

PANEL SYSTEMS
EXERCISE TEST CIRCUIT
FOR LINE FINDERS AND ASSOCIATED CIRCUITS
OF ORIGINATING EQUIPMENT

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 Circuit is changed to operate with battery cut-off on conversion from ground cut-off.

B. CHANGES IN APPARATUS

B.1 Added

R1536 (C0) relay (Fig. E)

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Figure E is added to provide for operation when ground cut-off is converted to battery cut-off.

D.2 Circuit note 103 is revised to cover application of Fig. E.

All other headings, No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3340-LBS-FJS

CIRCUIT DESCRIPTION
BELL TELEPHONE LABORATORIES, INC.,
SYSTEMS DEVELOPMENT DEPT., NEW YORK.
PRINTED IN U.S.A.

CD-21035-01
Issue 1
Appendix 2-D
June 28, 1932
(1 Page) Page 1

PANEL SYSTEMS
EXERCISE TEST CIRCUIT
FOR LINE FINDERS AND ASSOCIATED CIRCUITS
OR ORIGINATING EQUIPMENT

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Rating is changed from A & M Only to Mfr. Disc.

All other headings - No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 332-A

LBS }
WHM } BA

FD-31035-01
Issue A
Appendix B-D
Page 20
(1 page) Page 1

CIRCUIT DESCRIPTION
BELL TELEPHONE LABORATORIES, INC.,
SYSTEMS DEVELOPMENT DEPT., NEW YORK.
PRINTED IN U.S.A.

CD-21035-01
Issue 1
Appendix 1-D
February 16, 1929
(2 Pages) Page 1

PANEL MACHINE SWITCHING SYSTEM
EXERCISE TEST CIRCUIT
FOR LINE FINDERS AND ASSOCIATED CIRCUITS
OF ORIGINATING EQUIPMENT

CHANGES

A. CHANGED AND ADDED FUNCTIONS

A.1 None.

B. CHANGES IN APPARATUS

B.1 Provision made for additional (ET) relays
and fuses for Fig. 2.

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLY-
ING TO ADDED OR REMOVED APPARATUS

C.1 None.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Straps shown at windings of (ET) relay, to allow
for additional (ET) relays in case 2 or more
central offices are located in same building.

D.2 Fusing note 102 changed to allow one fuse f
relays and 1st lead "B" and one for each
additional lead "B" to avoid overloading fuse,
in case circuit is used for more than one office.

D.3 Circuit note 108 added.

DEVELOPMENT

1. PURPOSE OF CIRCUIT

1.1 No change.

2. WORKING LIMITS

2.1 No change.

OPERATION

3. FUNCTIONS

3.1 No change.

4. CONNECTING CIRCUITS

4.1 No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 332-A-1

AR)
WHM)XL

CIRCUIT DESCRIPTION
BELL TELEPHONE LABORATORIES, INC.,
SYSTEMS DEVELOPMENT DEPT., NEW YORK
PRINTED IN U.S.A.

CD-21035-01,
Issue 1
December 15, 1926
(3 Pages) Page 1

PANEL MACHINE SWITCHING SYSTEM
EXERCISE TEST CIRCUIT
FOR LINE FINDERS AND ASSOCIATED CIRCUITS
OF ORIGINATING EQUIPMENT

DEVELOPMENT

1. PURPOSE OF CIRCUIT

- 1.1 This circuit is for use in making exercise tests of originating equipment in both sender selector and link type line finder offices. It is arranged to test all line finder groups simultaneously, so that the originating equipment for an entire office may be routined in a short space of time and troubles cleared each morning, before the load picks up.

2. WORKING LIMITS

- 2.1 None.

OPERATION

3. FUNCTIONS

- 3.1 Causes line finders in succession in all "A" or "B" sub-groups simultaneously to hunt the line terminals to which these circuits are wired and wipe out.
- 3.2 Indicates by flashing of lamp whether test is proceeding satisfactorily in each group of 400 lines in the office.
- 3.3 Indicates by steady lamp signal if test is blocked in any one of the 400 line groups in the office, due to trouble in trip or start circuits, line finders, links or senders.
- 3.4 Arranged for cutting off any line group on which it is not desired to make tests.

