REPAIR SERVICE BUREAU/MAINTENANCE MANAGEMENT CENTER
ANALYZING AND INTERPRETING MESSAGES
ON THE AUTOMATIC LINE INSULATION TEST (ALIT)
TELETYPEWRITER CHANNEL
NO. 3 ELECTRONIC SWITCHING SYSTEM—3E3

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1. GENERAL

1.01 This section provides an approach for analyzing and interpreting messages on the Automatic Line Insulation Test (ALIT) Teletypewriter (TTY) channel to aid in locating many of the network and line malfunctions that occur in the No. 3 ESS system. This section applies only to the No. 3E3 generic program. Refer to Section 662-517-501 for the earlier generic programs. Refer to Section 662-517-500 for test procedures used in testing customer lines connected to the No. 3 ESS System.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 Refer to Input Message Manual IM-3H300-03 and Output Message Manual OM-3H300-03 for the complete group of messages used on the Repair Service Bureau (RSB)/Maintenance Management Center (MMC) TTY. The format and use of each message, as well as cautions, as contained in the message manual, take precedence over this section. References will include the message manual and message index (ie, IM-3H300 OP:LINE or OM-3H300 RMV LINE).

1.04 Various automatic diagnostic tests are performed by the No. 3 ESS System. Network apparatus (trunks, service circuits, links, junctors, etc) having high error rates are removed from service and a TTY printout is generated on the maintenance TTY in the central office. *Customer lines having high error rates are not removed from service.* Instead, the line error is printed out on the RSB/MMC TTY and the maintenance TTY. The customer line is identified by its telephone number (TN).

1.05 An ALIT program is provided to permit the automatic testing of line insulation values in the No. 3 ESS 3E3 office. When an ALIT failure is detected, a TST LINE ERR output message identifying the failure will be printed out on the RSB/MMC TTY. Additional messages are printed at the start and end of the test cycle to identify the type of test, range, and the originating office.

1.06 In addition to the ALIT, the No. 3 ESS — 3E3 provides printouts at the RSB/MMC TTY on the following types of line failures:

- Power Cross (PX)

- Restore Verify Failure (RVF)

- Ringing Continuity Failure (EA RC)

- Coin Failures

  (a) STUCK COIN Control Error

  (b) Coin Line Circuit Failure (EA CLC)

  (c) No Coin Control Failures (EA NCC)

- High and Wet State (HAW)

  (a) Permanent Signals

  (b) Partial Dials

  (c) Maintenance Busy (manual request)

  (d) Power Cross (PX)

- Programmed ALIT (TST LINE ERR)

- Continuity Failure (EA CONT)

- Low Leakage Resistance Failure (EA LLR)

- TOUCH-TONE® Receiver Errors (EA TTR)

- Network Controller Error (EA NWC).

1.07   The line information printed out by the RSB/MMC TTY frequently is the result of a solid trouble condition on a customer line. By giving the printout information prompt attention, a customer-reported trouble could be prevented and duplicate trouble printouts on the RSB/MMC TTY could be reduced. Troubles indicated by the RSB/MMC TTY printouts should be handled with the following priorities.

- Power Cross (PX)

- Restore Verify Failure (RVF)

- Coin Failures (STUCK COIN, EA CLC, and EANCC)

- Ringing Continuity Failures (EA RC)

- Programmed ALIT (TST LINE ERR)

- High and Wet List (HAW)

- Continuity Failures (EA CONT)

- Low Leakage Resistance Failure (EA LLR)

- Line Cutoff Failure (EA LCO)

• TOUCH-TONE® Receiver Errors (EA TTR)

• Network Controller Error (EA NWC).

Local conditions and priorities may cause the priority list to differ for certain repair service bureaus. A description of most trouble conditions is provided in paragraphs 1.08 through 1.18.

1.08 *Power Cross Failure:* A power cross failure (PX) indicates there is false ac or dc power on a line terminal. The power cross test is performed by applying a power cross test circuit to the line via a test vertical and network path. The power cross test is performed on all lines that are being connected to a customer dial pulse receiver or to a ringing service unit. If a line fails the power cross test, the line is removed from service for about 20 seconds (to give the line a chance to recover) and the power cross test is then retried. If the retry test passes, the line is restored to service and a REPT cross test is then retried. If the retry test passes, the line is restored to service and a REPT LINE ----TRBL EA PX output message is printed out on the RSB/MMC TTY. If the retry test fails, the line is left out of service (and placed in the high and wet state) and an RMV LINE PX output message is printed out on the RSB/MMC TTY immediately. The line should be tested immediately from the local test desk (LTD) by accessing the line through a no-test trunk and making the FEMF test. Accidently crossing a customer line with conductors used for supplying power (greater than 50 volts) while testing, may cause a PX failure and remove the line from service. If the line is in the high and wet state (HAW), it should be tested as soon as possible. When the line is tested and found OK, it must be restored to service using the RST:LINE input message at the RSB/MMC TTY.

1.09 *Restore Verify Failure:* A restore verify failure (RVF) indicates that current is not flowing in a line scan point during the verify test. The cutoff contacts of the line are restored (closed), and a verify test is made by connecting a restore-verify test circuit to the line via a test vertical and network path. The test circuit in the No. 3 ESS provides a loop closure for loop start lines and a ground for ground start lines. If a restore verify failure occurs, the line may not have originating service. A REPT LINE——TRBL EA RVF output message is printed out immediately on the RSB/MMC TTY. The line should be tested from the LTD.

1.10 *Continuity Failure:* A continuity failure indicates that current is not flowing in a tip-ring loop formed partly by a path in the network. The problem may be in the network or in the circuits connected to the network completing the current loop. There are two sources of continuity failure.

(a) *Supervision continuity failure*—indicates that supervision failed to transfer from one circuit to another along a network path.

(b) *Transmitter continuity failure*—indicates that DC current is not flowing from an MF or DP transmitter, through a network path, to an outgoing or 2-way trunk just prior to outpulsing digits.

A continuity failure may involve a full path between two connected circuits or, in the case of a supervision continuity failure, may involve a half path between a junctor and a connected circuit. If a line is involved in three consecutive continuity failures, a REPT LINE----TRBL EA CONT output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD.

Note: If several continuity failures occur in a short time, the No. 3 ESS system considers the line a "Showering Line." The line is automatically removed from service for about 20 seconds to lessen its effect on call processing. It is then returned to service automatically.

1.11 *Ringing Continuity Failure:* A ringing continuity failure indicates that ringing current is not flowing from a ringing circuit, through a network path, to a line when it should be. Ringing continuity failures are generally caused by open lines which do not provide a complete ac circuit for the applied ringing potential. Ringing continuity failures may be caused by an open circuit in the central

office or in the outside plant, certain data lines, answering sets, and lines with portable sets and no permanently connected ringer or nonworking lines in ESS translations. If a line is involved in three consecutive ringing continuity failures, a REPT LINE----TRBL EA RC output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD.

1.12 *Low Leakage Resistance:* A low leakage resistance failure (LLR) indicates that an idle line looks off-hook to a ringing circuit before ringing current is applied. The line is scanned to verify that it is idle (on-hook) before a failure is reported. If three consecutive low leakage resistance failures occur involving the same line, a REPT LINE----TRBL EA LLR output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD.

1.13 *Line Cutoff Failure:* A line cutoff failure (LCO) indicates that a line scan point looks off-hook after the line's cutoff contacts have been opened. The cutoff contacts may be stuck closed. If a line is involved in three consecutive line cutoff failures, a REPT LINE----TRBL EA LCO output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD using the Line Ferrod Test in Section 662-517-500.

1.14 *TOUCH-TONE® Receiver Error:* A TOUCH-TONE receiver error (TTR) indicates that an illegal TOUCH-TONE digit is present at a TOUCH-TONE receiver. A legal digit consists of exactly 1-out-of-4 low tones and 1-out-of-4 high tones. The cause may be a defective TOUCH-TONE receiver at the No. 3 ESS central office or a defective line or TOUCH-TONE station equipment. If a line is involved in three consecutive TOUCH-TONE receiver errors, a REPT LINE----TRBL EA TTR output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD using the TOUCH-TONE Test in Section 662-517-500.

1.15 *Network Controller Error:* A network controller error (NWC) indicates that the network controller order failed to execute correctly from both system control 0 (SYC 0) and system control 1 (SYC 1). The problem is probably in the unduplicated portion of the network control. If a line is involved in three consecutive network controller errors, a REPT LINE----TRBL EA NWC output message is printed out on the RSB/MMC TTY. The line should be tested from the LTD. If the line is found to be OK, notify the central office personnel of a possible central office trouble.

1.16 *STUCK COIN Control Error:* A STUCK COIN control error indicates that a coin control circuit continued to detect the presence of a coin after applying coin collect or coin return voltage to a connected coin line. A REPT LINE----TRBL STUCK COIN output message is printed out immediately on the RSB/MMC TTY. The message may be caused by a defective coin relay, full money box, shorted carbon block at CDF protector, station protector, station ground fault, or a defective coin control circuit in the central office. An attempt should be made to verify coin failures from the LTD or LTC to determine if the trouble still exists or if the trouble is inside the office or in the outside plant. Testing coin lines which generate coin trouble output messages is important since the cause of trouble may be cleared after one or more coin failure messages have been received. A shorted carbon block at the CDF may test clear from the LTD and still be detected as a coin failure. Carbon blocks or protector units should be replaced when repeated coin station troubles are detected by the system and the trouble cannot be measured from the LTD.

1.17 *No Coin Control Error:* A no coin control error (NCC) indicates that a coin control circuit failed to detect the presence of a coin about to be collected. Collect voltage was applied from the coin control circuit to a connected coin line, and the coin that was supposed to be there was not detected. If a line is involved in three consecutive no coin control errors, a REPT LINE----TRBL EA NCC output message is printed out on the RSB/MMC TTY. The coin line should be tested from the LTD.

1.18 *Coin Line Circuit Failure:* A coin line circuit failure (CLC) indicates that a dial tone first (DTF) coin line circuit failed to provide a loop closure to hold supervision at the junctor when

placed in the +48 supervision state. No dial tone is received at the coin station. The dial tone first line is connected to an operator, and +48V supervision is returned to the line to disable the TOUCH-TONE pad. If a line is involved in three consecutive coin line circuit errors, a REPT LINE----TRBL ER CLC output message is printed out at the RSB/MMC TTY. The coin line should be tested from the LTD.

OFFICE EQUIPMENT NUMBER (OEN)

1.19 The office equipment number (OEN) is a 6-digit number used to designate the location of lines, trunks, and service circuits on the combined distributing frame (CDF) in the No. 3 ESS central office. The OEN also describes the location of associated equipment in the network frame. The format of the OEN is:

OEN = aa bcde

DIGIT	EQUIPMENT IN NETWORK FRAME
aa (01 through 15)	Concentrator group
b (0 through 1)	Concentrator
c (0 through 2)	Switch group
d (0 through 7)	Switch
e (0 through 7)	Level

Note: OEN and OE are used interchangeably, but the keyword is OE.

1.20 A typical OEN assignment, as it appears on an office record, is 01 0170. The meaning to the central office personnel is:
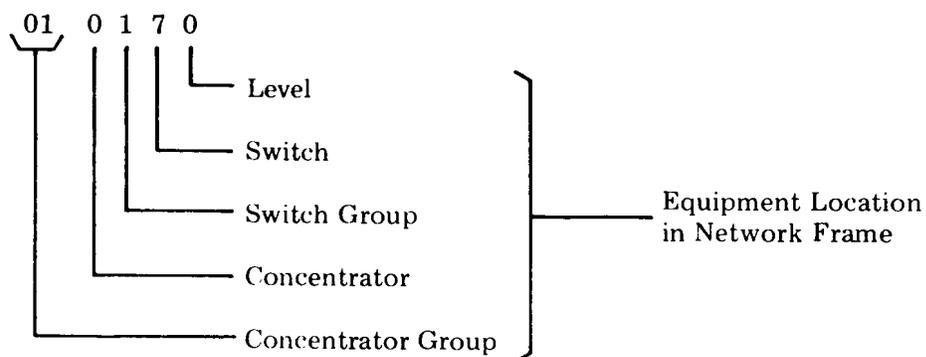
The OEN must be shown in its proper sequence on all work orders and office records. The RSB/MMC personnel must be able to recognize and be able to locate the OEN on all work orders, RSB/MMC records, and on the RSB/MMC TTY input/output messages.

Note: The OE 01 0170 may appear on the TTY printout as 1 0170. (The first digit to the left may be dropped if 0.)

PERMANENT SIGNAL AND PARTIAL DIAL TREATMENT

A. Permanent Signals

1.21 Permanent signals occur when no digits are received by a customer digit receiver within 10 to 16 seconds after an off-hook condition. The time-out period is 10 seconds during periods of heavy traffic. Permanent signals also occur if a line fails to disconnect after a call is torn down. The customer receives an announcement, receiver off-hook tone, and then an operator challenge is initiated to alert the customer. Either of these three switched connections may be omitted on an optional basis. If action is not taken by the customer, the line is placed in the high and wet state. Lines placed in the high and wet state are scanned for on-hook only, and network paths are not occupied.

B. Partial Dial Calls

1.22 Partial dial calls are calls that are not completely dialed and therefore time out after the reception of one digit. The time-out period is normally 10 seconds. Partial dial calls are routed to tone or announcement and then given permanent signal treatment, if necessary.

C. High and Wet State

1.23 In the No. 3 ESS, lines with a permanent signal or partial dial condition are placed in a high and wet state. Lines placed in the high and wet state are scanned for on-hook only, and network paths are not tied up. There is no limit to the number of lines that can be placed in a high and wet state.

1.24 The RSB/MMC personnel may request a printout of all permanent signal lines presently in the high and wet state (HAW) by typing in the following message:

OP:LINE:STAT HAW!

on the RSB/MMC TTY. The resulting printout is as follows:

```
46 OP  LINE  1 0225 TN 534 5573 STAT HAW
              2 0147 TN +534 3915 STAT HAW
              3 0113 TN 534 5589 STAT HAW
              4 1145 TN 534 3995 STAT HAW
       OP  LINE  STAT COMPL
```

D. Tests

1.25 A printout of the telephone numbers of all permanent signal lines presently in the high and wet state should be manually requested using the OP:LINE input message. These lines should be tested at the LTD at the start of each day. The permanent signal list should not be requested too early as numerous receiver-off-hook (ROH) conditions may appear. Only solid tested troubles should be dispatched.

> *Note:* Some subscriber lines may appear consistently on the high and wet list. A record of these lines should be maintained to prevent needless testing at the LTD.

PLUG-UP PROCEDURE (TROUBLE INTERCEPT)

1.26 When a subscriber requests a line to be routed to trouble intercept, due to a temporary trouble condition, the RSB/MMC personnel will notify the trouble intercept operator of the trouble condition. A list of the telephone numbers of the trouble intercept operators is found in Section __-__-__ (to be filled in by RSB/MMC personnel).

1.27 The subscriber line is then put on plug-up by RSB/MMC personnel using the RMV:LINE input message via the RSB/MMC TTY. The RSB/MMC personnel must obtain the OEN of the line from the line record card or by using the VER:LINE:TN nxx xxxx! input message. The RMV:LINE input message is then typed in using both the OEN and TN for identification.

Example: To place TN 555 2738 on plug-up.

(1) Obtain the OEN for 555 2738 from the line record card or type in the following input message at the RSB/MMC TTY.

Type In: VER:LINE:TN 555 2738!

Response:

```
          M 37  VER LINE
                TN 555 2738
                OE 5 0 2 2 0 ———— OEN of the line
                OESP 5 17 0
                RTI 0
                LCC 1FR
                LCI 8
                RAX 0
                OMAJ 8
                SCR 0
                TMAJ 8
                END
```

(2) Type in the RMV:LINE input message as follows:

Type In: RMV:LINE 5 0220, TN 555 2738: PLUGUP!

Response: PF—followed by an RMV LINE output message which includes the removal reason or a removal failure reason. Refer to RMV LINE output message, Part 7.

The subscriber line should now be on trouble intercept unless there is an RMV LINE message failure.

1.28 A list of lines on trouble intercept must be maintained by the RSB/MMC. The TN of the line, trouble condition, trouble intercept operator, the person placing the line on plug-up and the date, and the person removing the line from plug-up, and the date should be included.

2. NO. 3 ESS SYSTEM FEATURES AND CAPABILITIES

2.01 Various features and capabilities are available to No. 3 ESS subscribers on an optional basis. The system determines what features are provided to an individual subscriber by consulting translation tables.

TERMINAL HUNTING

2.02 The following hunting arrangements are available for hunting an idle line:

- Series Completion

- Multiline Hunting (MLH).

A. Series Completion

2.03 The series completion arrangement is available for individual line customers who desire completion to other lines via a hunt. If the party being called has series completion and is busy, the call is routed to another directory number in the office. If the new party has series completion and is busy, a new directory number is found. The process continues until an idle line is found or until the last line of the series completion chain is reached and found busy. Up to 16 lines can be handled by series completion. It is recommended that more than 12 lines should be handled by multiline hunting. The telephone numbers in the series completion chain can be any office code terminating in the same office and need not be consecutive.

2.04 *Remote Make-Busy:* The remote make-busy feature in No. 3 ESS may be used to make a line(s) in the series completion chain busy to incoming calls. The remote make-busy feature is activated by a key on the customer's premises. A line is considered busy in the series completion process if the scan point associated with the key is found to be set, in which case a new telephone number is reached and the process continues.

B. Multiline Hunting

2.05 The multiline hunting (MLH) arrangement refers to a method of selecting an idle line from a group in the central office, as distinguished from a PBX, which refers to a type of equipment on the customer premises. In general, a multiline hunting group (MLHG) is associated with a PBX on the customer premises, or it could be associated with any group of individual lines in the central office. A 2-digit MLHG number (00 through 63) is used to identify a particular *group* of lines. Lines associated with an MLHG are identified within the group by 2-digit member numbers (00 through 63).

2.06 A selection status block in the No. 3 ESS is associated with each MLHG. The block contains one selection status bit per MLHG member. The translation for the listed telephone number specifies a first hunt member and a last hunt member. The hunt process involves searching for an idle member in the selection status block starting with the first hunt member's selection bit and ending at the last hunt member's selection bit. If an idle member in the hunt range is found, the selection bit is marked busy, the terminal equipment number is retrieved from the member list, and the call is completed to the selected member's terminal.

2.07 *No Hunt:* In the No. 3 ESS, a telephone number is assigned to each member in the MLHG. Associated with each member's telephone number in translations is the member number (considered the first hunt member) and the last hunt member number. The last hunt member number may be the same as the member number thus creating a "no hunt" telephone number. *Incoming calls to these telephone numbers do not cause hunting to occur.* Telephone numbers received from no-test and local test desk trunks are completed to the member number specified in translations on a "no hunt" basis (ie, the last hunt member number is ignored). *Thus, a local test desk connection to an MLHG telephone number does not cause hunting to occur.*

2.08 In the No. 3 ESS, the MLHG includes two features which affect the hunting process: night stop and stop hunt.

2.09 *Night Stop Feature:* If a telephone number within the MLHG is dialed when the night stop feature is activated, the normal hunting sequence for that MLHG is ignored. Instead of starting the hunting sequence with the member number associated with the telephone number dialed and continuing until the last hunt member is reached, the hunting starts with the first member of the MLHG (00) and stops with the "night stop" member.

2.10 *Stop Hunt Feature:* When the stop hunt feature is activated, all hunt groups associated with the MLHG will start at their normal member but will not hunt past the "stop hunt" member.

