DIAL TONE MARKER PRINTOUT ANALYSIS USING NETWORK ADMINISTRATION AND MAINTENANCE EVALUATION (NAME) DESCRIPTION NO. 5 CROSSBAR OFFICES

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 Network Administration and Maintenance Evaluation (NAME) is a procedure developed by American Telephone and Telegraph (AT&T) to evaluate the condition of a No. 5 Crossbar office. The procedure requires the use of one of two available Western Electric (WE) mechanisms, ie, Mechanized Installation Verification Tests (MIVT) or Equipment Access Measurement (EAM). The application of these systems is explained in RL-80-10-302. To use either MIVT or EAM requires the installation of a Program Controlled Data Acquisition Interface Circuit (PCDAIC). The PCDAIC must be installed and then used in conjunction with a minicomputer (UNICON) furnished by WE. The PCDAIC installa-

tion must be validated by WE before the appropriate programs are applied. Printouts from the various program runs will be turned over to the telephone company (telco) for analysis.

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

1.03 Recommendations for changes, additions, or deletions to this section should be made on Form E-3973 as specified in Section 000-010-015.

1.04 Analysis of the printouts should be a joint responsibility of telco organizations responsible for; (1) Central Office Maintenance, (2) Network Administration, (3) Maintenance Engineering, (4) Equipment Engineering, (5) Traffic Engineering, and (6) Trunk Assignment. The EAM/MIVT job is complex and a test and analysis committee comprised of the above participants would be helpful in resolving problems and coordination.

1.05 The EAM/MIVT outputs are peg count (PC) teletype reports of circuits seized on successfully switched calls. A count of the times each equipment circuit was seized is recorded. A count of the calls that were dropped or contained invalid data is also recorded. The dropped and invalid data calls (see Glossary) are not recorded in the PCs of the individual equipments. The data obtained from sampling common control equipment is used to present accessing information between the common control equipment and connecting circuits, equipment utilization, balance, holding times, and equipment irregularities.

1.06 The EAM/MIVT consists of seven separate No. 5 Crossbar call tracking programs. Figure 1 lists the seven programs, the contents of each program, and the recommended sequence for the implementation of each program.

1.07 This section concerns the Dial Tone Marker (DTM) Program printouts and their analysis using NAME.

2. DIAL TONE CONNECTION

2.01 The following is a brief description of equipment used in a dial tone call (Fig. 2):

(a) ***Line Link Frame (LLF):*** This equipment contains customer line appearances and channels (paths) which are used as talking and signaling paths to trunk link frames (TLFs). All calls to or from customer lines must be connected through an LLF.

(b) ***Trunk Link Frame (TLF):*** This equipment contains originating registers, incoming and outgoing trunk appearances. It also has channels to LLFs. All calls to or from a subscriber must connect through a TLF.

(c) ***Originating Register (OR):*** This equipment has a TLF appearance, supplies dial tone to a calling subscriber, and receives and stores digits of the called number.

(d) ***Dial Tone Marker (DTM):*** The principal function of this equipment is to respond to customer demands for dial tone by establishing a connection (channel) between the calling line and an OR.

(e) ***Channel (CH):*** This equipment provides a path for talking and signaling between the customer line appearance on the LLF and the OR on the TLF.

(f) ***Line Link Marker Connector (LLMC):*** This equipment signals a DTM that a customer is demanding dial tone and, through preference circuits, selects a DTM to handle the task.

(g) ***Trunk Link Connector (TLC):*** This is a relay type switching device for interconnecting the DTMs with the TLFs. It is used in the trunk (OR) selection, channel selection, and setup of the channel.

(h) ***Line Link Connector (LLC):*** This is a relay type switching device for interconnecting the DTMs with the LLFs. It is used to partially select and set up a channel.

2.02 General descriptive information for No. 5 Crossbar is contained in Section 958-110-100. Detailed circuit description and operation of the various equipments and their use is contained in their respective circuit descriptions (CDs) and schematic descriptions (SDs).

2.03 The following steps describe the procedure for establishing a dial tone connection. See Fig. 2.

(1) When the calling subscriber removes the receiver at the telephone, a signal is sent from

the LLF to the LLMC. The LLMC, through various preference circuits, selects an idle DTM, passes on certain required information about the calling link, and then is dismissed.

(2) The DTM selects, through a TLC, an idle OR on an idle TLF.

(3) Using the LLC and the TLC, the DTM selects an idle channel (path) from the LLF where the customer line appears to the TLF where the OR appears, and establishes the connection. At this point, the DTM, LLC, LLMC, and TLC release and are prepared to handle other dial tone requests.

(4) At this time, the calling customer will hear dial tone which is supplied from the OR via the channel. This is the signal that the OR is ready to receive the calling number which will be sent over the same channel in the opposite direction.

3. DIAL TONE MARKER (DTM) PROGRAM

3.01 The DTM program provides the following printouts:

(1) Summary

(2) Originating Register - Dial Tone Marker

(3) Line Link Frame - Dial Tone Marker Peg Count

(4) Channel (CH) - Dial Tone Marker.

3.02 The Summary printout provides information which ensures that the ***records taken, records dropped, records with invalid data,*** and ***time in seconds*** are within limits to provide a valid analysis of the printouts. The program computes and prints the variation range for each segment, except in cases of graded dial tone markers and invalid data. Invalid data are not printed when there are zero invalid data calls. Manual computations are required in offices with graded markers. Details for this analyzation are contained in Part 5 of this section.

> ***NOTE:*** THE TELEPHONE COMPANY SHALL NOT ACCEPT ANY PRINTOUT WHERE THE SUMMARY PRINTOUTS EXCEED THE REQUIREMENTS OF THIS BELL SYSTEM PRACTICE AND/OR THE WE HANDBOOK 69D.

3.03 The Originating Register - Dial Tone Marker Peg Count printout is used to:

(1) Verify that each assigned OR is selected in a uniform manner by each marker.

(2) Verify that each TLF has registers assigned for each register group.

(3) Verify that each register group has an equal number of registers assigned to each TLF.

(4) Verify that each marker selects the TLF's originating registers uniformly as determined by the type of markers (WS or U/Y) and the number of ORs on the TLF.

(5) Verify that the total PC for each TLF is ± 20 percent of the average TLF usage.

(6) Verify that the total PC of each marker is ± 20 percent of the average for each TLF.

3.04 The Line Link Frame - Dial Tone Marker Peg Count printout is used to:

(1) Verify that each marker is seized by each LLF.

(2) Verify that two markers are preferred from each LLF in a uniform manner.

(3) Verify that the total PC for each LLF is ± 15 percent of the average LLF usage.

3.05 The Channel - Dial Tone Marker Peg Count printout is used to:

(1) Verify that each channel is accessed by each DTM.

(2) Verify that each channel is used by each marker in a descending PC for Channels 0-9 or 5-9 and 0-4.

(3) Verify that all completing and all DTMs have the same sequence for channel selection (0-9 or 5-9 and 0-4).

4. PRINTOUT ANALYSIS

Program Printouts - Analysis - Reports

4.01 All DTM computer printouts for each of the EAM/MIVT programs described in para-

graphs 3.02 through 3.05 of this section are to be analyzed for trouble or improper office preferencing. This is accomplished by answering all questions on the DTM Program Questionnaire (see Attachment 1).

4.02 Every question on the DTM Program Questionnaire must be answered with a ***YES, NO,*** or ***NA*** (not applicable). To facilitate the use of the DTM Program Questionnaire, references such as applicable paragraphs, General Letters, and T-Drawing numbers have been placed in the column alongside the questions. A copy of the DTM Program Questionnaire should be reproduced locally and be used as a work copy for the analysis. Use Attachment 1 of this section as the master.

4.03 To document the disposition of found irregularities, Attachment 2 (Document of Irregularities) has been made part of this section. All questions answered with a ***NO*** in the DTM Program Questionnaire should be listed on this record sheet and serialized. One sheet is used for each ***NO*** answer. The required number of Documentation of Irregularity sheets should be reproduced locally, using Attachment 2 of this section as the master.

4.04 Upon completion of the DTM analysis, the analyzer/analyzers forwards the following documents to the chairperson of the analysis committee:

(1) Printouts

(2) Completed DTM Program Questionnaire

(3) All associated Document of Irregularity sheets.