4. CONNECTING CIRCUITS

- 4.1 Trip and start circuits of either sender selector or link type.
- 4.2 Sender selector type line finder and district circuits, or link type line finder and district circuits arranged for line circuits having either battery or ground on cut-off relay.
- 4.3 Associated sender and link circuits.

DETAILED DESCRIPTION

5. ARRANGEMENT OF EQUIPMENT A jack (C) and lamp (ET) is provided for each line group, together with line and cut-off relays, which are wired to the top line of the bottom line finder bank in each group. Also two master start jacks, (A) and (B), are provided for the office for starting line finders in the "A" and the "B" sub-groups respectively.

6. TEST OF "A" SUB-GROUPS To originate calls in all the "A" sub-groups simultaneously, a make-busy plug is inserted in jack (A). This causes the operation of the (ET) and (TA) relays and the (L) relays of the various line groups. The operation of the (ET) relay connects battery to the (ET) lamps associated with the line groups, lighting the lamps. The operation of the (TA) relays causes the throw-over features of the start circuits to be operated so that only "A" sub-group line finders will be started. The operation of the various (L) relays causes the trip circuits to function in the usual manner and start line finders (one in each group) hunting for the test lines. When a line finder has found the test line, the corresponding trip circuit is released, the "S" lead is closed through, operating the (CO) relay, which releases the (L) relay and extinguishes the (ET) lamp. Since the tip and ring leads of the test line are open at the line finder multiple bank, a wipe-out occurs and the line finder and associated sender (and link in the case of link type equipments) return to normal releasing the (CO) relay. When the (CO) relay releases, the (ET) lamp relights and the (L) relay operates again from ground on the (A) jack, starting up a second line finder, and this cycle of operations is repeated as long as the make-busy plug is in the (A) jack.

7. TEST OF "B" SUB-GROUPS To originate calls in all the "B" sub-groups simultaneously, a make-busy plug is inserted in jack (B). This causes the same sequence of operations as the insertion of a plug in jack (A) except that the (TA) relays are not operated and line finders in the "B" sub-groups are started, since each test line, being at the top of the bank is so wired as to start line finders in the "B" sub-group.

8. INDICATIONS OF TROUBLES The flashing of the (ET) lamps associated with the line groups indicates that the test is progressing satisfactorily, while a steady light indicates failure to find the test line, failure of the (CO) relay to operate or other troubles. Also a failure to wipe out after the line is found will be indicated by the (ET) lamp being extinguished and not re-lighting. Troubles may also be indicated by trip circuit alarms, start circuit alarms, link alarms or stuck sender alarms.

9. MEANS OF PREVENTING TESTS OF BOTH "A" AND "B" SUB-GROUPS SIMULTANEOUSLY Jacks (A) and (B) are so wired that if plugs are in both jacks, the (ET) relay is operated, lighting the (ET) lamps, but the circuit for operating the (L) and (TA) relays is opened, so that no line finders can be started in either the "A" or the "B" sub-groups.

10. MEANS OF PREVENTING TEST OF ANY GROUP In case it is desired to cancel the test on any particular group, a plug is inserted in the corresponding jack "C" of this group. This opens the circuit to the (L) relay of the test line, preventing the (L) relay from operating and starting line finders in this group, and also opens the circuit to the (ET) lamp and the "ET" lead to the start circuit of the group affected.

11. RESTORING CIRCUIT TO NORMAL Removal of the plug from the "A" or "B" jack causes the release of the (ET) relay, and the (TA) relays if operated, and all (L) relays, restoring the circuit to normal.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 332-A

AR)YK
WHM)

50-10-1-26
50-6-1-27
100-10-1-28
100-3-31-28
50-10-1-28
50-1-1-29

