

SWITCHING SYSTEMS MANAGEMENT
NO. 3 ELECTRONIC SWITCHING SYSTEM
NETWORK ADMINISTRATION AND MAINTENANCE MEASUREMENTS

CONTENTS	PAGE	Figures
1. GENERAL	1	1. Index, Network Administration Measurements 23
2. NETWORK ADMINISTRATION TELETYPEWRITER	1	2. Index, Network Maintenance Measurements 26
3. MEASUREMENT SCHEDULES	2	
4. REPORT FORMAT	3	1. GENERAL
5. MEASUREMENTS	4	1.01 This section describes Network Administration and Maintenance measurements available in the No. 3 Electronic Switching System (ESS). Data scheduling and collection procedures are described in Dial Facilities Management Practice Division H, Section 11i, Data Management.
OFFICE TOTALS (OFT)	4	1.02 When this section is reissued, this paragraph will contain the reason for reissue.
DIVISION OF REVENUE (DOR)	11	1.03 The No. 3 ESS is a stored program electronic switching system similar in design to the No. 2 ESS and is designed to serve smaller populated areas as a community dial office (CDO). The No. 3 ESS provides extensive measurements readily accessible by the network administrator unlike any previous CDO.
TRUNK GROUP MEASUREMENTS (TRK)	12	1.04 The following parts describe the method of data collection, the data schedules available, the data format, and the measurements available in the No. 3 ESS. An index of Network Administration measurements can be found in Fig. 1 and an index of Network Maintenance measurements in Fig. 2.
SERVICE CIRCUITS (SVC)	13	2. NETWORK ADMINISTRATION TELETYPEWRITER
MULTILINE HUNT GROUPS (MLH)	13	2.01 Network Administration data are printed on a teletypewriter designated as the Network Administration teletypewriter. As in the No. 2
PREROUTE PEG COUNTS (PRE)	14	
CLASS OF SERVICE PEG COUNTS (CLS)	14	
A-LINK USAGE (ALK)	14	
B-LINK USAGE (BLK)	15	
TRUNK AND LINE USAGE (TLU)	15	
NETWORK MAINTENANCE MEASUREMENTS (PLT)	15	
6. REGISTER LAYOUT	19	
7. DIAL TONE BLOCKAGE AND MATCHING LOSS REPORT	21	

NOTICE

Not for use or disclosure outside the
 Bell System except under written agreement

SECTION 11h

ESS, the No. 3 ESS may be connected to the Network Administration teletypewriter by a dedicated link. In this case, one teletypewriter would be required for each No. 3 ESS served.

2.02 However, No. 3 ESS offices also can be arranged to share one teletypewriter. This arrangement is possible due to the *autoconnect* feature of the No. 3 ESS.

2.03 Autoconnect is an arrangement in which the No. 3 ESS automatically dials a telephone number assigned to the Network Administration teletypewriter at a time predetermined by the network administrator. The teletypewriter answers the call and the No. 3 ESS prints the scheduled data. When printing is complete, the No. 3 ESS disconnects and the link between the ESS and the teletypewriter is taken down.

2.04 When the network administrator wishes to input teletypewriter messages to the No. 3 ESS under the autoconnect arrangement, the administrator dials a telephone number assigned to the No. 3 ESS. Upon completion of the call, the ESS returns a tone and the administrator disconnects. This procedure will cause the ESS to dial the number of the Network Administration teletypewriter. Upon answer by the teletypewriter, a link is established between the ESS and the teletypewriter.

2.05 Under the autoconnect arrangement, Network Administration data are stored on magnetic tape at the No. 3 ESS. The ESS calls the Network Administration teletypewriter at a scheduled time and prints all data accumulated during the previous collection interval. The network administrator may schedule the time at which each ESS calls the teletypewriter to print data. This schedule allows several ESSs which share the teletypewriter to report data without interfering with each other.

2.06 Under the autoconnect arrangement, service order and test bureau personnel may share the same teletypewriter channel with Network Administration. If the teletypewriter channel is shared, only one group at a time can have access to the channel.

2.07 If teletypewriter channels are dedicated, data are not stored on magnetic tape and are printed at the end of a collection period. Also, the service order and test bureau personnel do not share the channel with Network Administration.

2.08 The Network Administration teletypewriter and the autoconnect feature are discussed further in Dial Facilities Management Practice Division H, Section 11i, Data Management and Division H, Section 11c(4), Autoconnect Teletypewriter Arrangement.

3. MEASUREMENT SCHEDULES

3.01 Network Administration and Maintenance measurements in the No. 3 ESS can be assigned to five different measurement schedules. A specific measurement can be assigned to only one schedule at a time. The schedules are the quarter-hour (Q), the busy-hour (H), the continuous nonbusy-hours (C), the daily (D), and the weekly (W). The following describes each schedule.

3.02 *Quarter-Hour Schedule (Q Schedule):*

The measurements assigned to the Q schedule represent data for a 15-minute period. If the Network Administration teletypewriter is dedicated, the network administrator may elect to have Q-schedule reports automatically generated every 15 minutes on the Network Administration teletypewriter. If the teletypewriter is not dedicated, the reports cannot be generated automatically. In either case, the network administrator can manually request a printout of Q-schedule reports at any time. If a printout is requested, the totals since the last 15-minute collection period and the totals for the past three 15-minute collection periods are reported. For example, if a Q-schedule printout is requested at 4:20 pm, the ESS will print the Q-schedule totals for 3:30 to 3:45 pm, 3:45 to 4 pm, 4 to 4:15 pm, and 4:15 to 4:20 pm. Q-schedule data are normally printed every 15 minutes on the maintenance teletypewriter, but the maintenance force may inhibit this printout by the use of a teletypewriter input message.

3.03 *Busy-Hour Schedule (H Schedule):*

The measurements assigned to the H schedule represent data for a one-hour period. At the beginning of an H-schedule collection period, all registers assigned to the H schedule are cleared. If the Network Administration teletypewriter is dedicated, registers are read and printed at the end of the collection period. If the teletypewriter is not dedicated, registers are read and readings are transferred to magnetic tape at the No. 3 ESS. The autoconnect feature allows the No. 3 ESS to call the Network Administration teletypewriter at a scheduled time and to print all H-schedule

data collected during the previous collection interval on magnetic tape. All H-schedule data collected on magnetic tape will be printed beginning at the time specified as the end of the D-schedule collection (see 3.05). The network administrator may schedule up to 23 one-hour collection periods for H-schedule data; however, if the autoconnect method is employed, the network administrator should limit data collection to a maximum of three collection periods a day to avoid excessive wear on the magnetic tape cartridge which stores the data. Each collection period may be consecutive, but should not overlap with another H-schedule collection period.

3.04 Continuous Nonbusy-Hours Schedule (C Schedule): The measurements assigned to the C schedule represent data which can be collected for one or more hours. This schedule should be used for trunk measurements required outside of normal H-schedule collection periods. At the beginning of the C-schedule collection period, all registers assigned to the C schedule are cleared. At the end of the collection period, the registers are read and the data are printed on the network administration teletypewriter. **The C schedule is available only when a dedicated network administration teletypewriter is used.** If an autoconnect arrangement is used, measurements which are normally assigned to the C schedule must be assigned to other schedules.

3.05 Daily Schedule (D Schedule): The measurements assigned to the D schedule represent data collected for 24 hours. The Network Administrator may begin one collection period and end another at any time between 10 pm and 6 am. If an autoconnect teletypewriter arrangement is used, the ESS will call the Network Administration teletypewriter and print the D-schedule report upon the completion of the scheduled collection period. During this connection, all data stored on magnetic tape will also be printed. The operation of the D-schedule routine is the same for dedicated and autoconnect teletypewriter arrangements.

3.06 Weekly Schedule (W Schedule): The measurements assigned to the W schedule represent data collected for any number of half-hour periods per day. The network administrator assigns the half-hour periods collected. The periods must be the same for each day of the week. The registers on the W schedule are read, printed on the Network Administration teletypewriter, and cleared once a week on Sunday night. Each night,

the W-schedule registers are read and printed. This printout represents totals from the last Sunday night to the day of the printout. The operation of the W-schedule routine is the same for dedicated and autoconnect teletypewriter arrangements.

3.07 Data on the H, C, and W schedules can be collected beginning on any clock hour or half-hour. For example, a collection could begin at 4 pm or 4:30 pm, but could not begin at any time in between.

3.08 As mentioned in 3.02, Q-schedule reports can be requested by the network administrator at any time, whether they have been scheduled to print automatically or not. However, no other reports can be requested by the network administrator. The other reports are printed only at their scheduled times.

