

Maintenance System Man-Machine Interface Description

PRACTICE 297-1001-520  
RELEASE: 02.03

CONTENTS

|   | PAGE |
|---|------|
| 1. INTRODUCTION . . . . .                             | 6    |
| Purpose . . . . .                                     | 6    |
| Application . . . . .                                 | 6    |
| Revision History . . . . .                            | 6    |
| References . . . . .                                  | 7    |
| Command Format Conventions . . . . .                  | 8    |
| 2. MAINTENANCE SYSTEM DESCRIPTION . . . . .           | 9    |
| Interlocks . . . . .                                  | 11   |
| Status . . . . .                                      | 11   |
| State . . . . .                                       | 11   |
| Availability . . . . .                                | 12   |
| 3. MAN-MACHINE INTERFACE . . . . .                    | 15   |
| 4. DISPLAYS . . . . .                                 | 16   |
| Basic Display . . . . .                               | 16   |
| MAPCI Display . . . . .                               | 16   |
| MAP Format . . . . .                                  | 17   |
| Alarm Indicator Displays . . . . .                    | 19   |
| Hierarchy of State and Availability Display . . . . . | 20   |
| Maintenance (MTC) Display . . . . .                   | 22   |
| 5. MAP TERMINAL USAGE . . . . .                       | 26   |
| The Carriage Return Key. . . . .                      | 26   |
| The Cursor . . . . .                                  | 26   |
| Logging-in at the MAP . . . . .                       | 27   |
| Communication Language . . . . .                      | 27   |
| Locked Keyboard . . . . .                             | 28   |
| Response Messages . . . . .                           | 29   |
| The Response "MORE..." . . . . .                      | 29   |
| Command Menu Description . . . . .                    | 29   |
| Entering Commands . . . . .                           | 30   |
| Multiple Command Entries . . . . .                    | 31   |
| Commands from other Menus . . . . .                   | 32   |
| Editing Lines That Are Input . . . . .                | 32   |
| Line Editing Commands . . . . .                       | 32   |
| Changing Output Displays . . . . .                    | 35   |
| Command Information . . . . .                         | 37   |
| Prompts for Missing Parameters . . . . .              | 38   |
| Confirmation Request . . . . .                        | 38   |
| Non-Menu Commands . . . . .                           | 39   |
| Non Menu Commands in General Use . . . . .            | 39   |
| MAPCI Menu Commands . . . . .                         | 41   |
| MTC Menu Commands . . . . .                           | 43   |
| 6. ABBREVIATIONS . . . . .                            | 51   |

FIGURES

| FIG. | TITLE                        | PAGE |
|------|------------------------------|------|
| 1    | Telescoping Process. . . . . | 10   |
| 2    | Subsystem Structure. . . . . | 12   |

|   |  |    |
|---|--|----|
| 3 | System Directional References (for configuration with a Central Control) . . . . . | 13 |
| 4 | System Directional References (for a configuration with a Message Switch . . . . . | 14 |
| 5 | MMI Display at MAPCI Level. . . . .  | 17 |
| 6 | MAPCI Display Areas. . . . .   | 19 |
| 7 | MMI Display At MTC Level (for configuration with a Central Control) . . . . .      | 24 |
| 8 | MMI Display At MTC Level (for configuration with a Message Switch) . . . . .       | 25 |

TABLES

| TABLE TITLE  | PAGE |
|--|------|
| A Node Maintenance Indicators and Meanings . . . . . | 21   |
| B Link Maintenance Indicators and Meanings . . . . . | 22   |
| C Procedure to change MAP Language . . . . .         | 28   |

FIGURES

| FIG. TITLE   | PAGE |
|--|------|
| 1 Telescoping Process. . . . .   | 10   |
| 2 Subsystem Structure. . . . .   | 12   |
| 3 System Directional References (for configuration with a Central Control) . . . . . | 13   |
| 4 System Directional References (for a configuration with a Message Switch . . . . . | 14   |
| 5 MMI Display at MAPCI Level. . . . .  | 17   |
| 6 MAPCI Display Areas. . . . .   | 19   |
| 7 MMI Display At MTC Level (for configuration with a Central Control) . . . . .      | 24   |
| 8 MMI Display At MTC Level (for configuration with a Message Switch) . . . . .       | 25   |

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| TABLE TITLE  | PAGE |
|--|------|
| A Node Maintenance Indicators and Meanings . . . . . | 21   |
| B Link Maintenance Indicators and Meanings . . . . . | 22   |
| C Procedure to change MAP Language . . . . .         | 28   |

1. INTRODUCTION

1.01 This Practice is an introductory document for DMS-100 Family system maintenance personnel. It provides general information about the the maintenance system and describes the fundamentals of Maintenance and Administration Position (MAP) usage. The MAP components, its interface with the DMS system, and its operation is described in 297-1001-110.

PURPOSE

1.02 This Practice describes:

- o the maintenance system structure and terminology as it pertains to the DMS-100 Family.
- o descriptions of MAP displays and their meanings

- o use of the MAP in regard to
  - f entering commands
  - f system responses to commands

#### APPLICATION

1.03 The information in this document applies to offices that have Batch Change Supplement (BCS19) release software. It also applies to offices that have a software release greater than BCS19, unless it is re-issued.