4.05 The chairperson of the analysis committee is responsible for the follow-up and resolution of all irregularities.

> ***NOTE:*** TO ENSURE PROPER FOLLOW-UP, 25 WORKING DAYS AFTER COMPLETION OF ALL ANALYSIS (SEVEN PROGRAMS), A REPORT OF THE RESULTS WITH THE DISPOSITION OF THE PROBLEM AREAS SHALL BE FORWARDED TO ALL DISTRICT MANAGERS OF THE DISCIPLINES REPRESENTED.

4.06 A proper analysis of each EAM/MIVT program will assist in determining the following conditions:

(1) All zero (0) access conditions.

(2) PC conditions which do not agree with office preference patterns.

(3) PC conditions which cannot be corrected without the assistance of other organizations, eg, Traffic Engineering, Equipment Engineering, Trunk Assignment.

4.07 Zero PCs indicate unassigned equipment, out-of-service equipment, or equipment which was not accessed because of an office problem. All zero access equipment locations must be verified to distinguish between a legitimate zero access and an office trouble condition.

4.08 The PC totals shall be analyzed for excessive high or low PC which may be an indication of equipment failure, incorrect preferencing, or equipment made busy. The PC total should also reflect the correct office sequencing of equipment in accordance with standard office patterns and equipment usage.

5. SUMMARY ANALYSIS

(Questionnaire should be used for this part.)

SUMMARY PRINTOUT

5.01 It is the responsibility of the telco person/persons doing the NAME analysis to analyze the Summary printout first (see paragraph 3.02). Any and all counts which are out of the limits in the Summary printout should be resolved with WE and if the case so dictates, the whole DTM program should be rerun.

NON-GRADED OFFICES

Total Records Taken

5.02 Verify that each DTM (DMKR) peg count is within ± 6 percent of the DTM average. The average is the total PC of all DTMs divided by the number of DTMs. See Fig. 3A (use computer figures).

5.03 If the requirements of paragraphs 5.02 are out of limits, verify that each marker is equally preferred by PC in all marker connectors. Also verify that each marker can be selected through each marker connector. This requirement can be verified by making all but one marker busy during a period

of light traffic at the master test frame jack bay in the connector under test and by verifying that the associated marker connector lamp lights.

5.04 WE Handbook 69D describes a condition when the register records a maximum of 65,536 records taken. The WE installer analyzes the 3-hour summary updates to determine when the register counter turned over and went back to 0. The installer adds the final subsequent total records taken to the previous turnover total and inserts it in the printout summary. The telco is responsible for verifying that WE checks for and provides this information and that it is incorporated in the summary. Verification is obtained by reviewing the periodic dump tapes. This item must be covered at the Method of Procedure meeting held between the telco and WE before the job starts.

Total Records Dropped

5.05 Verify that each DTM peg count is within + 50 percent of the DTM average PC. The average PC is the total PC of all DTMs divided by the number of DTMs printed. Disregard average (−) printout. See Fig. 3A.

> ***Note:*** The term "Total Records Dropped" indicates data problems encountered by the computer. Such problems ***are not*** an indication of equipment circuit call processing problems but may indicate random data omissions and mutilations through the Master Test Connector frame circuitry.

5.06 Verify that each DTM peg count of records dropped does not exceed 4 percent of the average total records taken PC for the DTM. If the requirement is met, results will not be printed. See Fig. 3A.

5.07 If the requirements of paragraphs 5.05 and 5.06 are out of limits, verify the following for possible cause: marker stealing in the connectors which may be due to crosses in the MAK, MCK, or MSK marker connector chain.

Total Records with Invalid Data

> ***Note:*** This program will not print any results for DTMs with no invalid calls.

5.08 Verify that each DTM peg count is within + 50 percent of the total DTM average PC. The average PC is the total of all DTM PCs divided by the number of DTMs printed. Disregard average (−) printout. See Fig. 3A.

5.09 Verify that each DTM peg count for invalid data does not exceed 1 percent of the total records taken PC for the same DTM. See Fig. 3A.

Total Time in Seconds

5.10 Verify that the time for each DTM unit is within ± 1 percent of the average DTM time. The average is the total DTM time divided by the number of DTMs. See Fig. 3A.

Method of Calculation:

(1) Average time in seconds is the sum of all the DTM time in seconds divided by number of DTMs.

(2) Each DTM must be within ± 1 percent of the average time in seconds.

GRADED OFFICES

Total Records Taken

5.11 In an office equipped with graded DTMs, the ± 6 percent requirement must be applied to full access and graded markers separately. (See Fig. 3B.) The DTM quantity can be 5 or 6 and may be distributed as follows:

> ***For 5 DTMs:*** DTM 0, 1, and 2 may be the full access markers being accessed by all LLFs, and DTM 3 and 4 are the graded markers. DTM 3 is accessed by the higher-numbered LLFs only and DTM 4 by the lower-numbered frames. In each connector, DTM 3 or 4, as applicable, will be the most preferred and either DTMs 0, 1, or 2 the second preferred.
>
> ***For 6 DTMs*** (See Fig. 3B): DTM 0 and 1 may be the full access markers being accessed by all LLFs, and DTMs 2, 3, 4, and 5 are the graded markers. DTMs 2 and 3 are accessible by the higher-numbered LLFs and DTMs 4 and 5 by the lower-numbered frames. DTMs 2, 3, 4, and 5, as applicable, will be most preferred and either DTM 0 or 1 the second preferred.

Graded markers (dial tone) should be preferred in each LLMC. Therefore, the PC for any graded marker

should be higher than the PC of any full access marker. See Fig. 3B.

Note: In Fig. 3B, the computer computations for average, ± 6 percent includes all markers. Since this is a graded office, these computations must be ignored and new computations made manually to separate graded and full access marker averages. See Fig. 3B, notes and symbols.

5.12 If the requirements of paragraph 5.11 are out limits, verify that graded markers are always preferred since such assignment will maximize DTM capacity. Also verify that each marker can be selected through each marker connector. This requirement can be verified by making all but one marker busy during a period of light traffic at the master test frame jack bay in the connector under test and by verifying that the associated marker connector lamp lights.

5.13 WE Handbook 69D describes a condition when the register records a maximum of 65,536 records taken. The WE installer analyzes the 3-hour summary updates to determine when the register counter turned over and went back to 0. The installer adds the final subsequent total records taken to the previous turnover total and inserts it in the printout summary. The telco is responsible for verifying that WE checks for and provides this information and that it is incorporated in the summary. Verification is obtained by reviewing the periodic dump tapes. This item must be covered at the Method of Procedure meeting held between the telco and WE before the job starts.

Total Records Dropped

5.14 Verify that each graded marker PC is within + 50 percent of the frame average PC. The average PC is the total PC of all graded markers divided by the number of graded markers. Verify that each full accessed marker PC is within + 50 percent of the frame average PC. The average PC is the total PC of all full accessed markers divided by the number of full accessed markers. The graded markers have higher PCs than all other markers. See Fig. 3B.

Note: The term "Total Records Dropped" indicates data problems encountered by the computer. Such problems ***are not*** an indication of equipment circuit call processing problems but may indicate random data omissions and mutilations through the Master Test Connecter frame circuitry.

5.15 Verify that each DTM peg count of records dropped does not exceed 4 percent of the average total records taken PC for the DTM. See Fig. 3B. The printout calculations for graded DTMs are correct. If requirement is met, results will not be printed.

5.16 If the requirements of paragraphs 5.14 and 5.15 are out of limits, verify the following for possible cause: marker stealing in the connectors which may be due to crosses in the MAK, MCK, or MSK marker connector chain.

Total Records with Invalid Data

Note: This program will not print any results for DTMs with no invalid calls.

5.17 Verify that each graded marker PC is within + 50 percent of the DTM average PC. The average PC is the total of all graded marker PCs divided by the number of graded markers. Verify that each full accessed marker PC is within + 50 percent of the frame average PC. The average PC is the total PC of all full accessed markers divided by the number of full accessed markers. All graded markers shall have higher PCs than all other markers. See Fig. 3B.

