunks from a single A office appearing on two or more B positions are grouped through the operation of splitting keys, the position which the operator occupies is known as the home position and the trunks appearing on this position are known as the home sub-group. The trunks from the same office on the adjacent positions serve as overflow sub-groups.

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### 2. APPARATUS:

- 2.1 Operator's Telephone Set. A End.
- 2.2 Operator's Telephone Set for each position. B End.

### 3. METHOD:

- 3.1 Establish a talking circuit between the A and B boards over some trunk other than the first trunk of a sub-group. Use an A cord, with the listening key operated, at the A end. Insert the plug of the incoming trunk cord into a supervisor's jack at the B end. Plug an operator's telephone set in the associated supervisor's telephone jack at the B end.

#### Lighting of Lamps, B Positions Occupied and Idle:

- 3.2 **B End.** Operate the splitting keys at the B board so as to divide the indicating positions on which trunks appear from the A office being tested into one-position units.
- 3.3 Insert an operator's telephone set into the telephone jack of each of these B positions.  
**A End.** The lamp associated with the first trunk of each sub-group should light.

#### Retirement of Lamps, B Position Busy, and Lighting of Lamps when All Positions are Busy:

- 3.4 **A End.** Insert the plug of an A cord in the O.G.T. jack of the first trunk of each sub-group in turn. As the plug is inserted, the lamp associated with the trunk should go out and no other lamp should light within the sub-group.

**B End.** The guard lamps associated with these trunks should flash as the trunks will be connected to the control circuit.

**A End.** When the plug is inserted in the first trunk of the last sub-group, the lamp associated with the second trunk of each sub-group should light.

#### Retirement of Lamps, Emergency Listening Circuit Busy:

- 3.5 **B End.** Operate the emergency key on the first position. The guard lamp on this position which was flashing should become steady.  
**A End.** The lamp in the first sub-group should remain lighted and the lamps in the other sub-groups should go out.

- 3.6 **B End.** Insert the trunk cord associated with the lighted guard lamp in the emergency listening jack.

**A End.** The lamps in the other sub-groups should light.

- 3.7 **B End.** Remove the cord from the emergency listening jack and restore the emergency key. The guard lamp should flash again.

**A End.** Lamps should remain lighted in all sub-groups at the A board.

- 3.8 Repeat the operations described in paragraphs 3.5 to 3.7 on each of the B positions under test.

Note: Where the two operated positions of the emergency key are not designated "Tone" and "Challenge," but the position may be connected to either of two emergency circuits, the key should be turned in opposite directions on alternate positions.

#### Lighting of Lamps in Busy Sub-groups, First B Position Idle and All Trunks of First Sub-group Busy:

- 3.9 **A End.** Remove the cord which is inserted in the first trunk of the first sub-group from the left.

**B End.** The guard lamp associated with this trunk should go out.

**A End.** The lamp associated with this trunk should light and the lamps in the other sub-groups should go out.

Note: If the trunks are arranged to give a locking guard signal, it will be necessary to extinguish the guard lamp at the B board by operating the release key.

- 3.10 **A End.** In the O.G.T. jack of each trunk of the first sub-group, insert an A cord just far enough to make the sleeve connection but not the tip and ring connections. When a cord is plugged in the last trunk of the sub-group, the lamps of the other sub-groups should light.

#### Retirement of Lamps on Busy Sub-groups, Second B Position Idle:

- 3.11 Withdraw the A cord from the first trunk of the second sub-group. The lamp associated with this trunk should light. Withdraw one of the partially inserted

cords in the first sub-group and re-insert it. The lamps in all sub-groups except the second should go out.

**Retirement of Lamps on Second Sub-group, Second B Position Unoccupied, and Lighting of Lamps on Busy Sub-groups:**

- 3.12 **B End.** Remove the operator's telephone set from the B position on which the second sub-group appears.

**A End.** The lamp in this sub-group should go out and the lamps in the other sub-groups should light.

**Overflow Condition with First and Second Sub-groups Grouped at B End:**

- 3.13 **B End.** Restore the splitting key between the first and second positions counting from left to right. If the second sub-group of trunks does not appear on the second position, restore any other splitting keys which are operated between the two sub-groups.