2.11 *Night Make-Busy Feature:* The night stop feature may be used to provide the "night make-busy" feature. When the "night make-busy" feature is activated, all incoming calls to that MLHG are completed to a preselected line. This line in the No. 3 ESS would be defined as member 0, and also as the night stop member. The listed telephone number for the MLHG would specify member 1 as the first hunt member. When the night stop feature is activated, all calls for the MLHG are completed to member 0 on a no-hunt basis (first hunt member number is the same as the night stop member number). With the night stop feature deactivated, all calls using the telephone number assigned to member 0 are completed to member 0.

2.12 *Remote Make-Busy Feature:* Each member of a MLHG can be assigned to one of seven remote make-busy keys. When a key is set, the member appears busy without its status bit set and a call to that member will not be completed.

CLASSES OF SERVICE

2.13 All customer lines have class-of-service translation information associated with them. This information is stored in the translation area of program store in the No. 3 ESS. The classes of service provide information which identifies privileges, restrictions, and treatments associated with a customer line.

A. Major Class

2.14 The major class includes any special originating and terminating actions required for a particular line or telephone number (TN). The major class is divided into originating and terminating classes. Table A gives the originating and terminating classes for No. 3 ESS. Major classes of service are identified on the VER LINE output message (requested using the VER:LINE input message on the RSB/MMC TTY). Refer to Part 6, DETAILED INPUT MESSAGES, for the format and use of the VER:LINE input message.

B. Screening Class

2.15 The screening class is an indication of the type of treatment given to various types of calls. The screening class is used to distinguish various types of service, eg, local, extended area, metropolitan, and WATS, and to obtain the routing and charging information for each. Screening classes are identified on the VER LINE output message (requested using the VER:LINE input message on the RSB/MMC TTY). Refer to Part 6, DETAILED INPUT MESSAGES, for the format and use of the VER:LINE input message.

C. Line Class Code

2.16 The line class code identifies a subgrouping of telephone customers which is used for rate distinctions. The subgrouping may distinguish between individual and party; between business, residence, and coin; between flat rate and message rate; and between restricted and extended area service. The line class code is identified on the LINE CLASS CODE TABLE, ESS FORM 3306. A VER LINE output message, requested using the VER:LINE input message, can be used to determine the line class code (LCC) assigned to a specific telephone number. Refer to Part 6, DETAILED INPUT MESSAGE, for the format and use of the VER:LINE input message.

TABLE A

ORIGINATING AND TERMINATING MAJOR CLASSES

MAJOR CLASS	ASSIGNMENT	ORIG	TERM
00	Unassigned	✔	✔
01	Spare		
02	Spare		
03	Spare		
04	Two-Party-Ring	✔	✔
05	Two-Party-Tip	✔	✔
06	Individual Traffic	√	✔
07	Free Individual		✔
08	Individual (Single Party, PBX, or MLHG)	✔	✔
09	Hotel/Motel	✔	
10	Manual	✔	
11	TSPS Selective Call Screening	√	
12	Spare		
13	Spare		
14	Spare		
15	Spare		
16	Multiparty — Party 1	✔	✔
17	Multiparty — Party 2		✔
18	Multiparty — Party 3		✔
19	Multiparty — Party 4		✔
20	Multiparty — Party 5		✔

TABLE A (Contd)

ORIGINATING AND TERMINATING MAJOR CLASSES

MAJOR CLASS	ASSIGNMENT	ORIG	TERM
21	Multiparty — Party 6		✔
22	Multiparty — Party 7		✔
23	Multiparty — Party 8		✔
24	Coin First (Prepay Ground Start)	✔	✔
25	Coin Dial Tone First	✔	✔
26	Spare		
27	Spare		
28	Intercept		✔
29	Auto-Connect	✔	✔
30	Denied Service	✔	✔
31	Special Routing		✔

CUSTOM CALLING SERVICE

2.17 Standard service in the No. 3 ESS consists of the ability to accept and derive appropriate routing for all telephone numbers used in current practice using dial pulse signaling and 20-Hz ringing. Custom services are used to supplement the standard services and include the following:

- TOUCH-TONE® Calling

- Speed Calling

- 3-Way Calling

- Call Forwarding

- Call Waiting.

2.18 *TOUCH-TONE Calling:* TOUCH-TONE calling requires the system to accept originations from TOUCH-TONE dialing stations in addition to originations from conventional dial stations. When a line classed as TOUCH-TONE originates a call, the No. 3 ESS connects signal-receiving equipment capable of recognizing either frequency pairs or dial pulse.

2.19 *Speed Calling:* This service allows a customer to originate calls to frequently called numbers by dialing one or two digits instead of the full seven or more digits. For each customer who subscribes to speed calling, the system retains a list of unique numbers assigned to each abbreviated code.

Speed calling lists may contain either 8 or 30 entries or both. Individual entries may be changed by the subscriber. A list of the speed calling numbers (1-digit or 2-digit) with the associated telephone numbers is maintained in the No. 3 ESS. The list may be requested using the VER:SCN input message. Refer to Part 6, DETAILED INPUT MESSAGES, for the format and use of the VER:SCN input message.

2.20   *3-Way Calling:*   By subscribing to this feature, a customer can add a third party to an existing connection by alerting the system with a momentary on-hook, and then dialing the telephone number for the added party.

2.21   *Call Forwarding:*   When activated by the station user, this feature automatically routes calls intended for a subscriber line to another subscriber line the user has designated. For No. 3 ESS offices equipped with the Automatic Message Accounting Recording Center (AMARC), forwarded calls may be toll charged if the forwarded-to party is in a different rate area. The VER:CFN input message may be used to verify the call forwarding number associated with a customer telephone number.

2.22   *Call Waiting:*   This feature permits a subscriber who is in the talking state of an established call to be notified of an incoming call. The customer may then elect to receive the second call, via a switchhook flash while holding the existing connection.

3.   REPAIR SERVICE BUREAU (RSB/MAINTENANCE MANAGEMENT CENTER (MMC) TTY

3.01   The RSB/MMC TTY, also referred to as the local test desk (LTD) TTY, is a limited maintenance send/receive TTY. Its primary purpose is to transmit information pertaining to line troubles to the local or remote RSB/MMC.

NO. 3 ESS AUTOCONNECT

3.02   The No. 3 ESS AUTOCONNECT facility provides a means of providing a secure switched link from the No. 3 ESS CO to the RSB/MMC TTY. The AUTOCONNECT is initiated by dialing a "trigger" telephone number. This call is routed to a confirmation tone (high tone) if the requested facilities are available, or busy tone if the facilities are not available. The calling party, after listening to 10 seconds but nor more than 30 seconds of the confirmation tone, hangs up. The No. 3 ESS calls a prestored return telephone number associated with the dialed "trigger" telephone number. The called party answers and a secure connection has been made with the No. 3 ESS.

3.03   A time-out feature allows for an autoconnect line to disconnect automatically if the TTY channel remains idle (no input message characters typed) for a specified period of time (about 3 minutes maximum).

3.04   The autoconnect facilities will also automatically initiate a connection to the TTY when an output message of a particular class is to be printed out. The TTY will automatically disconnect after a specified time period.

PROCEDURE TO ACTIVATE THE RSB/MMC TTY (AUTOCONNECT)

3.05   At the RSB/MMC TTY, lift the telephone receiver and dial the assigned "trigger" telephone number for the RSB/MMC TTY. Listen for high tone or busy tone. If busy tone is received, hang up and try again later. If high tone is heard, listen for 10 seconds but not more than 30 seconds and then hang up. The RSB/MMC TTY will be connected to the No. 3 ESS. Input messages may be typed into the TTY. If no messages are typed on the TTY for approximately 3 minutes, the autoconnect facility will time out and disconnect the RSB/MMC TTY.

INPUT MESSAGE CONTROL CHARACTERS

3.06 A group of TTY characters have been reserved for use in controlling the TTY keyboard and carriage. The control characters and their significance are described as follows:

(a) *Execute (!):* The exclamation point is the execute character for the end of an input message. It tells the system that the input message has been completed and that the message should be processed. It is typed at the end of a one-line input message and at the end of the last line of a multiline input message. The execute character is followed one space later by an input message acknowledgment, which is returned by the system.

(b) *Colon (:):* The colon is used to separate the action field of an input message from the other fields. Its proper use is indicated in the input message format.

(c) *Space:* The space is used to separate the smaller fields within the identity and data fields. After the first space or colon, all spaces used repetitively are ignored as a control character by the system except that successive spaces may be used to prevent a *time-out.*

(d) *Line Abandon ($):* The dollar sign is used for No. 3 ESS TTY channels as the "line abandon" character. If a mistake is made on any line of input or if an "informational comment" is inserted before the "!" or "/", the "$" may be typed to cause the program to completely ignore the line. The program will respond with a carriage return and line feed. Any previous lines of a continued input message sequence will remain unaffected.

(3) *Message Abandon (&):* The ampersand is used for No. 3 ESS TTY channels as the "message abandon" character. If a message needs to be abandoned for any reason, the "&" may be typed to cause the program to abandon the message. The program will respond with a carriage return and line feed.

(f) *Character Delete(—):* The dash is used to delete the previous character. If a mistake is made while typing a character, the "—" may be typed to cause the program to completely ignore the character. After the "—" is typed, continue typing as usual.

(g) *Continue (/):* The virgule (slash) is the "continued input" indication for the No. 3 ESS. This character ends a line of input and instructs the program to input this line and that another related data line will be immediately inserted. If the line is in the correct format and consistent with preceding lines, the machine will respond with a carriage return and line feed. If the data on the line is inconsistent with preceding input lines, the system will print the response ?D (data) or ?I (identification) after the line, then give a carriage return and line feed. After any type of message failure response printed by the TTY, the reason for the error should be corrected and the entire message sequence reinputted.

3.07 If the input message is incorrect, the system may print any of the following responses:

> ?C (channel)
> ?A (action option error)
> ?E (sequence error)
> ?O (out of service channel).

Note: For complete information on the acknowledgements to the input messages, refer to Section 4 of the Input Message Manual IM-3H300-03.

3.08 The line feed, carriage return, and vertical tab carriage positioning keys should not be used while typing an input message.

4. AUTOMATIC LINE INSULATION TEST (ALIT) PROGRAM

4.01 The Automatic Line Insulation Test (ALIT) program provides automatic testing of line insulation in the No. 3 ESS. The ALIT program is started at a specified time each day and is run to completion. A TST:LINE input message is provided to change the type of test and resistance ranges from the RSB/MMC TTY. The ALIT program may be started and stopped using the TST:LINE input message. No facilities are provided at the LTD to control the ALIT program.

4.02 The ALIT program also performs line ferrod restore verify tests. The test restores line ferrods left disconnected by program errors and detects line ferrods which cannot be reconnected due to hardware faults.

4.03 The TST:LINE input message is also used to perform the line insulation test of a specified line. The resistance range and type of test may be specified. The line is identified by the office equipment number (OEN). If the resistance range and type of test is different from the daily ALIT program, the ALIT program runs the test specified for a single line and then reverts back to the resistance range and type of test specified in the daily ALIT program.

LINE TESTS—LINE INSULATION TEST (LIT)

4.04 The ALIT program will connect the line insulation test circuit in sequence to every nonbusy line in the office with the exception of ground start PBX and coin lines and lines used with autoconnect circuits. Starting with OE 00 0001, unless otherwise specified, the program sequences through the networks searching for the next nonbusy line until all lines have been tested. Connections are not made to unequipped or unassigned terminals, trunk or service circuit terminals, busy line terminals, or noncutover terminals.

4.05 When an idle line is found, the line is connected to the LIT, disconnecting the line ferrod. A check is then made to determine the type of line ferrod. If the line ferrod is wired in a ground start arrangement, a restore verify test is performed. If the line is loop start, the insulation test is performed. The LIT circuit is scanned to determine the condition of the line—if the insulation test is performed. The LIT circuit is scanned to determine the condition of the line—if the insulation test does not fail, a restore verify test is performed on the line. If the insulation test failed, a retest is performed and a TST LINE----ERR output message is printed.

4.06 The LIT circuit performs three types of tests with respect to the way in which the insulation test is connected to the line under test. Each type of test may be made in three different ranges of resistance. An initial test is performed, and, in the event of a failure, a retest is performed. If a general test (all three types of tests in sequence) is made, a retest is not performed. The connection of the line insulation test circuit to the tip and ring of the line for each test is shown in Fig. 1, 2, and 3.
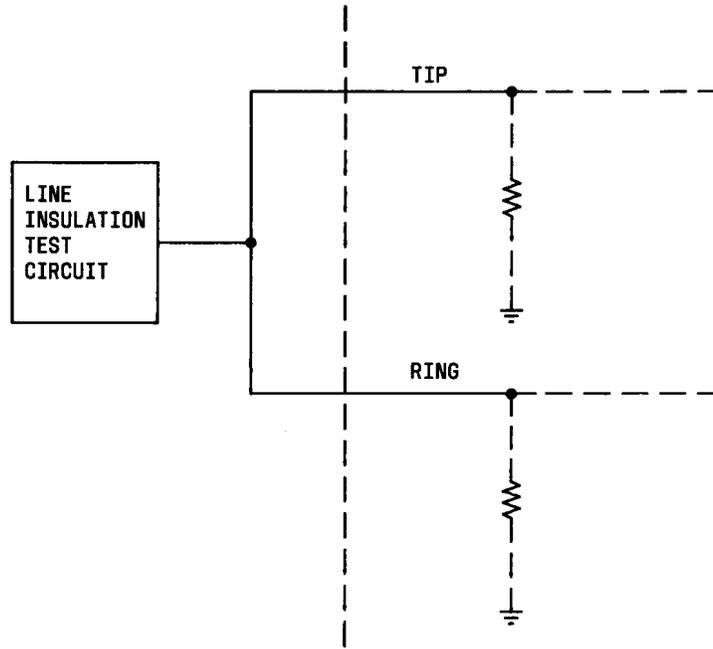
TEST CONDITION MEASURES COMBINED TIP TO GROUND AND
RING TO GROUND RESISTANCE

Fig. 1—Tip and Ring to Ground (TRG) Test
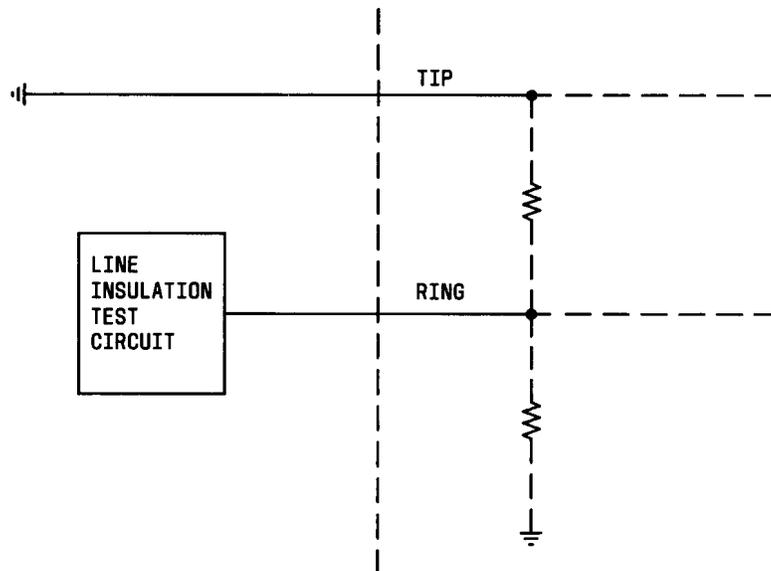
TEST CONDITION MEASURES COMBINED SHORT CIRCUIT AND
RING TO GROUND RESISTANCE

Fig. 2—Short Circuit and Ring to Ground (SRG) Test

TEST CONDITION MEASURES COMBINED TIP TO BATTERY AND
RING TO BATTERY (FEMF) VOLTAGE (RESISTANCE LEAKS)
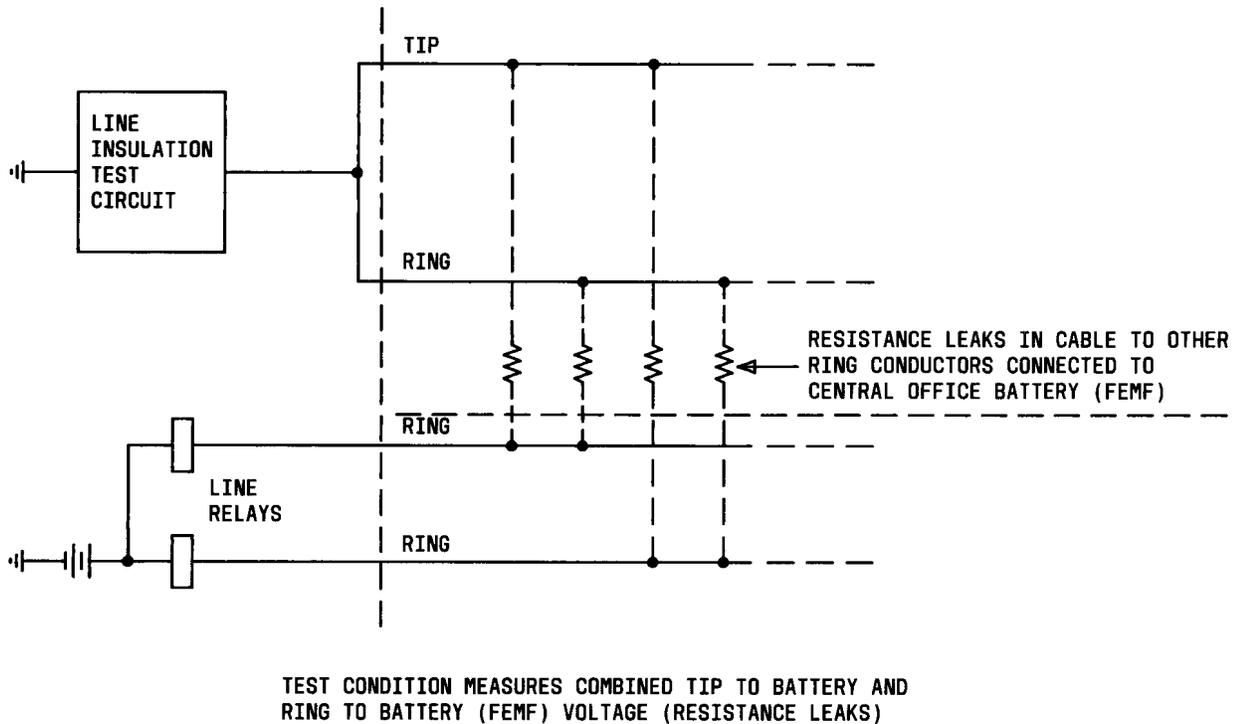
Fig. 3—Foreign Potential on Tip or Ring (FEMF) Test

4.07 The following insulation tests are performed on loop start lines.

- **_Tip and Ring to Ground (TRG):_** This test will detect leakage between tip and ring to ground. If a failure is detected, a retest is performed to determine if the leakage occurs between ring and ground. This test checks for trouble in cable terminals and cable sheaths (leaks from tip or ring to ground).

- **_Short Circuit and Ring to Ground (SRG):_** This test detects leakage (insulation failure) between ring and tip or ring and ground. If a failure is detected, a retest is performed to determine if the leakage is between ring and ground. This test is used to detect trouble in drop wire and inside wire at the subscriber premises (leaks between tip and ring) and in open wire conductors (leaks from ring to ground).