1.04 Software applicable to a specific DMS-100 Family office is identified by a BCS release number and by Northern Telecom (NT) Product Engineering Codes (PEC). The significance of the BCS number and the PEC is described in 297-1001-450 (section 450/32) and in the Office Feature Record D-190.

1.05 A display of the BCS number and PEC for the NT feature packages available in a specific office can be obtained by entering the command string:

DSU;INFORM LIST;LEAVE

at a Maintenance and Administration Position (MAP). (NTP) editions with respect to a given BCS release is given in 297-1001-001.

#### REVISION HISTORY

1.06 For this release (02.03) the NODISP option of the MAPCI command has been added.

#### REFERENCES

1.07 References listed as prerequisites are essential for an understanding of this Practice. Those listed as informative contain detailed information concerning other items mentioned in this Practice, but are not essential. References are inserted at the appropriate places in the text.

Note: The documents listed may exist in more than one version. See 297-1001-001 to determine the release code of the version compatible with a specific release of software.

#### Prerequisite References

| DOCUMENT<br>NUMBER | TITLE   |
|--------------------|---|
| 297-1001-100       | System Description                            |
| 297-1001-106       | Maintenance System DMS                        |
| 297-1001-110       | Maintenance and Administration Position (MAP) |
| 297-1001-513       | Input/Output Devices MMI Description          |

#### Informative References

| DOCUMENT<br>NUMBER | TITLE                     |
|--------------------|---------------------------|
| 297-1001-001       | Master Index of Practices |
| 297-1001-120       | Equipment Identification  |

297-1001-129 Input/Output System Reference Manual  
 297-1001-814 Operational Measurements Reference Manual  
 297-1001-453 Network Management System Reference Manual  
 297-1001-471 Service Analysis Reference Manual  
 297-1001-500 Switch Maintenance Performance Oriented Practices  
 (POP)  
 297-1001-511 Central Control MMI Description  
 297-1001-512 Central Message Controller MMI Description  
 297-1001-513 Input/Output Devices MMI Description  
 297-1001-514 Network Maintenance and MMI Description for Network  
 Modules  
 297-1001-515 Peripheral Modules MMI Description  
 297-1001-516 Trunk Maintenance Reference Manual  
 297-1001-517 External Alarms - MMI Description  
 297-1001-519 Call Processing Display System (CPSYS) MMI Refer-  
 ence Manual  
 297-1001-528 Common Channel Signaling System Maintenance Refer-  
 ence Manual  
 297-2101-516 Lines Maintenance Reference Manual  
 297-1001-112 Modular Documentation System

## COMMAND FORMAT CONVENTIONS

1.08 In this Practice, a uniform system of notation is used to illustrate system commands and responses. It shows the order in which command elements appear, the punctuation, and the options. Where the conventions are not used, an explanation is given in the text.

CAPITAL letters or special characters show constants, commands, or keywords that the system accepts when entered as written.

lowercase letters show a user- or system-supplied parameter. Definitions are given for each parameter.

Brackets [ ] or  $\langle \rangle$  enclose optional parameters. A vertical list enclosed in brackets means that one or more of the parameters may be selected.

Underlined parameter is a default. If no choice is entered, the system acts as though the underlined parameter had been entered.

Underscore connecting words means the words are to be treated as one item, for example, pm\_type or #\_one\_two.

ooo indicates repeated steps or items.

In addition, the following conventions are used.

n (lowercase n) is a number from 0 to 9.

a (lowercase a) is a letter from A to Z.

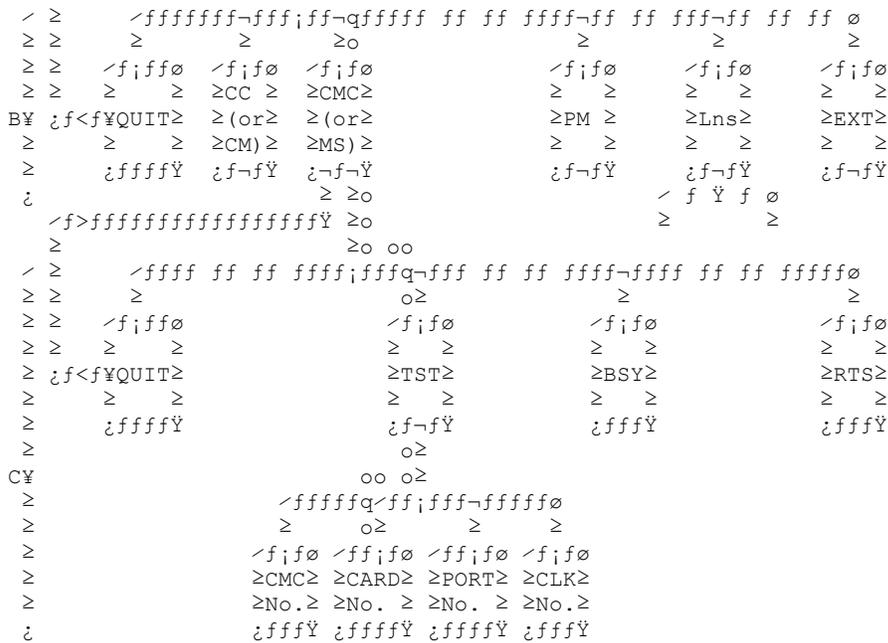
h (lowercase h) is a hexadecimal integer from 0 to F.

