FEATURE DOCUMENT

NO-TEST ACCESS

NO. 3 ELECTRONIC SWITCHING SYSTEM

CONTENTS PAGE

Figures

CONTENTS PAGE

INTRODUCTION

1. GENERAL INFORMATION

1.01 This document describes the No-Test Access feature of the No. 3 Electronic Switching System (ESS). The feature enables a verification (no-test) operator calling over an incoming trunk circuit to complete a call to a line which is busy. The operator may also use this feature to perform number checking and busy-idle verification of customer lines. This feature also allows no-test calls from the Local Test Desk (LTD) and the Trunk and Line Test Panel (TLTP) when performing customer line tests.

1.02 When this document is reissued, the reasons for reissue will be included in this paragraph.

1.03 This feature is available with all generic program issues.

2. DEFINITION

2.01 The No-Test Access feature enables a verification operator to complete a call to a customer line which is busy. The operator also uses no-test access to perform number checking and busy-idle verification of customer lines. When necessary, no-test access is used by the LTD or TLTP for testing of customer lines.

2.02 This is a standard No. 3 ESS feature.

DESCRIPTION

3. USER OPERATION

VERIFICATION OR NO-TEST OPERATOR

3.01 Upon receiving a request for a number check or busy-idle verification, an operator at a special switchboard connects to an outgoing trunk to the office in which the check or verification is required. (Operators at Traffic Switching Position System (TSPS) positions will have this capability beginning with Generic 9 of the TSPS program.) The operator then dials the number of the desired party. The handling of the no-test call may then take one of several variations depending on the type of line called and the state of the line when called.

3.02 If the called line is idle, a normal connection is established from the no-test trunk in the No. 3 ESS office to the line and an on-hook supervisory signal is returned to the operator. Control is then retained by the operator. The line is not rung until the operator operates the "RING" key. The ring signal is received as a wink followed by an inband MF signal. The operator receives audible ringing tone while the line is being rung. When the line answers, the ringing circuit is disconnected and a talking path is established between the operator trunk and the line. If the line goes off-hook before the operator operates the "RING" key, the operator and line will have a talking connection and an off-hook supervisory signal is returned to the operator. When a no-test call cannot be completed, reorder is returned.

3.03 A no-test call made to a service busy line is made to the line through a no-test connection (Figure 1). A request by the operator to ring a line will not be recognized after a call has been made to a busy line. The operator may ring a line if it was idle originally, but once a no-test connection has been established, the line may not be rung even if it goes on-hook.

3.04 When a no-test call is placed to a hunting group, either series completion or multiline hunting, these lines will be seized in the same order as they have been placed in memory. The call is completed to the first terminal associated with the directory number without hunting. A connection to a hunting group does not cause hunting to occur.

3.05 A no-test call to a "call forwarded" line is completed to the base station rather than to the forwarded number.

3.06 A no-test operator call to a TN assigned special routing (such as unassigned number, intercept, denied service, etc) is completed in the normal manner according to the number dialed. There are no special actions taken because the calling party is a no-test operator.

3.07 A no-test call to a line in the permanent signal state results in the operator being connected to the line as if the line was idle and, in this case, given an off-hook supervisory report. The line is then monitored for operator disconnect.

