CIRCUIT DESCRIPTION SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT

83724

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PANEL SYSTEMS TEST LINE CIRCUIT FROM FINAL MULTIPLE IN GROUND CUT-OFF RELAY OFFICE FOR TESTING TRUNK FINDER AND OUTGOING TRUNK CIRCUITS TO CENTRAL "A" SWITCHBOARD FOR INTERCEPTING AND VERIFICATION REQUEST SERVICE

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Cross-connections are changed without record to agree with Western Electric drawings.

All other headings under Changes, no change.

1. PURPOSE OF CIRCUIT

1.1 This circuit is designed for use in conjunction with the associated circuits, to provide means for testing trunk finder and outgoing trunk circuits to panel central "A" switchboard for intercepting and verification request service.

1.2 The test call is set up by using the office, incoming and final selector portable test circuit and directing the call through an incoming and final selector to the final multiple terminal where this test line appears. The trunk finder then hunts for this line or is moved up manually, depending on the class of test. Thereafter, the test call proceeds to the central "A" operator exactly like a service call.

1.3 The testman may talk with the DS "A" operator, check with her for the operation of signals at the "A" board, and request completion to a busy line or to a local line in the exchange in cases where the circuits are arranged for completion. In this case supervision will be received at the selector test circuit.

1.4 Tests of a particular trunk finder may be made by moving the brush rod manually to the test line. For routine testing, the trunk finders are

routine testing, the trunk finders are tested in the regular sequence of allotment.

2. WORKING LIMITS

2.1 None.

3. FUNCTIONS

3.01 This test line circuit is for use in testing the trunk finder and outgoing trunk circuits to central "A" board for intercepting and verification request service.

3.02 The test is made by using the portable selector test circuit and directing a test call over an incoming and final selector to this test line. The connection is completed through the trunk finder to the central "A" board.

3.03 Means are provided to start a trunk finder hunting for this circuit as soon as this circuit is seized by a final selector.

3.04 The circuit is arranged to apply an electrical condition to the
(H) terminal on the trunk finder multiple in order to cause the trunk finder to stop on the proper terminals.

3.05 It is arranged to free the trip, start and allotter circuit for use on other calls as soon as a trunk finder finds this circuit.

3.06 it is arranged to hold the trunk finder under control of the calling end prior to the answer of the intercepting operator.

3.07 It prevents a reseizure of this circuit until freed by the trunk finder in case the final selector drops off first.

3.08 It is arranged to prevent starting another trunk finder when the trunk finder drops off first.

3.09 It provides a talking path from the final selector to the trunk finder.

3.10 A system of jacks is provided so that by appropriate patching, tests may be made of the ringup relays on either tip or ring of the trunk finder circuit. Also, the trunk hunting

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feature may be eliminated and tests made on a trunk finder, the elevator of which has been moved up to the test line by hand.

3.11 A key is provided for making rapid hunting tests of the trunk finders in allotment sequence without any call having been directed to the test line.

4. CONNECTING CIRCUITS

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

4.1 Office, Incoming and Final Portable Selector Test Circuit, SD-20150-01.

- 4.2 Ground Cut-Off Panel Incoming Selector, ES-21036-01 (Typical).
- 4.3 Ground Cut-Off Panel Final Selector, SD-239665.
- 4.4 Intercepting Trunk Finder and Outgoing Trunk Circuit, SD-21560-01.
- 4.5 Trip, Start and Allotter Circuit for Intercepting Trunk Finders, SD-21561-01.
- 4.6 Miscellaneous Circuits for Incoming Selector Frame, SD-21229-01.
- 4.7 Incoming Intercepting Trunk Circuit, SD-95740.

DESCRIPTION OF OPERATION

5. Patching of Test Jacks

Prior to setting up a test call, two of the test jacks of this circuit which are mounted on the trunk finder frame, are connected together with a patching cord. One end of the cord is plugged into Tl or T2 jack, according as it is desired to test the ringup relays on the ring or tip, respectively, in the trunk finder circuit. The other end of the patching cord is plugged into the TL1 jack if it is desired to test the hunting feature of trunk finders selected in regular allotment. If it is desired to test a particular trunk finder, this may be done by inserting a make-busy plug in its make-busy jack to release it from service, and then raising the brush rod to the test line and tripping the proper brush manually. For tests of this class, the patching cord should be connected to TL2 jack instead of TL1 jack. Duplications of the test jacks are provided on front and rear of the trunk finder frame for convenience. In case the trunk finder bank is split, an additional set of TL jacks and relay equipment per Figure 1 is provided which constitutes in effect a second test line appearing in the other half of the trunk finder bank for use in testing selectors having access to these terminals. The office, incoming and final selector test set should be located at the trunk finder frame. Battery and ground should be connected to the test set by a patching connection to frame (A) jack. An operator's telephone set should be connected to the test set telephone jacks. The test set (TST) jack should be patched to the frame (E) jack. A local or interoffice full mechanical incoming selector should be made busy and its test jack should be patched to a jack at the incoming selector frame. This jack should have its T, R and S leads connected to the T, R and S leads of the trunk finder frame (E) jack.