## 2. MAINTENANCE SYSTEM DESCRIPTION

2.01 The DMS-100 Family Maintenance System is used to identify faults in the switch, and to take corrective action.

2.02 The Maintenance System uses a telescoping method to access switch components via the hierarchy of system levels. The





NOTES: A = Maintenance and Administration systems level  
 B = Maintenance Subsystems level  
 C = Subsystem component level  
 ooo indicates telescoping example

Fig. 1 - Telescoping Process.

2.07 Maintenance action is taken on a subsystem basis. The C-Side of the node, and the C-Side or P-Side of its links, are tested to determine if the subsystem is faulty.

2.08 The configuration of the subsystems is shown in Figure 3 on page 13 and Figure 4 on page 14. The figures illustrate how each node and link can be related to the C-side and P-side extremities of the system. The C-side of a link interfaces with the P-side of a node. The P-side of a link interfaces with the C-side of a node.

INTERLOCKS

2.09 Software interlocks delay maintenance action that isolates one or more subsystems until confirmation of the action is obtained. A node or link cannot be made manual busy if the action will stop communications to other P-side nodes until a YES reply is received to a confirmation request. If a test fails, the system lists the quantity of circuits in the node or link being tested, or identifies the nodes and links that are affected, and either denies the action or requests confirmation.

STATUS

2.10 When a subsystem is accessed for maintenance purposes, the status of its links and node is determined so that appropriate maintenance action may be taken. The status is changed as a result of maintenance action.

2.11 The status of a link or node is the combination of its state and availability. The state of an element is an

indicator of its existence and its readiness to function, while the availability of an element is an indicator of its accessibility for system processes.

State

2.12 Typical states of nodes or links are indicated by one of the following codes:

- or Uneq UNEQUIPPED. The node name or link exists but the element has not been specified (for example, space exists in store for a NM but no links have been associated with the node).
- O or OFFL OFFLINE. The node exists but is not available for call processing and does not respond to maintenance functions. This is an interim state before an equipped node is placed in service. The offline state applies to a limited number of links such as DS-1 links.

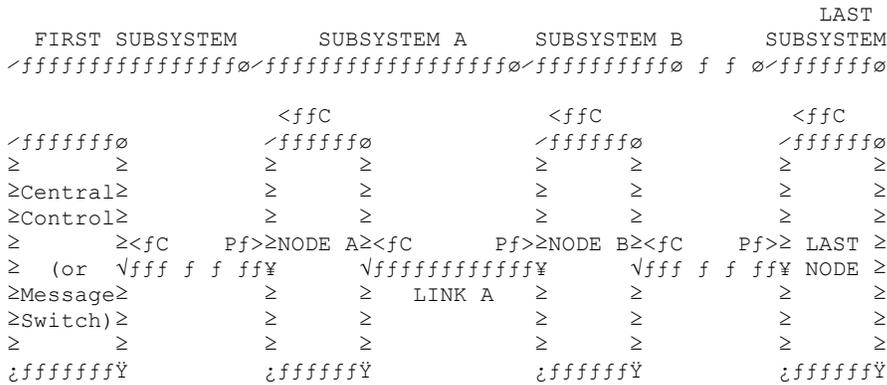


Fig. 2 - Subsystem Structure.

- M or ManB MANUAL BUSY. The node or link has been removed from service by manual request via a MAP. Only manual requests for further action are allowed. An element is placed in this state to allow maintenance functions to be performed on an element.
- S or SysB SYSTEM BUSY. The node or link has been removed from normal service by system action because a fault has been detected. Both system and manual requests for further action (e.g. test, return-to-service) are allowed.\*
- o or Inv NORMAL. The node or link is fully functional and available for call processing.

\* Additional states that are exclusive to specific subsystems are in practices describing the MMI for those subsystems.

Availability

2.13 The availability of node elements or link elements is indicated by the following codes:

- o the node or link is available
- C or C-Side the node or link is inaccessible from the C-Side





- o a display of equipment location
- o a display of system results
- o a display of user request results

3.03 A Bilingual Man Machine Interface (BMMI) is provided in offices equipped with NT feature package NTX066AA to permit user communication with the system in English and another language, subject to availability from NT. The feature interprets commands, key words, and messages in the selected language, and responds in the same language that is entered. If the default language for an office is not specified in table OFCENG the language is English. Refer to NTP 297-1001-129 for more details.

3.04 The user definition procedure specifies a command language for that userid. If no language specification is made the default value is that specified in table OFCENG. As a result, when the user logs-in at a MAP the system is prepared to recognize and respond in the language specified for the userid. After logging on, the user may change the language of communication for the duration of that session. Table C on page 28 contains the procedure for changing from English to French and French to English.