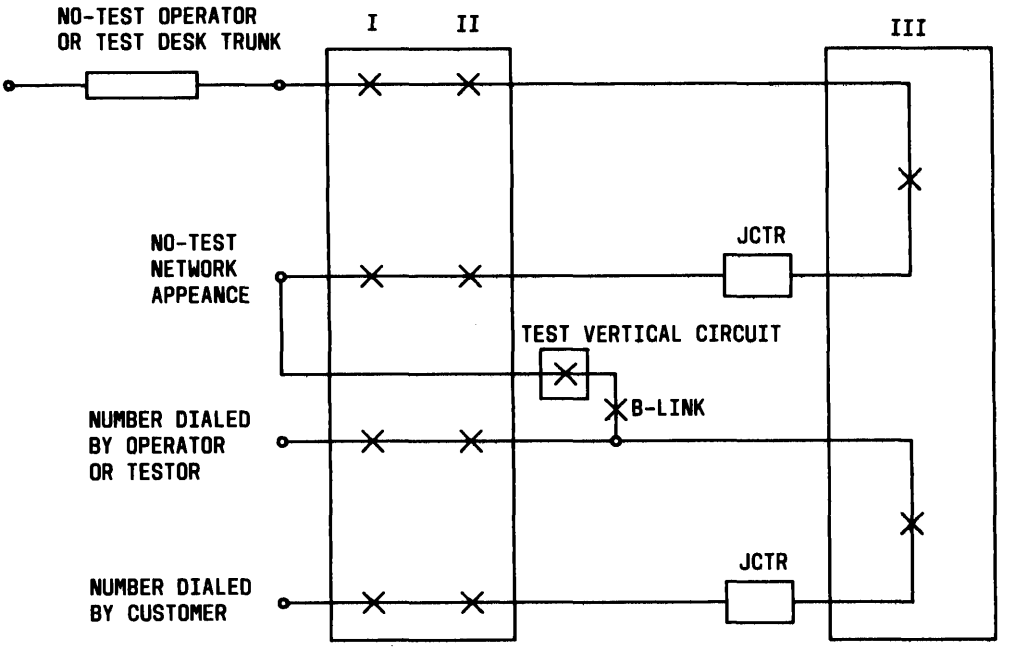


Fig. 1—No-Test Network Connection

Local Test Desk

3.08 A LTD call to an idle line (including a line that is denied terminating service), or to a TN that is unassigned, on intercept, or has special routing, is completed in a normal manner. No special actions are taken because the calling party is a LTD.

3.09 When a tester at a LTD has called a busy line, the LTD will be connected to the line through the no-test vertical. If the required no-test vertical is busy, 120-ipm low tone is returned to the LTD.

3.10 To use a no-test vertical for connecting to a 1-party or multiparty customer, the tester must establish a test connection to the No. 3 ESS. The tester then dials the 4-digit station number if only one office code is used in that office or an office selection digit and the 4-digit station number if more than one office code is used in that office. Calls to lines that are connected by a no-test vertical are handled the same as those described in paragraphs 3.02 through 3.07 for a verification operator.

Trunk and Line Test Panel

3.11 When a craftsperson at a TLTP is testing customer lines and dials up a line that is service busy, the EQUIPMENT STATUS lamp on the TLTP will flash at 60 ipm. The craftsperson may then release the connection or request to monitor the circuit via the no-test verticals by operating the appropriate MONITOR key. When this key is operated, the necessary network connections to the appropriate no-test vertical are made. The craftsperson can then monitor the line and release the connection or, if necessary, depress the TALK key to talk to the customer(s) on that line.

Other No-Test Users

3.12 No-test verticals are also presently used for the overtime coin functions, coin presence test, coin announcement and coin collect, and application of call waiting tone. In offices with 3E3 or later generic programs, no-test vertical deloading will remove the coin and tone functions from the no-test verticals.

4. SYSTEM OPERATION

NO-TEST CONNECTION TO AN IDLE LINE

4.01 The No-Test Trace Connection (NTCONN) program, PR-3H163, is given control of a no-test call to an idle line after the Completion of Incoming and Interoffice Calls (TERM) program, PR-3H175, has selected a talk path. The NTCONN program has the talk path set up and connects the no-test trunk to the called line. A check is also made to see if this is an LTD call and, if it is, control is passed to the Local Test Desk Handler (LTDH) program, PR-3H311.

4.02 With supervision being maintained from the no-test trunk, the called line is tested for the permanent signal state. The operator is given an off-hook supervisory signal if this state exists and the call is monitored only for operator disconnect. Otherwise, on-hook is returned and supervision is switched to the line to watch for operator supervision and to allow the operator to ring the line (the trunk is monitored by the fast trunk scan for a ring signal).

4.03 After an idle line returns an on-hook supervisory signal, the operator then retains control. By operating the "RING" key, the operator can ring the called line. This ring signal is received as a wink followed by an inband MF signal. Audible ringing tone is returned to the operator while the line is being rung and, upon answer, the ringing circuit is disconnected and a path is established between the operator trunk and the line. If the line goes "off-hook" before the operator rings the line, the operator and line will have a talking connection and an "off-hook" supervisory signal is returned to the operator.

