

ALL-TRUNKS-BUSY REGISTERS NO. 1 OFFICE

1. GENERAL:

- 1.1 This routine checks the operation of the all-trunks-busy registers which are associated with straightforward trunks.
- 1.2 It is necessary to carefully and thoroughly test the operation of the all-trunks-busy registers, making certain that all trunks in each group are connected to their associated register, in order to insure the accuracy of the records which form the basis for estimates of future trunk requirements.
- 1.3 Since any traffic on the trunk group would interfere with the test, it will be necessary to put the trunk group out of service and reroute traffic, if possible, during the test. Accordingly, the test should be conducted as rapidly as will be consistent with accuracy, and during night hours in a period of practically no traffic.
- 1.4 Where it is not possible to reroute traffic on the trunk group during the period of testing, it will be necessary to advise the operators at the outgoing office that the group is under test. If an operator has a call to this trunk group, she should advise the tester, who will release one of the trunks and advise the "B" tester that the trunk has been released for a subscriber's call. To facilitate such a practice, the tester at the outgoing office should be located at a position which is so situated as to permit ready communication with the operators. The handling of a subscriber's call in this manner will cause a false result if the test is continued. It will be necessary to discontinue the test until disconnection of the call, and then start the test again, taking a new reading of the register.
- 1.5 If any of the trunks in the group are out of order, the test should be deferred until the trouble is cleared.
- 1.6 Section 4 outlines a method of making a complete test of the all-trunks-busy register circuit, checking the operation of the register during different conditions of the trunk circuits. This necessitates obtaining one or more registrations from each trunk circuit. When it is desired to make only a partial test which demonstrates

that the register operates when all trunks are made busy, the operations of withdrawing and reinserting the plug in the O.G.T. jack of each trunk should be omitted.

2. APPARATUS:

- 2.1 For all tests except (C): Operator's Telephone Set.
- 2.2 At tandem boards: Plug with tip and ring short-circuited for each trunk in the group.

3. PREPARATION:

- 3.1 One tester will be required at the outgoing end to plug up the trunks and a second tester will be required at the incoming end to observe the guard signals and note the readings of the all-trunks-busy registers.
- 3.2 At the incoming end, take the readings of all working all-trunks-busy registers, first recording the register numbers and the names of the trunk groups.
- 3.3 Establish a talking circuit between the testers over some trunk, using an "A" or toll cord at the outgoing end and a supervisor's circuit at the "B" board. If the trunks originate at a tandem board, it will be necessary to use a supervisor's circuit at each end.
- 3.4 If the register being tested is associated with automatic listening trunks, arrange the splitting keys so that the trunks under test are in sequence with the trunks of an occupied position. With this arrangement the "B" operator will hear the order tone sent out on the trunks being tested, but it will also be possible for her to handle any subscribers' calls which may come in on the positions under test. It will be possible to distinguish the subscribers' calls by noting the trunk upon which a flashing lamp appears. Neither the "B" operator nor the tester should depress a release key without first noting the trunk which is connected to the control circuit as indicated by the flashing guard lamp. If the trunk is not among the trunks under test, it should be

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handled as a regular subscriber's call. If it is not possible to include the trunks in the sequence of an occupied position, split the trunks under test from the remainder of the "B" board and plug operators' telephone sets into the telephone jacks associated with the trunks under test. In the latter case the tester should advise the "B" operator of any subscribers' calls which may come in sequence with the trunks being tested.

- 3.5 Check the number of trunks in the group at both ends. If the number of trunks does not check, the discrepancy should be noted and corrected before making a test.
- 3.6 After completing tests of all groups to be tested in one night, take the readings of all working all-trunks-busy registers again. Note that no registers have been operated falsely on groups not under test. Report to the Traffic Department the number of operations made on each register.

4. METHOD:

(a) Automatic Listening Trunks: (Except toll switching trunks with non-locking disconnect signal.)

- 4.1 Outgoing end—make all trunks busy by inserting the plug of an "A" or toll cord in the O.G.T. jack of each trunk. If the trunks originate at a tandem board, insert a plug with the tip and ring short-circuited in each jack.
- 4.2 Incoming end—the guard signal should appear on each trunk as the plug is inserted in the outgoing jack. If a guard signal is not received, verify the fact that the plug is fully inserted at the outgoing end. If the guard signal still does not appear, discontinue the test of that group and report trouble on the trunk. Depress the release key after the guard lamp flashes on each trunk.
- 4.3 The all-trunks-busy register should operate when all guard lamps are lighted. Read the register to see that it has operated once. If it has operated and it is desired to make a complete test (see paragraph 1.6), proceed as follows:
- 4.4 Insert the plug of the first trunk in a busy-back jack.
- 4.5 Outgoing end—when the busy-back signal is received, remove the plug from the O.G.T. jack and reinsert it, wait for the busy-back signal and again remove the plug and reinsert it.
Note: If the trunk originates at a toll board, the cord should be withdrawn for a full second.
- 4.6 Incoming end—remove the plug from the busy-back jack and depress the release key.
- 4.7 Repeat the operations described in paragraphs 4.4, 4.5 and 4.6 for each trunk in the group, including the trunk used for talking.
- 4.8 Outgoing end—remove all plugs and restore service on the group.
- 4.9 Incoming end—immediately read the register and record reading. The difference between the two readings should be equal to twice the number of trunks, plus one.

