

PROCEDURE IN CASE OF SUBSCRIBER CABLE FAILURE
USING THE PERMANENT SIGNAL IDENTIFICATION CIRCUIT
(SD-95817)
NO. 1 CROSSBAR OFFICES

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1. GENERAL

1.01 This section explains procedures for tracing permanent signals using the permanent signal identification circuit associated with ANI (automatic number identification) equipment.

1.02 This circuit is designed to eliminate manual tracing of single-party, two-party, and coin lines that are in a permanent signal (PS) condition. The maintenance man simply inserts a plug into a jack causing the ANI equipment to print the directory number of the line on a ticket.

1.03 A building may have over 500 PS holding trunks, each requiring an appearance at a PS jack in the (permanent signal identification) (PSI) circuit. Provision has been made for 600 PS jacks on the ANI trouble ticketer frame.

2. PERMANENT SIGNAL TRACING

2.01 To activate the permanent signal identification (PSI) circuit, insert the PS cord into the PS jack associated with the PSH (permanent signal holding) trunk that has a line to be identified.

2.02 The line is identified in the same manner as an ANI service call except that the outpulser passes the identification along with a PS indication to the trouble ticketer. A PS record is printed with the directory number, and a TPD lamp is lighted in the circuit. Removal of the PS cord extinguishes the TPD lamp. The circuit is now idle.

Caution: When identifying a series of permanent signals, do not withdraw the PS cord from one PS jack and insert it into another too rapidly. The trouble ticketer requires about five seconds to print

each PS record. Without adequate time outpulser attempts to seize a busy trouble ticketer will not light a TPD lamp or print a PS record. The attempt to identify the line must be repeated when the trouble ticketer is idle.

2-Party Lines

2.03 The PSI circuit gives a ring party indication to the outpulser on every call. If the identifier fails to find a ring party, the outpulser will instruct the identifier to search for the tip party. When a ring or tip party is identified, a permanent signal record is printed and the TPD lamp is lighted.

4-Party and Suburban Lines

2.04 The multiparty line is recognized, but not identified. The identifier notifies the outpulser that the line is multiparty and releases. A PS record is printed minus the office and numerals, but indicating a multiparty line. The TPD lamp is lighted. The circuit releases normally when the PS cord is removed.

Coin Lines

2.05 The PSI circuit by connecting coin line sleeves with the ANI number network can be used to identify coin lines connected to PSH trunks. Existing restrictions preventing coin line access to CAMA must be maintained.

NOTE: The PSI circuit will not identify coin lines not connected to the number network and primary bus circuit. (The only reason for connecting coin lines to the number network is for permanent signal identification.)

2.06 Some PBX groups are connected (see note) into the ANI number network so that the directory number of one line is used for charging. That is, calls originated on all of these lines are charged to one charging directory number. The PSI circuit handles the PBX line like any regular permanent signal, except that the PS record gives the charging number only. The charging number is usually not the number of the station responsible for the permanent signal.



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NOTE: Prior to July 1967 PBX lines were cross-connected to a billing number. After July 1967 all orders were cross-connected to individual line billing.

3. PROCEDURE FOR LOCATING AND CLEARING TROUBLE

3.01 When the directory number of the subscribers line is determined, proceed as directed in Section 216-107-301.

PROCEDURE IN CASE OF SUBSCRIBER CABLE FAILURE NO. 1 CROSSBAR OFFICES

1. GENERAL

1.01 This section covers methods to be followed in connection with troubles due to failure of a subscriber cable.

2. INDICATIONS OF TROUBLE CONDITIONS

2.01 The appearance in rapid succession of a large number of permanent signals at the sender monitor position.

2.02 After all permanent signal trunks become busy a number of originating trouble indicator displays showing PS1 (permanent signal) and TB5 (trunks busy) lamps may be recorded.

3. REACTIONS DUE TO TROUBLE

3.01 Subscriber lines located in the cable in trouble are denied service.

3.02 The holding time of district junctors increases until lines are located and placed on plugging-up circuits. This reduces available district junctors for service and may result in dial tone delays.