- **_Foreign Electromotive Force (FEMF):_** This test will detect the presence of a foreign potential on tip or ring. If a foreign potential is detected, a retest is performed to determine if the foreign voltage is on the ring. This test is used to detect defects in underground and overhead cable sheaths (leaks from tip or ring to battery). Such defects admit moisture which causes leaks from the line under test to battery in the ring conductor of other lines in the same cable. Leaks to ground or across cable pairs are also present under these conditions. Leaks to battery are normally caused by cable troubles, whereas leaks to ground and across pairs may occur at other components of the line.

4.08 The type of test performed by the LIT circuit is selected by the TST:LINE input message. The following tests or combinations of tests may be selected:

● SRG

● TRG

● TRG and SRG

● FEMF

● SRG and FEMF

● TRG and FEMF

● SRG and TRG and FEMF.

4.09 Test ranges are selected from three ranges, 80 Kohms, 320 Kohms, or 2.56 Mohms. The higher ranges (320 Kohms or 2.56 Mohms) will detect the first stages of insulation leakage which do not presently affect service. Lower test (80 Kohms) ranges will detect only faults currently causing service problems. The high test ranges would normally be specified during dry weather while the low ranges would be used during wet weather conditions.

ALIT OUTPUT MESSAGES

4.10 Each time the ALIT program is started, a TST LINE START output message is printed to report the ALIT was started. If a line fails the ALIT test, a TST LINE----ERR output message is printed. When all lines have been tested, a TST LINE----COMPL output message is printed.

4.11 The ALIT tests are aborted when 128 line faults have been detected. After the 128th failure, only the restore verify test is performed. This number is sufficient to identify a faulty cable without flooding the TTY with messages. If the ALIT tests have been aborted, a TST LINE----ABT output message is generated.

5. VERIFICATION REQUEST INPUT MESSAGES

5.01 The following verification request messages are provided in an abbreviated form. For additional explanation and examples, refer to Part 6, DETAILED INPUT MESSAGES. Table B lists the recent change (RC) messages which are on a one-to-one correspondence with verification (VER:) request input messages. (Also see (4) and (5) of the allowable formats in the OP:OFR input message.)

TABLE B

**CORRESPONDENCE OF VERIFICATION REQUEST
MESSAGES WITH RECENT CHANGE MESSAGES**

VERIFICATION MESSAGES*	RECENT CHANGE MESSAGES	AFFECTED LINES, GROUPS, OR SERVICES
VER:LINE/	RC:LINE/	Single party lines
VER:TWOPTY/	RC:TWOPTY/	Two party lines
VER:MPTY/	RC:MPTY/	Multiparty lines
VER:MTL/	RC:MTL/	Line within a multiline hunt group
VER:SCN/	RC:SCN/	Customer speed calling list
VER:CFN/	RC:CFN/	Customer call forwarding

   * Additional verification messages included in PART 6, DETAILED INPUT
MESSAGES and in IM-3H300-03.

Note: The VER:LINE message can be used if the line is a two-party line, a
multiparty line, or a line within a multiline hunt group.

VERIFICATION OF SINGLE PARTY OR COIN LINE

5.02   To verify a line when the telephone number (TN) is known, type the input message:

VER:LINE:TN nxx—xxxx!

5.03   To verify a line when the office equipment number (OEN) is known, type the input message:

VER:LINE:OE aa bcde!

5.04   To verify a list of nnn lines starting from a specified telephone number (TN), type the input message:

VER:LINE/

TN nxx-xxxx/

LIST nnn/

END!

5.05   The resulting VER LINE output message will list the latest line data assigned by the RC:LINE input message.

VERIFICATION OF 2-PARTY LINE

5.06   To verify a 2-party line when the telephone number (TN) is known, type the input message:

VER:TWOPTY:TN nxx—xxxx!

5.07 To verify a 2-party line when the office equipment number (OEN) and party number (PTY p) is known, type the input message:

VER:TWOPTY/

OE aa bcde/

PTY p/

END!

5.08 To verify a 2-party line when only the office equipment number (OEN) is known, type the input message:

VER:TWOPTY:OE aa bcde!

5.09 To verify a list of nnn 2-party lines starting from a specified telephone number (TN), type the input message:

VER:TWOPTY/

TN nxx—xxxx/

LIST nnn/

END!

5.10 The resulting VER TWOPTY output message will list the lastest line data assigned by the RC:TWOPTY input message.

VERIFICATION OF MULTIPARTY LINE

5.11 To verify a multiparty line when the telephone number (TN) is known, type the input message:

VER:MPTY:TN nxx—xxxx!

5.12 To verify a multiparty line when the office equipment number (OEN) and party number (PTY p) is known, type the input message:

VER:MPTY/

OE aa bcde/

PTY p/

END!

5.13 To verify a multiparty line when only the office equipment number (OEN) is known, type input message:

VER:MPTY:OE aa bcde!

5.14 To verify a list of nnn multiparty lines starting from a specified telephone number (TN), type the input message:

VER:MPTY/

TN nxx—xxxx/

LIST nnn/

END!

5.15 The resulting VER MPTY output message will list the latest data assigned the line by the RC:MPTY input message.

VERIFICATION OF MULTILINE HUNTING GROUP (MLHG) MEMBER

5.16 To verify an MLHG member when the telephone number is known, type the input message:

VER:MTL:TN nxx—xxxx!

5.17 To verify a MLHG member when the office equipment number and party number (PTY p) is known, type the input message:

VER:MTL/

OE aa bcde/

PTY p/

END!

5.18 To verify an MLHG member when the office equipment number (OEN) is known, type the input message:

VER:MTL:OE aa bcde!

5.19 To verify a list of nnn MLHG members starting from specified telephone number (TN), type the input message:

VER:MTL/

TN nxx—xxxx/

LIST nnn/

END!

5.20 The resulting VER MTL output message will list the latest MLHG member data assigned by the RC:MTL input message.

VERIFICATION OF CALL FORWARDING NUMBER (CFN)

5.21 To verify a customer call forwarding number (CFN) when the telephone number (TN) is known, type the input message:

VER:CFN:TN nxx—xxxx!

5.22 The resulting VER CFN will list the telephone number (TN) and the call forwarded number (CFN). If the customer has call forwarding and no call forwarding number is assigned, CFN UNAS (call forwarding number is unassigned) is provided.

VERIFICATION OF CUSTOMER'S SPEED-CALLING NUMBERS

5.23 To verify a customer's speed calling numbers (SCN) when the telephone number (TN) is known, type the input message:

VER:SCN:TN nxx—xxxx!

5.24 The resulting VER SCN output message will contain the telephone number, group number, 1- and/or 2-digit speed call list number, and a tabular output of the abbreviated dial number (1- and/or 2-digit), and the speed calling telephone numbers.

6. DETAILED INPUT MESSAGES

TOPICAL INDEX

6.01 Table C is a topical index of input messages for the RSB/MMC TTY.

INPUT MESSAGE ACKNOWLEDGMENTS

6.02 Table D lists the input message acknowledgment that is printed out in response to an input message. The acknowledgment will indicate whether the input message was accepted or rejected and the reason.

CLR:DELAY INPUT MESSAGE

6.03 The CLR:DELAY input message is used to remove a pending office record delay message that was entered by the OP:OFR input message. The format of the message is as follows:

CLR:DELAY n!

n = The message slot number in the range 0 through 19.

System Responses:

OK - The message was accepted and the pending delay message was removed.

NG - *No Good* the message wasn't accepted and a ADM ERR nnnn will follow stating the reason.

Refer to CLR DELAY output message in Part 7.

TABLE C

TOPICAL INDEX FOR INPUT MESSAGES

TOPIC	FUNCTION	INPUT MESSAGE
Abbreviated Dial List	Verify one or all lines in a customer's abbreviated dial list (1-digit or 2-digit).	VER:SCN
Busy a Line	Busy a line given the TN or OEN. (Place the line in the out-of-service state and open the cut-off contacts.)	RMV:LINE
High and Wet State	Print lines in high and wet state.	OP:LINE (HAW)
Intercept	Place line on intercept (plugup).	RMV:LINE (PLUGUP)
Line Insulation Test	Perform line insulation test on a specified line.	TST:LINE
Line Status (Busy-Idle)	Find status of customer line given the TN or OEN.	OP:LINE (STAT)
Office Equipment Number (OEN)	Read or change status of customer line given OEN.	OP:LINE (STAT)
Office Records	Print office record forms.	OP:OFR
Out of Service	Print list of lines in an out-of-service state.	OP:LINE (OSS)
Permanent Signal	Print permanent signal lines in high and wet state (HAW).	OP:LINE (HAW)
Plug-up List	Print list of lines on plug-up (intercept).	OP:LINE (PLUGUP)
Plug up a Line	Remove a line from service and place it on the plug-up list (intercept).	OP:LINE (PLUGUP)
Remove from Service	Remove a line from service (make busy).	RMV:LINE
Restore to Servcie	Restore a line to service (make idle).	RST:LINE
Test a Single OEN	Start ALIT test to test a single specified line.	TST:LINE
2-Party Service	Verify 2-party telephone service	VER:TWOPTY
Verify Line Information	Verify line information (major class, line class code, type of service, etc).	VER:LINE

TABLE D

INPUT MESSAGE ACKNOWLEDGMENT

ACKNOWLEDGMENT	MEANING
PF (Printout Follows)	The request was accepted. The appropriate program was initiated. A printout of the state information will follow.
IP (In Progress)	The request was accepted and is in progress. A printout of the state information will follow after a time delay. (A message may not follow. The request may be rejected for validity reasons.)
RL (Retry Later)	The multiscan function was denied. Repeat the request later.
?I (?Identification)	The line identification is in error or the message is constructed incorrectly. Check for the correct format per Input Message Manual IM-3H300-03; then try again. If the message fails again, check for incorrect line identification.
WT	Wait — the request was accepted and is in progress. A printout will follow.

OP:DELAY INPUT MESSAGE

6.04 The OP:DELAY input message is used to print out the contents of a pending office records delay message that was entered by the OP:OFR input message. The format of the message is as follows:

OP:DELAY n!

n = The message slot number in the range 0 through 19.

System Responses:

OK - The message was accepted and the printout of the message slot contents will follow.

NG - *No Good* the message was not accepted and a ADM ERR nnnn will follow stating the reason.

Refer to OP DELAY output message in Part 7.

OP:FEA INPUT MESSAGE

6.05 The OP:FEA input message will cause a search of all the originating and terminating telephone number translation or a specified range, for an office and provide a printout, and a summary count of the lines with a specific feature or combination of features. The user can specify what to count by key word values. The OP:FEA input message is a linked message. The first input line is followed by several message segments, each consisting of a key word and key word data followed by a continue character (/). The segments may be entered in any order. The last input line must be 'END!' or a keyword and its corresponding data followed by an execute character (!). The format of the message is as follows:

OP:FEA/

```
LIST   ttt/
OP     ooo/
TN     nxx—xxxx/
BTN    mmm/
WATS   mmm/
SER    mmm/
TTC    mmm/
EL     mmm/
GST    mmm/
TRC    mmm/
ESM    mmm/
ESC    mmm/
ESX    mmm/
ESL    mmm/
CSL1   mmm/
ESF    mmm/
CSL2   mmm/
DP     mmm/
DPM    mmm/
DPU    mmm/
DPCN   mmm/
SPN    mmm/
RTI    mmm/
BSY    mmm/
SS     mmm/
SOB    mmm/
BLN    mmm/
HLN    mmm/
MR     mmm/
RTN    mmm/
CLS    mmm/
TTYC   mmm/
PORT   mmm/
AUTO   mmm/
TO     mmm/
PRIOR  mmm/
NDB    mmm/
ETYP   mmm/
TER    mmm/
NIGHT  mmm/
TONE   mmm/
RAMI   mmm/
PLIT   mmm/
PTY    mmm/
HML    mmm/
RMB    mmm/
ROH    mmm/
END!
```

All input keywords are divided into two groups based on the value for each keyword. The allowable values are as follows:

mmm=MH—To be counted, the line *must have* the feature indicated.

= MNH—To be counted, the line *must not have* the feature indicated.

= IHA—The line will be counted *if* it *has any* (at least one) of the indicated features.

The two groups are as follows:

Group 1 = All keywords with the value "MH" or "MNH".

Group 2 = All keywords with the value "IHA".

Group 1 requirements are met (Group 1 is true) if the line satisfies all of the MH and MNH statements. Group 2 is true if the line satisfies at least one of the IHA statements. The final count or no count decision for each line is then determined by the following:

Case 1: only Group 1 exists > count line if Group 1 is true.
Case 2: only Group 2 exists > count line if Group 2 is true.
Case 3: both Group 1 and > Group 1 and 2 are combined
Group 2 exist. as follows, based on the value of the keyword OP. OP may be set to either AND or OR (default is OR).

CONDITION		ACTION	
Group 1	Group 2	OP=AND	OP=OR
false	false	don't count	don't count
false	true	don't count	do count
true	false	don't count	do count
true	true	do count	do count

Stated mathematically, for Case 3 a line will be counted if the following statement is true.

"count or don't count" = (GROUP1) OR (GROUP2)

or more exactly

(MH1&MH2&...&MHn&MNH1&MNH2&...MNHn)OP(IHA1/IHA2/.../IHAn)

Where "&" = "and", "/" = "inclusive or".

An option exists to print each telephone number that matches the input conditions as it is found (see LIST keyword), in addition to printing the count.

Each keyword and keyword data is explained as follows.

LIST ttt
List all matching telephone numbers:

LIST may be used to cause a list of all matching telephone numbers to print as they are found in addition to the printout of the count. ttt = ON or OFF; default is OFF.
CAUTION: LIST ON may generate a long list, depending on the input conditions. It may be more appropriate to use OP:OFR.

OP ooo
Keyword group interpretation function:

As explained in detail above OP may be set equal to "OR" or "AND" (default is OR). This keyword is used to determine how to interpret the other keywords after they are divided into two groups for use. Evaluating each line for counting Group 1 is all the keywords set to MH and MNH. Group 2 is all the keywords set to IHA (see Case 3 above).

TN nxx—xxxx
Telephone number range:

This keyword is designed to specify a range of telephone numbers to scan. Default is every telephone number in the office. One to seven digits can be consecutively input and are interpreted from left to right to determine range. Examples:

TN 555 11/   555 1100 ---> 555 1199

TN 555 1/   555 1000 --->555 1999

BTN mmm
Bill to number:

Matches all lines which have a bill to number different than the telephone number.

WATS mmm
WATS billing number:

Matches all lines which have a WATS billing number.

SER mmm
Series completion directory number:

Matches all lines which have a series completion number.

TTC mmm
TOUCH-TONE calling:

Matches all lines which have TOUCH-TONE calling.

EL mmm
Essential line:

Matches all essential lines.

GST mmm
  Ground start:

  Matches all ground start lines.

TRC mmm
  Trace:

  Matches all lines which are being traced.

ESM mmm
  Call forwarding:

  Matches all lines which have call forwarding.

ESC mmm
  Three-way calling:

  Matches all lines which have three way calling service.

ESX mmm
  Call waiting service:

  Matches all lines which have call waiting service.

ESL mmm
  Speed call 1 digit service:

  Matches all lines which have speed call 1 digit service.

CSL1 mmm
  Change 1 digit speed call service:

  Match all lines which can change their 1 digit speed call list.

ESF mmm
  Speed call 2 digit service:

  Matches all lines which have 2 digit speed call service.

CSL2 mmm
  Change 2 digit speed call:

  Matches all lines which can change their 2 digit speed call list.

DP mmm
  Distributor triplet:

  Matches all lines which use a distributor triplet to provide a sleeve lead function.

DPM mmm
  Distributor triplet for message registers:

  Matches all lines which use a distributor triplet for a message register.

DPU mmm
Distributor triplet for noise immunity line circuit:

Matches all lines which use a distributor triplet for noise immunity line circuit.

DPCN mmm
Distributor point for coin line circuit:

Matches all lines which have a distributor point for coin line circuit.

SPN mmm
Scan point number:

Matches all lines which have associated key scan points. Includes SPNs associated with 1A concentrator lines, group alerting lines, subscriber loop multiplexer lines, and lines with remote make busy keys. Excludes SPNs associated with PBX RMBs, PBX night stop, and PBX stop hunt.

RTI mmm
Route Index:

Matches all telephone numbers which have a route index, even numbers routed to intercept.

BSY mmm
Busy or reorder:

Matches all lines which have associated scan point numbers and receive busy instead of reorder when the scan point is set.

SS mmm
Special studies feature:

Matches all lines which have the special studies feature.

SOB mmm
Service observing feature:

Matches all lines which have service observing in effect.

BLN mmm
Special toll billing (QZ billing, ONI):

Matches all lines which have special toll billing.

HLN mmm
Hot line number:

Matches all lines which are hot line numbers.

MR mmm
Software message register:

Matches all lines which have software message registers.

RTN *mmm*
Return telephone number:

Matches any telephone number that has a return telephone number which will be automatically called by No. 3 ESS to establish a connection to an associated TTY channel. Used only on autoconnect lines.

CLS *mmm*
Message class:

Matches any telephone number that has a message class associated with it. Used only on autoconnect lines.

TTYC *mmm*
TTY controller number:

Matches any telephone number that has a TTY controller associated with it. Used only on autoconnect lines.

PORT *mmm*
TTY port number:

Matches any telephone number that has a TTY port number associated with it. Used only on autoconnect lines.

AUTO *mmm*
Automatic dialup option:

Matches any telephone number that has automatic dialup option to the RTN. Used only on autoconnect lines.

TO *mmm*
Time out:

Matches any telephone number that has any time out at all. Used only on autoconnect lines.

PRIOR *mmm*
Priority:

Matches any telephone number that has any non-zero priority. To be used only on autoconnect lines (not currently used).

NDB *mmm*
No dial-back:

Matches any telephone number that has no dial back. Used only on autoconnect lines.

ETYP *mmm*
Function:

Matches any telephone number that has an ETYP associated with it. Used only on autoconnect lines.

TER *mmm*

Member number in a MLHG or LTD trunk group. Matches any telephone number that has a member number in a LTD trunk group associated with it. Also matches any PBX/MLHG lines which have terminal numbers.

NIGHT mmm
   Night desk:

   Matches any telephone number that specifies that the night Local Test Desk is to be called.

TONE mmm
   Carrier tone:

   Matches any telephone number that has carrier tone associated with it. This is an autoconnect feature.

RAML mmm
   ROTL can remove trunks beyond service circuit limit:

   Matches any telephone number which says ROTL can remove trunks beyond service circuit limit.

PLIT mmm
   Prohibit line installation test:

   Matches any telephone number which has the prohibit line installation test feature.

PTY mmm
   Party number:

   Matches any telephone number which is a party number 1-8.

HML mmm
   PBX/MLHG number:

   Matches any telephone number that has a PBX/MLHG number associated with it.

RMB mmm
   Random make busy key number:

   Matches any telephone number that has a random make busy key associated with it (PBX/MLHG lines only).

ROH mmm
   Receiver off hook tone inhibit:

   Matches any telephone number that has a inhibit receiver off hook tone associated with it.

END
   End of Message:

   No more segments will be accepted for this message. "END" must be followed by the standard execute character "!". The message will now be executed. The end can also be signaled by following the last keyword typed by the execute character. Otherwise all keywords should be followed by a (/).

System Responses:

RL = The message should be repeated later.

IP = The program is active and a printout will follow after a time delay.

Example Usages:

Problem - count all lines which have call forwarding and not TOUCH-TONE.