4. REPORT FORMAT

4.01 Data on each schedule (Q, H, C, D, and W) is printed on the Network Administration teletypewriter with a heading of the same format. The format is as follows:

REPT TRF	Date	Time	Office Identification
Schedule Identification			EA Counter

4.02 **REPT TRF** identifies the printout as a traffic report. **Date** and **Time** represent the date and time of the completion of the collection period of the schedule. **Office Identification** is the numeric designation assigned to the No. 3 ESS office from which the schedule was taken. **Schedule Identification** is the identification of the schedule itself (Q, H, C, D, or W).

4.03 The **EA Counter** is a counter which keeps a record of emergency actions (EAs) (system initializations) which occur during the measurement period of the schedule. The counter contains the identity of the level of emergency action which occurred during the measurement period and the time at which it occurred. For example, if the H-schedule report is collected from 2 to 3 pm, the

SECTION 11h

EA counter which appears on the H-schedule report would identify an emergency action which took place between 2 and 3 pm and the time at which it occurred.

4.04 The EA counter will identify only one level of emergency action occurring during the measurement period. If more than one level takes place during the measurement period, the ESS will use the following procedure to determine which level is reported. If the level is not one which clears measurement registers and if the level is equal to or greater than any previously occurring level, then it is reported on the EA counter (highest level to occur is reported). If the level is one which clears measurement registers, it is reported on the EA counter whether it is the highest level to occur or not (most recent level to occur is reported).

4.05 The Network Administration measurements made by the No. 3 ESS are affected to some extent by every level of emergency action. The EA counter is a means of notifying the network administrator of possible data invalidation due to emergency actions.

4.06 Each report contains register readings divided into fields; each field is identified by a 3-letter abbreviation appearing to the left of the first line of the data field on the report.

4.07 The same data field appears first in each report, except the Q-schedule report. It is a field containing the reading of the 100-second cycle count register, and it is identified by the abbreviation CYC. The 100-second cycle count register scores each time the measurement program begins a count for usage measurements on the schedule on which the cycle count appears.

4.08 The cycle count verifies the number of usage counts made during a measurement period and may help to pinpoint an emergency action which cleared registers or to indicate a scheduling assignment error. For example, for the usage measurements of a one-hour H-schedule report to be valid, the cycle count must read 36 (1 hour = 3600 seconds or 36 100-second counts).

4.09 Other data fields each appear on only one schedule. However, the network administrator may have a choice of more than one schedule on which to assign a particular data field. Each data

field may be assigned to only one schedule at a time.

4.10 The following part of this section identifies (a) each data field, (b) the abbreviation used to identify the field, and (c) the schedules to which the field can be assigned. A description of each measurement contained in the field is also included.

5. MEASUREMENTS

OFFICE TOTALS (OFT)

5.01 Office total measurements can be assigned to either the H schedule or the C schedule. It is recommended that these measurements be assigned to the H schedule. The first sixteen measurements below (OFT01 through OFT16) also appear on the Q schedule where they represent 15 minutes of data collection. These registers on the H schedule represent the sum of the Q schedule collections for the period of the H schedule.

OFT01—Average Dial Pulse Dial Tone Delay

5.02 This count is a computation of the total dial tone delay for dial pulse originations divided by total dial pulse originations and expressed in units of seconds times ten. Total dial tone delay for dial pulse originations is a sum of the dial tone delay for each attempt originated from a dial pulse line. ***In No. 3 ESS, a dial tone speed test is performed on every originating call.***

5.03 When a line goes off-hook and is first recognized by the line scanning subroutine, a service request entry is placed in the input hopper and the call is time stamped (time of origination is noted). On the next base level loop, the line is rescanned. If it is no longer off-hook, it is considered a hit, is removed from the hopper, and is not counted in any dial tone speed measurements. If it is not a hit, the call is assigned to a transient call record (TCR) and a customer digit receiver-dial pulse (CDR-DP).

5.04 A path to the CDR-DP is established. Before dial tone is issued, however, a continuity test is performed to find if the line has abandoned. If this line has abandoned, the dial tone speed test ends. If the line has not abandoned, the dial tone speed test ends one base level loop after the order is given to issue dial tone.

5.05 Dial tone delay is calculated to be the time of the end of the dial tone speed test minus the time of the original time stamp plus a **line scanning delay factor**. The line scanning delay factor is used to account for service request entries placed in the input hopper sometime after the line went off-hook. Every time the line scanning subroutine begins scanning at the top of scanner number 1, the delay factor is recalculated. The delay factor is equal to one-half the length of time from the beginning of the line scanning period to the beginning of the next one.

OFT02—Percentage of Dial Pulse Dial Tone Delays Over Three Seconds

5.06 This count represents the percentage of originations from dial pulse lines which experience a dial tone delay greater than three seconds. This count is calculated by dividing the number of dial pulse dial tone delays over three seconds (OFT07) by the total number of originations from dial pulse lines (OFT05).

OFT03—Average TOUCH-TONE® Dial Tone Delay

5.07 This count is the same as OFT01, except that delay for TOUCH-TONE lines is measured.

OFT04—Percentage of TOUCH-TONE Dial Tone Delays Over Three Seconds

5.08 This count is the same as OFT02 except that delay for TOUCH-TONE lines is measured.

OFT05—Dial Pulse Originations

5.09 This count is pegged each time a dial pulse line goes off-hook, remains off-hook for two consecutive line scans, and is assigned to a TCR and a CDR-DP. Hits (lines off-hook for only one line scan) are not included.

OFT06—TOUCH-TONE Originations

5.10 This count is the same as OFT05, except that it represents TOUCH-TONE originations.

OFT07—Number of Dial Pulse Dial Tone Delays Over Three Seconds

5.11 This count is pegged each time a dial tone speed test for a dial pulse line exceeds three seconds.

OFT08—Number of TOUCH-TONE Dial Tone Delays Over Three Seconds

5.12 This count is pegged each time a dial tone speed test for a TOUCH-TONE line exceeds three seconds.

OFT09—Average Multifrequency (MF) Receiver Attachment Delay

5.13 This count is a computation of the total delay for attachment of MF receivers to calls on incoming MF trunks divided by the total incoming MF trunk attempts and expressed in units of seconds times ten. Total delay for attachment of MF receivers is a sum of the MF receiver attachment delay for each bid from an incoming MF trunk.

5.14 The receiver attachment delay test begins when an off-hook trunk is first recognized by the trunk scanning subroutine. At this time, a service request entry is placed in the input hopper and the call is time stamped. On the next base level loop, the trunk is rescanned. If it is no longer off-hook, it is considered to be a hit or a flash, is removed from the hopper, and is not included in any receiver attachment delay measurements. If it is not a hit or a flash, a check is made to determine if the trunk is dial pulse or MF. If the trunk is MF, an MF receiver is selected and a path to it is reserved.

5.15 After a path between the trunk and the MF receiver is established, a start-dial signal is sent to the other office and the receiver attachment delay test ends. The No. 3 ESS does not recognize abandons after the input hopper entry has been deleted and before the receiver attachment delay measurements are made. Therefore, these abandons are included in receiver attachment delay measurements.

5.16 MF receiver attachment delay is calculated to be the time of the end of the receiver attachment delay test minus the time of the original time stamp plus a **trunk scanning delay factor**.

SECTION 11h

The trunk scanning delay factor is used in the same manner as the line scanning delay factor discussed in 5.05. **Receiver attachment delay tests are executed for every incoming trunk bid.**

OFT10—Percentage of MF Receiver Attachment Delays Over Three Seconds

5.17 This count represents the percentage of incoming calls over MF trunks which experience a receiver attachment delay greater than three seconds. This count is calculated by dividing the number of MF receiver attachment delays over three seconds (OFT12) by the total number of bids for an MF receiver (OFT11).

OFT11—Total Number of Bids for an MF Receiver

5.18 This count is pegged each time an incoming trunk goes off-hook, remains off-hook for two consecutive line scans, and is determined to be an MF trunk. Hits and flashes (trunks off-hook for only one line scan) are not included.

OFT12—Number of MF Receiver Attachment Delays Over Three Seconds

5.19 This count is pegged each time a receiver attachment delay test exceeds three seconds.

OFT13—Longest Base Level Loop

5.20 This count gives the length of the longest base level loop during the measurement period in milliseconds times ten.

OFT14 — Base Level Loops Over 150 Milliseconds

5.21 This count is pegged once for each base level loop which exceeds 150 milliseconds in duration.

OFT15 — Interrupts Deferred

5.22 This count is pegged once each time an interrupt is deferred.

OFT16 — Dynamic Service Protection Usage

5.23 This count is pegged once each 100 seconds when conditions are such that dynamic service protection would deny service. **This count is made whether or not dynamic service protection is in the allowed mode.**

OFT17 — Total Originating Calls

5.24 This count includes all calls where at least one digit has been received and all hot-line calls. It excludes manual line calls and lines denied origination. The count is made when the first digit dialed is examined for a 0, 1, or special character; for hot-line calls, it is made after the correct digits have been placed in the TCR by the appropriate call program.