**A End.** The lamp associated with the first trunk of the second sub-group should light and the lamps associated with the other sub-groups should go out. Operate and restore in turn each splitting key located between the first and second sub-groups. The lamp associated with the first trunk of the second sub-group should go out while any of these keys are operated.

**All Positions Busy during Overflow Condition:**

- 3.14 **A End.** Insert an A cord in the first trunk of the second sub-group. The lamp associated with the second trunk of this group and the lamps associated with the other sub-groups should light.

**Lighting of Lamps in Busy Sub-groups, Second B Position Idle and All Trunks of Second Sub-group Busy:**

- 3.15 **B End.** Re-operate any splitting keys which were restored to normal in paragraph 3.13 and re-insert the operator's telephone set in the position on which the second sub-group appears.
- 3.16 **A End.** Withdraw all cords from the O.G.T. jacks of the first sub-group except the cord in the first trunk which should be fully inserted.
- 3.17 Withdraw the cord from the first trunk of the second sub-group.

**B End.** The guard lamp associated with this trunk should go out.

**A End.** The lamp associated with this trunk should light and the lamps in the other sub-groups should go out.

**Lighting of Lamps in Busy Sub-groups, Second B Position Idle and All Trunks of Second Sub-group Busy:**

- 3.18 **A End.** In the O.G.T. jack of each trunk of the second sub-group, insert an A cord just far enough to make the sleeve connection but not the tip and ring connections. When the cord is plugged in the last trunk of the sub-group, the lamps of the other sub-groups should light.

**Retirement of Lamps on Busy Sub-groups, First and Third Positions Idle:**

- 3.19 Withdraw the A cords which are in the first trunks of the first and third sub-groups. The lamps associated with these trunks should light. Remove one of the partially inserted cords in second sub-group and re-insert it. The lamps in all sub-groups except the first and third should go out.

**Retirement of Lamps on First and Third Sub-groups, First and Third B Positions Unoccupied, and Lighting of Lamps on Busy Sub-groups:**

- 3.20 **B End.** Withdraw the operators' telephone sets from the positions on which the trunks of the first and third sub-groups appear.

**A End.** The lamps associated with the first and third sub-groups should go out and the lamps of the other sub-groups should light.

**Overflow Condition with First, Second and Third Sub-groups Grouped at B Board:**

- 3.21 **B End.** Restore to normal any splitting keys which are operated between the first and second and the second and third sub-groups. With this arrangement all trunks of the second sub-group which are now serving as the home sub-group are busy and the first and third sub-groups act as overflow sub-groups.

**A End.** The lamps associated with the first trunks of the overflow sub-groups should light.

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**B End.** Operate and restore in turn each splitting key between the first and second sub-groups and between the second and third sub-groups.

**A End.** The lamp in the first sub-group should go out when any key to the left of the second sub-group is operated, and the lamp in the third sub-group should go out when any key to the right of the second sub-group is operated.

### All Positions Busy during Overflow Condition:

- 3.22 **A End.** Insert an A cord all the way in the first trunk of either of the overflow sub-groups. The lamp associated with the second trunk of this sub-group and the lamps associated with the other sub-groups should light.

### Tests on Other Sub-groups:

- 3.23 **B End.** Re-operate any splitting keys which were restored to normal in paragraph 3.21. Re-insert the operators' telephone sets in the positions where the trunks of the first and third sub-groups appear.

**A End.** An A cord is fully inserted in the first trunk of one of the overflow sub-groups as covered in paragraph 3.22. Re-

insert an A cord all the way in the first trunk of the other overflow sub-group.

- 3.24 Withdraw all cords from the trunks of the second sub-group except the cord in the first trunk which should be fully inserted.
- 3.25 Continue the above procedure, using each sub-group in turn as the home sub-group and the two adjacent sub-groups as the overflow sub-groups. In testing the last sub-group to the right, there will be only one overflow sub-group, the one adjacent on the left.

### Completion of Tests:

- 3.26 **A End.** Upon completion of the test, withdraw all A cords.

**B End.** Withdraw all operators' telephone sets. Restore the splitting keys as may be necessary to obtain the desired arrangement of the B positions. Notify any A offices which may be using special operating methods of the completion of the test.

## 4. REPORTS:

- 4.1 The required record of this routine should be entered on the proper form.