    OP:FEA/

    ESM MH/

    TTC MNH/

    END!

Problem - count all lines which have 1 digit speed call or 2 digit speed call.

    OP:FEA/

    ESL IHA/

    ESF IHA/

    END!

Problem - count all lines which do not have TOUCH-TONE but have custom calling.

    OP:FEA/

    OP AND/

    TTC MNH/

    ESM IHA/

    ESC IHA/

    ESX IHA/

    ESI IHA/

    ESF IHA!

Problem - count and list all lines in the range 555 2000 - 555 2999 which meet either or both of the following conditions:

1. Line is an essential line and has trace active.

2. Line has service observing active.

    OP:FEA/

    LIST ON/

    TN 555 2/

    EL MH/

TRC MH/

SOB IHA!

Refer to OP FEA output message in Part 7.

OP:LINE INPUT MESSAGE

6.06 The OP:LINE input message provides state of the line information. The request may ask for the state of a single line or a list of all lines in an out-of-service state (out-of-service, plugged-up, or high and wet). The list may also be restricted to lines in a specific concentrator group and/or lines in a specific out-of-service state. The message is used in three formats:

OP:LINE (a bcde):STAT!

or

OP:LINE:STAT!

or

OP:LINE a:STAT f!

The control letters in the variable field have the following meaning:

a bcde is the OFFICE EQUIPMENT NUMBER (OEN) of the line.

> a = concentrator group (1 through 15)

> b = concentrator (0 through 1)

> c = switch group (0 through 2)

> d = switch (0 through 7)

> e = level (0 through 7)

> blank = list all lines in an out-of-service state.

> a only = list all lines in concentrator group "a" (1 through 15).

f is the state requested:

> blank—list all lines in an out-of-service state (out-of-service, plugged-up, or high and wet).

> OOS—restrict list to out-of-service or plugged-up lines.

> PLUGUP—restrict list to plugged-up lines.

> HAW—restrict list to high and wet lines.

Example 1: To request the in-service state of a specific line with OE 02 0101.

Type In: OP:LINE 2 0101:STAT!

Response: PF—Printout Follows:

OP:LINE 2 0101 TN 555 2323 IDLE

or

OP:LINE 2 0101 TN 555 2323 BSY

Refer to OP LINE output message in Part 7.

Example 2:   To request *all lines* in an out-of-service state.

Type in: OP:LINE:STAT!

Response: PF—Printout Follows:

```
14  OP  LINE  3 0143 TN 253 2970 STAT HAW
              3 0253 TN 253 2424 STAT HAW
              4 1044 TN 000 0000 STAT OOS
        OP  LINE  STAT COMPL
```

Refer to OP LINE output message in Part 7.

Example 3:   To request the state of lines in concentrator group 5.

Type In: OP:LINE 5:STAT!

Response: PF—Printout Follows:

```
23  OP  LINE  5 0142 TN 555 2369 STAT HAW
              5 1021 TN 555 5348 STAT OOS
              5 1074 TN 555 7391 STAT PLUGUP
              5 0273 TN 555 2141 STAT OOS
        OP  LINE  STAT COMPL
```

Refer to OP LINE output message in Part 7.

Example 4:   To request a list of all lines in an out-of-service (OOS) state.

Type In: OP:LINE:STAT OSS!

Response: PF—Printout Follows:

```
26  OP  LINE  5 1021 TN 555 5348 STAT OOS
              5 0273 TN 555 2141 STAT OOS
              4 1044 TN 555 1641 STAT OOS
        OP  LINE  STAT COMPL
```

Refer to OP LINE output message in Part 7.

Example 5: To request the list of all lines in the high and wet state.

Type In: OP:LINE:STAT:HAW!

Response: PF—Printout Follows:

```
            31 OP  LINE  5 0142 TN 555 2369 STAT HAW
                         3 0143 TN 253 2970 STAT HAW
                         4 0253 TN 253 2424 STAT HAW
                  OP  LINE  STAT COMPL
```

Refer to OP LINE output message in Part 7.

Example 6: To request the list of all lines on plug-up (intercept).

Type In: OP:LINE:STAT:PLUGUP!

Response: PF—Printout Follows:

```
   38 OP LINE 51074 TN 555 7391 STAT PLUGUP
   38 OP LINE STAT COMPL
```

Refer to OP LINE output message in Part 7.

OP:MATCH INPUT MESSAGE

6.07 The OP:MATCH message will cause a search through all the originating and terminating telephone number translations in the office or a specified range, and provide a printout and summary count, of all telephone numbers that contain specific data in their definition. The user can specify what data to match by keyword values. See input message OP:FEA for those keywords that don't have data. If more than one keyword with data is typed, an "AND" function is done and a telephone number's translation must contain all pieces of data for a match to occur. An option exists that will turn off the printing of all telephone numbers that match (see LIST keyword). This message is a linked message. The first input line is followed by several message segments, each consisting of a keyword and keyword data followed by a continue character (/). These segments may be entered in any order. The last input line must be 'END!' or a keyword and its corresonding data followed by an execute character (!). The format of the message is as follows:

OP:MATCH/

LIST ttt/

TN nxx—xxxx/

```
   BTN    nxx—xxxx/
   WATS   nxx—xxxx/
   LCC    tt/
   OMAJ   NN/·
   TMAJ   NN/
   SCR    NN/
```

```
RAX   n/
SER   nxx—xxxx/
CFN   number/
ESL   iiii/
ESF   iiii/
ESM   iiii/
DP    p ddd t/
DPM   p ddd t/
DPU   p ddd t/
DPCN  p ddd t/
SPN   ss rr pp/
RTI   nnn/
HLN   number/
MR    nnnn/
RTN   nxx—xxxx/
CLS   n/
TTYC  n/
PORT  n/
TP    nnn/
PRIOR nn/
ETYP  n/
TER   n/
TONE  n/
HML   gg/
PTY   n/
END!
```

Each keyword and keyword data is explained as follows:

LIST ttt
List all matching telephone numbers:

LIST may be used to stop the listing of all matching telephone numbers that prints as each match occurs. For this purpose ttt may be either ON or OFF; default is ON. *Caution:* **LIST may generate an extremely long list, depending on the input conditions. It may be more appropriate to use OP:OFR.**

TN nxx—xxxx
Telephone number range:

This keyword is designed to specify a range of telephone numbers to scan. Default is every telephone number in the office. One to seven digits can be consecutively input and are interpreted from left to right to determine range.
Examples:

Input	range
TN 555 11/	555 1100 ---> 555 1199
TN 555 1/	555 1000 ---> 555 1999

BTN nxx—xxxx
Bill to number:

Print all lines with the given billing number. (See TN keyword description for an explanation of how a range on the BTN keyword can be specified)

WATS nxx—xxxx
WATS billing number:

Print all lines with the given outward WATS billing number. (See TN keyword description for an explanation of how a range on the WATS keyword can be specified.)

LCC ttt
Line class code:

Print all lines with the given line class code. The LCC is made originating major class, terminating major class, and screening class. Keyword RAX is used with LCC to determine the classes.

OMAJ nn
Originating major class:

Print all lines with the specified originating major class. Range is 0 through 31.

TMAJ nn
Terminating major class:

Print all lines with the specified terminating major class. Range is 0 through 31.

SCR nn
Screening class:

Print all lines with the specified screening class. Range is 0 through 30.

RAX n
Rate area data:

This keyword is used with keyword LCC to determine the classes of service.

SER nxx—xxxx
Series completion directory number:

Print all lines with the given series completion directory number. (See TN keyword description for an explanation of how a range on the SER keyword can be specified.)

CFN number
Call forward to number:

Print all telephone numbers that are forwarded to the specified number.

> 1 npa nxx xxxx
> npa nxx xxxx
> 1 nxx xxxx
> nxx xxxx

A range can be specified for CFN the same as for TN except up to eleven digits can be input.

ESL iiii
1 Digit speed call index:

Print all lines with the specified 1 digit speed call index.   Range 0 - 2047.

ESF iiii
2 Digit speed call index:

Print all lines with the specified 2 digit speed call index.   Range 0 - 2047.

ESM iiii
Call forwarding variable index:

Print all lines with the specified call forwarding variable index.   Range 0 - 4095.

DP p ddd t
Distributor triplet:

Used to provide a "sleeve lead" function.

    p = peripheral pulse distributor (0 through 1)

  ddd = peripheral decoder (000 through 255)

    t = triplet (0 through 3)

DPM — ddd t
Distributor triplet for message registers:

    p = peripheral pulse distributor (0 through 1)

  ddd = peripheral decoder (000 through 255)

    t = triplet (0 through 3)

DPU p ddd t
Distributor triplet for noise immunity line circuit:

    p = peripheral pulse distributor (0 through 1)

  ddd = peripheral decoder (000 through 255)

    t = triplet (0 through 3)

DPCN p ddd t
Distributor triplet for coin line circuit:

    p = peripheral pulse distributor (0 through 1)

  ddd = peripheral decoder (000 through 255)

    t = triplet (0 through 3)

SPN ss rr pp
Scan point number:

Matches all lines which have associated key scan points. Includes SPNs associated with 1A concentrator lines, group alerting lines, subscriber loop multiplexer lines, and lines with remote make-busy keys. Excludes SPNs associated with PBX RMBs, PBX night stop, and PBX stop hunt. The numbers "ss rr pp" are broken down as follows:

  ss = scanner number (00 through 15)

  rr = row number (00 through 31)

  pp = point in row (00 through 15)

RTI nnn
Route index:

Print all lines with the given route. nnn = a 3-digit variable field.

HLN number
Hot line number:

Print all lines with the given hot line number (only found on manual lines). number = Hot line number having one of the following forms:

    1 npa nxx xxxx
    npa nxx xxxx
    1 nxx xxxx
    nxx xxxx

A range can be specified for HLN the same as for TN except up to eleven digits can be input.

MR nnnn
Software message register:

Print all lines with the given software message register. nnnn = a 4-digit message register index (max. 4095).

RTN npa nxx xxxx
Return telephone number:

Print all lines with the given telephone number that will be automatically called by No. 3 ESS to establish a connection to the associated channel.

CLS n
TTY message class:

Print all lines with the given TTY message class. n = a number from 0 to 7.

    n = 0 Maintenance
    n = 1 Backup Maintenance
    n = 2 Service Orders
    n = 3 Traffic
    n = 4 Repair Service Bureau

n = 5 Office Records
n = 6 AMA Primary
n = 7 AMA Backup

TTYC n
TTY controller number:

Print all lines with the given TTY controller number. n = a number from 0 to 7 specifying the TTY controller for the associated message class.

PORT n
TTY port number:

Print all lines with the given TTY port number. n = a number from 0 to 3 specifying the TTY port number for the associated message class.

TO nnn
Time out:

Print all lines with the given time out value. nnn = number of seconds that the associated TTY channel can remain idle waiting for input before automatic disconnect.

PRIOR nn
TTY priority:

Print all lines with the given TTY priority. nn = 0 through 15 (lowest priority is 0, highest priority is 15).

ETYP n
Function performed by the user of autoconnect:

Function performed by the user of autoconnect. n= a number from 0 to 7.

0 = TTX
1 = Reserved
2 = Reserved
3 = SPARE
4 = LTD
5 = Reserved
6 = SPARE
7 = SPARE

TER
Terminal number:

Print all lines with the given terminal number. Member number of a LTD trunk group if HML is not typed. If HNL is typed, this is a multiline hunt group terminal number.

TONE n
Carrier tone on the associated data set:

n = 0 high tone - (normal auto-connect TTY or LTD).

= 1 2225 Hz tone—(time 10 seconds)

HML gg
Multiline hunt group number:

Print all lines with the given MLHG number (00 through 63).

PTY n
Party number:

Print all lines with a given party number (1 through 8).

END
End of message:

No more segment will be accepted for this message. "END" must be followed by the standard execute character "!". The message will now be executed. The end can also be signaled by following the last keyword typed by the execute character. Otherwise all keywords should be followed by a (/).

System Responses:

RL = The message should be repeated later.

IP = The program is active and a printout will follow after a time delay.

Example Usages:

Problem - list all lines which have line class code CN2 in the range 555 2000 to 555 2999.

OP:MATCH/

TN 55 2/

LCC CN2/

END!

Problem - list all lines which have bill to number 555 1234.

OP:MATCH/

BTN 555 1234!

OP:NW:STAT INPUT MESSAGE

6.08 The OP:NW:STAT input message provides output network state information. A list of network links that are currently out-of-service is generated. This includes junctor B-links, wire B-links, and A-links as well as test vertical test circuits, test vertical test multiples, junctor test verticals and wire test verticals.

Example: To determine the status of the test verticals.

Type In: OP:NW:STAT!

Response: IP—IN Progress. A printout will follow:

```
11 OP NW STAT
      TV STAT COML ALL OK
      JC STAT COMPL ALL OK
      RLNK STAT COMPL ALL OK
      ALNK 3 122 STAT OOS
   OP NW STAT COMPL
```

Refer to OP NW STAT output message in Part 7.

OP:OFR INPUT MESSAGE

6.09 The OP:OFR input message and its associated keywords are used to: (1) request a printout of office records (2) add a remark to be associated with a telephone number. Each appropriate keyword and its data should be entered along with the continuation character (/), with the last keyword being (END!) or the last keyword and data followed by the execution character (!). The format of the message is as follows:

```
OP:OFR/

      FORM aaaaaa OR ALL
      START aaaaaa
      HDR YES or NO
      NUM bbbb/
      DELAY YES OR NO/
      EXTRA YES OR NO/
      TN nxx abcd OR all/
      OE aabcde OR ALL/
      GRP nnn OR ALL/
      TER nnn OR ALL/
      CHI nn OR ALL/
      TBL nn OR ALL/
      ODIG n OR ALL/
      TOTANI nn OR ALL/
      SCR nn OR ALL/
      SCRTBL nn OR ALL/
      DIG nnn OR ALL/
      FAT n/
      RTI nnn OR ALL/
      CDI nnn OR ALL/
      LCI nnn OR ALL/
      LCC nnn/
      CAC nnn OR ALL/
      TTYC nn OR ALL/
      TNR nxx xxxx/
      PORT n OR ALL/
      THDIG nxxt OR ALL/
      HDIG n/
      SP ssrrpp OR ALL/
      CODE nxx OR ALL/
      RMK oooooooooooo OR OUT/
      END!
```

Some of allowable formats for office records messages are as follows:

(1) To print all of a form using the form number.

OP:OFR/

FORM nnnn!

(2) To print all of a form using the keyword where the form is default based on the keyword.

OP:OFR/

CHI ALL/ (defaulted Form 3302)

(3) To print one page of Form 3100 during the nightly routines.

OP:OFR/

TN nxx abcd/

NUM 20/

DELAY YES/

EXTRA NO/

END!

Note: Using EXTRA NO here causes Form 3100 only to print. If EXTRA YES (default value) was specified the related forms to Form 3100 would also print for the specified page.

(4) To print a verify of a single telephone number (TN) on form 3100, 3107-1, and 3107-2.

OP:OFR TN nxx abcd!

(5) To print a trunk or line verify for an OE (and all parties, if any) on Form 3171.

OP:OFR OE aabcde!

(6) To print all forms starting at Form 3201 and Group 130 rather than Form 3100.

OP:OFR/

START 3201/

GRP 130!

Each keyword and keyword data is explained as follows:

FORM aaaaaa OR ALL

This keyword is used to specify the office record FORM number. Where aaaaaa is any form number from Table E. If "ALL" is specified then each form is printed in its entirety and in the order shown in Table E, except for Forms 3890 and 3891. See START keyword for starting FORM ALL option at a specific form. If this keyword is not specified the default is assigned base on the keywords received as shown in Table F by (&). Every form can be printed in its entirety by just specifying the form number. Forms 3400, 3500-1, an 3500-2 can only be printed by specifying the form number.

TABLE E

AVAILABLE FEATURES

3100	Directory number
3107-1	Supplementary information
3107-2	Supplementary information
3105	Multi-line hunt
3171	Office equipment number
3201	Trunk assignment
3202-1	Trunk group/service circuits
3202-3	Trunk group/trunk
3204	Trunk feature
3300	3 & 6 digit translations
3301	Rate & Route
3302	Charge Table
3303-1	Route index/NOC
3303-2	Route index
3304	Code index
3306	Line class code
3307	IDDD
3400	Traffic work table
3209	One digit translations
3505	TOTANI
3500-1	General information "capacity or option"
3500-2	General information "tty/misc."
3500-3	General information "tty assignment"
3501	Office code table
3506	Alarm monitor data
3576	Universal scan points
3890	List unassigned tn's
3891	Main Station Counts

TABLE F
RELATIONSHIP BETWEEN KEY WORD AND FORM

FORM OR START	D E / E X / L H T N / A D R U / Y R A M	G T / T R E O / N P R E	T / O / O T / C T D A / H B I N / I L G I	S / C / R / S T D F / C B I A / R L G T	R C L L / T D C C / I I I C	T / T P H / C T O D / A Y R I / C C T G	H C / D O T / I S D N / G P E R
3100	* * R *	ε					
3107-1	* * r *	*					
3107-2	* * r *	*					
3105	* * *	* *					
3171	* * *	ε					
3201	* * *	* *					
3202-1	* * *	*					
3202-3	* * R *	*					
3204	* * r *	K					
3209	* * *		ε ε				
3300	* * *			ε ε			
3301	* * *			ε ε			
3302	* * *		ε				
3303-1	* * *				K		
3303-2	* * *				ε		
3304	* * *				ε		
3306	* * *				ε ε		
3307	* * *					ε	
3400	*						
3500-1	*						
3500-2	*						
3500-3	* * *					ε ε	
3501	* * *					ε	ε
3505	* * *		ε				
3506	* * *						*
3576	* * *						*
3890	* * *						ε
3891	* *						ε

* — This key word is allowed on this form. See description of the key word for details.

ε — This key word is allowed on this form and the indicated form is also the default value for FORM key word.

K — This key word is allowed on this form. The indicated form is not the default value for the FORM key word. Hence, this key word and the FORM key word must be explicityly specified.

R — This key word is allowed on this form and it is related to the form(s) immediately following (identified by an 'r'). See description of the key word for other details.

r — This key word is not allowed on this form but is related to the preceding form identified by an R in the table. The form(s) identified with an 'r' will automatically be printed when its related form (identified by an R) is printed, providing EXTRA YES option is used. For example: specifying OP:OFR TN 231 1100! (default to EXTRA YES) always causes the 3100-R form to print. In addition the related forms (3107-1R and 3107-2R) will also print if they contain data.

START aaaaaa

Specifying START aaaaaa is equivalent to specifying "FORM ALL" but starts printing at the beginning of form aaaaaa (where aaaaaa is the form number, see Table E for allowed forms) instead of Form 3100. To start in the middle of form aaaaaa, specify the appropriate keywords associated with form aaaaaa (see Table F). Keywords HDR, EXTRA, and NUM are overriden by this keyword and doesn't affect the output. FORM keyword and START keyword not allowed on the same message.

HDR YES OR NO

This keyword is used to specify if the header associated with this form should be printed. YES print it, NO do not print it. If the number of items to print (NUM) is greater than or equal to 20 the header is always printed. Less than 20 a default of 'NO' is assigned unless specified otherwise.