4. IMMEDIATE PROCEDURE TO FOLLOW

4.01 Notify the test desk supervisor that a cable failure exists.

4.02 Station an assistant at the originating trouble indicator who, on each permanent signal overflow display (PS1-TB5 lamps lighted) will record only the DF (district link frame), SW (district link primary switch) and M (district link select magnet) lamps displayed and district junctor number and immediately operate the RL (release) key. By prompt action the assistant should be able to record a large number of district junctors which have been cut through with no primary district link cross-points closed as a result of a permanent signal overflow condition.

4.03 Station another assistant at the terminating trouble indicator to obtain a list of numbers which are involved in continuity failures. When sufficient information is obtained insert make-busy plugs into the CCT (cancel continuity test) jacks associated with all the terminating markers in order to cancel continuity and ground tests to prevent possible delays to terminating traffic because of marker time-outs on calls to the lines involved in the cable failure.

5. ANALYSIS OF TROUBLE

5.01 When a subscriber cable failure occurs, the subscriber senders are forced to

time out on a permanent signal condition. The calls are then routed to permanent signal trunks.

5.02 When all permanent signal trunks are busy the originating marker is arranged to set the district circuit in cut-through without closing any crosspoints in order that the subscriber sender may be restored to service.

5.03 When the originating marker sets the district junctor in cut-through without closing crosspoints it calls in the originating trouble indicator to give a record of the district junctor involved so that the line can be located more quickly.

5.04 When the originating marker cuts through a district without closing a crosspoint a PS lamp is lighted on the district frame as an indication. If the district junctor number has not been recorded on the originating trouble indicator the district junctor involved must be determined before the line in trouble can be traced.

6. SUGGESTED PROCEDURE FOR LOCATING AND CLEARING TROUBLE

6.01 The directory numbers of the subscriber lines involved in the cable failure may be determined by the usual method of tracing permanent signal trunks through the linkages, by referring numbers involved in continuity failures or by operating the PST (permanent signal trunk) key at the line distributing frames and testing the number sleeves on the vertical terminal strip (outer row) for tone using a test receiver in series with a 1 mf. condenser to ground.

Note: The two latter procedures have been found by a number of the Telephone Companies to be faster and less confusing than the tracing method.

6.02 When the directory number of the subscriber line is determined, arrangements should be made to place the lines involved on plugging-up circuits. When these circuits are all in use it will be necessary to remove the heat coils from the MDF cable pairs involved.

Note: On P.B.X. trunks involved proceed as follows:

(a) Listed number, or one or more intermediate lines involved, but not the entire P.P.X. group: On each line involved open the NS cross-connection at the LDF vertical terminal

strip and place a P.B.X. make-busy clip on the sleeve terminal. In a large P.B.X. group the F cross-connection of the first line before the one in trouble should be changed from the H to the R terminal. This will eliminate opening the NS cross-connections on intermediate lines.

(b) All P.B.X. inward service trunks out of service: Place only the listed number on a plugging-up circuit and change the F cross-connection of this line from the H to the R terminal. In the case of an allotted P.B.X., the first line in each number group should be treated in the same way.

6.03 As soon as permanent signal trunks become available district junctors cut through with no crosspoints closed, and district junctors recorded on the originating trouble indicator can be released by manually releasing the S1 relay. This will cause the associated line to route to permanent

signal trunks and the directory number can then be determined.

Caution: Be sure to check that no crosspoints are closed before releasing.

Note: Do not release more district junctors than the number of permanent signal trunks available.

6.04 After all recorded district junctors have been released, make an inspection on each district frame on which the PS lamp is lighted for any circuits which may have been cut through without a crosspoint closed during the time in which the originating trouble indicator was busy. This may be accomplished by removing the covers of the district junctors and checking all junctors cut through to determine whether a crosspoint is closed or by running the "Early Disconnect" test call on the district junctor test frame with the APB (automatic pass busy) key normal and investigating each BD (busy district) lamp encountered,

7. TROUBLE CONDITIONS CAUSING REACTIONS MAY BE LISTED BELOW
(Usually outside plant trouble conditions)