5.18 Verify that each DTM peg count for invalid data does not exceed 1 percent of the total records taken PC for the same DTM. See Fig. 3B. The printed calculations for graded DTMs are correct.

Total Time in Seconds

5.19 Verify that the time for each DTM unit is within ± 1 percent of the average DTM time. The average is the total DTM divided by the number of DTMs. See Fig. 3B.

Method of Calculation:

(1) Average time in seconds is the sum of all the DTMs time in seconds divided by number of DTMs.

(2) Each DTM must be within ± 1 percent of the average time in seconds.

6. DIAL TONE MARKER (DTM) PROGRAM

Data Collecting

6.01 This program counts the seizure of an OR by a DTM. Each DTM will select an OR on a TLF in the same way a CM selects a trunk.

6.02 This program also counts the seizure of a DTM by an LLF via an LLMC. A preferred or alternate preferred marker is required for each LLF operation and changes the order of preference after every LLF operation. In addition, it counts the number of times each channel was seized by each DTM.

> ***Note:*** Count is the total number of times each DTM seized an OR, LLF, or channel.

Report Contents

6.03 The teletype report is the accumulated number of times:

(1) Each DTM was observed seizing an OR (see Fig. 4)

(2) Each LLF was observed seizing a DTM (see Fig. 5)

(3) Each CH was seized by each DTM (see Fig. 6)

7. DIAL TONE MARKER (DTM) PRINTOUT ANALYSIS

(Questionnaire should be used for this part.)

Originating Register - Dial Tone Marker Peg Count Analysis (Fig. 4)

7.01 Verify that each assigned OR is accessed by each marker. All unaccessed locations are identified by a zero PC.

> ***Note:*** In a graded DTM office, the DTM access to TLFs is also graded. Therefore, graded markers only have access to ORs on the TLFs associated with those markers. Reference: Drawing T-240.

7.02 Verify that the total number of ORs selected agrees with the total number of ORs assigned. Reference: Office Drawing T-240, T-413, etc.

7.03 Verify that each TLF has registers assigned for each register group. Verify that each register group has an equal number of registers assigned to each TLF. No TLF should have more than two ORs in excess of any other TLF by register group. Optimally, each TLF (single, pair, or triple) should have an equal number of ORs. Reference: Office Drawing T-240, T-413, etc.

7.04 Verify that each marker selects the ORs associated with each TLF uniformly as determined by the type of marker (WS or U/Y) and the number of ORs on the TLF. Markers are considered to be uniform if the PC of the lower OR is at least 90 percent of the higher OR in the pair. A pair is TS0/1, 2/3. 4/5, 6/7, 8/9. This applies to all TLFs and markers. See sequence Tables A, B, C, and D.

Example:

```
                              MKR Ø
      OR (TLF/TS)  Ø1/0        787 ┐
                   Ø1/1        802 ┘ ← PAIR
(802 x 90% = 722; ACCEPTABLE BALANCE)
```

7.05 Verify that the trunk selection of each dial tone marker is in accordance with the following requirements. When the majority of the trunk link frames have five or more registers assigned, use the JSP to JSH cross-connection. For all other trunk link frame arrangements, use the JSP to JSL cross-connections.

> ***Example:*** If there are four originating registers assigned to a trunk link frame and the marker is cross-connected to JSL, each pair of registers on the trunk link frame will be selected uniformly. If with four registers and the cross-connection is JSH, the first pair of registers will be one-half of the peg count of the second pair of registers. See Tables A, B, and C.

7.06 Verify that the total PC for each TLF is within ± 20 percent of the average TLF peg count.

> ***Note:*** The average is the total TLF peg count divided by the number of TLFs.

7.07 Verify that the total OR peg count by marker/TLF is within ± 20 percent of the other marker/TLF total PCs for the same TLF. This tolerance is valid when ORs are spread equally among TLFs.

7.08 The total peg counts of TL frames within each OR group shall balance. If more than one OR

group is provided, the printout totals must be ignored and the TL totals must be added by OR group. ***To be in balance, each TL peg count of the OR group shall be plus or minus 20 percent of the average peg count for all TL frames.*** To obtain the average, add the peg count of all TL frames by OR group and divide by the number of TL frames in the group. When all ORs are in a single group, the high and low limits provided by the computer at the end of the printout may be used.

7.09 If the PC for any TLF is above or below the acceptable range, and if all the markers selected that TLF in accordance with the requirements of paragraphs 7.04 through 7.07, then an imbalance condition exists and should be reported as such.

7.10 If the requirements of paragraphs 7.04 through 7.07 are not met, check the following for possible cause:

(1) That each marker can select each register.

(2) That the even and odd register selection of the marker functions for each pair of registers.

(3) That the junctor sequence is stepping properly.

(4) That each register indicates its idle and busy condition over the FTC lead.

(5) That the proper JSP to JSH or JSP to JSL cross-connection is in the marker.

(6) That the registers do not have long holding times or are timing out.

(7) That the marker's frame busy (FB-) relays function properly with the busy TLF.

Line Link Frame - Dial Tone Marker Peg Count Analysis (Fig. 5)

7.11 Verify that each fully accessed marker is accessed by each LLF. All unaccessed locations will be identified by a zero PC.

7.12 In each LLF, verify that two markers are chosen to be preferred. The preferred markers will have a higher PC than the remaining markers for the same LLF.

Note: In a ***nongraded*** office, each marker should be used approximately uniformly through the total of all LLFs. For four or more markers, each LLF should have its STA and STB assigned to nonadjacent markers. In a ***graded*** office, the graded markers should be preferred in each associated LLF. If an office has five graded markers, Marker 4 should be assigned to either STA or STB in each of the lower line links of the grade; and Marker 3 should be assigned to either STA or STB in each of the higher line links of the grade (Office Drawing T-240).

7.13 In an office with four or more DTMs, the difference in the PC between the preferred markers for an LLF should not exceed 5 percent of their average. The difference in the PC between the first pair of markers next in the preference should not exceed 10 percent of their average. The difference in the PC between the second pair of markers next in the preference should not exceed 30 percent of their average. In offices with less than four markers, the difference in the PC between the preferred markers should not exceed 15 percent of their average.

Example:

PAIR	BAL. REQM'T	DTM PAIR
PREFERRED	± 5%	Ø, 2
NEXT IN SEQ.	± 10%	1, 3
NEXT IN SEQ.	+ 30%	----

Note 1: In a marker group equipped with less than four DTMs, the difference in preferred marker peg count average shall be 15 percent.

Note 2: In graded marker offices, the balance requirements can be applied to the preferred markers only because no markers succeeding in sequence are paired.

7.14 If the requirements in paragraphs 7.11 and 7.13 are not met, check the following:

(1) That each line link frame's STA and STB leads are not crossed.

(2) That the preferred markers are assigned as indicated on Office Drawing T-240.

(3) That the connector's CB- relay operates and

releases with each usage of the associated marker.

(4) That the connector's LCB lead locks operated the CB- relays when they operate.

(5) That the connector's W and Z relays walk for each connector usage.

7.15 Verify that the total PC for each LLF is within ± 15 percent of the average LLF peg count. The average is the total PC of all LLFs divided by the number of LLFs.

> ***Note:*** Exclude all new LLFs which are not loaded.

7.16 If the PC of any LLF is more than 15 percent above or below the average PC, and if all the DTMs have been selected in accordance with the requirements of paragraphs 7.11 and 7.13, an imbalance condition exists and should be so reported.

> ***Note:*** Above average PC could be caused by a concentration of high attempt rate lines whereas below average PC could be the result of a concentration of lines exhibiting long holding time characteristics. Since this data are gathered on a total 48-hour basis, the relative frame PC in the DTM busy hour cannot be deduced. Caution must be exercised when considering administrative action (LETs) based on these results since the effect on load balance must be considered.

Channel - Dial Tone Marker Peg Count Analysis (Fig. 6)

7.17 Verify that each channel is accessed by each DTM. All unaccessed channels will be identified by a zero PC.

7.18 Verify that channel selection by each DTM is in accordance with GL-74-04-102 (0-9 or 5-9 and 0-4). The channel with the highest PC is the first channel selected in accordance with the channel selection cross connection. All other channels shall be seized in descending order sequentially.