 Tests of Trunk Finders in Regular Allotment.

For tests of this class, jacks Tl and T2 are patched to jack TLl as pre-viously described. Using the portable selector test circuit, a call is then directed over a regular incoming and final selector to the test line in the final multiple to which jacks Tl and T2 are connected. Ground on the sleeve from the final selector operates relay SL which locks to the "S" lead. Relay SL grounds lead "A" to the trip, start and allotter circuit, causing a trunk finder to hunt for this circuit, and connects lead "H" from the trip, start and allotter circuit to the H terminal on the multiple bank in the trunk finder and outgoing trunk circuit. When the trunk finder finds this circuit and stops on the proper terminals, ground is connected to lead "S" from the trunk finder, operating relay CO which locks to relay SL. Relay CO opens leads "A" and "H" to the trip, start and allotter circuit, thus freeing that circuit for use on other calls and grounds lead "H" to the trunk finder, holding the trunk finder under the control of the call-ing end until the operator answers. Relay CO also prepares a future make-busy path for the final terminals of this circuit, and opens the operating path of relay SL. When the intercept-ing operator at the central "A" board answers, ringing is tripped in the trunk finder and the talking circuit is closed through from the test set to the DS"A" operator. A check may be made with the "A" operator for the operation of signals at the "A" board, and in areas where the trunk finders and intercepting cords are arranged for completion of intercepted calls, the testman may request the operator to complete the call to a known busy line



or to a local line in the exchange. In this case supervision will be obtained at the selector test set.

7. Disconnection

If the testman disconnects first, relay SL releases when the final selector drops off, connecting battery through resistance "A" to the sleeve terminal to hold this circuit busy. Relay SL also opens the locking path of relay CO which remains held from the trunk finder, and removes ground from lead "H" to the trunk finder frame. If the intercepting operator has not answered, this causes the trunk finder to release, releasing relay CO. If the operator has answered, removal of ground from lead "H" performs no useful function. When relay CO releases, due to the release of the trunk finder at any time after relay SL has released, the circuit is restored to normal. If the trunk finder is released by the operator before the testman has disconnected, relay CO remains locked to relay SL until the testman disconnects. When this occurs, relays SL and CO release, restoring the circuit to normal.

8. Routine Testing

In order to routine the trunk finder circuits, the test described in paragraphs 6 and 7 should be repeated until all of the selectors have been tested. To accomplish this, it is necessary for the testman to note each trunk finder as it is used in order to make sure that all circuits are tested.

9. Test of a Particular Trunk Finder

When it is desired to make tests on a particular trunk finder, either because it has been faulty in routine or for any other reason, it may be taken out of service and made busy by inserting a make-busy plug in its make-busy jack. For this test, the Tl or T2 jack

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should be patched to the TL2 jack as described in paragraph 5. The trunk finder elevator is then raised manually to the test line terminals and the proper brush is tripped manually. In order to insure against interference to intermediate working lines, care should be taken not to trip the brush until the test line has been reached. The test call is originated as described in paragraph 6 and when the final selector brush reaches the test line terminals, the sleeve being open will per-mit the final to stop on the test line terminal but will not cause relays CO and SL to function since the operating circuit of SL relay is open when the TL2 jack is used. The trunk hunting feature is not required since a particular trunk finder has already been selected and its elevator raised by hand. Except for the elimination of this feature, the test of a particular selector is made similarly to the general test described in paragraph 6. The elevator must be restored manually before test can be repeated.

10. Rapid Hunting Tests

When it is desired to make rapid tests of the starting and hunting features of the trunk finders, one of the Tl keys is operated. This operates SL relay from battery thru resistance A and opens the locking circuit for SL relay. A trunk finder which has been preallotted by the allotter circuit hunts for this line and stops on it. Ground from the trunk finder on the "S" lead operates CO relay, releasing SL relay and effecting a disconnect at the incoming end of this circuit. The trunk finder releases and if the Tl key is left operated, the next trunk finder in regular allotment hunts for this line. This sequence of starting, hunting, stopping and release continues until the Tl key is released and provides a rapid test of the starting and hunting features of the trunk finders.

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