#### 4. DISPLAYS

4.01 The hardware and software conditions of the system, as well as maintenance action and responses, are displayed at the MAP. Information is presented in the form of a basic display or a MAPCI display.

##### BASIC DISPLAY

4.02 The character string CI: and the character > are displayed on two lines in the upper left hand corner of an otherwise blank screen. They indicate MAP readiness to interact with the command interpreter (CI) in analyzing data that is entered and invoking valid commands. This basic display operates in the scroll mode.

4.03 The scroll mode advances each entered line to the next one higher when an additional line is entered. When all lines in the display have input entered, additional lines entered cause the uppermost line to be lost to the display. The basic display is used when non-menu commands are applied, and when output display areas are not large enough for all information reported. For example, activities involving Table Editor or Operational Measurements require the greater space allowed by the basic display.

##### MAPCI DISPLAY

4.04 The MAPCI display, Figure 5 on page 17, the highest level of MAP display, is accessed from the basic display level. It shows the menu of commands that are available to access the maintenance and administration systems. They are:

|          |                             |
|----------|-----------------------------|
| QUIT     | (retreat to previous level) |
| MTC      | Maintenance System          |
| SASelect | Service Analysis            |
| NWM      | Network Management          |
| CPSys    | Call Processing System      |
| IBNMEAS  | IBN Measurements            |

4.05 The MAPCI NODISP option provides access to MAPCI levels without the MAP display. This command only provides output from the Command Interpreter (CI) while the following areas are not displayed: the control position, the system status area, the command menu display area, userid, and time.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
>
>
> 0 Quit
> 2 MTC
> 3 SASelect
> 4 NWM
> 5 CPSys
> 6 IBNMEAS
> 7
> 8
> 9
> 10
> 11
> 12
> 13
> 14
> 15
> 16
> 17
> 18
>
> User ID
> Time hhmm >
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Fig. 5 - MMI Display at MAPCI Level.

MAP FORMAT

4.06 The MAP screen area available for system output consists of 24 lines of 80 characters (Figure 6 on page 19). In the maintenance mode, the screen is divided into a number of areas which are used for displaying the following types of information:

- o System Status Area (3 lines of 80 characters) displays the alarm and/or operational status of the system, with immediate automatic updating of the display to show current status of the system.
- o Work Area (variable number of lines of 68 characters) displays:
  - f descending levels of subsystem status with automatic updating to show current status.
  - f working data such as voltage and frequency levels that are applied and measured.
- o Command Menu Display Area (19 lines of 12 characters) displays the functions which are available to the user.
- o Command Interpreter Output Area (variable number of lines of 68 characters) displays:
  - f output of system reports (including error, action taken, and diagnostic messages) upon user request,

f system responses to commands entered by the user.

- o Input Echo Area (1 line of 68 characters) provides an echoed statement of the most recent commands that were typed in.
- o User Identification and Time Area (2 lines of 12 characters) provides the identification of the user that is logged into the MAP, and the time of day.

4.07 MAP that are equipped with the "flashing field" feature, flash indicators for items such as alarm status to draw the user's attention.

4.08 There is a total of 20 lines in the Work Area and Command Interpreter Output Area combined. The proportion of lines allocated to each area varies according to the command that is entered.

4.09 If the MAP can display characters at either high or low intensity, and has inverse video capability (black characters on a white background), the Menu Area is displayed in inverse video, while row and column headers are displayed at low intensity. Other types of MAP separate the Menu Area from the Work area and Command Interpreter Output Area displays by means of a column of diagonal lines (/) to the right of the Menu Area.

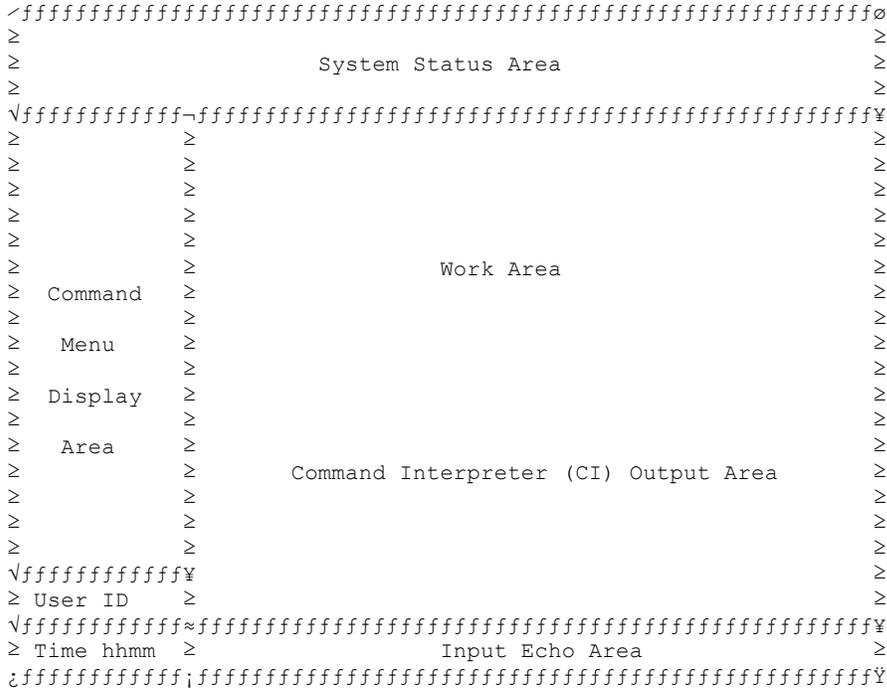


Fig. 6 - MAPCI Display Areas.