OFT18 — Dial Pulse Abandoned Bids for Dial Tone

5.25 This count is pegged if the originating party abandons before a CDR-DP can be accessed. After a party goes off-hook, the line scan program places an entry in the input hopper. The line is rescanned for hit protection. If the line is still off-hook, the entry is considered a valid origination and the No. 3 ESS selects a TCR and attempts to select a CDR-DP. If a CDR-DP is not available, the TCR is released; but the entry is left in the input hopper until the next base level loop. At that time, the line is rescanned. If it is no longer off-hook, the entry is considered an abandoned bid for dial tone and a counter is pegged. If the line is still off-hook, another attempt is made to select a CDR-DP. This procedure continues until a CDR-DP is successfully selected or the calling party abandons.

OFT19 — TOUCH-TONE Abandoned Bids for Dial Tone

5.26 This count is the same as OFT18, except that it counts abandons while attempting to seize a customer TOUCH-TONE receiver (CDR-TT).

OFT20 — Permanent Signal Time-Outs

5.27 Once a customer is connected to a CDR-DP or a CDR-TT, a permanent signal time-out occurs if the customer does not dial any digits within 30 seconds under normal traffic or within

10 seconds if short timing has been initiated. The permanent signal counter is pegged; then the call is routed to permanent signal treatment.

OFT21 — Partial Dial Time-Outs

5.28 A partial dial time-out occurs after at least one digit has been dialed. The customer then has 15 seconds to dial the next digit in normal traffic and 8 seconds if short timing has been initiated. If another digit is not received, (a) a partial dial time-out occurs, (b) the partial dial counter is pegged, and (c) the call is sent to partial dial treatment.

OFT22 — False Starts

5.29 This count is pegged when an originating line, connected to a CDR-DP or a CDR-TT, disconnects before any digits have been dialed.

OFT23 — Partial Dial Abandons

5.30 This count is pegged when an originating line, connected to a CDR-DP or a CDR-TT, disconnects after dialing a number of digits which are insufficient to route the call.

OFT24 — Total Terminating Calls

5.31 This measurement counts all incoming and intraoffice calls which terminate in the office. It includes revertive calls and calls to an out-of-service line on the plug-up list, but does not include calls which are routed out of the office because of shared office codes or calls intercepted and routed to an announcement, a tone, or an operator. The counter is incremented after all the digits have been received and the terminating (4-digit) translation has indicated a number served by the office.

OFT25 — Intraoffice (IAO) Call Attempts

5.32 An intraoffice call is one which originates in the office and terminates to a line in the office. This measurement includes normal intraoffice call attempts, intraoffice calls to an out-of-service line on the plug-up list, and revertive call attempts. It does not include possible IAO calls which are intercepted and routed to announcements, tones, or intercept operators. An attempt is counted after a digit receiver has been connected, all the digits have been received, and the terminating translation has indicated a number served by the office.

OFT26 — IAO Calls to Busy Lines

5.33 After the terminating translation has indicated a number served by the office, a busy test is made on the called line. If it is busy and the calling party is also a line in the office, this count is pegged.

OFT27 — Stable IAO Usage

5.34 This count measures the CCS usage generated during a talking connection by all IAO calls during the measurement period. This measurement is made on all stable intraoffice calls. It includes revertive calls, but does not include intraoffice calls which have been intercepted and routed to a tone, an announcement, or an operator. Every 100 seconds the stable terminal memory records (TMRs) in which both parties are a line are counted and added to this register.

OFT28 — Stable Revertive Call Usage

5.35 This count measures the CCS usage generated during a talking connection by all revertive calls during the measurement period. This count is made on all stable revertive calls. Every 100 seconds the stable TMRs in which both parties have the same terminal equipment number are counted and added to this register.

OFT29, OFT30, and OFT31 — IAO Intercepts

5.36 After all digits have been received from the customer, the No. 3 ESS makes a terminating translation on the number dialed. The translation may indicate (a) that the dialed number is a blank (unassigned) number or (b) that the call is to be intercepted for another reason, such as a disconnected or changed number. Blank numbers are all assigned the same route index. However, intercepted numbers may also be routed to tones, announcements, operators, etc, as dictated by local network administration practices by use of different route indexes. To count all intraoffice calls which are routed to an intercept treatment not in the No. 3 ESS office, the No. 3 ESS provides three traffic registers which may be assigned to any three route indexes. Before a call is routed to an intercept treatment, the route index is examined. If the route index has been assigned to a traffic register, the register is pegged. A register may be pegged only once per call.

OFT32 — Outgoing Call Attempts

5.37 This count includes all normal outgoing calls from a line in the office to a trunk, as well as intraoffice calls which have been intercepted and routed to an operator. The register is incremented after a seizure signal has been sent to another office and a start signal has been received. If the outgoing trunk is MF, all of the digits have been received. If the trunk is dial pulse and the trunk's outpulsing is overlapped with dialing, all of the digits may not have been received. If the calling party abandons in this case, the call is still included in the peg count.

OFT33 — Transmitter Time-Outs

5.38 After a transmitter has been selected and a seizure signal has been sent to another office, the system waits for a start signal from the other office. If this signal is not received within a specified period of time, a transmitter time-out occurs and this traffic register is pegged.

OFT34 — Incoming Call Attempts

5.39 This count is pegged after the appropriate number of digits have been received from an incoming call. This measurement includes normal incoming calls from a trunk to a line in the office, tandem calls, incoming calls to an out-of-service line on the plug-up list, and incoming calls routed to announcements or tones.

OFT35 — Incoming Partial Dial Time-Outs

5.40 This count is pegged (a) when an incoming trunk is seized, (b) when one or more digits are received, and (c) when the receiver times out.

OFT36 — Incoming Partial Dial Abandons

5.41 This count is pegged (a) when an incoming trunk is seized, (b) when one or more digits are received, and (c) when the incoming trunk disconnects before the receiver times out.

OFT37 — DP Bylink and Nonbylink Incoming Calls

5.42 This measurement is a count of all incoming dial pulse calls. It does not include partial dial abandons or time-outs, but does include incoming calls to an out-of-service line on the plug-up list

and incoming calls routed to announcements or tones. This count is pegged after the appropriate number of digits have been received.

OFT38 — MF Incoming Calls

5.43 This count is pegged under the same conditions as OFT37, except that the incoming call uses MF signaling.

OFT39, OFT40, and OFT41 — Incoming Intercepts

5.44 These counts represent calls to three different route indexes. They are pegged under the same conditions as OFT29, OFT30, and OFT31, except that the call is incoming rather than IAO.

OFT42 — Tandem Call Attempts

5.45 Tandem call attempts include normal tandem calls and incoming calls which are intercepted and routed to another office or operator for treatment. The measurement includes calls where no transmitter is available, where no path between the transmitter and the trunk is available, and where the transmitter fails or times out. The register is incremented after all the digits have been received and a program check has indicated a tandem call.

OFT43 — First Attempt to Match

5.46 This count is pegged on the first attempt by the ESS to find a talk path on an outgoing call, an incoming call, a tandem call, an intraoffice call, and a call routed to an announcement or tone. Revertive calls and connections to service circuits are not included.

OFT44 — First Failure to Match

5.47 This count is pegged when the first attempt as measured by OFT43 fails.

Note: The percentage of network matching loss is equal to $(OFT44 \div OFT43) \times 100$.

OFT45 — One-Digit Speed Calls

5.48 This count is pegged when a call is originated using a one-digit speed calling list.

OFT46 — Two-Digit Speed Calls

5.49 This count is pegged when a call is originated using a 2-digit speed calling list.

OFT47 — Three-Way Calls

5.50 This count is pegged when a customer who has 3-way calling is part of a stable talking connection and flashes to attempt to add a third party.

OFT48 — Call Forwarding Activation Attempts

5.51 This count is pegged when a customer with the call forwarding feature dials the call forwarding activation code.

OFT49 — Call Forwarding Register Usage

5.52 This count is pegged once for each call forwarding register in use during a 100-second usage count.

OFT50 — Calls Forwarded

5.53 This count is pegged each time a call is directed to a line and the line is found to have calls forwarded to another number.

OFT51 — Call Waiting Calls

5.54 This count is pegged each time an attempt is made to complete a call to a busy line which has the call waiting feature.

OFT52 — Ineffective Originating Signaling

5.55 This count is pegged when an originating call cannot be completed due to a partial dial time-out, mutilated digits, or a vacant code dialed by the customer.

OFT53 — Ineffective Incoming Terminating Signaling

5.56 This count is pegged when an incoming call cannot be terminated due to a ringing failure. A ringing failure is a condition in which ringing cannot be supplied to a line for a reason other than network blockage.