NUM bbbb

Used to specify the number of consecutive items that will be printed out. This keyword ignored if "ALL" is used to print an entire form. (default = 1)

DELAY YES or NO

This keyword is used to specify if this office records request is to be printed immediately (NO) or be delayed to the office records time in the nightly routines (YES). To schedule which days delayed office record print, see SCHED:OFR input message. Up to 20 delayed messages can be saved at one time and those that don't get printed the first scheduled time will be printed the next scheduled time. (default is NO) All delayed messages will be printed on the same channel from which they were requested.

EXTRA YES or NO

This keyword is used to specify if the forms related to the specified form are to be printed (YES) or just the specified form (NO). See Table F for forms which allow the EXTRA keyword and the other forms that will automatically print by using this option. Default is YES.

TN nxx abcd OR ALL

This keyword is used to specify the telephone number which is used (1) to print office record forms 3100, 3107-1, and 3107-2 or (2) to add remarks (see RMK keyword).

If a remark is to be added only the TN and RMK keywords are needed. If an office record is to be printed consider the following.

If "ALL" is specified then the information for every telephone number is printed. If "ALL" is not specified the telephone numbers are listed in order up to the number of TNs specified by the NUM keyword or up to a thousands group boundary (which ever occurs first). Unassigned hundreds groups are skipped.

OE aabcde OR ALL

This keyword is used to specify the terminal equipment number which is used by the office record 3171 form

aa = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = input level (0 through 7)

The number of terminal equipment numbers listed in order is specified by the (NUM) keyword. If "ALL" is specified, then the information for all terminal equipment numbers is printed.

CDI nnn OR ALL

Used to specify the code index for Form 3304. Where nnn is in the range 0 through whatever the maximum code index is for the office (maximum is 255).

TBL nn OR ALL

Used to specify the one digit table number for Form 3209. Where nn is in the range 0 through whatever the maximum one digit table number is for the office (maximum is 63).

ODIG n OR ALL

Used to specify the one digit number for form 3209. Where n is in the range 0 through 9. If "ALL" is specified, the information for every one digit number is printed for the specified table (see TBL keyword).

TOTANI nn OR ALL

Used to specify the terminal office test access number index for Form 3505. Where nn is in the range 1 through 63 and index 0 is used to print the trunk maintenance billing number. If "ALL" is specified, the information for every TOTANI is printed.

TNR nxx xxxx

This keyword is designed to specify a range of telephone numbers to scan. Default is every telephone number in the office. One to seven digits can be consecutively inputted and are interpreted from left to right to determine range. If this keyword is used to print the 3891 form, no counts involving OE's are made.

    Examples:
        TNR 555 11 ==> 555 1100 - 555 1199
        TNR 555 1   ==> 555 1000 - 555 1999

SCR nn OR ALL

Used to specify the screening class for Form 3301. Where nn is in the range 0 through whatever the maximum screening class is for the office (maximum is 62). If "ALL" is specified, the information for every screening class is printed in increasing screening class order. If "ALL" is specified and the screening table (see SCRTBL), information for every screening class in the specified screening table is printed.

SCRTBL nn OR ALL

Used to specify the screening table for Form 3301. Where nn is in the range 0 through whatever the maximum screening table is for the office (maximum is 63). If "ALL" is specified the information for every screening table is printed in increasing table order. If "ALL" is specified and the screening class (see SCR), information for every screening table in the specified screening class is printed.

DIG nnn OR ALL

Used to specify the 3 digit code (NXX or NPA) for Form 3300. Where nnn is in the range 110 through 119 or 200 through 999 for NXX and nnn is in the range 200 through 999 for NPA. If "ALL" is specified, the information for every 3 digit code is printed.

FAT n

Used to specify the local or foreign area translator number (FAT) for Form 3300. Where n is in the range 0 through 3.

RTI nnn OR ALL

Used to specify the route index for Forms 3303-1 and 3303-2. Where nnn is in the range 0 through 7 for Form 3303-1 and range 8 through whatever, the maximum route index is for the office (maximum is 255). If "ALL" is specified, the information for every route index on the specified form (see FORM) is printed. (Default FORM is 3303-2)

LCI nnn OR ALL

Used to specify the line class code index for Form 3306. Where nnn is in the range 0 through whatever, the maximum line class code index is for the office (maximum is 255). If "ALL" is specified, the information for every line class code index is printed. The LCC keyword is not allowed when using the LCI keyword.

LCC nnn

Used to specify the line class code for Form 3306. Where nnn is the 3 character line class code, the information for each occurrence of the specified line class code is printed. The LCI keyword is not allowed when using LCC keyword.

CAC nnn OR ALL

Used to specify the country access code for Form 3307. Where nnn is in the range 0 through 999. If "ALL" is specified, the information for every country access code is printed.

TTYC nn OR ALL

Used to specify the TTY controller number for Form 3500-3. Where nnn is in the range 0 through 7. If "ALL" is specified, the information for every TTY controller number and port number is printed.

PORT n OR ALL

Used to specify the port number for Form 3500-3. Where n is in the range 0 through 3. If "ALL" is specified, the information for every port of the specified TTY controller number (see TTYC) is printed.

THDIG nxxt OR ALL

Used to specify the office code and thousands digit for form 3501. Where 'nxx' is three digit office code in the range 200 through 999 and 't' is the thousands digit in the range 0 through 9. If "ALL" is specified, the information for every hundreds group is printed.

HDIG n

Used to specify the hundreds digit for Form 3501. Where n is in the range 0 through 9. To use this keyword, the THDIG keyword must be specified.

SP ssrrpp OR ALL

Used to specify the scan point number for Forms 3506 and 3576. Where ss is the scanner, rr is the row, pp is the point. The "SP" must be a miscellaneous scan point for Form 3506 (range 00 16 00 - 00 27 15). The "SP" must be a universal scan point for Form 3576 (range is scanner 0, row 0-15 or 28-31 or scanner 1-15, row 28-31). If "ALL" is specified, the information for every scan point is printed for the specified form. If the FORM keyword is not specified along with the SP keyword, the FORM keyword is defaulted as follows.

    00 00 00 - 00 15 15 = > Form 3576
    00 16 00 - 00 27 15 = > Form 3506
    (00-15) 28 00 - (00-15) 31 15 = > Form 3576
    All = > Form 3576

CODE nxx OR ALL

Used to specify the office code for Form 3890. Where nxx is in the range 200 through 999. If "ALL" is specified, the information for every telephone number is printed.

CHI nn OR ALL

Used to specify the charge index for Form 3302. Where nn is in the range 1 through 31. If "ALL" is specified the information for every charge index is printed.

GRP nn OR ALL

Used to specify the group number for Forms 3105, 3201, 3202-1, 3202-3, and 3204. Where nnn is in the range 0 through 255. If the form keyword is not included along with the GRP keyword, the form keyword is defaulted as follows:

    0-63 with or without TER = > Form 3105
    64-127 If TER specified = > Form 3201
    64-127 If TER not specified = > Form 3202-1
    128-255 If TER specified = > Form 3201
    128-253 If TER not specified = > Form 3202-3

If "ALL" is specified, the information for groups in the range 64 through 255 is printed for Form 3201.

TER nn OR ALL

Used to specify the member number for Forms 3105 and 3201. Where nnn is in the range 0 through whatever, the maximum member number is 63 and 126 for Forms 3105 and 3201 respectively. If "ALL" is specified, the information for every member in the specified group is printed.

RMK oooooooooooo OR OUT

      oooooooooooo = 1 to 13 alphanumeric characters that will appear in the "REMARKS" field of the output record 3100-R form for the TN specified.

      OUT = Remove the current remark (if any) now associated with the TN. If the remark was a "general" remark, the space available for general remarks is increased by one (maximum 31 per 100s GRP).

Two types of remarks can be used with the 3100-R form:

1. General Remark

Any remark not exceeding 13 characters is a general remark. A maximum of 32 TNs per 100s group may have a general remark. The TN may be assigned or unassigned.

2. Unassigned Remark

The date will automatically be saved with the remark providing the TN is unassigned (including intercept with TMAJ = 28; and special routing with TMAJ = 31). The date is an aid for aging disconnects. Refer to Table G for the abbreviated form of unassigned remarks.

   Note 1: Unassigned RMKs do not use any space allocated to general RMKs if the TN is unassigned.

   Note 2: Unassigned RMKs are distinguished from general RMKs when printed on the 3100-R in that unassigned RMKs are indented one space before they are printed in the remarks column.

TABLE G

UNASSIGNED RMKs

VAC	Vacant
RD	Resident disconnect
BD	Business disconnect
RC	Resident change
BC	Business change
DNA	Do not assign
PLA	Plant assignment
NP	Nonpublished
MAN	Manual
ICP	Intercept
DLL	Dial long lines
PC	Public coin
SPC	Semipublic coin
RSV	Reserve

END

End of message:

   No more segments will be accepted for this message. "END" must be followed by the standard execute character "!". The message will now be executed. The end can also be signaled by following the last keyword typed by the execute character. Otherwise all keywords should be followed by a (/).

System Responses:

IP—A printout *in* progress.

OK—Remark was accepted but if followed by an error printout, remark was not accepted.

RL—*Retry later.* This multiscan function request was defined to do another multiscan function being active.

Refer to OP OFR output message in Part 7.

OP:TRK INPUT MESSAGE

6.10 The OP:TRK input message is used to output trunk state information. The request may ask for the state of a single trunk or a list of all trunks in an out-of-service state (locked-out, disabled, or high and wet). The message may be in two formats:

OP:TRK:(a,b):STAT!

or

OP:TRK:STAT!

The variable field has the following meaning:

a = the GROUP NUMBER (128 through 255) of the trunk.

b = the MEMBER NUMBER (0 through 127) of the trunk.

blank = list *all* trunks in an out-of-service state.

Example: To request the list of trunk circuits in an out-of-service state.

Type In: OP:TRK:STAT!

Response: IP—In Progress. A printout will follow.

12 OP TRK STAT COMPL ALL OK

RMV:LINE INPUT MESSAGE

6.11 The RMV:LINE input message is used to remove a customer line or unassigned office equipment number (OEN) from service. The customer line is identified by both TN and OEN. The line will be placed in an out-of-service state, and its cutoff contact will be opened. The line will not be used to originate or terminate calls. In addition to removing the customer line from service, the line can also be placed on the plug-up list (intercept) which causes terminating calls to be routed to intercept rather than receiving busy tone. The message may be in two formats:

RMV:LINE (a, bcde), TN f g!

or

RMV:LINE (a, bcde), TN f g:PLUGUP!

The control letters in the variable field have the following meaning:

    a bcde = the OFFICE EQUIPMENT NUMBER (OEN) of the line

        a = concentrator group (1 through 15)

        b = concentrator (0 through 1)

        c = switch group (0 through 2)

        d = switch (0 through 7)

        e = level (0 through 7)

      f g = the TELEPHONE NUMBER (TN) of the line. (Use first party for a multiparty line.)

    Note: The f g is not required for unassigned terminals.

PLUGUP = In addition to being removed from service, the line is also placed on the plug-up list which causes terminating calls to be routed to intercept rather than receiving busy tone.

Example 1: To remove a customer line from service using OE 02 1113 and TN 555 6343.

Type In: RMV:LINE 2 1113 TN 555 6343!

Response: PF—Printout Follows:

    or

Response: IP—The request was accepted and is in progress. A busy line is camped-on for 5 minutes and removed from service if it becomes idle during that time period. The STOP:CKT CMP input message may be used to cancel the camp-on activity.

    40 RMV LINE 2 1113 TN 555 6343

Refer to RMV LINE output message in Part 7.

Example 2: To remove a customer line from service and place it on the plug-up list using OE 02 1112 and TN 555 6343.

Type In: RMV:LINE 2 1112 TN 555 6343:PLUGUP!

Response: PF—Printout Follows:

    or

Response: IP—The request was accepted and is in progress. A busy line is camped-on for 5 minutes and removed from service if it becomes idle during that time period. The STOP:CKT CMP input message may be used to cancel the camp-on activity.

    47 RMV LINE 2 1112 TN 555 6343 PLUGUP

Refer to RMV LINE output message in Part 7.

RST:LINE INPUT MESSAGE

6.12 The RST:LINE input message is used to restore a customer line or unassigned terminal to service. The line will be placed in the in-service idle state, its cutoff contact will be closed, and a restore verify test will be performed. If the line was plugged-up, it will be removed from the plug-up list. The line is identified by both the office equipment number (OEN) and telephone number (TN). The message is used in two formats:

RST:LINE (a, bcde), TN f g!

or

RST:LINE (a, bdce), TN f g:action-option!

The control letters in the variable field have the following meaning:

a bcde = the OFFICE EQUIPMENT NUMBER (OEN) of the line

   a = concentrator group (1 through 15)

   b = concentrator (0 through 1)

   c = switch group (0 through 2)

   d = switch (0 through 7)

   e = level (0 through 7)

f g = the TELEPHONE NUMBER (TN) of the line. (Use first party for a multiparty line.)

Note: The f g is not required for unassigned terminals.

action-option = UCL—indicates an unconditional restoral. The cutoff contact of an unassigned terminal is closed.

Note: The cutoff contact of an unassigned terminal is not closed unless the request is unconditional.

Example: To restore a customer line to service which is plugged-up (using OE 02 0112 and TN 555 6348).

Type In: RST:LINE 2 0112 TN 555 6348!

Response: PF—Printout Follows:

   33 RST LINE 2 0112 TN 555 6348

Refer to RST LINE output message in Part 7.

TST:LINE INPUT MESSAGE

6.13 The TST:LINE input message is used to perform the line insulation test (LIT) on a specified line. The line is identified by the office equipment number (OEN). The type of test and the resistance range can be specified. If none are requested, the test and range parameters assigned to the daily automatic line insulation test (ALIT) are used. The tests and ranges for the line insulation test are as follows:

    TESTS

    SRG — short and ring to ground

    TRG — tip and ring to ground

  FEMF — foreign electromotive force

Range — 80K

      — 320K

      — 2.56m

The format of the message is as follows:

    TST:LINE a bcde f g!

The control letters in the variable field have the following meaning:

    a bcde = the OFFICE EQUIPMENT NUMBER (OEN) of the line

        a = concentrator group (1 through 15)

        b = concentrator (0 through 1)

        c = switch group (0 through 2)

        d = switch (0 through 7)

        e = level (0 through 7)

        f = type of test

        1 = SRG

        2 = TRG

        3 = SRG and TRG

        4 = FEMF

        5 = SRG and FEMF

        6 = TRG and FEMF

        7 = SRG and TRG and FEMF

g = resistance range

= 80K

= 320K

= 2.56M.

Example: To perform the LIT test using the SRG and TRG test and the 80K resistance range on a specific line identified by OE 02 1234.

Type In: TST:LINE 2 1234 3 80K!

Response: IP—In Progress. A printout will follow:

44 TST LINE START

44 TT LINE 2 1234 TN 555 6363 ERR SRG (or TRG) (if line fails the LIT test)

44 TST LINE 2 1234 TN 555 6365 010061 COMPL

Refer to TST LINE output message, Part 7.

VER:CFN INPUT MESSAGE

6.14 The VER:CFN input message is used to verify the call forwarding telephone number associated with a customer telephone number. The format of the message is as follows:

VER:CFN:TN nxx—xxxx!

The nxx—xxxx = 7-digit telephone number of the customer line.

Typical Complaint: A customer reports receiving calls intended for another telephone number (555-7868).

Example: To determine if the telephone number (555-7868) has been call forwarded and to which telephone number.

Type In: VER:CFN:TN 555-6868!

Response: PF—Printout Follows.

```
33  VER CFN TN 555-7868
    CFN   555-9898
```
└─ Telephone number to which call
    was forwarded

or

```
33  VER CFN TN 555-7868
    CFN  UNAS
```
└─── Customer has call forwarding
    service, but no call forwarding
    telephone number is assigned

Refer to VER CFN output message in Part 7.

VER:LINE INPUT MESSAGE

6.15 The VER:LINE input message is used to verify the office equipment for the customer line originating and terminating translations. The first form of this message verifies a specific party of a party line given the office equipment number (OEN). The second form verifies any type of line given the telephone number (TN). The third form verifies the same data as the second form, given the office equipment number (OEN). The fourth form allows the verification of a list of nnn TNs starting from the specified TN. The formats of the input messages are as follows:

VER:LINE/

OE aa bcde/ (Required, this format)

PTY p/

END! (Required, this format)

or

VER:LINE:TN nxx xxxx! (END! not required this format)

or

VER:LINE:OE aa bcde! (END! not required, this format)

or

VER:LINE/

TN nxx-xxxx/ (Required, this format)

LIST nnn/

END! (Required, this format)

Each key word and key word data is explained as follows:

TN nxx-xxxx = telephone number (TN) in decimal.

OE aa bcde = office equipment number (OEN) in decimal.

aa = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = input level (0 through 7)

PTY p = party number in decimal

p = 1 through 8 indicates party of multiparty line

p = 1 indicates ring party

p = 2 indicates tip party

List nnn = list of sequential TNs to be verified in decimal

nnn = 1 through 100

= *Note:* nnn should not attempt to include a verify of a TN outside the hundreds group of the TN specified. Attempts to verify any TNs outside the specified hundreds group will not be verified.

END = end of message.

Example 1: To verify the tip party of a 2-party line with OE 01 1155.

Type In: VER:LINE/

Type In: OE 01 1155/

Type In: PTY 2

Type In: END!

Response: PF—Printout Follows:

```
M 33   VER LINE
       TN 555 3100
       OE 0 1 1 1 5 5
       RTI 0
       LCC D04
       LCI 8
       RAX 0
       OMAJ 8
       SCR 0
       TMAJ 8
       TTC
       END
```

Refer to VER LINE output message in Part 7.

Example 2:   To verify a line using the given   OE 06 1116

Type In: VER:LINE:OE 06 1116!

Response: PF—Printout Follows:

```
M 45   VER LINE
       TN 528 2506
       CUT
       HML 1
       TER 5
       LHT 5
       LCC TCK
       LCI 3
       RAX 0
       OMAJ 30
       SCR 0
       TMAJ 8
       OE 6 1 1 1 6
       DRB 0
       GST
       END
```

Refer to VER LINE output message in Part 7.

VER:MPTY INPUT MESSAGE

6.16   The VER:MPTY input message is used to verify the office equipment for the customer multiparty
     line's originating and terminating translations. The message is used in four formats. The first
form of this message verifies a specific party line given the office equipment number (OEN). The second
form verifies the line given the telephone number (TN). The third form verifies the same data as the
second form given the office equipment number (OEN). The fourth form allows the verification of a list
of nnn TNs starting from the specified TN. The format of the input message is as follows:

   VER:MPTY/

   OE aa bcde/ (Required this format)

   PTY p/

   END! (Required, this format)

   or

   VER:MPTY:TN nxx-xxxx! (End, not required, this format)

   or

   VER:MPTY:OE aa bcde! (End, not required, this format)

   or

   VER:MPTY/

   TN nxx—xxxx/ (Required, this format)

   LIST nnn/

   END! (Required, this format)

Each keyword and keyword data is explained as follows.

   TN nxx-xxxx = telephone number (TN) in decimal

   OE aa bcde = office equipment number (OEN) in decimal

          aa = concentrator group (1 through 15)

           b = concentrator (0 through 1)

           c = switch group (0 through 2)

           d = switch (0 through 7)

           e = input level (0 through 7)

      PTY p = party number in decimal

           p = 1 through 8 indicates party of multiparty line

List nnn = list of sequential TNs to be verified in decimal

nnn = 1 through 100

= *Note:* nnn should not attempt to include a verify of a TN outside the hundreds group of the TN specified. Attempts to verify any TNs outside the specified hundreds group will not be verified.