ALARM INDICATOR DISPLAYS

4.10 Audible and visible alarms are provided in the system to alert maintenance personnel of trouble conditions. Faults are classified according to the severity of the problem, and assigned to one of the critical, major, or minor alarm classes. The promptness of maintenance action for each alarm class, is

determined by the operating company.

4.11 Whenever a failure is detected in the system, the system status information displayed on the screen is updated to indicate the fault. The most severe alarm status for each subsystem is displayed below the subsystem header in the system status area using codes as follows:

| CODE    | ALARM CLASS  |
|---------|--|
| *C*     | Critical Alarm   |
| M       | Major Alarm  |
| (blank) | Minor Alarm if a system fault is displayed;<br>no alarm otherwise. |

4.12 The alarm code flashes when a failure is detected (if the flashing field feature is available on the MAP). It stops flashing if the silence (SIL) command is entered, or if the alarm reset key on the alarm control and display panel (NT0X63AA) is operated, and remains displayed in the steady state until the cause of the alarm has been removed.

4.13 If an additional alarm is reported to the MAP, the appropriate alarm class code flashes for that fault. Again, when the SIL command is entered the flashing is stopped.

#### HIERARCHY OF STATE AND AVAILABILITY DISPLAY

4.14 For any given node or link it is possible to have both a state and an availability indicator set to indicate a busy condition. The interpretation of the most common indicator displays or their equivalent (see Paragraph 2.11 on page 11) is shown in Table A on page 21 and Table B on page 22 .

4.15 For example, a P-side busy condition on a link is displayed on the screen as a P in the Work Area. A subsequent maintenance action making the link manual busy, changes the P indicator on the screen to M.

TABLE A  
NODE MAINTENANCE INDICATORS AND MEANINGS

| DISPLAY | INDICATES   | MEANS, C-SIDE  | NOTES |
|---------|-------------|----------------|-------|
| -       | unequipped  | not applicable |       |
| O       | offline     | - normal       |       |
|         |             | - busy         |       |
| M       | manual busy | - normal       | 3     |
|         |             | - busy         |       |
| S       | system busy | - normal       | 2     |
|         |             | - busy         |       |
| C       | normal      | - busy         | 2,3   |
| o       | normal      | - normal       |       |

Notes:

1. The highest order in the hierarchy starts at the top (-), and only the highest order character is displayed.
2. When a node and all the links connected to its C-Side are system busy, the maintenance indicator S is displayed briefly to indicate that the node is system busy. The display changes to C, for C-Side busy, to indicate that the node is inaccessible.
3. If all message links from the C-Side of a node go system busy, then the node goes system busy, and the links go P-Side busy.

TABLE B  
LINK MAINTENANCE INDICATORS AND MEANINGS

| DISPLAY | INDICATES   | C-SIDE         | P-SIDE         | NOTE |
|---------|-------------|----------------|----------------|------|
| -       | unequipped  | not applicable | not applicable |      |
| O       | offline     | - normal       | - normal       |      |
|         |             | - busy         | - normal       |      |
|         |             | - normal       | - busy         |      |
|         |             | - busy         | - busy         |      |
| M       | manual busy | - normal       | - normal       |      |
|         |             | - busy         | - normal       |      |
|         |             | - normal       | - busy         |      |
|         |             | - busy         | - busy         |      |
| S       | System busy | - normal       | - normal       |      |
|         |             | - busy         | - normal       |      |
|         |             | - normal       | - busy         | *    |
| C       | normal      | - busy         | - normal       |      |
|         |             | - busy         | - busy         |      |
| P       | normal      | - normal       | - busy         | *    |
| o       | normal      | - normal       | - normal       |      |

Note: When a link becomes system busy the maintenance indicator S ---- is briefly displayed. The display changes to P, for P-Side busy, to indicate that the link is inaccessible from its P-Side.

MAINTENANCE (MTC) DISPLAY

4.16 The highest level of maintenance system MAP display is accessed by entering the command MTC while in the MAPCI level shown in Figure 5 on page 17

4.17 The MTC level display comprises:

- o three horizontal lines of system status information
- o a vertical menu of the maintenance subsystems MMI accessible from the MTC level

4.18 The first line of the status display and menu numbers 9 through 17 consist of headers for each of the maintenance subsystems. The headers shown in the display depend on the configuration of the DMS switch (see Figure 7 on page 24 and Figure 8 on page 25 ).