(b) Automatic Listening Toll Switching Trunks With Non-Locking Disconnect Signal:

- 4.10 Outgoing end—make all trunks busy by inserting the plug of a toll cord in the O.G.T. jack of each trunk.
- 4.11 Incoming end—the guard signal should appear on each trunk as the plug is inserted in the outgoing jack. If a guard signal is not received, verify the fact that the plug is fully inserted at the outgoing end. If the guard signal still does not appear, discontinue the test of that group and report trouble on the trunk. Depress the release key after the guard lamp flashes on each trunk.
- 4.12 The all-trunks-busy register should operate when all guard lamps are lighted. Read the register to see that it has operated once. If it has operated and it is desired to make a complete test (see paragraph 1.6), proceed as follows:
- 4.13 Insert the plug of the first trunk in the ringing test line or a spare multiple jack, the sleeve of which is connected to ground through 34 ohms.
- 4.14 Outgoing end—the toll cord supervisory lamp will light when the plug is inserted in the jack at the "B" board. At this time the toll board tester should withdraw the plug from the O.G.T. jack.
- 4.15 When the disconnect signal appears at the "B" board, withdraw the plug from the jack.

- 4.16 Instruct the toll board tester to reinsert the plug in the O.G.T. jack, and note that the guard signal appears when this is done. When the guard lamp flashes, depress the release key and proceed to the next trunk.
- 4.17 Repeat the operations described in paragraphs 4.13 to 4.16 on each trunk in turn, including the trunk which is used as a talking connection.
- 4.18 Take down all cords at the toll board and restore service on the group.
- 4.19 Incoming end—immediately read the register and record reading. The difference between the two readings should be equal to the number of trunks, plus one.

(c) **C. I. T. S. Trunks:**

- 4.20 Outgoing end—make all trunks busy by inserting the plug of an "A" or toll cord in the O.G.T. jack of each trunk. If the trunks originate at a tandem board, insert a plug with the tip and ring short-circuited in each jack.
- 4.21 Incoming end—split the trunks under test from the remainder of the "B" board and insert an operator's telephone set in the telephone jack of each position on which the trunks appear.
- 4.22 The guard lamp should light on each trunk as the plug is inserted in the outgoing jack. If the guard lamp does not light, verify the fact that the plug is fully inserted at the outgoing end. If the guard lamp still does not light, discontinue the test of that group and report trouble on the trunk.
- 4.23 Depress the listening key on each trunk in the group in turn and note that each guard lamp flashes. When the last key is depressed the register should operate. Read the register to see that it has operated **once**. If it has operated and it is desired to make a **complete** test (see paragraph 1.6), proceed as follows:
- 4.24 Outgoing end—remove the plug from the first trunk of the group and reinsert it.
- 4.25 Incoming end—the guard lamp will be extinguished momentarily and will light again. Depress the listening key on the trunk and note that the guard lamp flashes.
- 4.26 Repeat the operations described in paragraphs 4.24 and 4.25 on each trunk in turn, including the trunk used for talking.
- 4.27 Outgoing end—remove all plugs and restore service on the group.
- 4.28 Incoming end—immediately read the register and record reading. The difference between the two readings should be equal to the number of trunks in the group, plus one.

(d) **C. I. T. S. Trunk (with all-trunks-busy register controlled by SL relay):**

- 4.29 There are a few cases where old type call indicator trunks have been converted for C. I. T. S. operation in which the lead from the all-trunks-busy register circuit is connected to a contact on the sleeve relay. Where this condition exists, the test may be made entirely at the "B" board.
- 4.30 Ground the sleeve of each trunk by inserting the plugs of the trunk cords in spare multiple jacks, the sleeves of which are connected to ground through 34 ohms. Where sufficient spare multiple jacks are not available, any other convenient means of grounding the sleeves may be used. The register should operate when the last sleeve is grounded. Read the register to see that it has operated **once**. If it has operated and it is desired to make a **complete** test (see paragraph 1.6), proceed as follows:
- 4.31 Break and remake each sleeve connection in turn.
- 4.32 Restore all trunks to normal and immediately read the register and record reading. The difference between the two readings should be equal to the number of trunks in the group, plus one.

(e) **Combination Trunk Groups:**

- 4.33 Where a trunk group is made up partly of automatic listening trunks and partly of C. I. T. S. trunks, make all trunks of the group busy at the outgoing end, and follow the procedures outlined for the different types of trunks. The register should operate when all trunks are made busy. If the complete test is made, the difference in the two readings obtained should be equal to the number of C. I. T. S. trunks, plus twice the number of automatic listening trunks, plus one.

Note: It is assumed that toll switching trunks will not be included in such combination trunk groups.

5. **REPORTS:**

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