END = end of message.

Example: To verify the party number and number of parties on a multiparty line, given TN 555-3929.

Type In: VER:MPTY:TN 555-3929!

Response: PF—Printout Follows:

```
M 53 VER MPTY
  TN 555 3929 — TN of the line
  OE 3 1204  — OE of the line
  OESP 3 20 4
  RTI 0
  LCC 4FR
  LCI 16
  RAX 0
  OMAJ 16
  SCR 4
  TMAJ 16
  PTY 1 4
  END |  └── number of parties
      └── party number
```

Refer to VER MPTY output message in Part 7.

VER:MTL INPUT MESSAGE

6.17 The VER:MTL input message is used to verify the office equipment for the customer line originating and terminating translations. The message is used in four formats. The first form of this message verifies specific party line given the office equipment number (OEN). The second form verifies the line given the telephone number (TN). The third form verifies the same data as the second form, given the office equipment number (OEN). The fourth form allows the verification of a list of nnn TNs starting from the specified TN. The formats of the input messages are as follows:

VER:MTL/

OE aa bcde/ (Required, this format)

PTY p/

END! (Required, this format)

or

VER:MTL:TN nxx-xxxx! (End, not required, this format)

or

VER:MTL:OE aa bcde! (End, not required, this format).

or

VER:MTL/

TN nxx—xxxx/ (Required, this format)

LIST nnn/

END! (Required, this format)

Each keyword and keyword data is explained as follows:

TN nxx-xxxx = telephone number (TN) in decimal

OE aa bcde = office equipment number (OEN) in decimal

aa = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = input level (0 through 7)

PTY P = party number in decimal

p = 2 indicates tip party

List nnn = list of sequential TNs to be verified in decimal

nnn = 1 through 100

= *Note:* nnn should not attempt to include a verify of a TN outside the hundreds group of the TN specified. Attempts to verify any TNs outside the specified hundreds group will not be verified.

END = end of message.

Example: To verify the multiline hunt terminal with TN 555-6363.

Type In: VER:MTL:TN 555-6363!

Response: PF—Printout Follows:

```
                          M  46   VER MTL
                                  TN 555 6363
                                  CUT
                                  HML 1
                                  TER 5
                                  LHT 5
                                  LCC TBK
                                  LCI 3
                                  RAX 0
                                  OMAJ 30
                                  SCR 0
                                  TMAJ 8
                                  OE 6 1 1 1 6
                                  DRB 0
                                  GST
                                  END
```

Refer to the VER MTL output message, Part 7.

VER:OE INPUT MESSAGE

6.18   The VER:OE input message is used to verify customer line originating and terminating translations. The first form of this message verifies any type of terminal given the office equipment number (OEN). If PTY p is not specified and the line is a party line, then party 1 is verified. The second form verifies any type of line given the telephone number (TN). The third form verifies the same data as the first form with PTY p not specified. The fourth form allows the verification of a list of nnn TNs starting from the specified TN. The formats of the input messages are as follows:

VER:OE/

OE aa bcde/(Required, this format)

PTY p/

END!   (Required, this format)

or

VER:OE:TN nxx-xxxx! (END! not required, this format)

or

VER:OE:OE aa bcde! (END! not required, this format).

or

VER:OE/

TN nxx—xxxx/ (Required, this format)

LIST nnn/

END! (Required, this format)

Note 1: If the OEN specified is a trunk or service circuit, the group and member number will be printed.

Note 2: The first form of this message is linked. The first input line is followed by 1- or 2-message segments, each consisting of a key word and key word data followed by the continue execute character "/". The segment may be entered in any order, but "END!" must be the last input line. All required key words must be entered.

Each key word and key word data is explained as follows:

TN nxx-xxxx = telephone number (TN) in decimal

OE aa bcde = office equipment number (OEN) in decimal

aa = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = input level (0 through 7)

PTY p = party number in decimal

p = 1 through 8 indicates party of multiparty line

p = 1 indicates ring party

p = 2 indicates tip party

List nnn = list of sequential TNs to be verified in decimal

nnn = 1 through 100

= *Note:* nnn should not attempt to include a verify of a TN outside the hundreds group of the TN specified. Attempts to verify any TNs outside the specified hundreds group will not be verified.

END = end of message.

No more segments will be accepted for this message. "END" must be followed by the standard execute character "!".

Example: To verify translations associated with a line identified by OE 02 0270.

Type In: VER:LINE OE 02 0270!

Response: PF—Printout Follows:

```
M 53   VER LINE
       TN 534 3000 ——— TN of the line
       OE 2 0 2 7 0 ——— OEN of the line
       OESP 2 19 8
       RTI 0
       LCC 1FR
       LCI 8
       RAX 0
       OMAJ 8
       SCR 0
       TMAJ 8
       END
```

Refer to VER OE output message, Part 7.

VER:SCN INPUT MESSAGE

6.19   The VER:SCN input message is used to verify the speed calling list associated with a customer telephone number. The format of the message is as follows:

VER:SCN:TN nxx—xxxx!

The nxx—xxxx = 7-digit telephone number of the customer line.

Typical Complaint: Customer cannot reach the correct telephone number assigned to the customer's speed calling list.

Example: To verify the speed call list for a customer with TN 555 3878.

Use: IM 3H300-01, VER:SCN:TN

Type In: VER:SCN:TN 555 3878!

Response: Valid: PF—Printout Follows:

```
30   VER SCN
     TN 555 3878
     GRP
     ESL
     ESF
     01 1 919 787 6363
     02       555 6432
     03       555 1372
     04 1 704 653 1414
           etc
```

Note: If no speed calling numbers are printed, then the customer does not have any speed calling numbers assigned.

Refer to VER SCN output message in Part 7.

VER:TWOPTY INPUT MESSAGE

6.20 The VER:TWOPTY input message is used to verify the office equipment for the customer line originating and terminating translations. The message is used in four formats. The first form of this message verifies a specific party line given the office equipment number (OEN). The second form verifies the line given the telephone number (TN). The third form verifies the same data as the second form, given the office equipment number (OEN). The fourth form allows the verification of a list of nnn TNs starting from the specified TN. The formats of the input messages are as follows:

VER:TWOPTY/

OE aa bcde/ (Required, this format)

PTY p/

END! (Required, this format)

or

VER:TWOPTY:TN nxx—xxxx! (END, not required this format)

or

VER:TWOPTY:OE aa bcde! (END, not required this format)

or

VER:TWOPTY/

TN nxx—xxxx/ (Required, this format)

LIST nnn/

END! (Required, this format)

Each keyword and keyword data is explained as follows:

TN nxx-xxxx = telephone number (TN) in decimal

OE aa bcde = office equipment number (OEN) in decimal

aa = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = input level (0 through 7)

PTY p = party number in decimal

p = 1 indicates ring party

p = 2 indicates tip party

List nnn = list of sequential TNs to be verified in decimal

nnn = 1 through 100

= *Note:* nnn should not attempt to include a verify of a TN outside the hundreds group of the TN specified. Attempts to verify any TNs outside the specified hundreds group will not be verified.

END = end of message.

Example: To verify the ring party of a 2-party line with OE 11 0166.

Type In: VERTWOPTY/

Type In: O E 11 0166/

Type In: PTY 1/

Type In: END!

Response: PF—Printout Follows:

```
M 15  VER LINE
      TN 555-6262
      OE 11 0166
      RTI 0
      LCC 2FR
      LCI 1
      RAX 0
      OMAJ 8
      SCR 0
      TMAJ 8
      TTC
      END
```

Refer to VER TWOPTY output message in Part 7.

7. DETAILED OUTPUT MESSAGES

ABT LTD OUTPUT MESSAGE

7.01 The ABT LTD output message indicates that the LTD was disconnected due to an error condition which would interfere with the test procedures of the LTD. The format of the message is as follows:

tt ABT LTD code oooooo

The variable field has the following meaning:

code = The error condition code that describes the reason for disconnecting the LTD.

= The error codes: 0-20 indicate peripheral failures

= The error codes: 100-400 indicate translation failures.

oooooo = Is a binary number containing a group and member number (GMN) or an office equipment number (OEN) or a distributor triplet address (DTA) pointing to the circuit involved in the error.

Example:

```
        30    ABT    LTD    300    100

Time after                             Group and member number
the hour

                             Error code
```
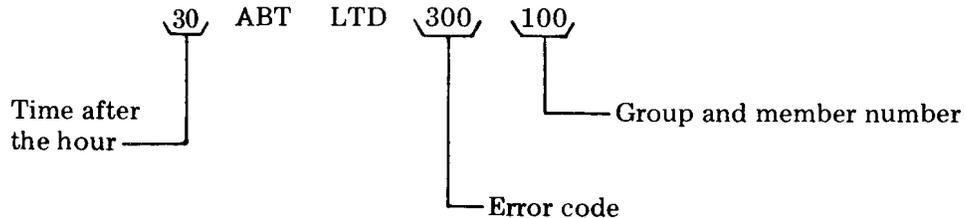
7.02 Action to be taken: Notify the central office personnel.

ADM ERR OUTPUT MESSAGE

7.03 The ADM ERR output message is an error code in response to a distribute (allocation), office record, output (tape), recent change, traffic, or verify input message. The error would have been encountered on the previous input message. The format of the message is as follows:

tt ADM ERR nnnn

or

tt ADM ERR nnnn kw

or

tt ADM ERR nnnn kw xxxx

The variable field has the following meaning:

nnnn = error number.

   kw = keyword is an optional parameter on the message. KW is a keyword that can be associated with the error number.

xxxx = can be a variable number. The number is associated wih the keyword inputted from the message in error. This field is explained in the error number descriptions that use it; there may be one or more variables.

The definitions of error numbers of the error numbers can be found in the Output Message Manual, OM 3H300-03 in the ADM ERR output message.

Example:

   26 ADM ERR 1010

         └─ Time after
            the hour

                                   └── Required keyword not received
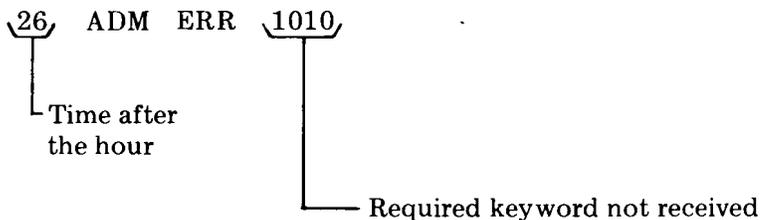
7.04 Action to be taken: Correct the message and retype.

OP DELAY OUTPUT MESSAGE

7.05 The OP DELAY output message and its associaed keywords print the contents of a pending delay message in response to the OP:DELAY input message. The format of the message is as follows:

   tt OP DELAY MSG n

       FORM a

       CLS b

       HDR YES

       IDENT d e

       NUM f

       END

Each keyword and keyword data is explained as follows:

MSG n

   n = the message slot number.

If n = 0 the requested message slot is vacant.

FORM a

a = the office records form number or ALL.

CLS b

b = the destination TTY message class for this delay message.

HDR YES

This keyword prints only if the header is specified for this delay message.

IDENT d e

d and e are decimal representations of the input keyword data. Conversion to get the actual input data may be necessary, based on the input keyword type. (i.e. BCD)

NUM f

f = the number of items to print for this delay message.

END

Reports the END of this printout.

7.06 Action to be taken: None.

OP FEA OUTPUT MESSAGE

7.07 The OP FEA output message is the response message to a request to count all lines with a unique set of features. The format of the message is as follows:

tt OP FEA msg

The variable field has the following meaning:

The "msg" field can take on one of the following formats:

LIST nxx—xxxx
(Where nxx—xxxx is a local TN)

ABORTED
(The message was aborted)

EXACT MATCHES = xxxxx
(This is the normal results of the message)

END = end of message.

OP LINE OUTPUT MESSAGE

7.08   The OP LINE output message is used to print out line state information on request using the OP:LINE input message. If the request is for information on a single line, the line is identified by both telephone number (TN) and office equipment number (OEN). If the request is for a list of lines, the output message is terminated by a completion message. The format of the message is as follows.

   tt OP LINE a bcde TN f g STAT h

   tt OP LINE STAT r

The variable field has the following meaning:

   a bcde = The office equipment number (OEN) of the line.

      a = concentrator group (1 through 15).

      b = concentrator (0 through 1).

      c = switch group (0 through 2).

      d = switch (0 through 7).

      e = level (0 through 7).

      fg = the telephone number (TN) of the line preceded by a + for a multiparty line).

      h = state of the line.

   IDLE = the line is in the in-service IDLE state.

   BSY = the line is in the in-service BUSY state.

   OOS = the line is in the OUT-OF-SERVICE state and may be faulty. It is not being used to originate or terminate calls and its cutoff contact is open.

   PLUGUP = the line is in the PLUGGED-UP out-of-service state. This is also the same as the OSS state except that the line is also on the plug-up list which causes terminating calls to be routed to intercept rather than receiving busy tone.

   HAW = the line is in the HIGH and WET out-of-service state and may be faulty. It is not being used to originate or terminate calls while the permanent signal condition exists. If the line returns to an on-hook state, it will be automatically placed back in the in-service idle state.

      r = COMPLETION REPORT.

   COMPL = the requested list of out-of-service lines has been completed.

   COMPL ALL = all requested lines are OK. None of them are in the requested out-of-service states.

NOT START = a similar request is now active. Wait until its completion and then repeat the request.

ABT = an abort request was received. The requested output has been aborted.

Example: The response from an OP LINE input message requesting the status of a specific line is:

M 58 OP LINE 2 0075 TN +534 5553 STAT BSY

Time after ──┘
the hour

└── Line is in-service, busy

└── TN for the multi-party line

└── OEN of the line
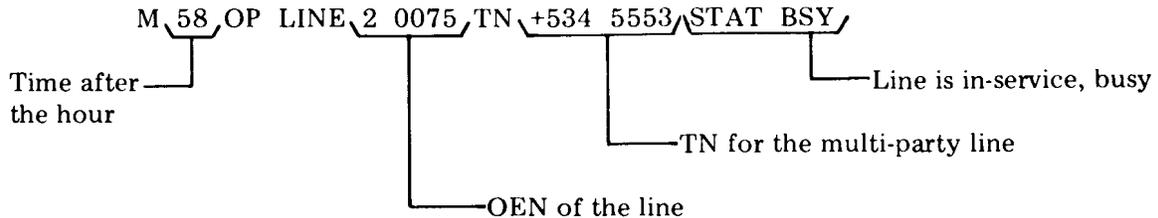
7.09 Action to be taken: None.

OP MATCH OUTPUT MESSAGE

7.10 The OP MATCH output message is the response message to a request to count all lines which have unique data values. The format of the message is as follows:

tt OP MATCH msg

The variable field has the following meaning:

The "msg" field can take on one of the following formats:

MATCHED TN nxx-xxxx
(Where nxx—xxxx is a local TN)

ABORTED
(The message was aborted)

EXACT MATCHES = xxxxx
(This is the normal end and results of the message)

END = end of message.

OP NW STAT OUTPUT MESSAGE

7.11 This message is generated in response to the OP:NW:STAT input message. A list of network links that are currently out-of-service is generated. This includes junctor B-links, wire B-links, and A-links as well as test vertical test circuits, test vertical test multiples, junctor test verticals, and wire test verticals. The format of the message is as follows:

tt OP NW STAT
    TV t STAT s
    JC g j STAT s
    BLNK g j STAT s
    ALNK g bcd STAT s
  OP NW STAT r

The control letters in the variable field have the following meaning:

t is the TEST VERTICAL TYPE

      TC n = test vertical test circuit.

      TM m = test vertical test multiple

      JC g = junctor test vertical

      BLNK = wire test vertical.

n is the TEST VERTICAL test circuit (TV TC).

    Where 0 = wire TV TC, low concentrator group.

          1 = junctor TV TC, low concentrator group.

          2 = wire TV TC, high concentrator group.

          3 = junctor TV TC, high concentrator group.

m is the TEST VERTICAL TEST MULTIPLE (TV TM).

    Where 0 = wire TV TM, even concentrator groups.

          1 = junctor TV TM, odd concentrator groups.

          2 = wire TV TM, even concentrator groups.

          3 = junctor TV TM, odd concentrator groups.

g—is the CONCENTRATOR GROUP (1 through 15) of the link.

j—is the JUNCTOR SWITCH NUMBER (0 through 31) of the line.

b—is the CONCENTRATOR (0 through 1) of the link.

c—is the OUTPUT SWITCH NUMBER (0 through 7) of the link.

d—is the OUTPUT SWITCH LEVEL (0 through 7) of the link.

s—is the STATE.

              OOS = The link is in an OUT-OF-SERVICE state and may be faulty. It is not being used to perform its normal call handling functions.

  COMPL ALL OK = All links in this class are OK. None are out-of-service.

r—is the COMPLETION REPORT.

      COMPL = The requested list of out-of-service network links has been completed.

    NOT START = A similar request is not active. Wait until its completion and then repeat the request.

      ABT = An abort request was received. The requested output has been aborted.

Example:

04 OP NW STAT

TV STAT COMPL ALL OK
JC STAT COMPL ALL OK
BLNK STAT COMPL ALL OK
ALNK 3 122 STAT OOS

7.12 Action to be taken: None.

OP OFR OUTPUT MESSAGE

7.13 The OP OFR output message is the response to the OP:OFR input message office record request. This message is followed by the printout of either an office record or the ADM ERR error message. For the format of each office record see the B section of the OM-3H300-03. The format of the message is as follows:

tt OP OFR n

The variable field has the following meaning:

n = START — Reports the start of office records in the nightly routines.

= COMPL — Reports the records nightly routine functions are completed.

ST OFR MSG n

This message reports that the delay option was used on the input message and the request has been stored for printout during the nightly routines. n is the printing sequence number.

ADM ERR nnnn

Look up nnnn in the ADM ERR output message (paragraph 7.03) for details.

OP OFR CHG OUTPUT MESSAGE

7.14 The OP OFR CHG output message is used to report the action taken for printing office records changed pages. The format of the message is as follows:

tt OP OFR CHG a

The variable field has the following meaning:

a = START — Reports the start of printing the office records changed pages (for Forms 3100, 3107-1, and 3107-2). This message is followed by a list of the first telephone number on each page to print and the printed pages.

= STOPPED — Reports the printing of office records changed pages was stopped. The reason for stopping is the allotted time for print office records has been exceeded. The changed page printing will continue on the next page the next time office records are scheduled to print.

= COMPL — Reports that the printing of office record changed pages is completed.

7.15 Action to be taken: None.

OP OFR MSG OUTPUT MESSAGE

7.16 The OP OFR MSG output message is used to report the action taken for printing office records delayed messages. The format of the message is as follows:

tt OP OFR MSG n a

The variable field has the following meaning:

n = the message sequence number that was assigned this request on input.

a = START—Reports the start of printing an office records delay message.

= COMPL—Reports that the printing of an office records delay message is completed.

= STOPPED—Reports the printing of office records delay message was stopped. The reason for stopping is the allotted time for printing office records has been exceeded. The office records delay messages will continue on the next page the next time office records are scheduled to print.

7.17 Action to be taken: None.

OP TRK OUTPUT MESSAGE

7.18 The OP TRK output message is generated in response to the OP:TRK input message. The printout may provide the state of a single trunk (idle, busy, locked-out) or a list of all trunks in an out-of-service state (locked-out). The format of the message is as follows:

tt OP TRK a b STAT c
   OP TRK STAT r

The control letters in the variable field have the following meaning:

a is the GROUP NUMBER (128 through 255) of the trunk.

b is the MEMBER NUMBER (0 through 127) of the trunk.

c is the STATE of the trunk:

IDLE = The trunk is in the in-service IDLE state.