4.04 A request by the operator to ring a line will not be recognized after a call has been made to a busy line. The operator may ring a line if it was idle originally, but once a no-test connection has been established, the line may not be rung even if it goes on-hook.

NO-TEST CALL HANDLING

4.05 The handling of a no-test call may take one of several variations depending upon the line called and the state of the line as follows:

(1) A no-test call to an idle line is handled as described in paragraph 4.03.

(2) If the no-test call is placed to a hunting group, the call is completed to the first terminal associated with the directory number without hunting. If the terminal is idle, the call is handled in the same manner as described in paragraph 4.03.

(3) A no-test call to a 'call forwarded' line is completed to the base station rather than to the forwarded number.

(4) A no-test operator call to a TN assigned special routing (such as unassigned number, intercept, denied service, etc) is completed in the normal manner according to the number dialed. There are no special actions taken because the calling party is a no-test operator.

(5) A no-test call cannot be completed to a line with the call waiting feature activated in offices with the 3E3 generic program or later.

(6) Reorder tone is returned when a no-test call cannot be completed.

(7) If a no-test call is made to a service busy line, a no-test connection is made to the line and the operator is given an off-hook supervisory signal. The connection is monitored until the line changes state or until the operator disconnects.

NO-TEST CONNECTION TO A BUSY LINE

4.06 The NTCONN program receives control from the TERM program after TERM determines that the called line is busy. The MF receiver connection is released and the receiver and path idled.

4.07 A check is then made to see if this is a LTD or TLTP call. If it is a LTD call, control is passed from NTCONN to LTDH. If it is a TLTP call, control is passed to the Trunk and Line Test Panel (TLTPC) program, PR-3H317. If from an operator, NTCONN retains control.

4.08 In a No. 3 ESS office, the no-test connectors are located between the second and third stages of switching on the B-links. Because the no-test connection is made to a B-link, the call associated with the busy line must be found. A search of the terminal memory records (TMR) is then instituted to find the call involving the busy line. A TMR is associated with each junctor involved with every network connection. The

search is made in both the A-party and the B-party translation words for a match with the busy line's scan point number (SPN). If a match is found and the TMR is marked stable, a no-test connection is established. If a match is not found, or if the TMR is transient, reorder tone is returned to the no-test operator. If it is not possible to establish a no-test connection because the no-test vertical is busy or all paths are busy, reorder tone is returned to the operator.

4.09 After the no-test connection is established, the call is monitored every base level loop to see if the line connection has changed. The transient call record (TCR) used to establish the no-test connection is used to store information to monitor the connection. Both the busy line connection and the no-test operator are supervised. An on-hook report from the busy line connection causes the no-test connection to be released. Then a normal processing of the supervisory report is made. Also, an on-hook signal is sent to the no-test operator, and the no-test trunk is monitored for disconnect. If the connection to the called line was released before the final no-test connector could be operated, but after the connection from the no-test trunk to the no-test vertical was made, that connection is released and the no-test party is given reorder.

NO-TEST HARDWARE

4.10 Four no-test verticals are provided in each office. Two no-test connections are supplied to the even network frames and two to the odd network frames. The no-test connections are made through two circuit packs. The test vertical access circuit pack (SD-3H902, FB417) supplies connections for test vertical access to the network. The test circuit access circuit pack (SD-3H902, FB419) provides connections for system test circuits, the no-test operator, LTD, and the TLTP. Refer to Figures 2 and 3 for test vertical access connections.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The No-Test Access feature is provided on a system basis. Four no-test cross connections must be installed in all offices. Two no-test connections are provided for all even frames and two for all odd frames.

5.02 This feature is intended for use by OTC verification operators, LTD testers, and craftpersons at the TLTP. Other present uses are described in paragraph 3.12.

6. LIMITATIONS

6.01 Users of this feature, other than system test circuits, can only access it through an incoming trunk which has been marked as a no-test trunk in translations. (In offices with 3E3 or later generic programs, no-test vertical deloading will remove the coin and tone functions from the no-test verticals.)