OFT54 — Ineffective IAO Terminating Signaling

5.57 This count is pegged when an intraoffice call cannot be terminated due to a ringing failure.

OFT55 — No Path — Tandem

5.58 This count is pegged when a tandem call cannot be completed due to no talk path or transmitter path being available.

OFT56 — No Path — Incoming Terminating

5.59 This count is pegged when an incoming call cannot be completed to a line in the office due to either no talk path or ringing path being available.

OFT57 — No Path — Outgoing and IAO

5.60 This count is pegged when either an outgoing or an IAO call cannot be completed due to either a talk path not being available or, in the case of an outgoing call, no transmitter being available.

OFT58 — No Service Circuit — Tandem

5.61 This count is pegged when a tandem call cannot be completed due to no transmitter being available on the final try.

OFT59 — No Service Circuit — Incoming

5.62 This count is pegged when an incoming call cannot be completed due to no ringing circuit being available on the final try.

OFT60 — No Service Circuit — Outgoing and IAO

5.63 This count is pegged when either (a) an outgoing call cannot be completed due to no available transmitter on the final try or (b) an IAO call cannot be completed due to no ringing circuit being available on the final try.

OFT61 — No Trunk — Tandem

5.64 This count is pegged if no trunk is available on the final selection attempt for a tandem call.

OFT62 — No Trunk — Outgoing

5.65 This count is pegged if no trunk is available on the final selection attempt for an outgoing call.

OFT63 — Connecting Troubles — Tandem

5.66 This count is pegged if a peripheral error is encountered in processing a tandem call. A peripheral error is the failure to establish or to take down a network path through the office after necessary translations are complete.

OFT64 — Connecting Troubles — Incoming

5.67 This count is pegged if a peripheral error is encountered in processing an incoming call. Peripheral errors include errors in establishing a path to an MF receiver as well as failures (a) to disconnect a path to the MF receiver, (b) to establish or disconnect a talk path, or (c) to establish or disconnect a ringing path.

OFT65 — Connecting Troubles — Outgoing and IAO

5.68 This count is pegged if a peripheral error is encountered in processing either an outgoing or an IAO call. Peripheral errors on originating outgoing paths include errors in (a) disconnecting a path to a CDR, (b) establishing or disconnecting a talk path, or (c) establishing or disconnecting a path to a transmitter. Peripheral errors on intraoffice paths include errors in (a) disconnecting a CDR path, (b) establishing or disconnecting a talk path, or (c) establishing or disconnecting a ringing path.

OFT66 — Ineffective Tandem Signaling

5.69 This count is pegged if an outpulsing failure occurs during the processing of a tandem call. An outpulsing failure is when a transmitter fails to outpulse digits properly to another office.

OFT67 — Ineffective Outgoing Signaling

5.70 This count is pegged if an outpulsing failure occurs during the processing of an outgoing call. (See 5.69 for a description of outpulsing failures.)

OFT68 — Ineffective Incoming Signaling

5.71 This count is pegged after a receiver has been attached to an incoming trunk, and digit reception is unsuccessful due to an incoming permanent signal, an incoming false start, or mutilated digits. Once the No. 3 ESS office is ready to receive digits from an incoming trunk, an incoming permanent signal occurs if no digits are received in a specified time. An incoming false start occurs if the incoming trunk goes on-hook before any digits have been received. Mutilated digits are signals which the No. 3 ESS cannot associate with any established digit code.

OFT69 — Incoming Calls to Busy Lines

5.72 After the terminating translation has indicated a number served by the office, call processing makes a busy test on the called line. If it is busy and the calling party is a trunk, this count is pegged.

OFT70 — Abandons — Tandem

5.73 There are two types of tandem call situations which affect this measurement: (a) calls which overlap outpulsing with digit reception and (b) calls which wait until all digits have been received before outpulsing begins. In (a), an abandon occurring during outpulsing is considered a partial dial abandon; the No. 3 ESS office cannot determine how many digits were intended. The incoming partial dial abandons register (OFT36) is incremented. The ESS does not recognize an abandon after outpulsing is complete until the call is made stable. Thus, this register is not incremented for calls which overlap outpulsing and digit reception. Miscellaneous abandons are recognized for calls in (b). The counter is incremented if an abandon occurs after all digits have been received until the call is made stable. The register is pegged after the call has been routed to the disconnect subroutine, but before any paths have been disconnected.

OFT71 — Abandons — Incoming

5.74 This count is pegged after an incoming call is determined to terminate to a line in the office, and the incoming call abandons before the call is made stable.

OFT72 — Abandons — Outgoing and IAO

5.75 This count is pegged when all digits have been received for either an outgoing or an IAO call, and the originating party abandons before the call is made stable.

OFT73 — Translation Errors

5.76 This count is pegged for each tandem, incoming terminating, originating outgoing, and IAO call which cannot be completed because the ESS is unable (for any reason) to successfully complete the translation routine.

OFT74 — Dial Tone Blockage

5.77 This count is pegged once when a path between an originating line and a CDR cannot be found on the second attempt. Once a TCR has been selected for a service request entry in the input hopper, a CDR is selected and a path from the line to the CDR is reserved. If the path hunt fails, a new CDR is selected and a second attempt is made to reserve a path. If the second path hunt fails, this count is pegged and the identification of the line is placed in the dial tone blockage and matching loss report (see Part 7).

5.78 The procedure for a service request at this point is to idle the CDR, move the entry into the TCR, and time the entry for three seconds. During this timing period, the ESS does not recognize an abandon by the originating line. At the elapse of three seconds, the line origination program adds three seconds to the total dial tone delay measurement, increments the dial tone blockage (OFT74) once again, and increments the number of dial pulse dial tone delays over three seconds count (OFT07) or the number of TOUCH-TONE dial tone delays over three seconds count (OFT08).

5.79 The service request entry is then placed back into the input hopper and the line origination program again attempts to obtain a CDR and a path to it. The ESS continues to repeat the procedure of making two attempts to find a path to a CDR, removing and timing for three seconds, and incrementing appropriate counts until either the originating line abandons or receives dial tone.

DIVISION OF REVENUE (DOR)

5.80 Division of revenue measurements are permanently assigned to the D schedule.

DOR01 — Total Originating Calls

5.81 This count includes all calls where at least one digit has been dialed. It does not include manual line calls or calls from lines denied origination. Call forwarded calls and code converted calls are counted only once. The count is made after the first digit has been received.

DOR02 — Through-Switched Calls

5.82 This count includes tandem calls, incoming calls intercepted and routed to an operator, and incoming calls forwarded to another office. This count is pegged after all digits have been received and the call is determined to be a through-switched call.

DOR03 — Stable Through-Switched Usage

5.83 This count measures the usage in CCS generated during the measurement period by all through-switched calls. The measurement is made every 100 seconds by counting the stable TMRs in which both parties are a trunk, that is, stable tandem calls. A tandem call is made stable after the talk path between the two trunks has been established and all service circuits have been idled and disconnected. This measurement includes the time that the calling party waits for the called party to answer.

DOR04 — Stable Outgoing Usage

5.84 This count measures the usage in CCS generated during the measurement period by all outgoing calls. It includes all normal outgoing traffic, intraoffice calls which have been intercepted and routed out of the office, and intraoffice calls forwarded out of the office. The measurement is made every 100 seconds by counting the stable TMRs in which the calling party is a line and the called party is a trunk. An outgoing call is made stable after the talk path between the line and the trunk has been established and all service circuits have been disconnected. This measurement includes the time that the calling party waits for the called party to answer.

TRUNK GROUP MEASUREMENTS (TRK)

5.85 Trunk group measurements can be assigned to either the H, C, or D schedule. It is recommended that these measurements be assigned to the C schedule if there is a dedicated Network Administration teletypewriter and to the H schedule if there is not. During certain division of revenue studies these measurements may be placed on the D schedule.

5.86 Measurements for a particular trunk group can be assigned to any one of the three schedules listed in 5.85. A trunk group can appear on only one schedule at a time. All trunk groups do not have to be assigned to the same schedule. If any trunk group measurements are assigned to a particular schedule, the measurements will be designated on reports with the **TRK** abbreviation to the left group will not appear unless the trunk group has been assigned to a schedule.

5.87 There are two data fields for trunk group measurements. Both are identified by the abbreviation TRK to the left of the data field. The trunk group number (TGN) of a trunk group assigned to a schedule will determine which data field will contain the measurements for the trunk group. The first field appearing on a report will contain measurements for TGN 128 through TGN 191; the second, measurements for TGN 192 through TGN 255. (If no trunk group is assigned with a TGN within one of the above ranges, that data field will not appear.)

TRK01 — Trunk Group Number

5.88 This count identifies the TGN of the trunk group for which the next four measurements in the data field were taken. The trunk group defined in this field may be outgoing, incoming, or 2-way.