4.19 The maintenance subsystem headers comprise:

|      |  |
|------|--|
| CC   | Central Control(Central Control configuration only)            |
| CM   | Computing Module (Message Switch configuration only)           |
| CMC  | Central Message Controller(Central Control configuration only) |
| MS   | Message Switch (Message Switch configuration only)             |
| IOD  | Input/Output Device  |
| Net  | Network  |
| PM   | Peripheral Modules   |
| CCS  | Common Channel Signalling                                      |
| LnS  | Subscriber Lines   |
| Trks | Trunks   |
| Ext  | External Alarms  |

4.20 Menu items 5 and 6 are do not represent maintenance sub-systems but indicate special testing and status tools. For this reason, they do not appear across the top of the screen.

4.21 Status information for each maintenance subsystem is shown on the second line of the MTC display below the appropriate header. The information displayed concerns the most severe condition in the subsystem at the time. Normal status is indicated by a dot (o), while faults are indicated by letter or number codes established for each subsystem. The third line contains the alarm status information as described in Alarm Indicator Displays on page 19.

4.22 The format and meaning of fault indicators and alarm status codes is detailed for each subsystem in practices describing Man Machine Interfaces. They are generally numbered in the range 297-xxxx-511 and up.

4.23 When maintenance subsystem menu commands are entered to test or locate subsystem elements, location information is displayed in the CI area in a uniform format for all elements. See 297-1001-120.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
> CC      CMC      IOD      Net      PM      CCS      LnS      Trks      Ext      >
>  o      o      o      o      o      o      o      o      o      >
>
> MTC
>
> 0  Quit
> 2  Activity
> 3
> 4
> 5  BERP
> 6  CPSTATUS
> 7
> 8
> 9  CC
> 10 CMC
> 11 IOD
> 12 Net
> 13 PM
> 14 CCS
> 15 LnS
> 16 Trks
> 17 Ext
> 18
>
> User ID
  
```