6.02 A maximum of four no-test connections are provided with each system. There are two connections provided for the even network frames and two connections for the odd network frames. These connections are common to all associated network frames through the B-links via a test vertical access circuit (FB417) and a test circuit access circuit (FB419) which are located on the control frame (SD-3H902).

7. INTERACTIONS

7.01 A no-test trunk is normally used in conjunction with a regular test trunk in an operator or test position. The regular test circuit is used to access the trunk for verification and testing but, if the circuit is busy, the no-test trunk may be used to connect to the busy circuit. This trunk does not test for busy before connection.

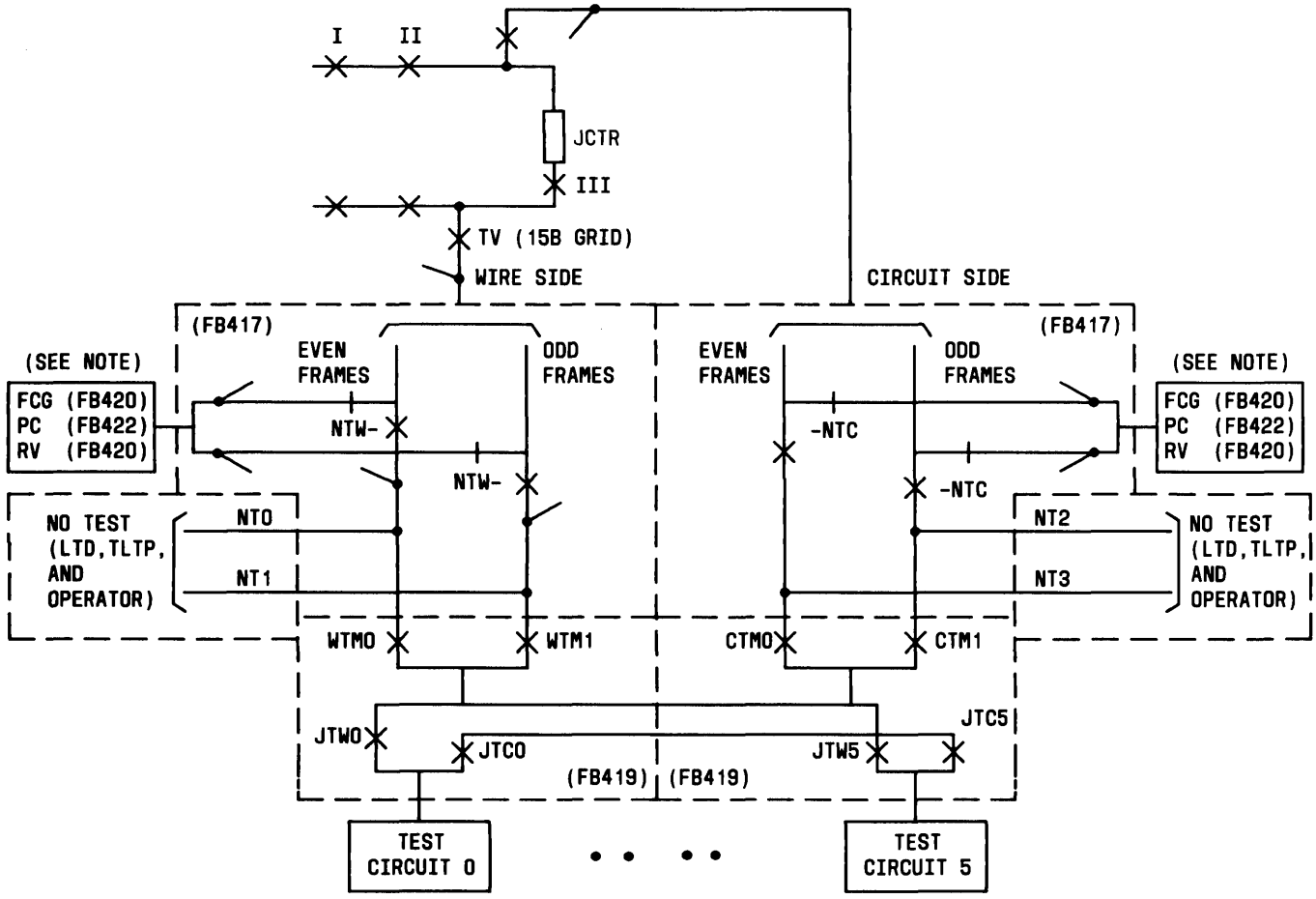
8. RESTRICTION CAPABILITY

8.01 This feature can only be accessed by system test circuits, a verification operator trunk, or from a test desk trunk. Only these circuits and trunks are allowed access to the no-test verticals by translations.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 The procedures for providing the no-test feature include assigning the circuit and wire test multiples to the odd and even concentrators and the no-test trunks through the use of recent change (RC) messages or the office data administration (ODA) run. These ODA and RC message assignments are described in Parts 11 and 12 of this section.



NOTE:
FCG = FALSE CROSS AND GROUND
PC = POWER CROSS
RV = RESTORE VERIFY

Fig. 2—No. 3 ESS Test Vertical Access

Adequate hardware (described in Part 10) must also be provided. Procedures for the installation of required hardware may be found in the Installation Engineering Handbook 269.

10. HARDWARE REQUIREMENTS

10.01 Up to a maximum of four no-test trunks may be installed. These trunks must be incoming and marked as no-test in translations. An E&M lead trunk (FB382, TOC 50204 or FB391, TOC 50205) that is designated as incoming or an Incoming Reverse Battery trunk (FB371, TOC 10203 or FB370, TOC 10202) may be used as a no-test trunk.

10.02 Two test vertical access circuits (SD-3H902, FB417) and two test circuit access circuits (SD-3H902, FB419) are also required to provide no-test access. One each of these circuits is located on control frame 0 and 1 (SD-3H902).