TRK02 — Peg Count

5.89 This count is pegged on one-way incoming trunks when the ESS recognizes a seizure by the originating end. On one-way outgoing trunks and on outgoing attempts on 2-way trunks, the ESS makes one attempt to select an outgoing trunk. The group peg count register is incremented regardless of whether a trunk is successfully selected.

TRK03 — Usage

5.90 This count is pegged once for each trunk found to be busy during a 100-second usage count. It represents the CCS usage of a trunk group during the measurement period. A trunk is considered to be busy if it is serving a call, is maintenance busy, or is in a permanent signal state.

WARNING: *If spare trunks exist in a trunk group (a spare trunk is a vacant member of a trunk group which does not have an associated physical trunk circuit), usage measurements made on that trunk group may be too low after an emergency action of level 4 or above.*

5.91 Normally, all busy trunks and spares are marked in a special bit by a 1. Idle trunks are marked by a 0. During a 100-second count, the ESS counts the number of bits which are 1 and subtracts the number of spare trunks to determine busy trunks. During an emergency action of level 4 or higher, all bits are set to 0. The ESS must attempt to select a spare trunk for use before it will discover that it is spare and set the bit to a 1. Therefore, until all spare trunk bits are set to a 1, too few actual busy trunks will be recorded.

TRK04 — Overflow/Through Switched

5.92 For one-way outgoing and 2-way trunk groups, this count represents **overflow** and is pegged each time the ESS attempts to seize a trunk in the trunk group but finds that all are busy.

5.93 For one-way incoming trunk groups, this count represents **through-switched** calls and is pegged each time a call comes into the office over the trunk group and is routed out of the office. When associated with an incoming trunk group, the difference between TRK02 and TRK04 would be the number of attempts to terminate in the office.

TRK05 — Maintenance

5.94 This count measures the number of trunks in the group which are found to be maintenance busy at the end of the measurement period.

5.95 The above five counts are printed for each trunk group assigned to a schedule. The TGNs appear in numerical order.

SERVICE CIRCUITS (SVC)

5.96 Service circuit measurements can be assigned to either the H, C, or D schedule. It is recommended that these measurements be assigned to the H schedule.

5.97 Measurements for a particular service circuit group can be assigned to any one of the three schedules above. A service circuit group can appear on only one schedule at a time. If any service circuit measurements are assigned to a particular schedule, the measurements will be designated on reports with the **SVC** abbreviation to the left of the measurements. Measurements for a service circuit group will not appear unless the group has been assigned to a schedule.

SVC01 — Service Circuit Group Number

5.98 This count identifies the group number of the service circuit group for which the next four measurements were taken. In the No. 3 ESS, group numbers 064 through 127 are reserved to define service circuit groups.

SVC02 — Peg Count

5.99 This count is pegged when an attempt is made to seize a member of a service circuit group. **This count may be pegged twice during the processing of one call.** The register is pegged once when an initial attempt is made to seize a particular type of service circuit, whether a circuit is available or not. If one or more repeated attempts are made to find an idle circuit, the register is pegged again when an attempt is successful.

5.100 The No. 3 ESS has three different routines in accessing service circuits if a circuit is not available on an initial attempt. For **customer digit receivers and incoming receivers**, the ESS will continue making repeated attempts to find an idle circuit until either a circuit is found or the party abandons. For **ringing, transmitter, and coin control circuits**, only a second attempt is made. For **tone and announcement circuits**, only an initial attempt is made.

SVC03 — Usage

5.101 This count is pegged once for each service circuit found to be busy during a 10-second usage count. It represents the CCS usage of a service circuit group during the measurement period times 10. A service circuit is considered to be busy if it is serving a call. It **is not** considered to be busy if it is in a maintenance busy state.

WARNING: Usage measurements for service circuits are affected in the same way as usage measurements for other trunk groups. See the warning under TRK03.

SVC04 — Overflow

5.102 This count is pegged if all circuits in the service circuit group are found to be busy. It is pegged once if the first attempt to find an idle circuit fails. If one or more subsequent attempts to find an idle circuit fail, the count is not pegged again.

SVC05 — Maintenance

5.103 This count measures the number of service circuits in the group which are found to be maintenance busy at the end of the measurement period.

MULTILINE HUNT GROUPS (MLH)

5.104 Multiline hunt group measurements can be assigned to either the H, C, or D schedule. It is recommended that these measurements be assigned to the H schedule.

5.105 Measurements for a particular MLH group can appear on only one schedule at a time. If any MLH group measurements are assigned to a particular schedule, the measurements will be designated on reports with the **MLH** abbreviation to the left of the measurements. Measurements for a MLH group will not appear unless the group has been assigned to a schedule.

MLH01 — MLH Group Number

5.106 This count identifies the MLH group number of the MLH group for which the next four measurements were taken. In the No.

SECTION 11h

3 ESS, MLH group numbers may be in the range of from 00 to 63.

MLH02 — Peg Count

5.107 This count is pegged for both originating and terminating calls. For originating calls, it is pegged when the originating translation program sets the status bit in the status block. For terminating calls, the counter is pegged after 4-digit translations and includes overflows. A status bit is a bit assigned to each line of a MLH group and is used to mark the busy/idle status of the line by use of a 0 or a 1.

MLH03 — Usage

5.108 This count is pegged once for each status bit in the MLH group status block found to be marked busy during a 100-second usage count. It represents the total CCS usage of the lines in the MLH group during the measurement period.

MLH04 — Overflow

5.109 This count is pegged if an attempt is made to complete a call to a member of the MLH group and all members are found to be busy.

MLH05 — Not Assigned

5.110 This register is not assigned and will always print all zeros.

PREROUTE PEG COUNTS (PRE)

5.111 Preroute peg count measurements can be assigned to either the H, C, or D schedule. It is recommended that these measurements be assigned to the H schedule. All preroute peg counts must appear on the same schedule.

PRE01, PRE02, PRE03, PRE04 — Peg Count

5.112 Each of these registers may be assigned to any 3-digit or 6-digit code on the No. 3 ESS translation table. When a customer within the office dials the assigned code or when a tandem call is routed to it, the associated register is pegged. The customer may not have completed dialing; therefore, some partial dial abandons may be

included in the count. Speed calls are included in the count.

CLASS OF SERVICE PEG COUNTS (CLS)

5.113 Class of service peg counts can be assigned to either the H, C, or D schedule. It is recommended that these measurements be assigned to the D schedule. All class of service peg counts appear on the same schedule.

CLS01, CLS02, CLS03, CLS04 — Originating Peg Count

5.114 Each of these registers may be assigned to one or more of the originating major class codes available in the No. 3 ESS. Each time a call is originated by a line with an originating major class code assigned to one of these registers, that register is pegged.

CLS05 — Terminating Peg Count

5.115 This register may be assigned to one or more of the terminating major class codes available in the No. 3 ESS. This count is pegged each time a 4-digit translation is performed on a line with a terminating major class code assigned to this register. When a terminating line class code is assigned to CLS05, all calls **originated** by lines with the line class code assigned to CLS05 will be pegged on CLS04. Therefore, it is important to clear any assignments from CLS04 before assigning CLS05 and visa versa.

5.116 Major class code 06 is reserved for use in studying individual usage on a single-party line. The network administrator may assign an individual line terminating major class code 06 and assign major class code 06 to CLS05 (after clearing any previous assignments from CLS04). Calls terminating to the line will be pegged on CLS05 and calls originating from the line will be pegged on CLS04.

A-LINK USAGE (ALK)

5.117 A-link usage counts can be assigned to either the H, C, D, or W schedule. It is recommended that these measurements be assigned to the W schedule. All A-link usage counts appear on the same schedule.

ALK01 — A Links Out of Service

5.118 This count is pegged for each A link in the office which is found to be out of service at the end of the measurement period. Not more than 16 A links and wire B links may be out of service at one time.

ALK02 Through ALK31 — Usage

5.119 Each register represents the usage generated by one particular concentrator in the office. There is a maximum of 30 concentrators which can be provided in a No. 3 ESS office and 30 registers will always print. The registers which represent concentrators which do not exist in the office will be all zeros. This count is pegged for each A link in a concentrator which is found to be busy during a 100-second usage count. Two A links are counted for each trunk-to-line, line-to-line, line-to-trunk, or trunk-to-trunk connection, each of which requires a full path through the network. Revertive calls and calls routed to reorder only require a half path and only one A link is counted for these calls. This measurement includes maintenance usage.

B-LINK USAGE (BLK)

5.120 B-link usage counts can be assigned to either the H, C, D, or W schedule. It is recommended that these measurements be assigned to the W schedule. All B-link usage counts appear on the same schedule.