7.19 Verify that each marker's channel PC is within ± 10 percent of the total channel's average. The average is the total of all markers PC per a channel divided by the number of markers.

7.20 If the same markers are out of limits for the two verifications (paragraphs 7.18, 7.19), an imbalance condition exists and should be reported as such.

7.21 If the requirements for paragraphs 7.17 through 7.19 are not met, check the following:

(1) That each marker can select each channel in each junctor group.

(2) That the channel preference is correct.

(3) That no line link or trunk link junctor switches are made busy.

(4) That the marker junctor sequence functions properly.

8. GLOSSARY

8.01 The following glossary defines terms used throughout this section:

Dropped Call: A call which the computer did not see the marker complete its function in the allotted scanning time. This is not an indication of a call failure.

Equipment Access Measurement (EAM): A WE service offering to evaluate the status of a No. 5 Crossbar office by utilizing a computer software program not ordered with an office addition.

Invalid Call: Calls on which the computer received either mutilated or missing information from the marker on a completed call (DIS1 and 2 relays operated).

Mechanized Installation Verification Test (MIVT): Same as EAM except ordered with an office addition.

Network Administration and Maintenance Evaluation (NAME): A procedure developed by AT&T for the analysis of MIVT/EAM computer printouts.

Peg Count (PC): Term used in recording the number of times a circuit or piece of apparatus is used.

Records Taken: A peg count of good calls completed during the period an MIVT and/or EAM program is collecting data.

Records Dropped: A peg count of dropped calls.

Records with Invalid Data: A peg count of invalid calls.

Time In Seconds: The time in seconds that the computer spent in scanning the DTMs.

9. REFERENCES

9.01 When using this section, the reader should be familiar with the following reference material:

- Section 218-020-070
- Section 218-020-072
- Section 218-020-073
- Section 218-020-074
- Section 218-020-075
- Section 958-110-100
- WE Handbook 69D
- Office Drawings (T-240, T-413, T-414, etc)
- GL-74-04-102
- RL-80-10-302
- SD-26001-01.

The Equipment Access Measurement/Mechanized Installation Verification Tests (EAM/MIVT) System consists of seven separate No. 5 Crossbar tracking programs. The following lists the seven programs, the contents of each program, and the recommended sequence for the implementation of each program:

I. ***Dial Tone Marker Program*** which consists of:

A. Data Collected

- Dial Tone Marker — Originating Register
- Dial Tone Marker — Line Link Frame
- Dial Tone Marker — Channel.

B. Output Reports

- Provide peg counts on individual items of equipment by dial tone marker.

II. ***Pretranslator Program*** which consists of:

A. Data Collected

- Pretranslator — Originating Register.

B. Output Reports

- Provide Pretranslator — Originating Register Peg Counts.

III. ***Completing Marker Program*** which consists of:

A. Data Collected

- CMKR Line Link Frame
- CMKR Trunk Link Frame
- CMKR Sender
- CMKR Originating Register
- CMKR Incoming Register
- CMKR Channel.

B. Output Reports

- Provide peg counts on individual items of equipment by completing marker.

IV. ***Transverter Program*** which consists of:

A. Data Collected

- Transverter Sender.

B. Output Reports

- Provide Transverter Sender Peg Counts.

V. ***Completing Marker Holding Time Program*** which consists of:

A. Data Collected

- Completing Marker — Call Tracking.

B. Output Reports

- Provide Call Type/Call Status/Traffic Conditions (Measured Holding Time).

VI. ***Trunks and Channels Seized/Not Seized Program*** which consists of:

A. Data Collected

- CMKR Trunks
- A-, B-, and C-Links.

B. Output Reports

- Provide Trunks Not Seized By All Completing Markers
- A-, B-, and C-Links Not Seized.

VII. ***Trunk Peg Count Program*** which consists of:

A. Data Collected

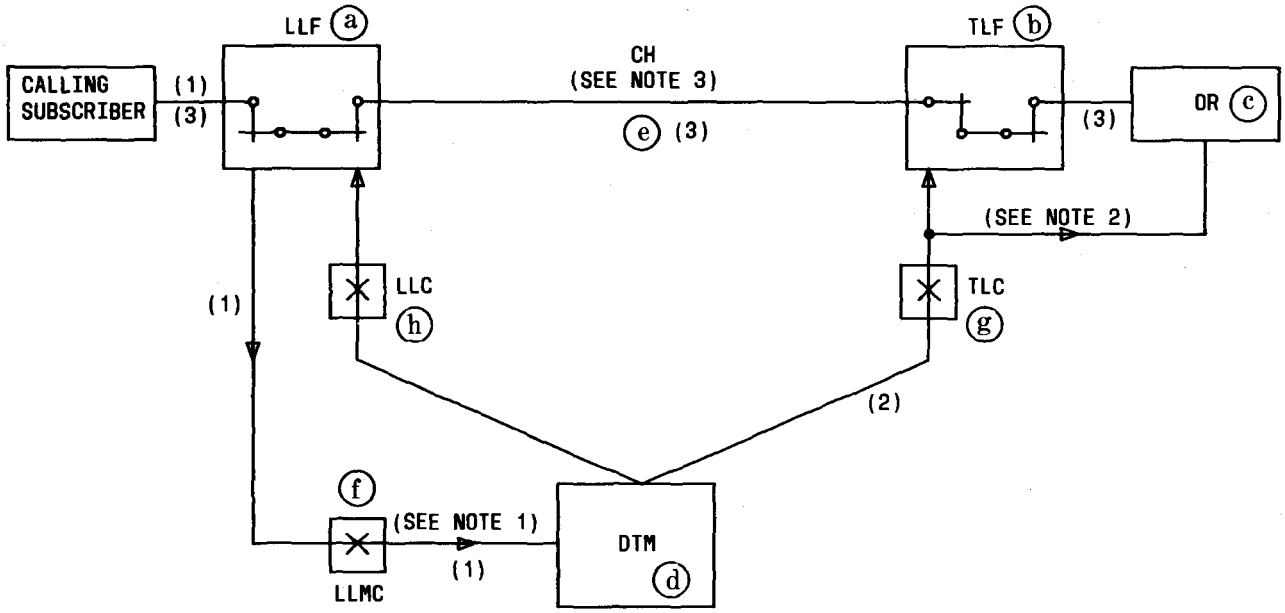
- Trunks.

B. Output Reports

- Provide Trunk Inventory with Incoming Trunk Peg Counts
- Outgoing Trunks by TB, TG, and TS Peg Counts
- Intraoffice Trunks by TB, TG, and TS Peg Counts.

Fig. 1—Program Contents

DIAL TONE MARKER PROGRAM



NOTES:
1. SEIZURE OF A DTM BY AN LLMC: A PREFERRED OR ALTERNATE PREFERRED MARKER IS SELECTED BY EACH LINE LINK FRAME ON ALTERNATE CALLS.
2. SEIZURE OF AN OR BY A DTM: EACH DTM SELECTS EACH OR ON EACH TLF IN A PREDETERMINED PREFERENCE.
3. SEIZURE OF A CHANNEL BY A DTM: EACH DTM SELECTS EACH CH IN A PREDETERMINED PREFERENCE.