10.03 The fixed distribute points for the test vertical access and test circuit access circuits must be used.

10.04 Four network terminals are required; one for each of the no-test trunks.

11. SOFTWARE REQUIREMENTS

11.01 The No-Test Access feature is controlled by the No-Test Trace Connection (NTCONN)

maintenance of customer line, cable, and trunk plant in local and distant central office areas.

- ODA (Office Data Administration) Run—Mechanism by which software may be changed in the No. 3 ESS. Information from the ODA input forms is inputted into the regional ODA computer, then sent back to the No. 3 ESS.
- OTC—Operating Telephone Company.
- SPN—Scan Point Number.
- TCR (Transient Call Record)—An area in temporary memory used to store all pertinent information needed to originate, maintain, and disconnect a call.
- TLTP (Trunk and Line Test Panel)—The test panel located in the No. 3 ESS office that is used in the testing and maintenance of customer line, cable, and trunk plant in that office.
- TMR (Terminal Memory Record)—An area of temporary store used to record how lines, trunks, and junctors are associated with the paths existing at any one time through the switching network.
- TSPS (Traffic Service Position System)—An electronic, stored program control system that provides operator functions.
- TTY—Teletypewriter.

18. REFERENCES

18.01 The following is a list of documents which may be consulted for further information related to this feature.

- Section 233-190-031—Local Test Desk Arrangements, No. 3 ESS
- Sections 233-060-XXX—Network Design Sections, No. 3 ESS
- Section 233-152-135—Traffic and Plant Measurements, No. 3 ESS
- Section 233-154-130—Recent Change Users Guide, No. 3 ESS
- Section 233-151-115—Operator Functions Software Subsystem Description, No. 3 ESS
- Section 233-151-130—Basic Call Processing Software Subsystem Description, No. 3 ESS
- TG-3, Translation Guide
- IM-3H300—Input Message Manual, No. 3 ESS
- OM-3H300—Output Message Manual, No. 3 ESS
- PA-3H3XX—Office Data Tables Layout Specification, No. 3 ESS
- Installation Engineering Handbook 269
- SD-3H902—Control Frame
- SD-3H902, FB417—Network Connector Circuit
- SD-3H902, FB419—Test Circuit Connector
- PR-3H311—Local Test Desk Handler Program (LTDH)
- PR-3H164—Operator Call Program (OPER)
- PR-3H175—Completion of Incoming and Interoffice Calls (TERM)
- PR-3H163—No-Test Trace Connection (NTCONN)