BLK01 — B Links Out of Service

5.121 This count is pegged for each B link in the office which is found to be out of service at the end of the measurement period. Not more than 16 A links and wire B links may be out of service at one time.

BLK02 and BLK03 — Usage

5.122 These two registers represent the usage generated by the B links in the two control frames which are possible in the No. 3 ESS office. If only one control frame is provided in the office, it will be represented by BLK02 and BLK03 will print all zeros. This count is pegged for each circuit B link in the network which is found to be busy during a 100-second usage count. This measurement includes maintenance usage.

TRUNK AND LINE USAGE (TLU)

5.123 Trunk and line usage counts can be assigned to either the H, C, or W schedule. It is recommended that these measurements be assigned to the W schedule.

TLU01 Through TLU16 — Usage

5.124 Each of these counts can be assigned to a specific trunk, line, or service circuit. This count is pegged once each time a terminal assigned to the register is found busy during a 100-second usage count. If the terminal is a line, it is counted if it is in the busy state, which includes the state in which the line is being rung. If the terminal is a trunk or a service circuit, it is counted if it is busy, high and wet, or maintenance busy. If a spare trunk is assigned to a register, it will always appear to be busy.

NETWORK MAINTENANCE MEASUREMENTS (PLT)

5.125 Network Maintenance measurements appear only on the D schedule. All measurements are preassigned.

PLT01 — CU Automatic Removals

5.126 This count is pegged each time a control unit (CU) is marked out of service. Manual removals are not counted.

PLT02 — TDC Automatic Removals

5.127 This count is pegged each time a tape data controller (TDC) is removed from service. Manual removals are not counted.

PLT03 — Tape 0 Files Opened

5.128 This count is pegged each time a file is opened on tape 0.

PLT04 — Tape 1 Files Opened

5.129 This count is pegged each time a file is opened on tape 1.

PLT05 — Tape 0 Transient Errors

5.130 This count is pegged each time a read or write on tape 0 fails and a retry of the read or write passes.

PLT06 — Tape 1 Transient Errors

5.131 This count is pegged each time a read or write on tape 1 fails and a retry of the read or write passes.

PLT07 — Tape 0 Fatal Reads

5.132 This count is pegged when a block of data on tape 0 is unreadable. A block of data on a tape is considered to be unreadable when three retries to read the block fail.

PLT08 — Tape 1 Fatal Reads

5.133 This count is pegged when a block of data on tape 1 is unreadable. A block of data on a tape is considered to be unreadable when three retries to read the block fail.

PLT09 — Tape 0 Fatal Writes

5.134 This count is pegged when tape 0 is unwritable. A tape is considered to be unwritable when a fatal read error occurs, the block is rewritten, and another fatal read error occurs.

PLT10 — Tape 1 Fatal Writes

5.135 This count is pegged when tape 1 is unwritable. A tape is considered to be unwritable when a fatal read error occurs, the block is written, and another fatal read error occurs.

PLT11 — SYC Out of Service Duration

5.136 This count is pegged during each 100-second usage count that a system controller (SYC) is found to be out of service or unavailable.

PLT12 — Transient Errors on Scanners

5.137 This count is pegged each time a transient error occurs in a scanner. A transient error is when an order fails, is retried, and passes.

PLT13 — Transient Errors on Network Controllers

5.138 This count is pegged each time a transient error occurs in a network controller. See 5.137.

PLT14 — Transient Errors on Peripheral Pulse Distributors

5.139 This count is pegged each time a transient error counts in a peripheral pulse distributor (PPD). See 5.137.

PLT15 — Known Fault Entries on Scan Matrices

5.140 This count is pegged each time a scanner is placed on the known fault list. This count can be incremented from any one of two types of entries: (a) scanner column faults or (b) scanner row faults. A scanner column fault is entered whenever a new column failure is detected by the ***all zeros*** order sent to each scan matrix every base level loop. A scanner row fault is entered whenever a scan order fails, is retried and fails, a SYC switch is performed, and the scanner order fails again using the mate scanner controller.

PLT16 — Known Fault Entries on PD Points

5.141 This count is pegged each time a peripheral decoder (PD) point entry is placed on the known fault list. A PD fault is entered whenever a PD order fails, is retried and fails, a SYC switch is performed, and the PD order fails again using the mate PPD.

PLT17 — Service Removals, Scanner Controller

5.142 This count is pegged when a scanner controller is marked out of service by an automatic action. Manual removals are not counted.

PLT18 — Service Removals, Network Controller

5.143 This count is the same as PLT17 except that it is for network controllers.

PLT19 — Service Removals, Peripheral Pulse Distributor

5.144 This count is the same as PLT17 except that it is for peripheral pulse distributors.

PLT20 — Service Removals, Ringing and Tone

5.145 This count is the same as PLT17 except that it is for ringing and tone frames.

PLT21 — MRF Count Cleared

5.146 This count is pegged each time the maintenance reset function (MRF) counter is cleared.

PLT22 — Initialization Count 1

5.147 This count is pegged each time an emergency action (EA) of level 1 occurs.

PLT23 — Initialization Count 2

5.148 This count is pegged each time an EA of level 2 occurs.

PLT24 — Initialization Count 3

5.149 This count is pegged each time an EA of level 3 occurs.

PLT25 — Initialization Count 4

5.150 This count is pegged each time an EA of level 4 occurs.

PLT26 — Initialization Count 5

5.151 This count is pegged each time an EA of level 5 occurs.

PLT27 — Spare

5.152 This register is a spare and will print all zeros.

PLT28 — Spare

5.153 This register is a spare and will print all zeros.

PLT29 — Manual Initializations

5.154 This count is pegged each time an EA is manually invoked.

PLT30 — Call Audit Failures

5.155 This count is pegged each time one of the following audits performs a corrective action:

- (a) Stable TMR Audit
- (b) Transient Call Audit
- (c) Busy Line Audit
- (d) Busy Service Circuit Audit
- (e) Busy Trunk Audit
- (f) Test Vertical Audit
- (g) Routine Network Audit.

PLT31 — Main Store Audit Failures

5.156 This count is pegged each time the main store audit control performs a corrective action.

PLT32 — Power Alarm Activations

5.157 This count is pegged each time a power alarm is reported.

PLT33 — Other Alarm Activations

5.158 This count is pegged each time a building or carrier group alarm is reported.

PLT34 — Quick-Check Entries

5.159 This count is pegged each time there is an attempt to add a new entry to the quick-check table.

PLT35 — Quick-Check Overflow

5.160 This count is pegged each time an entry cannot be made to the quick-check table because of a full table.

PLT36 — Error Analysis Entries

5.161 This count is pegged each time a new entry is added to the error analysis table.

PLT37 — Error Analysis Table Pushoffs

5.162 This count is pegged each time an entry is pushed out of the error analysis table due to the list being full.

PLT38 — CDR-DP Removal Attempts

5.163 This count is pegged each time there is an automatic removal attempt (by error analysis or quick-check) of a CDR-DP. Attempts are measured because the maximum allowable number of CDR-DPs may have been removed already.

PLT39 — CDR-TT Removal Attempts

5.164 This count is the same as PLT38 except that it is for CDR-TT.

PLT40 — Regular Ringing Removal Attempts

5.165 This count is the same as PLT38 except that it is for regular ringing circuits.

PLT41 — Superimposed Ringing Removal Attempts

5.166 This count is the same as PLT38 except that it is for superimposed ringing circuits.

PLT42 — Coin Circuit Removal Attempts

5.167 This count is the same as PLT38 except that it is for coin circuits.

PLT43 — DP Transmitter Removal Attempts

5.168 This count is the same as PLT38 except that it is for DP transmitters.

PLT44 — MF Transmitter Removal Attempts

5.169 This count is the same as PLT38 except that it is for MF transmitters.

PLT45 — MF Receiver Removal Attempts

5.170 This count is the same as PLT38 except that it is for MF receivers.

PLT46 — Miscellaneous Service Circuit Removal Attempts

5.171 This count is pegged when an automatic attempt is made to remove a service circuit which is not measured in PLT38 through PLT45 from service.

PLT47 — Junctor Removal Attempts

5.172 This count is the same as PLT38 except that it is for junctors.

PLT48 — Trunk Removal Attempts

5.173 This count is the same as PLT38 except that it is for trunks (not including service circuits).

PLT49 — Continuity Test Failures

5.174 This count is pegged each time a continuity test failure or a ringing continuity test failure is reported to error analysis.

