

E-83242

TOTAL

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NORTHLAKE, ILL., U.S.A.

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EXPLANATION  
OF  
END OFFICE COMMUNICATION  
& TEST TRUNK CIRCUIT  
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GENERAL

This circuit is designed to provide an end office communication and test trunk circuit for transmission testing as required by Bell System Notes on DDD, and is arranged for insertion between line.

FEATURES

1. Provides transmission testing via the regular trunk to line equipment terminal number.
2. Provides for open circuit (AC), short circuit, and send 1000 cycle 1 milliwatt test ( $Z=900$ ).
3. Provides jacks for variable frequency send, and for db, or V.T.V.M. receive tests.
4. Either a regular telephone or operator's set may be used for answering on calling.

OPERATIONA. End Office Test Facilities Not Provided (FIG. 1 & 2)1. Seizure (Operated: Key TST)

To originate the test, a call is placed via leads "+" and "-" (FIG. 1) of the line equipment terminal number or Connector Bank assigned for testing to an attendant in the end office via leads L2 and L1 (FIG. 2), respectively. If the attendant is provided with a telephone, a line loop is closed upon answering and conversation may take place.

If the attendant is provided with an operator's set, the loop is closed via leads L2 and L1 to a ringer, which causes an audible alarm to be sound. When the alarm is sounded, the attendant, inserts a cord circuit into the OPR. JK. (FIG. 2) closing BF. Relay BF operates, and closes the transmission loop via leads T1 and R1. Conversation may now take place. The attendant, upon being informed what test is being made, operates the corresponding test key.

2. Testing (Operated: Key TST.)

Sections 2.1 - 2.5 describe a test series. If only one test is to be

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performed, it is as described in its corresponding Section, with the addition that key TST is restored. Key TALK may or may not be operated.

### 2.1 Open Circuit Test

The attendant restores key TST., removing himself from the line by opening leads "+" and "-" from leads L2 and L1 (Attendant provided with telephone) respectively, or leads T1 and R1 (Attendant provided with operator's headset), respectively, and closes RET. (RET. COIL) across the line. The attendant then simulates an open condition by operating key OPEN. With the impedance of RET. (RET. COIL) known, the test originator can measure the impedance across the line under an open circuit condition.

After sufficient time has elapsed for the measurement to be taken, the attendant restores key OPEN, which removes the open condition from the line. The attendant then operates key TALK, which closes the loop via leads L1 and L2 on leads T1 and R1 to the telephone or operates headset, respectively. The attendant can then be informed to initiate the next test.

### 2.2 Short Circuit Test (Operated: Key TALK)

The attendant restores key TALK, which removes the attendant from the line, by opening the transmission loop via leads L1 and L2, or leads T1 and R1 to the telephone or operator's set, respectively, and closes key SHORT, simulating a short circuit (AC) condition. The test originator can now measure the impedance of the line under a short circuit condition.

After a sufficient time delay, to allow the measurement to be taken, the attendant restores key SHORT, which removes the short circuit condition from the line, and operates key TALK, reclosing the loop (Section 2.1) to his telephone or operator's set. The attendant is now informed of the next test.

### 2.3 Send 1000 Cycle 1 Milliwatt Test (Z=900) (Operated: Key TALK)

The attendant restores key TALK, removing himself from the line (Section 2.2), and operates key SEND. The operation of key SEND removes the lead (R1-R5) from the constant 1000Ω SUPPLY Z=900, removes resistor R6 from leads "+" and "-", closes leads +T and -T to LINE EQPT. (TERM. # ASSIGNED FOR TST.) OR CONN. BK., via leads + and -, respectively, and grounds lead ST. Where the 1000Ω SUPPLY is not constant, ground on lead ST starts the 1000Ω supply equipment.

After a sufficient time delay to allow the measurement to be taken, the attendant restores key SEND, which closes the lead (R1-R5) to the 1000Ω SUPPLY, closes resistor R6 to leads "+" and "-", opens

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leads +T and -T from the LINE EQPT. (TERM. # ASSIGNED FOR TST.) OR CONN. BK., and removes ground from lead ST. The attendant may then operate key TALK (Section 2.1), to be informed of the next test.

2.4 Variable Frequency Send Test (Operated: Key TALK)

The attendant restores key TALK, removing himself from the line (Section 2.1), connects a variable frequency supply to the circuit via the VARIABLE FREQUENCY SUPPLY JK, and operates key SEND. The operation of key SEND removes resistor R6 from across leads "+" and "-", opens the original load (R1-R5) circuit to the 1000Ω SUPPLY (The load circuit remains closed via the contacts of the VARIABLE FREQUENCY SUPPLY JK.), and closes the variable frequency supply to the LINE EQPT. (TERM # ASSIGNED FOR TST.) OR CONN. BK. via leads "+" and "-".

After sufficient time has elapsed for the measurement to be taken, the attendant restores key SEND, which closes resistor R6 across leads "+" and "-", opens the variable frequency supply from leads "+" and "-", and closes the original load circuit to the 1000Ω SUPPLY. When the variable frequency supply is removed from its corresponding jack, the alternate load circuit to the 1000Ω SUPPLY is opened. The attendant may now operate key TALK (Section 2.1), to be informed of the next test.

2.5 DB or V.T.V.M. Test (Operated: Key TALK)

The attendant restores key TALK, removing himself from the line (Section 2.1) and operates key REC., which closes the LINE EQPT. (TERM. # ASSIGNED FOR TST.) OR CONN. BK., to the REC. JK. via leads "+" and "-". The attendant can now make the corresponding measurement.

After the measurement has been taken, the attendant restores key REC., which opens the LINE EQPT. (TERM # ASSIGNED FOR TST.) OR CONN. BK. via leads "+" and "-" from the REC. JK. The attendant may now operate key TALK (Section 2.1) to be informed of the next test.

3. Completion of Test (Operated: Possibly key TALK)

At the completion of the test, or series of test, the attendant restores key TALK (if operated), and operates key TST. The operation of key TST. recloses the original transmission path via leads "+" and "-" to the attendant's telephone (via leads L1 and L2) or operator's set (via leads R1 and T1). The circuit is now at normal.

4. Release (Operated: Key TST.)

When the attendant is provided with a regular telephone, no action takes place in this circuit. If the attendant is provided with an operator's

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set, no action takes place until the attendant disconnects.

When the attendant disconnects, by removing his cord circuit from the OPR. JK., BF is opened. Relay BF restores, and opens the transmission path via leads R1 and T1.

5. Outgoing Calls

If the attendant is provided with an operator's set, instead of a regular telephone, a dial is provided (FIG. 2) to originate outgoing calls. The attendant inserts a cord circuit into the OPR. JK., closing BF. Relay BF operates, and closes lead R1 to lead "-". A transmission path is now closed via leads T1 and R1, and the attendant can now dial the desired number. Release is as described in Section 4.

B. End Office Test Facilities Provided (FIG. 1)

1. Seizure

To originate the test, a call is placed via leads "+" and "-" of the line equipment terminal number, or Connector bank, assigned for testing to an attendant at the TEST TURRET OR PAN. via leads T and R, respectively. When the attendant answers, the line loop is closed and conversation may now take place. Subsequent operations are as described in Sections 2 - 5.

(1) DLZ:dmm

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