LEGEND:

CH = CHANNEL
DTM = DIAL TONE MARKER
LLF = LINE LINK FRAME
LLMC = LINE LINK MARKER CONNECTOR
OR = ORIGINATING REGISTER
TLC = TRUNK LINK CONNECTOR
TLF = TRUNK LINK FRAME

Fig. 2—Dial Tone Connection

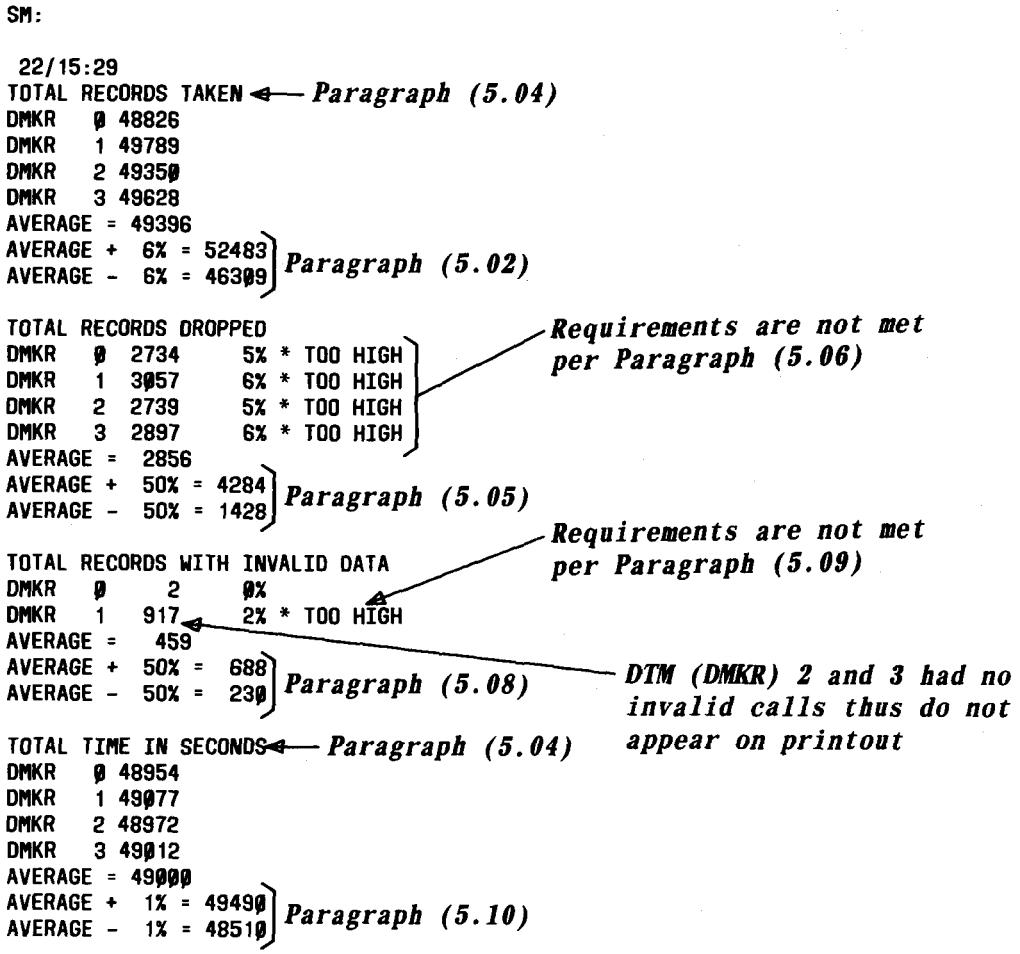


Fig. 3A — Sample Summary Printout - Nongraded Office—DTM

DIAL TONE SUMMARY OFFICE EQUIPPED WITH SIX (6) DT MARKERS (4 GRADED 2 FULL ACCESS):

```
          Ø4/1Ø:32
          TOTAL RECORDS TAKEN <-- Paragraph (5.13)
FULL ACCESS DMKR  Ø  11917     TOO LOW
            DMKR  1  13644     TOO LOW
GRADED      DMKR  2  2Ø715     TOO HIGH   $
            DMKR  3  22ØØ3     TOO HIGH   $
            DMKR  4  21614     TOO HIGH   $
            DMKR  5  23314     TOO HIGH   $
          AVERAGE = 189Ø1
$         AVERAGE + 6% = 2ØØ33
$         AVERAGE - 6% = 17767   Paragraph (5.11)

          TOTAL RECORDS DROPPED
          DMKR  Ø    191   2%
          DMKR  1    213   2%
          DMKR  2    331   2%
          DMKR  3    354   2%
          DMKR  4    346   2%
          DMKR  5    376   2%
          AVERAGE =  3Ø2   2%
$         AVERAGE + 5Ø% = 451
$         AVERAGE - 5Ø% = 151   Paragraph (5.14)

          TOTAL RECORDS WITH INVALID DATA
          DMKR  Ø     83   Ø%
          DMKR  1     96   1%
          DMKR  2    145   1%
          DMKR  3    154   1%
          DMKR  4    151   1%
          DMKR  5    166   1%
          AVERAGE =  133   1%
$         AVERAGE + 5Ø% = 199
$         AVERAGE - 5Ø% =  67   Paragraph (5.17)

          TOTAL TIME IN SECONDS <-- Paragraph (5.13)
          DMKR  Ø  26847
          DMKR  1  268ØØ
          DMKR  2  26821
          DMKR  3  26783
          DMKR  4  26823
          DMKR  5  26785
          AVERAGE = 26809
          AVERAGE + 1% = 27Ø78
          AVERAGE - 1% = 26541   Paragraph (5.19)
```

TOTAL RECORDS TAKEN - EXAMPLE

```
A. DMKR Ø    11917   FULL ACCESS DTM
   DMKR 1    13644   FULL ACCESS DTM
   TOTAL =   25561   AVERAGE = 12731
   AVERAGE + 6%  = 13548
   AVERAGE - 6%  = 12014
   DMKR Ø TOO LOW
   DMKR 1 TOO HIGH

B. DMKR 2    2Ø715   GRADED DTM
   DMKR 3    22ØØ3   GRADED DTM
   DMKR 4    21614   GRADED DTM
   DMKR 5    23514   GRADED DTM
   TOTAL =   87346   AVERAGE = 21962
   AVERAGE + 6%  =   2323Ø
   AVERAGE - 6%  =   2Ø644
   DMKR 5 TOO HIGH
```

LEGEND:

$ = IGNORE THESE COMPUTATIONS

Fig. 3B — Sample Summary Printout—Graded Office—DTM

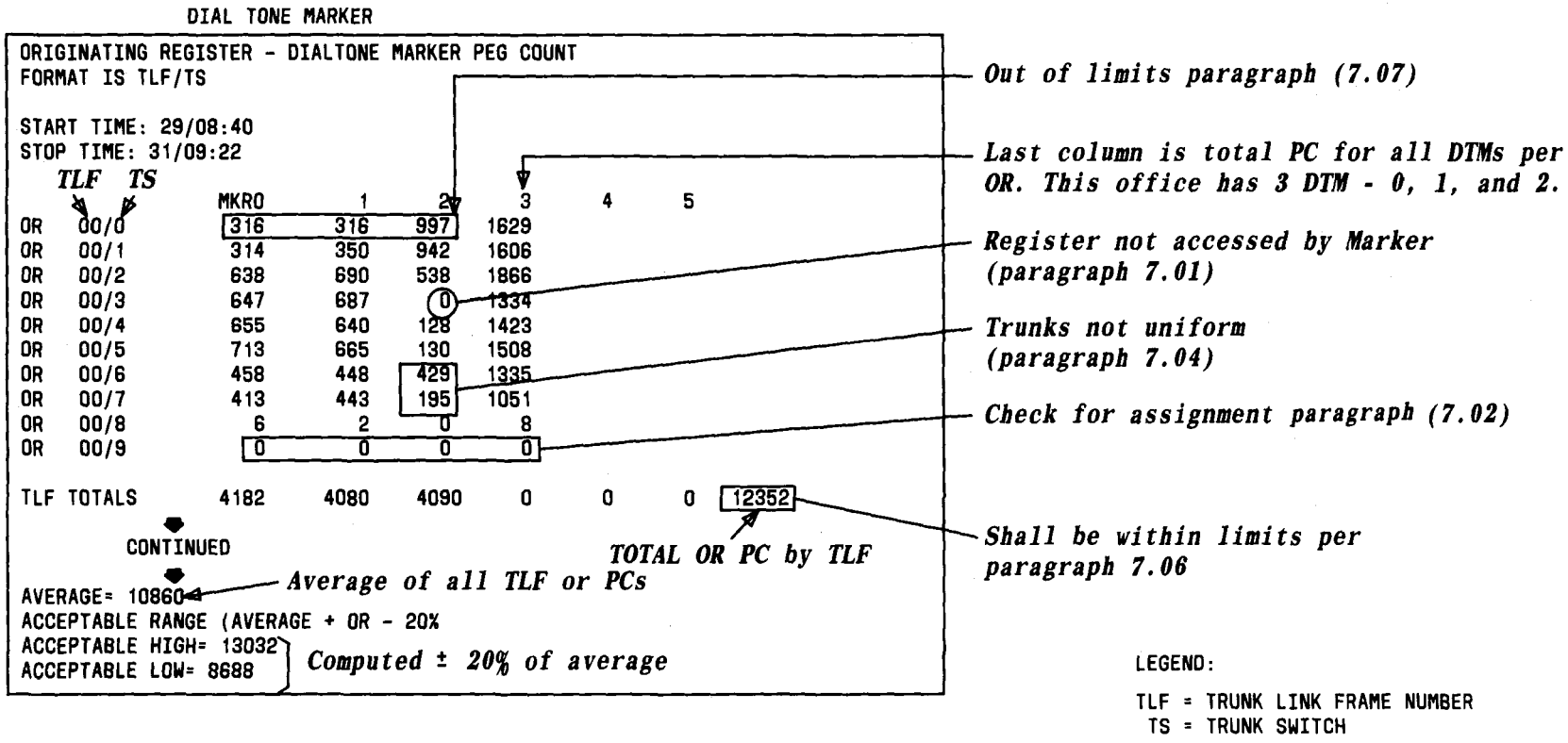


Fig. 4—Sample Originating Register—Dial Tone Marker Printout

DIAL TONE MARKER

LINE LINK FRAME - DIALTONE MARKER PER COUNT

Day *Time*

START TIME: 29/08:40

STOP TIME: 31/09:22

	MKR0	1	2	3	4	5
LLF 00	2020	788	1801	4609		
LLF 01	2447	2547	713	5707		
LLF 02	1075	2033	2222	4330		
LLF 03	2346	789	1880	5015		
LLF 04	1952	2183	852	4987		
LLF 05	905	1960	2388	5253		
LLF 06	1963	656	1879	4498		
LLF 07	2099	2386	960	5445		
LLF 08	794	1712	2249	4755		
LLF 09	2143	548	2835	5526		
LLF 10	1950	2075	854	4879		
LLF 11	753	2032	2259	5044		
LLF 12	2283	931	1954	5168		
LLF 13	2098	2469	0	4567		
LLF 14	798	2058	2261	5117		
LLF 15	2342	1011	2164	5517		
LLF 16	2187	2578	874	5639		

CONTINUED

AVERAGE= 5048

ACCEPTABLE RANGE (AVERAGE + OR - 15%)

ACCEPTABLE HIGH= 5805

ACCEPTABLE LOW= 4291

Computed ± 15% average

Last column is a total PC for all DTMs per LLF. This office has 3 DTMs - 0, 1, and 2.

Two markers are preferred (paragraph 7.12)

Exceeds limits (paragraph 7.13)

Marker is not accessed by line link frame (paragraph 7.11)

Average of all LLF or PCs

Shall be within limits per (paragraph 7.15)

Fig. 5—Sample Line Link Frame—Dial Tone Marker Printout

DIAL TONE MARKER

CHANNEL - DIALTONE MARKER PEG COUNT
FORMAT IS CH/JG

START TIME: 29/08:40
STOP TIME: 31/09:22

CH	JG	MKR0	1	2	3	4	5
CH	0/0	2085	2108	2247	6440		
CH	0/1	0	0	0	0		
CH	0/2	0	0	0	0		
CH	0/3	0	0	0	0		
CH	0/4	0	0	0	0		
CH	1/0	1844	1889	1864	5597		
CH	1/1	0	0	0	0		
CH	1/2	0	0	0	0		
CH	1/3	0	0	0	0		
CH	1/4	0	0	0	0		
CH	2/0	1496	1621	1539	4656		
CH	2/1	0	0	0	0		
CH	2/2	0	0	0	0		
CH	2/3	0	0	0	0		
CH	2/4	0	0	0	0		
CH	3/0	1257	1247	1290	3794		
CH	3/1	0	0	0	0		
CH	3/2	0	0	0	0		
CH	3/3	0	0	0	0		
CH	3/4	0	0	0	0		
CH	4/0	948	1055	0	2003		
CH	4/1	0	0	0	0		
CH	4/2	0	0	0	0		
CH	4/3	0	0	0	0		
CH	4/4	0	0	0	0		
CH	5/0	11724	11637	11938	35299		
CH	5/1	24	13	11	48		
CH	5/2	20	18	7	45		
CH	5/3	0	0	0	0		
CH	5/4	0	0	0	0		
CH	6/0	9405	9440	9431	28278		
CH	6/1	5	5	1	11		
CH	6/2	2	1	3	6		
CH	6/3	0	0	0	0		
CH	6/4	0	0	0	0		
CH	7/0	7519	7570	7735	22824		
CH	7/1	0	0	0	0		
CH	7/2	1	0	0	1		
CH	7/3	0	0	0	0		
CH	8/0	5779	5898	5976	17653		
CH	8/1	0	0	0	0		
CH	8/2	0	0	0	0		
CH	8/3	0	0	0	0		
CH	8/4	0	0	0	0		
CH	9/0	4592	4558	4671	13821		
CH	9/1	0	0	0	0		
CH	9/2	0	0	0	0		
CH	9/3	0	0	0	0		
CH	9/4	0	0	0	0		

Channel not accessed by Dial Tone Marker (paragraph 7.17)

Channel selection should be sequentially highest to lowest. Channel selection (5-9 and 0-4) (paragraph 7.18). (Matches Completing Marker Assignment) – See GL-74-04-102. This example shows a channel selection sequence of 5-9 and 0-4. As can be seen, CH 5 has highest PC for marker no. 0. Then changes 6-7-8-9-0-1-0-3-4. This could vary in other markers, ie; channel 0 having largest PC and the remaining channels 1 through 9 have a descending PC. Whether the order of preference, 0-9 or 5-9, and 0-4, all markers completing and dial tone must be the same.

Fig. 6—Sample Channel—Dial Tone Marker Printout

TABLE A

ORIGINATING REGISTER SEQUENCE SELECTION (WS) WITH JSL CROSS-CONNECT

ORIGINATING REGISTER PER TRUNK LINK							
JSQ RELAY		PREFERENCE BY TRUNK SWITCH (TS) 1ST	2ND	3RD	4TH	5TH	Majority of the trunk link frames have 4 or less and 4 or 5 originating registers assigned. Cross-connect JSP to JSL. SD-26001-01, Note 400, Part 7.
0	OR	*0/1	4/5	8/9	2/3	6/7	
1	OR	ϕ2/3	6/7	0/1	4/5	8/9	
2	OR	§4/5	8/9	2/3	6/7	0/1	
3	OR	6/7	*0/1	4/5	8/9	2/3	
4	OR	8/9	ϕ2/3	6/7	0/1	4/5	
5	OR	*0/1	4/5	8/9	2/3	6/7	

Example 1: If a trunk link frame is equipped with six registers and they are assigned to TS0, 1, 2, 3, 4, and 5, the expected peg count would be as follows:

TS0/1 would be preferred 3 times (denoted *).
TS2/3 would be preferred 2 times (denoted ϕ).
TS4/5 would be preferred 1 time (denoted §).
TS6 through 9 would not be equipped with an OR in this example.

TS0/1 would be first preferred with JSQ0, 3, and 5. Therefore, TS0/1 would be preferred three times. TS2/3 would be first preferred with JSQ1 and 4. Therefore, TS2/3 would be preferred twice. TS4/5 is only preferred by JSQ2.

In Example 1, the total peg count for the registers assigned to TS0 and TS1 should be one and a half times the peg count of the registers assigned to TS2 and TS3 and should be three times the peg count of the registers assigned to TS4 and TS5. TS2 and TS3 should be twice the peg count of TS4 and TS5. Also, TS0 should equal TS1; TS2 should equal TS3; and TS4 should equal TS5 in peg counts.

Example 2: If a trunk link frame is equipped with three registers and they are assigned to TS0, 1, and 2, the expected peg count would be as follows:

TS0/1 would be preferred 3 times.
TS2 would be preferred 3 times. TS3 through 9 would not be equipped with an OR in this example.

TS0/1 would be first preferred with JSQ0, 3, and 5. Therefore, TS0/1 would be preferred three times. TS2 would be first preferred with JSQ1 2, and 4. Therefore, TS2 would be preferred three times.