```

> Time hhmm >
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Fig. 7 - MMI Display At MTC Level (for configuration with a Central Control)

```

/fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
> CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      >
>  o      o      o      o      o      o      o      o      o      >
>
> MTC
>
> 0  Quit
> 2  Activity
> 3
> 4
> 5  BERP
> 6  CPSTATUS
> 7
> 8
> 9  CM
> 10 MS
> 11 IOD
> 12 Net
> 13 PM
> 14 CCS
> 15 Lns
> 16 Trks
> 17 Ext
> 18
>
> User ID
> Time hhmm >
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Fig. 8 - MMI Display At MTC Level (for configuration with a Message Switch)

5. MAP TERMINAL USAGE

5.01 The entry of commands described in this Practice is based on a DEC VT-1001 video display unit. Some variations in identification of keyboard keys apply when other types of terminals are used.

THE CARRIAGE RETURN KEY.

5.02 The carriage return (CR) key is identified in different ways (such as ENTER, RETURN, CARRIAGE RETURN) on various types of terminals. It is always used to enter commands and parameters into the system after the information is typed into the input echo area, and edited if necessary.

5.03 Two successive operations of the CR key, without typing additional input, displays the version of software being used in the command interpreter output area. It consists of the N.T. Purchase Order (PO) number; office location; software release number; software production status; and release date (yymmdd). A typical response is:

Where:

| DISPLAY       | DESCRIPTION                                       |
|---------------|---|
| F35681        | N.T. PO number                                    |
| O'Connor Toll | office location                                   |
| BCS-14        | software release number                           |
| RTM           | software production status "Ready to Manufacture" |
| 840323        | release date Mar. 23, 1984                        |

#### THE CURSOR

5.04 The cursor is a short line, or a small rectangle, that is displayed on the screen. A character that is typed in is displayed above the line or in the rectangle, and the cursor moves one space to the right in readiness for the next character. When the CR key is pressed the cursor returns to the start of the line in readiness for additional characters.

5.05 The cursor may be changed from a line to a rectangle (or the reverse) and from a steady state to a flashing state (or the reverse) by procedures described in the terminal manufacturer's manual.

1 DEC VT-100 is a trademark of Digital Equipment Corporation.

#### LOGGING-IN AT THE MAP

5.06 To use a MAP terminal it is first necessary to carry out a logging-in procedure. The procedure maintains the security of the system by limiting access to authorized personnel.

5.07 Log-in procedures may vary for different types of terminals, and depend on security features that are in effect. A typical sequence of log-in actions and responses for general purpose terminal is as follows:

| ACTION                       | RESPONSE  |
|------------------------------|---|
| depress the BREAK key        | - terminal beeps  |
| type LOGIN                   | - screen displays the command<br>LOGIN  |
| depress the CR key           | - screen displays a request for<br>user name and password                               |
| enter user name and password | - screen displays CI: and > on<br>two consecutive lines of other-<br>wise blank screen. |

5.08 When the log-in procedure is successfully completed, CI: and > are displayed.

5.09 User names and passwords known to the system can be changed by authorized personnel to maintain the security of the system. See 297-1001-129.

#### COMMUNICATION LANGUAGE

5.10 The language of communication between the terminal and the system is associated with the user name. The language can be changed by the user to another language that is prescribed for that machine. Table C on page 28 contains the procedures that are used to change from English to French, and from French to

English.

5.11 When the office is not equipped with feature package NTX066AA, and an attempt is made to change the MAP language, the following response is displayed:

LANGUAGE LOADED IS ENGLISH

TABLE C  
PROCEDURE TO CHANGE MAP LANGUAGE

| LANGUAGE CHANGE   | ENTER           | RESPONSE  |
|-------------------|-----------------|---|
| English to French | BMMI            | BMMI:   |
|                   | ISPEAK FRENCH   | IHMB: MAINTENANT<br>LA LANGUE FRANCAISE<br>EST UTILISEE               |
|                   | LAISSER         | (The system will now<br>respond in French to<br>French commands)      |
| French to English | IHMB            | IHMB:   |
|                   | JEPARLE ANGLAIS | BMMI: YOU ARE NOW<br>SPEAKING ENGLISH                                 |
|                   | LEAVE           | (The system will<br>now respond<br>in English to<br>English commands) |

#### LOCKED KEYBOARD

5.12 During system activity, such as a previously requested function that has not been completed, the terminal beeps in response to any further inputs, indicating that the keyboard is locked until the activity is complete. During the period that the keyboard is locked, all information that is typed-in is ignored.

5.13 When a system reload is in process, the keyboard remains locked until the reload is complete. At that time the log-in procedure is required for all MAP except the main maintenance position, called the OPERATOR position, as identified in the ID area of the operator position MAP display.

#### RESPONSE MESSAGES

5.14 Responses to commands originate in the system and in the maintenance subsystems, and are interpreted and handled by the Command Interpreter.

5.15 If the requested function is successfully completed, the prompt symbol (>) is displayed in the input echo area after the function response is displayed in the command inter-

preter output area. If the requested function fails to complete, the reason for the failure is displayed in the command interpreter output area, and a fault report is issued to identify the source of the failure.

5.16 If a terminal starts to output (for example a MAP update) when a user is typing in, the user can continue to type, but the characters will not appear in the input echo area of the display until the terminal output is complete.

The Response "MORE..."

5.17 When the amount of output generated in response to a command exceeds the capacity of the CI display area of the MAP, the response MORE... is displayed at the bottom line of the screen, or at the bottom line of the CI output area when in the MAPCI mode. Depressing the CR key causes the next full screen of response data to replace the current display. Additional output is displayed with each CR key operation until the last display is identified by the absence of the response MORE...

5.18 The response MORE... is also displayed at the bottom line of the CI output area of the MAPCI and subtending menus when prompts are displayed for missing parameters. The response is discontinued when the missing parameter or the command ABORT is entered. The MORE... display remains until a valid input is entered; it will not time out.

5.19 Any of the BREAK commands can be typed in response to MORE... without first operating the BREAK key.

#### COMMAND MENU DESCRIPTION

5.20 Valid commands and parameters are represented by codes displayed in the menu area. A unique one or two digit menu number is assigned to each code and is displayed to the left of the code. A total of eighteen menu numbers are available for each subsystem and all of them are displayed. When a command or parameter has not been assigned to a menu number, the number is displayed alone and cannot be used.

5.21 Command and parameter codes are abbreviations of one or more words which describe the function. In the menu, the first letter of each word is capitalized, and any additional letters in the word are normally shown in the lower case. For example the command TEST is abbreviated and displayed as Tst, and the command to replace spare equipment is displayed as SpRepl. Similarly, the Return To Service function is displayed as RTS.

5.22 Commands and parameters in the menu include the underscore character (\_) to indicate the following qualifications for their use:

Tst\_ a command which requires a parameter  
\_Spare a parameter  
\_Card\_ a parameter which requires another parameter  
Sync a command which does not require a parameter  
Quit a command which accepts, but does not require a non-menu parameter, e.g. ALL.

#### ENTERING COMMANDS

5.23 Commands are entered in one of the following ways:

- o the menu number is typed in, followed by a CR operation.

- o the command code is typed in, character-by-character without regard to upper or lower case format, followed by a CR. Underscores are not typed in.

5.24 If the command requires a parameter and the parameter code is displayed in the menu, the parameter may be entered by menu number or by parameter code. If the command menu number has been entered, the parameter menu number can be entered. If the command code has been entered, the parameter code must be entered. When replying to a prompt for parameters, the first character to be typed in must always be a space, followed by the required parameter.

5.25 Some examples of command entry requirements, based on CMC subsystem menu items 6 (Tst\_) and 10 (\_Card\_), that illustrate these rules are:

Valid Entries