BSY = The trunk is in the in-service BUSY state.

LKO = The trunk is in the LOCKED-OUT out-of-service state and is suspected of being faulty. It is not selected by call processing programs to perform its normal call handling functions. Two-way or incoming trunks in the LKO state will accept incoming calls.

LKO BSY = The trunk is in the LOCKED-OUT out-of-service state but is now BUSY handling another incoming call.

DSA = The trunk is in the DISABLED out-of-service state and is suspected of being faulty. It is not selected by call processing programs to perform its normal call handling functions and, in addition, all supervision is ignored. Thus, no incoming calls will be accepted on this trunk.

HAW = The trunk is in the HIGH AND WET out-of-service state and may be faulty. It is not being used to perform its normal call handling functions while the permanent signal condition exists. If the trunk returns to an on-hook state, it will be automatically placed back in the in-service idle state.

INVD = The trunk is in an INVALID state. This may be the result of an error in translations or a program bug.

r is the COMPLETION REPORT.

COMPL = The requested list of the out-of-service trunks has been completed.

COMPL ALL OK = All trunks are OK. None are out-of-service.

NOT START = A similar request is now active. Wait until its completion and then repeat the request.

ABT = An abort request was received. The requested output has been aborted.

Example:

    04 OP TRK 132 0 STAT DSA
    OP TRK STAT COMPL

7.19 Action to be taken. None.

REPT LINE OUTPUT MESSAGES

7.20 These messages are used to report trouble with a line. *Suspected faulty lines are not automatically removed from service.* The lines are identified by the office equipment number (OEN) and the telephone number (TN). The format of the message is as follows:

    tt REPT LINE a bcde TN f g TRBL h

The variable field has the following meaning:

a bcde = the office equipment number (OEN) of the line.

a = concentrator group (1 through 15).

b = concentrator (0 through 1).

c = switch group (0 through 2).

d = switch group (0 through 7).

e = level (0 through 7).

f g = the telephone number (TN) of the line (preceded by a + for a multiparty line).

h = TROUBLE REASON.

PX—The line experienced a POWER CROSS failure. The line was removed from service for less than 30 seconds and then passed a retry of the power cross test.

RVF—The line experienced a RESTORE VERIFY failure. The customer may no longer have originating service.

LCRV—The line experienced a LINE CIRCUIT RESTORE VERIFY failure. The customer may no longer have originating service.

STUCK COIN—The line experienced a STUCK COIN control error. A coin may be stuck in the coin phone.

EA CONT—The error analysis routine suspected the line of being faulty because it was involved in several Continuity failures.

EA RC—The error analysis routine suspected the line of being faulty because it was involved in several Ringing Continuity failures.

EA NWC—The error analysis routine suspected the line of being faulty because it was involved in several Network Controller errors.

EA LLR—The error analysis routine suspected the line of being faulty because it was involved in several Low Leakage Resistance failures.

EA LCO—The error analysis routine suspected the line of being faulty because it was involved in several Line Cutoff failures.

EA TTR—The error analysis routine suspected the line of being faulty because it was involved in several TOUCH-TONE® Receiver errors.

EA CLC—The error analysis routine suspected the line of being faulty because it was involved in several Coin Line Circuit failures.

EA NCC—The error analysis routine suspected the line of being faulty because it was involved in several No-Coin Control failures.

A. REPT LINE——EA LLR Output Message

Low Leakage Resistance Failure on a Customer Line

7.21 The REPT LINE----EA LLR output message results from attempts to complete a call to a line. In this case, the ESS system has found a tip-to-ring leakage or ground condition on the line that would trip the ring. The theory is that no connection should be made to a line that might result in a false charge condition in case the calling party is a message rate line or it is an incoming toll call. If the low line resistance condition is encountered, the calling subscriber will receive a busy signal and the REPT LINE----EA LLR output message is generated indicating a faulty line.

7.22 A common source of the REPT LINE----EA LLR output messages is ground start coin lines that have extensions. If the extension is left off-hook, it will not create a permanent signal condition; however, any calls made to that line will result in busy tone and a REPT LINE----EA LLR printout.

Note 1: Dial tone first (DTF) coin lines generate a permanent signal if an extension telephone is left off-hook (DTF is loop start).

Note 2: A receiver off-hook without a coin deposit in a 200-series pay station will also generate an EA LLR printout.

7.23 If cords are left up on PBX switchboard trunks at the completion of a call and another call attempts to ring in, an EA LLR printout is generated. EA LLR printouts are also caused by cords not fully removed in anticipation of another call.

Example:

```
* 01  REPT  LINE  1  0062  TN  534  3084  TRBL  EA  LLR
                       |           |           |
                       |           |           └─ Trouble condition
                       |           |
                       |           └─ TN of the line
                       |
                       └─ OEN of the line
```
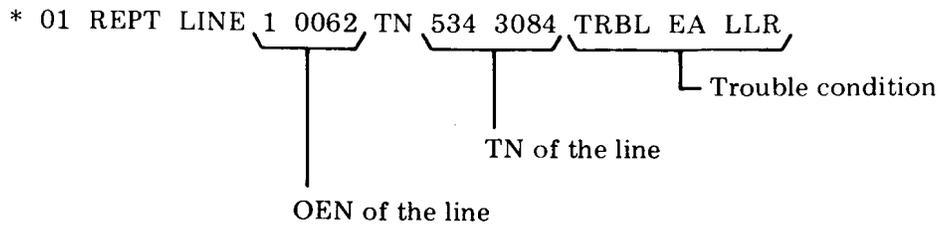
7.24 Points to remember:

• REPT LINE----EA LLR output messages result from terminating calls.

• LLRs are call attempt failures.

7.25 Action to be taken:

(1) Collect all REPT LINE—ER LLR output messages

(2) Check for previous LLR failures

(3) Identify PBX boards that may be leaving cords up

(4) Refer TNs with LLR printouts to the LTD analyzer for appropriate tests.

B. REPT LINE——EA RC Output Message

Ringing Continuity Failure on Customer Line

7.26 The REPT LINE----EA RC output message is printed when a telephone number (TN) that is printed in the data field fails to get ringing current on a terminating call. The printout occurs when the calling party abandons the call and the ESS monitoring device has been unable to detect a sufficient potential of ringing current on the line. The line is identified by office equipment number (OEN) and telephone number (TN).

Example:

```
* 24  REPT  LINE  2  0075  TN  +534  5553  TRBL  EA  RC
                       |            |            |
                       |            |            └─── Trouble condition
                       |            |
                       |            └─ TN of the line
                       |
                       └─ OEN of the line
```
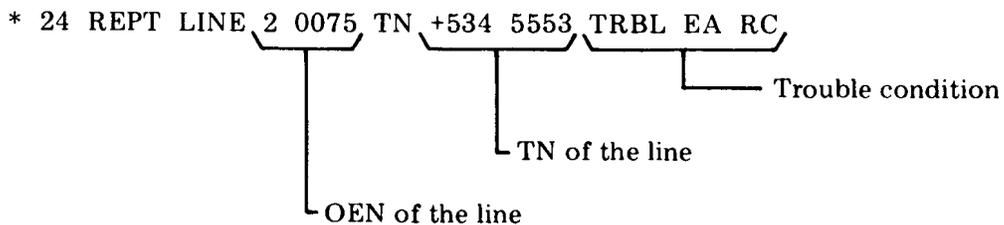
7.27 Points to remember:

- Only results from unanswered terminating calls; therefore, it should be considered a call attempt failure.

- Message results when the ESS system cannot "see" a telephone.

- It is a good indication of an "open out" condition.

  Several EA RC output messages occurring during a short time period on different OENs can be an indication of a cut cable.

- Probable causes of trouble are:

  (a) Open coils on the frame

  (b) Open drop wire or cable

  (c) Defective switches or ringing trunks in the central office

  (d) Lines put into translation too soon, or not removed properly when service has been discontinued (service order activity)

  (e) Key sets with small capacitors

Note: The 400B unit is a primary cause. This unit will cause false RC failures due to its design. It should be replaced with 400G or 400H key sets in key systems generating false alarms.

  (f) Installation, repair, or cable activity

  (g) Lines with portable sets only.

Note: Lines with portable sets can be repaired by placing a GB 123CR capacitor as close to the station apparatus as possible.

7.28 Action to be taken:

  (1) Collect all TST LINE----EA RC output messages.

  (2) Test for open condition from the LTD.

  (3) Verify translations and assignment records to assure validity. (Remove any nonworking lines).

  (4) Secure a list of station or cable activity.

  (5) Analyze the OENs for a possible central office problem.

C. REPT LINE----RVF Output Message

Restore Verify Failure on Customer Line

7.29 The REPT LINE----RVF output message results from a failure when the ESS system tests a line
to ensure it will be able to generate an origination later. These failures are generally attributed
to line troubles within the office. The customer may no longer have originating service. However, some
trouble conditions can occur in which the REPT LINE----RVF output message is generated and the customer
can originate calls.

7.30 This type of trouble can be caused by outside maintenance personnel by improper use of a breakdown
set. When cable repair personnel use a breakdown set on a pair without having the pair blocked
at the frame, the high voltage and current will damage the line ferrod. Usually one of the two windings
of the line ferrod is burnt short. If this happens, the circuitry is still operational and the customer can
originate calls, but the sensitivity of the line ferrod is impaired.

7.31 The No. 3 ESS system will detect such a condition with the restore verify test and generate a
REPT LINE----RVF output message to identify the line. There are no tests that can detect this
trouble condition from the LTD. The CO maintenance personnel must measure the windings of the ferrod.
Repairing this condition requires replacement of the line ferrod which is time consuming. The subscriber
must be moved to a new line or put out of service for the duration of the repair.

Example:

```
  * 56  REPT  LINE  4  0063  TN  253  2707  TRBL  RVF
                    └──┬──┘       └──┬──┘    └──┬──┘
                       │             │          └── Trouble condition
                       │             │
                       │             └─ TN of the line
                       │
                       └── OEN of the line
```

7.32 Points to remember:

- REPT LINE----RVF output messages are generally associated with central office network troubles.

- Troubles resulting in a restore verify failure can be caused by the improper use of a breakdown
set (could result in shorted windings of a line ferrod).

- Customer may still be able to originate calls.

- Shorted windings on the line ferrod cannot be detected from the LTD. CO personnel must measure
line ferrods.

- Possible causes of troubles are:

  (a) Defective line ferrod.

  (b) Defective cutoff switch not closing through to the line ferrod.

  (c) Translations not marked correctly or the line ferrod is wired wrong. For example, if the
  translations indicate loop start and the line ferrod is wired ground start. Translations may
  be obtained using the VER:LINE or VER:OE input message.

(d) Tip ground on blown coil on CDF.

(e) Troubles in restore verify test circuit.

7.33 Action to be taken:

(1) Collect all REPT LINE----RVF output messages.

(2) Check for previous RVF failures. Refer no trouble found (NTF) indications to the central office.

(3) Verify the OEN of the line. Check translation information to determine if the line is ground start or loop start. Compare translation information with line record card.

(4) Refer TNs to LTD analyzer for appropriate tests.

D. REPT LINE----PX Output Message

Power Cross Failure on Customer Line

7.34 Power Cross (PX) tests are made on both originating and terminating calls prior to completion of the call. The line is tested for the presence of a foreign potential in excess of 50 volts (ac or dc). If detected, the line is removed from service for about 20 seconds to give the line a chance to recover. The calling party receives busy tone. After 20 seconds, the power cross test is retried. If the retry test passes, the line is restored to service and a REPT LINE----PX output message is printed out on the RSB/MMC TTY.

7.35 If the retry test fails, the line is left out of service and an RMV LINE PX output message is printed out on the RSB/MMC TTY immediately.

7.36 The REPT LINE----PX output message indicates the line may have an intermittent power cross condition on the line. The line is not removed from service. However, if several REPT LINE----PX output messages occur on the same line, the line should be tested at the LTD. The RSB/MMC TTY should be observed for a RMV LINE PX output message indicating a hard trouble condition.

Example:

```
* 59 REPT LINE 4 1253 TN 253 2592 TRBL PX
                 └──┬──┘    └───┬───┘ └─┬─┘
                    │           │       └─Trouble condition
                    │           │
                    │           └─TN of the line
                    │
                    └─OEN of the line
```

7.37 Points to remember:

● REPT LINE----PX printout indicates intermittent FEMF on customer line.

● Lines with repeated REPT LINE----PX printouts should be tested at the LTD.

● PX printouts can be caused by installation activity.

● Major cause of PX printouts is a positive DC cross on a customer line.

● A REPT LINE----PX printout indicates an intermittent condition and the line is not removed from service.

● REPT LINE----PX printouts should be compared to determine if a line is crossed with other lines in a cable.

● A power cross of over 20 seconds will result in an RMV LINE PX printout.

Note: Lines removed from service due to a power cross condition (RMV LINE PX printout) require a manual request using the RST:LINE input message to restore the line to service.

7.38 Action to be taken:

(1) Collect all REPT LINE----PX printouts.

(2) Record all REPT LINE----PX printouts. [Refer to (PX) Power Cross Failure Report, Attachment?]

(3) Refer TNs with repeated REPT LINE----PX printouts to the LTD analyzer for appropriate tests.

E. REPT LINE----STUCK COIN Output Message

Stuck-Coin-on-Collect Failure on Coin Line

7.39 The REPT LINE----STUCK COIN output message is printed when a coin line with a *stuck coin* on collect or return condition is detected by the coin operator program. A coin may be stuck in the coin phone. The coin line is identified by office equipment number (OEN) and telephone number (TN).

Example:

```
* 26 REPT LINE 2 0071 TN 993-5140 TRBL STUCK COIN
                 └──┬──┘    └───┬───┘└──────┬────────┘
                    │           │      └─ Trouble condition
                    │           │
                    │           └─ TN of the line
                    │
                    └─ OEN of the line
```
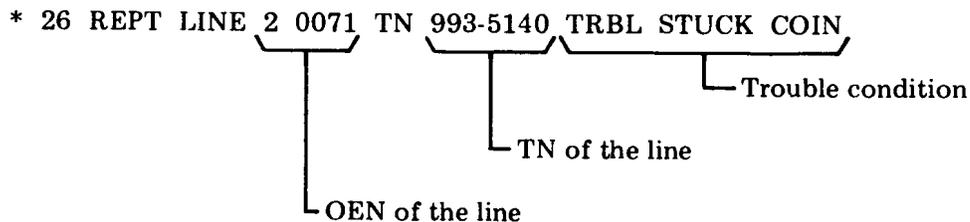
7.40 Points to remember:

● Signifies a definite coin problem was encountered.

● Probable causes of trouble are:

(a) Bent coin

(b) Full money box

(c) Defective coin chute

(d) Defective coin relay

(e) Sets out of limits (coin phone loop resistance too high)

(f) Reversed coin phone circuit to coin phone

(g) Defective coin phone circuit to coin phone.

7.41 Action to be taken:

(1) Collect all TST LINE----STUCK COIN output messages.

(2) Test and/or dispatch on coin station failures. Perform the following tests:

(a) Coin ground closure test

(b) Coin ground resistance test

(c) Coin relay current flow test.

Note: When performing a coin line test and a short circuit is observed with no ground present, a totalizer could be off normal and in a fraud condition.

RMV LINE OUTPUT MESSAGE

7.42 The RMV LINE output message is used to report the removal of a line from service or the failure of a removal request. The line may be removed either by a manual request or due to a power cross, permanent signal, or an unassigned line going off-hook. The line is identified by office equipment number (OEN) or telephone number (TN). The format of the message is as follows:

tt RMV LNE a bcde TN f g h

The variable field has the following meaning:

a bcde = the office equipment number (OEN) of the line

a = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = level (0 through 7)

f g = the telephone number (TN) of the line (preceded by a + for a multiparty line)

h = REMOVAL REASON or FAILURE REASON

blank = the line was removed from service by a TTY input request

PX = the line experienced a POWER CROSS failure.

DANGER: The line may have HIGH VOLTAGE on it. The line should be tested for the presence of high voltage immediately.

RXG—The line experienced a ring cross to ground failure. The line is removed from service to prevent the line scan point from being destroyed.

PLUGUP—In addition to being removed from service, the line is also placed on the plug-up list which causes terminating calls to be routed to intercept rather than receiving busy tone.

PLUGUP STOPPED LIST FULL—The plugup list is full. If the line should be plugged-up, repeat the request later.

STOPPED BSY—The line remained busy for 5 minutes since the request was received to remove it from service. The request has been aborted. If the line should be removed, repeat the request.

UNAS—An unassigned terminal went off-hook. The terminal is removed from service to prevent further problems. Check if this is the result of an error in translation. Use VER LINE input message.

Example:

```
* 34   RMV   LINE   4 \0045,  TN \000 0000, \UNAS,
                         |            |            |
                         |            |         Removal reason
                         |            |
                         |         TN of the line
                         |
                      OEN of the line
```

7.43 Action to be taken: Have the faulty line repaired.

RST LINE OUTPUT MESSAGE

7.44 The RST LINE output message is used to report the restoral of a line to service or the failure of such a restoral request. The line is identified by the office equipment number (OEN) or telephone number (TN). The format of the message is as follows:

tt RST LINE a bcde TN f g r

The variable field has the following meaning:

a bcde = the office equipment number of the line.

a = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = level (0 through 7)

f g = the telephone number of the line (preceded by a + for a multiparty line).

r = the COMPLETION REPORT.

blank = The line was restored to service by a TTY input request.

STOPPED ERR = The requested restoral has been stopped because of a peripheral error. The most likely errors are a restore verify failure or a power cross failure.

Example:

M 33 RST LINE 1 1251 TN 555 6363   (blank)

Restored to service by a TTY request

TN of the line

OEN of the line

7.45 Action to be taken: None.

TST LINE ABT OUTPUT MESSAGE

7.46 The TST LINE ABT output message is used to report the aborting of the automatic line insulation tests (ALIT). The reason for the abort is determined by the abort code. The line under test at the time of abort is identified by the office equipment number (OEN) and telephone number (TN). The format of the message is as follows:

tt TST LINE a bcde TN f g ABT h

The variable field has the following meaning:

a bcde = the office equipment number (OEN) of the line under test during the abort.

a = concentrator group (1 through 15).

b = concentrator (0 through 1).

c = switch group (0 through 2).

d = switch (0 through 7).

e = level (0 through 7).

f = the telephone number (TN) of the line.

g = TEST and RANGE.

g = 00tr.

= t—test as specified on input.

= r—range as specified on input.

g = 000s—LIT error during self-check.

s = 1—40K-80K selection circuit open.

= 2—20K selection circuit open.

= 3—80K—160K—320K selection circuit open.

= 4—640K—1.28M—2.56M selection circuit open.

= 5—20K—40K selection circuit open.

= 6—80K selection transistor.

= 7—80K selection transistor.

= 10—320K selection transistor.

= 11—160K selection transistor.

= 12—640K selection transistor.

= 13—1.28M selection transistor.

= 14—2.56M selection transistor.

h = ABORT CODE.

= 100001—error in input message field.

= 100002—fail translations for LIT circuit.

= 100004—PPD error during self-check sequence.

= 100010—LIT error during self-check sequence.

= 100020—a manual request was made on a line that was busy.

= 100040—error found in line data during test.

= 100100—PPD error during test mode setup.

= 100200—error found in line data during restore verify.