PLT50 — False Cross and Ground Failures

5.175 This count is pegged each time a false cross and ground test failure is reported to error analysis.

PLT51 — Power Cross Failures

5.176 This count is pegged each time a power cross test failure is reported to error analysis.

PLT52 — Restore/Verify Failures

5.177 This count is pegged each time a restore/verify test failure is reported to error analysis.

PLT53 — Line Trouble Reports

5.178 This count is pegged each time there is an automatic trouble report of a line.

PLT54 — A-Link and B-Link Removal Attempts

5.179 This count is pegged each time there is an automatic attempt to remove an A-link or a B-link from service.

PLT55 — Trunk Progression Test Failures

5.180 This count is pegged each time a trunk progression test fails.

PLT56 — Service Circuit Progression Test Failures

5.181 This count is pegged each time a service circuit progression test fails.

PLT57 — Junctor Progression Test Failures

5.182 This count is pegged each time a junctor progression test fails.

PLT58 — Trunk Circuit Out-of-Service Duration

5.183 This count is pegged for each trunk found to be out of service during a 100-second usage count.

PLT59 — Service Circuit Out-of-Service Duration

5.184 This count is pegged for each service circuit found to be out of service during a 100-second usage count.

PLT60 — Total Restorals of Trunks and Service Circuit

5.185 This count is pegged for each trunk or service circuit that is restored to service.

PLT61 — Total Line Originations

5.186 This count represents the total number of line originations during the measurement period.

PLT62 — Maintenance Busy Overflows

5.187 This count is pegged when an overflow is experienced in a trunk or service circuit group in which one or more members have been made maintenance busy.

PLT63 — Total Outgoing and Incoming Call Attempts

5.188 This count is pegged for each outgoing and incoming call attempt made during the measurement period.

6. REGISTER LAYOUT

6.01 This part gives examples of the register layout of each of the five measurement schedule reports available in the No. 3 ESS. The examples show a C-schedule report and therefore represent an office with a dedicated Network Administration teletypewriter. Some data fields may be assigned to different schedules; however, the examples follow the assignment recommendations outlined in Part 5.

6.02 The Q-schedule report is as follows:

REPT TRF	Date	Time	Office Identification							
Q			EA Counter							
OFT	OFT01	OFT02	OFT03	OFT04	OFT05	OFT06	OFT07	OFT08	OFT09	OFT10
	OFT11	OFT12	OFT13	OFT14	OFT15	OFT16				

SECTION 11h

6.03 The H-schedule report is as follows:

REPT TRF	Date	Time	Office Identification							
H	EA Counter									
CYC	CYC01									
OFT	OFT01	OFT02	OFT03	OFT04	OFT05	OFT06	OFT07	OFT08	OFT09	OFT10
	OFT11	OFT12	OFT13	OFT14	OFT15	OFT16	OFT17	OFT18	OFT19	OFT20
	OFT21	OFT22	OFT23	OFT24	OFT25	OFT26	OFT27	OFT28	OFT29	OFT30
	OFT31	OFT32	OFT33	OFT34	OFT35	OFT36	OFT37	OFT38	OFT39	OFT40
	OFT41	OFT42	OFT43	OFT44	OFT45	OFT46	OFT47	OFT48	OFT49	OFT50
	OFT51	OFT52	OFT53	OFT54	OFT55	OFT56	OFT57	OFT58	OFT59	OFT60
	OFT61	OFT62	OFT63	OFT64	OFT65	OFT66	OFT67	OFT68	OFT69	OFT70
	OFT71	OFT72	OFT73	OFT74						
*SVC	SVC01	SVC02	SVC03	SVC04	SVC05	SVC01	SVC02	SVC03	SVC04	SVC05
	SVC01	SVC02	SVC03	SVC04	SVC05	SVC01	SVC02	SVC03	SVC04	SVC05
	SVC01	SVC02	SVC03	SVC04	SVC05					
*MLH	MLH01	MLH02	MLH03	MLH04	MLH05	MLH01	MLH02	MLH03	MLH04	MLH05
	MLH01	MLH02	MLH03	MLH04	MLH05	MLH01	MLH02	MLH03	MLH04	MLH05
PRE	PRE01	PRE02	PRE03	PRE04						

*The size of these fields will vary, depending on the number of service circuit groups or multiline hunt groups assigned to the schedule.

6.04 The C-schedule report is as follows:

REPT TRF	Date	Time	Office Identification							
C	EA Counter									
CYC	CYC01									
*TRK	TRK01	TRK02	TRK03	TRK04	TRK05	TRK01	TRK02	TRK03	TRK04	TRK05
	TRK01	TRK02	TRK03	TRK04	TRK05	TRK01	TRK02	TRK03	TRK04	TRK05
	TRK01	TRK02	TRK03	TRK04	TRK05	TRK01	TRK02	TRK03	TRK04	TRK05

	TRK01	TRK02	TRK03	TRK04	TRK05					

*The size of this field will vary, depending on the number of trunk groups assigned to the schedule.

6.05 The D-schedule report is as follows:

REPT TRF	Date		Time		Office Identification					
D					EA Counter					
CYC	CYC01									
DOR	DOR01	DOR02	DOR03	DOR04						
CLS	CLS01	CLS02	CLS03	CLS04	CLS05					
PLT	PLT01	PLT02	PLT03	PLT04	PLT05	PLT06	PLT07	PLT08	PLT09	PLT10
	PLT11	PLT12	PLT13	PLT14	PLT15	PLT16	PLT17	PLT18	PLT19	PLT20
	PLT21	PLT22	PLT23	PLT24	PLT25	PLT26	PLT27	PLT28	PLT29	PLT30
	PLT31	PLT32	PLT33	PLT34	PLT35	PLT36	PLT37	PLT38	PLT39	PLT40
	PLT41	PLT42	PLT43	PLT44	PLT45	PLT46	PLT47	PLT48	PLT49	PLT50
	PLT51	PLT52	PLT53	PLT54	PLT55	PLT56	PLT57	PLT58	PLT59	PLT60
	PLT61	PLT62	PLT63							

6.06 The W-schedule report is as follows:

REPT TRF	Date		Time		Office Identification					
W					EA Counter					
CYC	CYC01									
ALK	ALK01	ALK02	ALK03	ALK04	ALK05	ALK06	ALK07	ALK08	ALK09	ALK10
	ALK11	ALK12	ALK13	ALK14	ALK15	ALK16	ALK17	ALK18	ALK19	ALK20
	ALK21	ALK22	ALK23	ALK24	ALK25	ALK26	ALK27	ALK28	ALK29	ALK30
	ALK31									
BLK	BLK01	BLK02	BLK03							
TLU	TLU01	TLU02	TLU03	TLU04	TLU05	TLU06	TLU07	TLU08	TLU09	TLU10
	TLU11	TLU12	TLU13	TLU14	TLU15	TLU16				

7. DIAL TONE BLOCKAGE AND MATCHING LOSS REPORT

7.01 The No. 3 ESS provides the identification of office equipment (OEs) numbers affected by dial tone blockage and matching loss. The affected office equipment number is printed on the Network Maintenance teletypewriter channel.

7.02 A 2-word block is set aside in memory for use in identifying blockage. If a line fails to receive dial tone after two attempts due to no network path being available, the office equipment number of the line is placed in one word of the block along with a code which identifies the entry as a dial tone blockage. If two office equipment numbers cannot be connected together due to no network path being available, both office equipment numbers are placed in the other word of the block

along with a code which identifies the entries as a network matching loss.

7.03 The block is scanned by the program every 30 seconds. If an entry is found, it is printed on the Network Maintenance teletypewriter and the block is cleared. A maximum of one dial tone block and one matching loss can be stored in the block at one time.

7.04 The output message on the maintenance teletypewriter is as follows:

tt REPT AAA aaaaa bbbbb

where tt = the minutes past the clock hour of the time of the printing.

AAA = DTB for a dial tone block

SECTION 11h

= IML for a matching loss.

aaaaa = The OE of a dial tone block or one of the OEs of a matching loss.

bbbbb = The second OE of a matching loss.

7.05 The purpose of the report is not to identify every blocked office equipment number, but

rather to aid the administration and maintenance personnel in identifying the source of blockage.

7.06 The Network Maintenance force may use the report to help locate faulty network hardware. Network Administration may use the report to locate potential load imbalance. The network administrator should ask Network Maintenance to provide all dial tone blockage and matching loss reports.