In Example 2, the total peg count for the registers assigned to TS0 and TS1 should be equal to the peg count of the register assigned to TS2. Therefore, TS2 should have twice the peg count of TS0 or TS1. Also, TS0 and TS1 should be equal in peg count.

TABLE B

ORIGINATING REGISTER SEQUENCE SELECTION (WS) WITH JSH CROSS-CONNECT

ORIGINATING REGISTER PER TRUNK LINK							
JSQ RELAY		PREFERENCE BY TRUNK SWITCH (TS) 1ST	2ND	3RD	4TH	5TH	
0	OR	*0/1	4/5	8/9	2/3	6/7	Majority of the trunk link frames have 5 or more originating registers assigned.
1	OR	ϕ2/3	6/7	0/1	4/5	8/9	
2	OR	§4/5	8/9	2/3	6/7	0/1	Cross-connect JSP to JSH. SD-26001-01, Note 400, Part 7.
3	OR	6/7	*0/1	4/5	8/9	2/3	
4	OR	8/9	ϕ2/3	6/7	0/1	4/5	
5	OR	§4/5	8/9	2/3	6/7	0/1	

Example 1: If a trunk link frame is equipped with six registers and they are assigned to TS0, 1, 2, 3, 4, and 5, the expected peg count would be as follows:

TS0/1 would be preferred 2 times (denoted *).
TS2/3 would be preferred 2 times (denoted ϕ).
TS4/5 would be preferred 2 times (denoted §).
TS6 through 9 would not be equipped with an O in this example.
TS0/1 would be first preferred with JSQ0 and 3.
TS2/3 would be first preferred with JSQ1 and 4.
TS4/5 would be first preferred with JSQ2 and 5.

In Example 1, the total peg count for the registers assigned to TS0 and TS1, TS2 and TS3, and TS4 and TS5 should be equal.

Example 2: If a trunk link frame is equipped with three registers and they are assigned to TS0, 1, and 2, the expected peg count would be as follows:

TS0/1 would be preferred 2 times
TS2 would be preferred 4 times
TS3 through 9 would not be equipped with an OR in this example.

TS0/1 would be first preferred with JSQ0 and 3. Therefore, TS0/1 would be preferred two times. TS2 would be first preferred with JSQ1, 2, 4, and 5. Therefore, TS2 would be preferred four times.

In Example 2, the total peg count for the registers assigned to TS0 and TS1 should be one half the peg count of the register assigned to TS2. Therefore, TS2 should have four times the peg count of TS0 or TS1. Also, TS0 and TS1 should be equal in peg count.

Note: Table G or H is determined by network with predominate number of like registers on the predominate number of trunk link frames.

TABLE C

ORIGINATING REGISTER SEQUENCE SELECTION AND USAGE (WS)

RELAYS		REGISTERS PER FRAME					
JSQ0	SQ1	2	3	4	5	6	7
	N/O	0	0	0	0	*0	0
1	N/0	0	2	2	2	ϕ2	2
2	OPR	1	2	3	4	§5	5
3	OPR	1	1	1	1	*1	6
4	OPR	1	2	3	3	ϕ3	3
5	OPR	1	1	1	1	*1	1
	OPR	1	1	1	1	*1	1
1	OPR	1	2	3	3	ϕ3	3
2	N/O	0	2	2	3	§4	4
3	N/O	0	0	0	0	*0	6
4	N/O	0	2	2	2	ϕ2	2
5	N/O	0	0	0	0	*0	0

NUMBER OF TIMES SELECTED TS (TRUNK SWITCHES EQUIPPED PER TLF)					
0-6 1-6	0-3 1-3 2-6	0-3 1-3 2-3 3-3	0-3 1-3 2-2 3-2 4-2	0-3 1-3 2-2 3-2 4-1 5-1	0-2 1-2 2-2 3-2 4-1 5-1 6-2

Note: Register numbers represent register positions and only indicate the starting positions of sequence.

Example 1: If a trunk link frame is equipped with six registers and they are assigned to TS0, 1, 2, 3, 4, and 5, the expected peg count would be as follows:

TS0 and TS1 would be preferred 3 times (denoted *).
TS2 and TS3 would be preferred 2 times (denoted ϕ).
TS4 and TS5 would be preferred once (denoted §).

TS0 would be preferred with JSQ0, 3, and 5 and with SQ1 nonoperated. Therefore, TS0 is preferred three times. TS1 would be preferred with JSQ0, 3, and 5 and with SQ1 operated. Therefore, TS1 would be preferred three times. TS2 would be preferred with JSQ1 and 4 and with SQ1 nonoperated. Therefore, TS2 would be preferred twice. TS3 would be preferred with JSQ1 and 4 and with SQ1 operated. Therefore, TS3 would be preferred twice. TS4 would be preferred with JSQ2 and with SQ1 nonoperated. Therefore, TS4 would be preferred once. TS5 would be preferred with JSQ2 and with SQ1 operated. Therefore, TS5 would be preferred once.

In Example 1, the total peg count for the registers assigned to TS0 and TS1 should be one and a half times the peg count of the registers assigned to TS2 and TS3 and should be three times the peg count of the registers assigned to TS4 and TS5. TS2 and TS3 should be twice the peg count of TS4 and TS5. Also, TS0 should equal TS1; TS2 should equal TS3; and TS4 should equal TS5 in peg counts.

TABLE C (CONTD)

ORIGINATING REGISTER SEQUENCE SELECTION AND USAGE (WS)

Example 2: If a trunk link frame is equipped with three registers and they are assigned to TS0, 1, and 2, the expected peg count would be as follows:

TS0 and TS1 would be preferred 3 times.
TS2 would be preferred 6 times.

TS0 would be preferred with JSQ0, 3, and 5 and with SQ1 nonoperated. Therefore, TS0 is preferred three times. TS1 would be preferred with JSQ0, 3, and 5 and with SQ1 operated. Therefore, TS1 is preferred three times. TS2 would be preferred with JSQ1, 2, and 4 and with SQ1 both operated and nonoperated. Therefore, TS2 is preferred six times.

In Example 2, the total peg count for the register assigned to TS0 should equal the peg count of the register assigned to TS1. The register assigned to TS2 should be twice the peg count of either TS0 or TS1.

TABLE D

ORIGINATING REGISTER SEQUENCE SELECTION (U/Y)

The trunk selection (ORs) is so designed that the TSs will be selected in the following sequence depending on last TS selected: 0, 5, 2, 7, 4, 9, 1, 6, 3, 8, 0, 5, etc.

Sequence for equipped TSs is:

NUMBER OF ORs PER TLF	SEQUENCE
1	0
2	0, 1
3	0, 2, 1
4	0, 2, 1, 3
*5	0, 2, 4, 1, 3
6	0, 5, 2, 4, 1, 3
7	0, 6, 2, 4, 1, 6, 3
8	0, 5, 2, 7, 4, 1, 6, 3
9	0, 5, 2, 7, 4, 1, 6, 3, 8
10	0, 5, 2, 7, 4, 9, 1, 6, 3, 8

Example: An office equipped with 5 ORs per TLF using U and Y marker. TS 0, 2, 4, 1, 3 will be picked in this sequence, but it will be repeated on subsequent calls, therefore, selection is evenly distributed.

Attachment 1
Sheet 1 of 12
Reference: BSP 218-020-071

DIAL TONE MARKER PROGRAM

QUESTIONNAIRE

OFFICE: _____

DATE PROGRAM RUN: _____

DATE ANALYSIS: _____

SUMMARY ANALYSIS

I. NONGRADED OFFICES

A. TOTAL RECORDS TAKEN

1. Is each dial tone marker peg count within ±6 percent of the average total dial tone peg count?

MARKER	YES	NO	NA	REFERENCES
0	_____	_____	_____	• Paragraphs 5.02-5.04 • Figure 3A
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	

B. TOTAL RECORDS DROPPED

1. Is each dial tone marker peg count within +50 percent of the dial tone marker average peg count?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraphs 5.05 & 5.07 • Figure 3A.
1				
2				
3				
4				
5				

2. Each dial tone marker records dropped peg count should not exceed 4 percent of the average total records taken peg count for that dial tone marker. Is this requirement met?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.06 & 5.07 • Figure 3A
1				
2				
3				
4				
5				

C.. TOTAL RECORDS WITH INVALID DATA

1. Is each dial tone marker within +50 percent of the dial tone marker average peg count?

MARKER	YES	NO	NA	REFERENCES
0	_____	_____	_____	• Paragraph 5.08 • Figure 3A
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	

2. Dial tone marker invalid data peg count should not exceed 1 percent of the total records taken for the same dial tone marker. Is this requirement met?