= 100400—an excess of 128 failures has been found.

= 101000—a manual request was made on a terminal that is not a line.

= 102000—an access of 256 failures in selection paths and TCRs.

= 104000—an abort requested by TTY or system.

= 110000—a peripheral error during connect or disconnect.

= 120000—set junctor failure.

Example:

```
39 TST LINE 1 0056 TN 534 3983 000000 ABT 104000
```

- Abort code (Manual request)
- (Self-check failure code)
- TN of the line during abort
- OEN of the line during abort
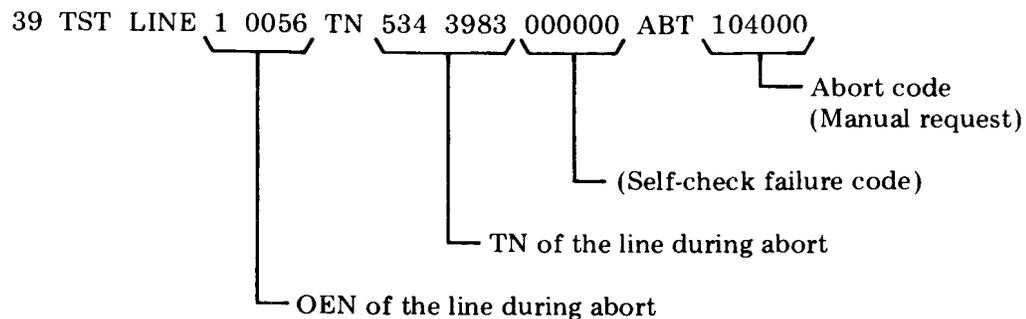
7.47 Action to be taken: With the exception of ABORT CODE 100400 or 102000, all TST LINE ABT output messages should be brought to the attention of the central office personnel immediately. ABORT CODE 100400 identifies a terminal that is not a line. The line should be verified using the VER LINE input message. ABORT CODE 102000 identifies a manual request to abort the ALIT test.

TST LINE COMPL OUTPUT MESSAGE

7.48 The TST LINE COMPL output message is used to report the completion of the automatic line insulation test (ALIT). The format of the message is as follows:

tt TST LNE a bcde TN f h COMPL

The variable field has the following meaning:

a bcde = the office equipment number (OEN) of the last line under test.

a = concentrator group (1 through 15)

b = concentrator (0 through 1)

c = switch group (0 through 2)

d = switch (0 through 7)

e = level (0 through 7)

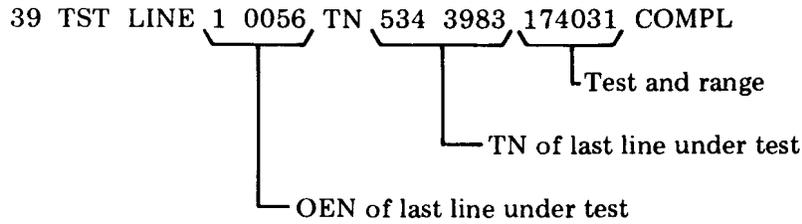f = the telephone number (TN) of the last line under test

h = TEST AND RANGE

h = 00tr

= t—test as specified on input

= r—range as specified on input.

Example:

$$39 \ \text{TST} \ \text{LINE} \ \underbrace{1 \ 0056}, \ \text{TN} \ \underbrace{534 \ 3983}, \underbrace{174031}, \ \text{COMPL}$$

Test and range

TN of last line under test

OEN of last line under test

7.49   Action to be taken: None.

TST LINE ERR OUTPUT MESSAGE

7.50   The TST LINE ERR output message is printed when a line failure is detected by the automatic line insulation test (ALIT) program.   The message identifies the line by office equipment number (OEN) and telephone number (TN).   The range and type of test that was failed is given.   The format of the message is as follows:

tt TST LINE a bcde TN f g ERR h

The variable field has the following meaning:

a bcde = the office equipment number (OEN) of the line that failed.

a = concentrator group   (1 through 15)

b = concentrator   (0 through 1)

c = switch group (0 through 2)

d = switch   (0 through 7)

e = level   (0 through 7)

f = the telephone number (TN) of the line that failed

g = TEST RESULTS

RANGE	LOW 80K	MEDIUM 320K	HIGH 2.56M
g – 1	less than 80K	less than 320K	less than 2.56M
3	less than 40K	less than 160K	less than 1.28M
7	less than 20K	less than 80K	less than 640K

Note: The LOW, MEDIUM, or HIGH cross-connect option is selected and handwired by central office personnel. The central office personnel should be contacted to determine which cross-connection option is being used or to request that the cross-connection option be changed.
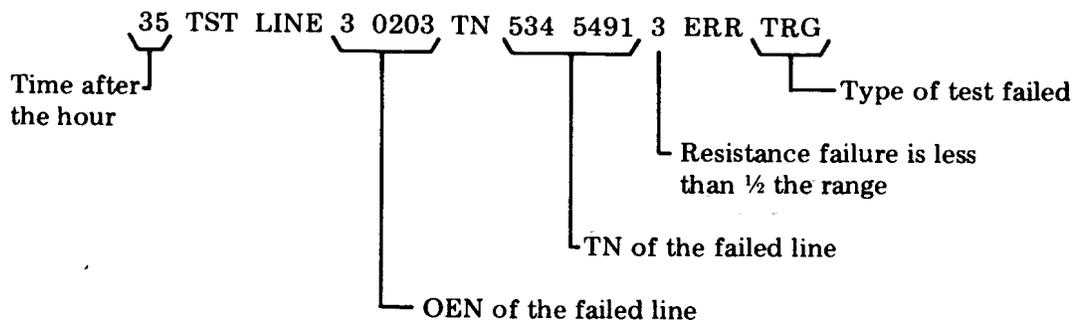
   h = TEST

      = SRG—Short and Ring to Ground

      = TRG—Tip and Ring to Ground

      = FEMF—Foreign Electromotive Force

      = RVF—Restore Verify Failure.

Example:

```
        35 TST LINE 3 0203 TN 534 5491 3 ERR TRG
        \_/         \____/    _____/ |     \_/
  Time after┘                          |        └─Type of test failed
  the hour                             |
                                       └ Resistance failure is less
                                            than ½ the range
                                    └TN of the failed line
                            └─ OEN of the failed line
```

7.51 Points to remember:

- The ALIT program is set to run at a predetermined time (normally during a low-use time period).

- The sensitivity of the test depends on the range (HIGH, MEDIUM, LOW) provided by the cross-connection option provided in the central office.

- Tests performed on ground start lines are restore verify tests only.

7.52 Possible causes of trouble are:

(a) Shorts, crosses, or ground in outside plant or central office equipment

(b) Foreign electromotive force (FEMF)

(c) Line translation errors

(d) Restore verify error

(e) Ferreed cutoff contact in central office shorted, open, or crossed.

7.53 Action to be taken:

(1) Collect all TST LINE output messages.

(2) Analyze the TST LINE output messages for type of failure and test failure range using Table H.

(3) Foward trouble to LTD analyzer for appropriate tests. Refer to Section 662-517-500.

(a) Test central office line ferrod on restore verify tests

(b) Test central office ferreed cutoff contacts.

TABLE H

ALIT TEST AND FAILURE RANGES

TYPE OF TEST	DIGIT ON TST LINE PRINTOUT	RANGE OF TEST FAILURE
SRG	1	½ to full range
	3	¼ to ½ range
	7	¼ range or less
TRG	1	½ to full range
	3	¼ to ½ range
	7	¼ range or less
FEMF	1	½ to full range
	3	¼ to ½ range
	7	¼ range or less
RVF	1	½ to full range
	3	¼ to ½ range
	7	¼ range or less

TST LINE START OUTPUT MESSAGE

7.54 The TST LINE START output message is used to report the start of the line insulation test (LIT) program. The routine may have been started manually by TTY request or automatically during the nightly routine tests. The format of the message is as follows:

tt TST LINE START

7.55 Action to be taken: None.

VER CFN OUTPUT MESSAGE

7.56 The VER CFN output message is the response message to the VER:CFN input message requested that the call forwarding telephone number associated with a customer telephone number be printed. The message provides the customer telephone number and the call forwarding telephone number if it is assigned. The format of the message is as follows:

tt VER CFN TN nxx—xxxx

CFN e f g h

CUT

CFN UNAS (Indicates unassignment)

ERR nnnn tt nn (Indicates error)

END

The keyword and data fields have the following meaning:

nxx—xxxx = Customer's telephone number.

CFN e f g h = Call forwarding telephone number.

CUT = Hundreds group is in precut state.

CFN UNAS = The customer has call forwarding service, but no call forwarding telephone number is assigned.

ERR nnnn tt nn = An error has occurred.

Note: Look up nnnn in output message ADM ERR nnnn in OM-3H300-03 for details. Fields TT and NN (if present) are defined in output message ADM ERR nnnn.

END = End of message.

Example:

```
33  VER CFN TN 555-7868
    CFN  555-9898
```
Telephone number to which call was forwarded

or

```
33  VER CFN TN 555-7878
    CFN UNAS
```
Customer has call forwarding service, but no call forwarding telephone number is assigned

7.57 Action to be taken: Customer will have to assign the forwarding telephone number before the call will be forwarded.

VER LINE OUTPUT MESSAGE

7.58 The VER LINE output message is printed out in response to the VER:LINE input message to verify a customer line. The message specifies all characteristics of a line using keyword parameters and data fields. If any keyword and its data are not printed, then that data does not exist. The format and explanation of the keyword parameters and data fields for the VER LINE output message are the same as the VER OE output message in paragraph 7.61. Refer to VER OE output message for an explanation of the keywords and data for the VER LINE output message.

Example:

VER:LINE:TN 5282182!WT-PF

```
M 59  VER LINE
         TN 528 2182
         CUT
         OE 1 0 2 4 3
         OESP 1 18 3
         RTI 8
         LCC DOT
         LCI 37
         RAX 0
         OMAJ 30
         SCR 0
         TMAJ 30
         END
```

VER MPTY OUTPUT MESSAGE

7.59 The VER MPTY output message is printed out in response to the VER:MPTY input message to verify a multiparty line. The message specifies all characteristics of the multiparty line using key word parameters and data fields. If any keyword and its data are not printed, then that data does not exist. The format and explanation of the VER MPTY output message are the same as the VER OE output message in paragraph 7.61. Refer to the VER OE output message for an explanation of the key words and data for the VER MPTY output message.

Example:

```
M 55 VER MPTY
      TN 555 3030 — TN of the line
      OE 5 1 1 0 5 — OEN of the line
      OESP 3 21 4
      RTI 0
      LCC 4FR
      LCI 16
      RAX 0
      OMAJ 16
      PTY 3 4
      END
```
            └─── Number of parties

        └─── Party number

VER MTL OUTPUT MESSAGE

7.60 The VER MTL output message is printed out in response to the VER:MTL:TN input message to verify a multiline hunt group (MLHG) member. The message specifies all characteristics of the MLHG member using keyword parameters and data fields. If any keyword and its data are not printed, that data does not exist. The format and explanation of the VER MTL output message are the same as the VER OE output message in paragraph 7.61. Refer to the VER OE output message for an explanation of the keywords and data for the VER MTL output message.

Example:

<div align="center">

VER:MTL:TN 5282506!WT-PF

```
M 46  VER MTL
      TN 528 2506
      CUT
      HML 1
      TER 5
      LHT 5
      LCC TBK
      LCI 3
      RAX 0
      OMAJ 30
      SCR 0
      TMAJ 8
      OE 6 1 1 6
      DRB 0
      GST
      END
```

</div>

VER OE OUTPUT MESSAGE

7.61 The VER OE output message is printed out in response to one of the following verify request input messages.

VER:OE

VER:LINE

VER:TWOPTY

VER:MTL

VER:MPTY

Note: The VER:OE input message can be used to verify a line (LINE), a 2-party line (TWOPTY), a multiline hunt terminal (MTL), or a multiparty line (MPTY). However, VER:LINE...., VER:TWOPTY...., etc, are provided as a convenience to the user.

The VER OE output message specifies all characteristics of a line using keyword parameters and data fields. If any keyword and its data are not printed, the data does not exist. The format of the message is as follows:

tt VER OE
NO LINE
UNAS LINE
UNAS PTY
GRP nnn TER mmm

        TN nxx—xxxx
        OE aa b c d e
        OESP ss rr pp
        RTI nnn
        SP ss rr pp
        BSY
        SER nxx xxxx
        CUT
        TN TRIG
        LCC lcc
        RAX n
        SCR nn
        OMAJ nn
        TMAJ nn
        LCI nnn
        PTY p n
        HML nn
        TER nn
        LHT nn
        DRB n
        CDI nnn
        ESX
        TRC
        ESC
        EL
        GST
        TTC
        ESL nnn
        CHL
        ESF nnn
        CHF
        SOB
        SS
        ESM nnnn
        CSL1
        CSL2
        PLIT
        ROH
        RAML
        RTN npa nxx xxxx
        CLS n
        TTYC n
        PORT n
        AUTO

```
TO nnn
PRIOR nn
NDB
TONE n
ETYP nn
NIGHT
MR nnnn
HLN e f g h
DPM p ddd t
DP p ddd t
DPU p ddd t
DPCN p ddd t o
CONNECT dt REC
BLN
WATS
BTN nxx xxxx
abc UNAS  (Indicates unassignment)
ERR nnnn tt nn  (Indicates an error)
END
```

The definitions of the key words and data fields are as follows:

NO LINE	This is not a line
UNAS LINE	This line or OE is unassigned
UNAS PTY	This OE is assigned as a line but the specified pty (pty 1 is assumed if no pty specified) is unassigned
GRP nnn TER mmm	OE is assigned to group and member
TN nxx xxxx	Telephone number
OE aa b c d e	Office equipment number
RTI nnn	Route index
BSY	Busy treatment
SER nxx xxxx	Series completion directory number
CUT	Hundreds group marked as awaiting cutover
TN TRIG	Trigger number for auto connect
LCC lcc	Line class code
RAX n	Rate area data
SCR nn	Screening class
OMAJ nn	Originating major class
TMAJ nn	Terminating major class

LCI nnn	LIne class code index
HML nn	Multi-line hunt group number
TER nn	Terminal number
LHT nn	Last hunt terminal
DRB n	Remote make busy key number
ESX	Call waiting
TRC	Trace
ESC	Three way calling
EL	Essential line
GST	Ground start
TTC	TOUCH-TONE calling
ESL nnn	1 digit speed calling index
CHL	Change 1 digit speed calling
ESF nnn	2 digit speed calling index
CHF	Change 2 digit speed calling
SOB	Service observing
SS	Special studies
ESM nnnn	Call forwarding index
CSL1	Customer changeable speed call 1 digit
CSL2	Customer changeable speed call 2 digit
PLIT	Prohibit line insulation test
ROH	Receiver Off-Hook tone
RAML	Remove trunks beyond service limit
RTN npa nxx xxxx	Return telephone number
CLS nn	Message class
TTYC n	TTY controllor number
PORT n	TTY port number

AUTO	Auto dialup option
TO nnn	Time out
PRIOR nn	Priority
NDB	No dial back
TONE n	Carrier tone
ETYP nn	Function
NIGHT	Night LTD is called
MR nnnn	Software message register index
HLN e f g h	Hot line telephone number
DPM p ddd t	Distributor triplet for message register
DP p ddd t	Distributor triplet for sleeve lead
DPU p ddd t	Distributor triplet for noise immunity line
DPCN p ddd t o	Distributor point for coin line
BLN	Special toll billing (QZ billing, ONI)
WATS	Outwats billing number
BTN nxx xxxx	Bill to number.

OESP ss rr pp
Scan point number for the telephone number OE.

SS ss rr pp
Key scan point number for returning a busy tone or reorder tone. If BSY is printed, the busy tone is returned.

PTY p n
Part number and number of parties

p = party number (1 through 8) from tape (P=O implies a mistake on tape)

n = => number of parties not determined since no originating data exists

    = 0=> ERROR: originating translation data indicates nonparty but the line class code table indicates party of p

    = 2=> 2 parties

    = 4=> 4 parties

    = 8=> 4 parties.

CDI nnn
  Code index for routing all calls to the thousands group of the telephone number to another office. (Implies split office code.)

CONNECT dt REC

  Connect a dt type receiver to the 2-party line.

  dt = ** => Error

    = DP => Dial pulse

    = NO => Attach no receiver

    = TT => Touch-Tone

abc UNAS
  abc is not assigned.

  abc = BTN => Bill to number office code

    = HML => PBX/MLH group

    = HND => Hundreds group

    = OCD => Telephone number office code

    = OE => terminal equipment

    = TER => PBX/MLH group terminal number

    = THD => Thousands group

    = TN => Telephone number.

ERR nnnn tt nn

  An error has occurred. Look up nnnn in output message ADM ERR in OM-3H300-03 for details. Fields TT and NN (if present) are defined under output message ADM ERR.

END End of message.

VER SCN OUTPUT MESSAGE

7.62 The VER SCN output message is the response message to the VER:SCN input message requesting verification of all speed-calling numbers associated with a customer (line or PBX/MLH), or a specific speed-call list be printed. If no speed-calling numbers are printed, the customer does not have any speed-calling numbers assigned. The format of the message is as follows.

  tt VER SCN

  TN nxx—xxxx

  GRP nnn

ESL nnn

ESF nnn

The definitions of the key word and data fields are as follows:

TN nxx xxxx = Customer telephone number

GRP nnn = PBX/MLH group number

ESL nnn = 1-digit speed-call list index

ESF nnn = 2-digit speed-call list index.

The tabular output of this message is as follows. If no speed numbers are printed, the customer does not have any speed-calling numbers assigned.

ADN	SCN
nn	e f g h
nn	e f g h
nn	e f g h
nn	e f g h
nn	e f g h

nn = Speed-calling abbreviated dial numbers.

e f g h = Speed-calling telephone numbers.

The form may be any one of the following:

```
p npa nxx xxxx
  npa nxx xxxx
    p nxx xxxx
      nxx xxxx
where p = prefix (0 or 1)
```

ERR nnnn SCN = An error has occurred in the digit speed-calling list. Look up nnnn in ADM ERR output message in OM-3H300-03 for details.

ERR nnnn tt nn = An error has occurred. Look up nnnn in ADM ERR output message in OM-3H300-03 for details. Fields TT and NN (if present) are defined under ADM ERR output message.

END = End of message.

Example:

```
30   VER SCN
     TN 555 6262
     GRP
     ESL
     ESF
     01    1  919  787 6363
     02                555 6432
     03                555 1372
     04    1  704  655 1818
     05                555 7018
                  etc
```

VER TWOPTY OUTPUT MESSAGE

Verification of a 2-Party Line

7.63 The VER TWOPTY output message is the response message to the VER:TWOPTY input message requesting verification of a 2-party line. The message specifies all characteristics of the 2-party line using keyword parameters and data fields. If any keyword and its data are not printed, then that data does not exist. The format and explanation of the VER TWOPTY output message are the same as the VER OE output message in 7.61. Refer to the VER OE output message for an explanation of the keyword and data for the VER TWOPTY output message.

Example:

```
VER:TWOPTY:TN 534 5361!WT-PF

   M 51 VER TWOPTY
    TN 534 5361
    OE 4 1 2 5 6
    OESP 4 22 14
    RTI 0
    LCC 2FR
    LCI 10
    RAX 0
    OMAJ 4
    SCR 2
    TMAJ 4
    PTY 1 2
    CONNECT DP REC
    END
```