INDEX

NETWORK ADMINISTRATION MEASUREMENTS
NO. 3 ESS

MEASUREMENT	NUMBER	PARAGRAPH
A-Links Out of Service	ALK01	5.118
Abandons - Incoming	OFT71	5.74
Abandons - Outgoing & IAO	OFT72	5.75
Abandons - Tandem	OFT70	5.73
Average Dial Pulse Dial Tone Delay	OFT01	5.02
Average TOUCH-TONE Dial Tone Delay	OFT03	5.07
Average MF Receiver Attachment Delay	OFT09	5.13
Base Level Loops Over 150 Milliseconds	OFT14	5.21
B-Links Out of Service	BLK01	5.121
Call Forwarding Activation Attempts	OFT48	5.51
Call Forwarding Register Usage	OFT49	5.52
Calls Forwarded	OFT50	5.53
Call Waiting Calls	OFT51	5.54
Class of Service Originating Peg Count	CLS01—CLS04	5.114
Class of Service Terminating Peg Count	CLS05	5.115
Connecting Troubles — Incoming	OFT64	5.67
Connecting Troubles — Outgoing & IAO	OFT65	5.68
Connecting Troubles — Tandem	OFT63	5.66
Dial Pulse Abandoned Bids for Dial Tone	OFT18	5.25
Dial Pulse Bylink and Nonbylink Incoming Calls	OFT37	5.42
Dial Pulse Originations	OFT05	5.09
Dial Tone Blockage	OFT74	5.77
Dynamic Service Protection Usage	OFT16	5.23
False Starts	OFT22	5.29
First Attempt to Match	OFT43	5.46
First Failure to Match	OFT44	5.47
Incoming Call Attempts	OFT34	5.39
Incoming Calls to Busy Lines	OFT69	5.72
Incoming Intercepts	OFT39, OFT40, OFT41	5.44
Incoming Partial Dial Abandons	OFT36	5.41
Incoming Partial Dial Time-Outs	OFT35	5.40
Ineffective Incoming Signaling	OFT68	5.71
Ineffective Incoming Terminating Signaling	OFT53	5.56
Ineffective Intraoffice Terminating Signaling	OFT54	5.57
Ineffective Originating Signaling	OFT52	5.55
Ineffective Outgoing Signaling	OFT67	5.70
Ineffective Tandem Signaling	OFT66	5.69
Interrupts Deferred	OFT15	5.22
Intraoffice Call Attempts	OFT25	5.32
Intraoffice Calls to Busy Lines	OFT26	5.33
Intraoffice Intercepts	OFT29, OFT30, OFT31	5.36

Fig. 1—Index, Network Administration Measurements (Sheet 1 of 3)

INDEX

NETWORK ADMINISTRATION MEASUREMENTS
NO. 3 ESS
(Cont)

MEASUREMENT	NUMBER	PARAGRAPH
Longest Base Level Loop	OFT13	5.20
Maintenance	TRK05	5.94
	SVC05	5.103
MF Incoming Calls	OFT38	5.43
Multiline Hunt Group Number	MLH01	5.106
No Path - Incoming Terminating	OFT56	5.59
No Path - Outgoing and IAO	OFT57	5.60
No Path - Tandem	OFT55	5.58
No Service Circuit - Incoming	OFT59	5.62
No Service Circuit - Outgoing and IAO	OFT60	5.63
No Service Circuit - Tandem	OFT58	5.61
No Trunk - Outgoing	OFT62	5.65
No Trunk - Tandem	OFT61	5.64
Number of Dial Pulse Dial Tone Delays Over Three Seconds	OFT07	5.11
Number of TOUCH-TONE Dial Tone Delays Over Three Seconds	OFT08	5.12
Number of MF Receiver Attachment Delays Over Three Seconds	OFT12	5.19
One-Digit Speed Calls	OFT45	5.48
Outgoing Call Attempts	OFT32	5.37
Overflow	TRK04	5.93
	SVC04	5.102
	MLH04	5.109
Partial Dial Abandons	OFT23	5.30
Partial Dial Time-Outs	OFT21	5.28
Peg Count	TRK02	5.89
	SVC02	5.99
	MLH02	5.107
Percentage of Dial Pulse Dial Tone Delays Over Three Seconds	OFT02	5.06
Percentage of TOUCH-TONE Dial Tone Delays Over Three Seconds	OFT04	5.08
Percentage of MF Receiver Attachment Delays Over Three Seconds	OFT10	5.17
Permanent Signal Time-Outs	OFT20	5.27
Preroute Peg Count	PRE01 - PRE04	5.112
Stable Intraoffice Usage	OFT27	5.34
Stable Outgoing Usage	DOR04	5.84
Stable Revertive Call Usage	OFT28	5.35
Stable Through-Switch Usage	DOR03	5.83

Fig. 1—Index, Network Administration Measurements (Sheet 2 of 3)

INDEX

NETWORK ADMINISTRATION MEASUREMENTS
NO. 3 ESS
(Cont)

MEASUREMENT	NUMBER	PARAGRAPH
Tandem Call Attempts	OFT42	5.45
Threeway Calls	OFT47	5.50
Total Number of Bids for an MF Receiver	OFT11	5.18
Total Originating Calls	OFT17	5.24
	DOR01	5.81
Total Terminating Calls	OFT24	5.31
TOUCH-TONE Abandon Bids for Dial Tone	OFT19	5.26
TOUCH-TONE Originations	OFT06	5.10
Translation Errors	OFT73	5.76
Transmitter Time-Outs	OFT33	5.38
Trunk and Line Usage	TLU01-TLU16	5.123
Trunk Group Number	TRK01	5.88
	SVC01	5.98
Two-Digit Speed Calls	OFT46	5.49

Fig. 1—Index, Network Administration Measurements (Sheet 3 of 3)

INDEX MAINTENANCE MEASUREMENTS NO. 3 ESS		
MEASUREMENT	NUMBER	PARAGRAPH
A-Link and B-Link Removal Attempt	PLT54	5.179
Call Audit Failures	PLT30	5.155
CDR-DP Removal Attempts	PLT38	5.163
CDR-TT Removal Attempts	PLT39	5.164
Coin Circuit Removal Attempts	PLT42	5.167
Continuity Test Failures	PLT49	5.174
CU Automatic Removals	PLT01	5.126
DP Transmitter Removal Attempts	PLT43	5.168
Error Analysis Entries	PLT36	5.161
Error Analysis Table Pushoffs	PLT37	5.162
False Cross and Ground Failures	PLT50	5.175
Initialization Count 1	PLT22	5.147
Initialization Count 2	PLT23	5.148
Initialization Count 3	PLT24	5.149
Initialization Count 4	PLT25	5.150
Initialization Count 5	PLT26	5.151
Juncture Progression Test Failures	PLT57	5.182
Juncture Removal Attempts	PLT47	5.172
Known Fault Entries on PD Points	PLT16	5.141
Known Fault Entries on Scan Matrices	PLT15	5.140
Line Trouble Reports	PLT53	5.178
Main Store Audit Failures	PLT31	5.156
Maintenance Busy Overflows	PLT62	5.187
Manual Initializations	PLT29	5.154
Miscellaneous Service Circuit Removal Attempts	PLT46	5.171
MF Receiver Removal Attempts	PLT45	5.170
MF Transmitter Removal Attempts	PLT44	5.169
MRF Count Cleared	PLT21	5.146
Other Alarm Activations	PLT33	5.158
Power Alarm Activations	PLT32	5.157
Power Cross Failures	PLT51	5.176
Quick-Check Entries	PLT34	5.159
Quick-Check Overflow	PLT35	5.160
Regular Ringing Removal Attempts	PLT40	5.165
Restore/Verify Failures	PLT52	5.177
Service Circuit Out-of-Service Duration	PLT59	5.184
Service Circuit Progression Test Failures	PLT56	5.181
Service Removals, Network Controller	PLT18	5.143
Service Removals, Peripheral Pulse Distributor	PLT19	5.144
Service Removals, Ringing and Tone	PLT20	5.145

Fig. 2—Index, Maintenance Measurements (Sheet 1 of 2)

INDEX MAINTENANCE MEASUREMENTS NO. 3 ESS (Cont)		
MEASUREMENT	NUMBER	PARAGRAPH
Service Removals, Scanner Controller	PLT17	5.142
Superimposed Ringing Removal Attempts	PLT41	5.166
SYC Out-of-Service Duration	PLT11	5.136
Tape 0 Fatal Reads	PLT07	5.132
Tape 1 Fatal Reads	PLT08	5.133
Tape 0 Fatal Writes	PLT09	5.134
Tape 1 Fatal Writes	PLT10	5.135
Tape 0 Files Opened	PLT03	5.128
Tape 1 Files Opened	PLT04	5.129
Tape 0 Transient Errors	PLT05	5.130
Tape 1 Transient Errors	PLT06	5.131
TDC Automatic Removals	PLT02	5.127
Total Line Originations	PLT61	5.186
Total Outgoing and Incoming Call Attempts	PLT63	5.188
Total Restorals of Trunks and Service Circuits	PLT60	5.185
Transient Errors on Network Controllers	PLT13	5.138
Transient Errors on Peripheral Pulse Distributors	PLT14	5.139
Transient Errors on Scanners	PLT12	5.137
Trunk Circuit Out-of-Service Duration	PLT58	5.183
Trunk Progression Test Failures	PLT55	5.180
Trunk Removal Attempts	PLT48	5.173

Fig. 2—Index, Network Maintenance Measurements (Sheet 2 of 2)