MARKER	YES	NO	NA	REFERENCES
0	_____	_____	_____	• Paragraph 5.09 • Figure 3A
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	

D. TOTAL TIME IN SECONDS

1. Is the time for each dial tone marker within ±1 percent of the average dial tone marker time?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.10 • Figure 3A
1				
2				
3				
4				
5				

SUMMARY ANALYSIS

II. GRADED OFFICES

A. TOTAL RECORDS TAKEN

1. Is each dial tone marker peg count within ±6 percent of the average dial tone peg count for each group of graded and full accessed markers? (See Note 1 and use appropriate type marker totals and applicable percentages.) Manual calculations required.

MARKER	YES	NO	NA	REFERENCES
0				• Paragraphs 5.11 & 5.13 • Figure 3B
1				
2				
3				
4				
5				

Note 1: Manual calculations are required for both graded and full accessed dial tone marker groups.

Method: Add dial tone peg counts for all full accessed or graded dial tone markers. Divide by total of full accessed or graded dial tone markers. Multiply by .06. Add/subtract this from the average calculated. These two figures are the acceptable high and acceptable low.

B. TOTAL RECORDS DROPPED

1. Is each dial tone marker peg count within +50 percent of the average dial tone marker peg count for each group of graded and full accessed markers? (See Note 1 and use appropriate type marker totals and applicable percentages.) Manual calculations required.

MARKER	YES	NO	NA	REFERENCES
0	_____	_____	_____	• Paragraph 5.14 • Figure 3B
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	

V. 2. Each dial tone marker records dropped peg count should not exceed 4 percent of the average total records taken peg count for that dial tone marker. Is this requirement met?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.15 • Figure 3B
1				
2				
3				
4				
5				

C.. TOTAL RECORDS WITH INVALID DATA

1. Is each dial tone marker within +50 percent of the average dial tone marker peg count for eachgroup of graded and full accessed markers? (See note 1 and use appropriate type marker totals and applicable percentages.) Manual calculations required.

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.17 • Figure 3B
1				
2				
3				
4				
5				

2. Dial tone marker invalid data peg count should not exceed 1 percent of the total records taken for the same dial tone marker. Is this requirement met?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.18 • Figure 3B
1				
2				
3				
4				
5				

D. TOTAL TIME IN SECONDS

1. Is the time for each dial tone marker within ±1 percent of the average dial tone marker time?

MARKER	YES	NO	NA	REFERENCES
0				• Paragraph 5.19 • Figure 3B
1				
2				
3				
4				
5				

III. ORIGINATING REGISTER — DIAL TONE MARKER PEG COUNT ANALYSIS

REFERENCES

A. Was each assigned originating register accessed by each marker?

- Paragraph 7.01
- Figure 4
- Drawing T-240

YES_____ NO_____

B. Does the total number of ORs seized agree with the total number of ORs assigned?

- Paragraph 7.02
- Figure 4
- Drawing T-240
- Drawing T-413

YES_____ NO_____

C. Does each trunk link frame have ORs assigned for each register group?

- Paragraph 7.03
- Figure 4
- Drawing T-413
- Drawing T-240

YES_____ NO_____

D. Does each trunk link frame have an equal number of ORs assigned?

- Paragraph 7.03
- Figure 4
- Drawing T-413

YES_____ NO_____

E. The number of assigned ORs by OR Group/TLF should not differ by more than two from any other TLF. Is this requirement met?

- Paragraph 7.03
- Figure 4
- Drawing T-413

YES_____ NO_____

F. Does each marker select the TLF ORs uniformly by type of marker? (U+Y/WS even and odd selection)

- Paragraph 7.04
- Figure 4
- Tables A, B, C, D

YES_____ NO_____

G. Does each marker select the TLF ORs uniformly by type of marker? (U+Y/WS and JSP cross-connection)

- Paragraph 7.05
- Figure 4
- Tables A, B, C, D

YES_____ NO_____

REFERENCES

H. Is the total peg count for each TLF within ±20 percent of the average trunk link frame peg count?
- Paragraph 7.06
- Figure 4

YES_____ NO_____

I. Is the OR/TLF selection per marker within ±20 percent of other OR/TLF marker selections? Manual calculations required.
- Paragraph 7.07
- Figure 4

YES_____ NO_____

Example: Are the PCs for each OR per marker within ±20 percent for all other markers?

Method of Computation:

$$\frac{\text{Total OR PC for all Markers}}{\text{Total Number of Markers}} = \pm 20 \text{ percent for each OR PC}$$

IV. LINE LINK FRAME — DIAL TONE MARKER PEG COUNT ANALYSIS

REFERENCES

A. Has each full accessed marker been accessed by each line link frame (graded or nongraded office)
- Paragraph 7.11
- Figure 5
- Drawing T-240

YES_____ NO_____

B. Have two markers been most preferred on each LLF?
- Paragraph 7.12
- Figure 5
- Drawing T-240

YES_____ NO_____

If the office has graded markers, was each of the graded markers preferred by the particular line link having access to those markers?
- Paragraph 7.12
- Drawing T-240

YES_____ NO_____ NA_____

C. Has each graded marker been accessed by the proper line link frame (graded office)?
- Paragraph 7.12
- Drawing T-240

YES_____ NO_____ NA_____

Note 2: The following questions (D, E, and F) are for offices with four or more dial tone markers. (Manual calculations required for D through G)

D. The difference in peg count between preferred markers should not exceed 5 percent of their average. Is this requirement met?

YES_____ NO_____ NA_____

REFERENCES

- Paragraph 7.13
- Drawing T-240

E. The difference in peg count between the first pair of markers next in the preference should not exceed 10 percent of their average. Is this requirement met?

YES_____ NO_____ NA_____

- Paragraph 7.13
- Drawing T-240

F. The difference in peg count between the second pair of markers next in the preference should not exceed 30 percent of their average. Is this requirement met?

YES_____ NO_____ NA_____

- Paragraph 7.13
- Drawing T-240

G. When less than four dial tone markers are assigned, the difference in peg count between preferred markers should not exceed 15 percent. Is this requirement met?

YES_____ NO_____ NA_____

- Paragraph 7.13
- Figure 5
- Drawing T-240

H. Is the total peg count for each line link frame within ±15 percent of the average line link frame peg count?

YES_____ NO_____

- Paragraph 7.15
- Figure 5

V. CHANNEL – DIAL TONE MARKER PEG COUNT ANALYSIS

REFERENCES

A. Were all channels accessed by each dial tone marker?

- Paragraph 7.17
- Figure 6

YES_____ NO_____

B. Was each channel used by each marker in a descending peg count for channels 0-9 or 5-9 and 0-4?

- Paragraph 7.18
- Figure 6
- GL-74-04-102

YES_____ NO_____

Determine from printout channel selection sequence for each dial tone marker. Place a check in appropriate column.

	Channel Preference	Channel Preference	
MARKER	0-9	5-9 0-4	NA
0			
1			
2			
3			

C. Do all dial tone and completing markers use the same sequence for all channel selection, ie, 0-9 or 5-9 and 0-4?

YES_____ NO_____

An answer requires awaiting completing marker printout analyzation.

REFERENCES

- GL 74-04-102

D. In each marker's channel peg count within ±10 percent of the total channel average peg count? Requires manual calculation.

- Paragraph 7.19

Method of Computation:

$$\frac{\text{Total of all Markers Channel PC for a Given Channel}}{\text{Number of Dial Tone Markers}} = \text{Average Channel PC}$$

YES_____ NO_____

DOCUMENTATION OF IRREGULARITIES

Date: _____

Building: _____

MG: _____

Program: _____

Serial Number: _____

PROGRAM PART AND SECTION	INDICATION	DEVIATION FROM ACCEPTABLE RANGE	RESOLUTION

Note: List only one irregularity