```
610
6CARD
6 CARD
TST CARD
```

Invalid Entries

- o 6 10 menu number typed in after a non-numeric TST character such as a space
- o TST\_CARD\_ underscores displayed in the menu are entered

5.26 Commands entered with incorrect characters or spacing are interpreted as non-existent commands. They cause the text NO SUCH COMMAND to be displayed in the command interpreter output area indicating that there is no such command.

5.27 Sometimes, non-menu parameters are entered after a menu command or parameter. If only menu numbers are entered, the first non-menu parameter can be entered immediately after the last menu number, with or without an intervening space. Any additional non-menu parameters must be preceded by a space. If the command or parameter code was typed in, a space must precede the non-menu parameter. Some examples based on CMC subsystem menu items 0 (Quit), 6 (Tst\_) and 10 (\_Card\_), that illustrate these rules are:

Valid Entries

- o 6100 2 test card 2 of CMC 0 610 0 2 TST CARD 0 2
- o 0ALL exit from maintenance system MMI 0 ALL QUIT  
ALL

Invalid Entries

- o TST CARD0 2 no space before the first non-menu parameter  
6CARD0 2 (0 in these cases) when the command or parameter code is typed in.

MULTIPLE COMMAND ENTRIES



Edits the typed-in line before it is entered.

Where:

- F moves the cursor to the right one position.
- U deletes the entire typed-in line
- E deletes all typed-in characters from the cursor position to the end of the line
- I places the terminal in the mode to insert subsequently typed characters into the line. As each inserted character is typed in, the character at the cursor position, and all the characters to the right of it, move one position to the right.
- X exits from the character insert mode.

Responses: The input echo area display is altered in accordance with the applied editing functions before the information is entered.

Notes:

1. The plus symbol (+) indicates that the control key must be pressed and held until the editing function that is being invoked is activated. Release of the control key before the character key that activates the function causes a series of the characters to overwrite those displayed at the cursor position in the input echo area.
2. Each attempt to insert a character when the cursor is positioned at the end of the line causes the terminal to beep.
3. Existing characters to the right of the cursor position are repositioned to the right as characters are inserted.
4. When the character insert mode has been exited by releasing the CONTROL and letter keys, subsequent characters that are typed in overwrite characters existing at the cursor position.
5. If there are no characters from the cursor position to the end of the line, character deletion attempts cause the terminal to beep.
6. When the cursor is at the end of the typed-in line, each attempt to move it to the right (CONTROL KEY+F) causes the terminal to beep.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0  
≥ ? ≥ ≥  
;fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Recalls one of the last three lines that were entered.

Responses:

- f The recalled line is displayed in the input echo area.
- f The character ? is displayed in the CI output area.

Notes:

1. The character ? must be in the first position in the input echo area to be valid.
2. The CR key is depressed to display the recalled line.
3. The first line recalled is the most recent line entered.
4. Immediate repeat of steps in notes 1 and 2 recalls the second most recent line entered.
5. Second immediate repeat of steps 1 and 2 recalls the third most recent line entered.
6. When additional successive recall commands are entered, the lines mentioned in notes 3, 4 and 5 are successively displayed.
7. All characters in the input echo area are displayed in the command interpreter area when the recall command is entered.
8. Exit from recall is achieved by entering CTRL + U.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ BACK SPACE ≥
≥ (key) ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Moves the cursor to the left

Responses: The cursor displayed in the input echo area moves one position to the left.

Notes:

1. The backspace key can be designated BACK SPACE or <-- or BS
2. Each operation of the backspace key moves the cursor one position to the left.
3. The cursor moves to the left repeatedly when the backspace key is held operated, if the terminal has an auto-repeat feature.
4. When the cursor is in the left-most position, a backspace attempt causes the terminal to beep.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ DELETE ≥
≥ (KEY) ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Deletes a valid character

Responses: The valid character at the cursor position is deleted from the input echo area display.

Note: Each delete attempt when the cursor is at a space causes the terminal to beep.

#### CHANGING OUTPUT DISPLAYS

- 5.32 Processes that are invoked by MAP commands can be started and stopped, and the display of system outputs changed, by

operating the BREAK key before typing in specific command codes. These codes are listed below with a description of their use.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥           ≥ HT           ≥
≥           ≥ RT           ≥
≥ BREAK    ≥ STOP        ≥
≥ (key)    ≥ HX           ≥
≥           ≥ HXX         ≥
≥           ≥ CLEAR       ≥
≥           ≥ LED         ≥
≥           ≥ LEE         ≥
≥           ≥ VERSION     ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Changes MAP displays

Where:

- HT (Halt Typing) discontinues the progressive display of responses to commands that are invoked.
- RT (Resume Typing) resumes the progressive display of responses to commands that are invoked (exit from Halt Typing mode).
- STOP clears the screen and exits to the CI: level
- HX an alias for STOP
- HXX an alias for STOP
- CLEAR clears the screen and discontinues the display of menus and headers during input and output activities, while maintaining the level that was accessed.
- LEE enables line editing functions.
- LED disables the line editing functions (exiting from line editing function).
- VERSION displays the version number of the terminal controller firmware.

Responses: Specific responses to each code that is entered are as follows:

| Code  | Response  |
|-------|---|
| HT    | output displays in the CI area are discontinued   |
| RT    | output displays in the CI area are resumed  |
| STOP  | all screen displays are cleared and CI: > is displayed in the upper left corner of the screen |
| HX    | the same as STOP  |
| HXX   | the same as STOP  |
| CLEAR | input and output displays in all areas continue without headers or menus                      |
| LEE   | line displays in the input echo area can be edited (see                                       |

Paragraph 5.31 on page 32)

LED line displays in the input echo area cannot be edited (see Paragraph 5.31 on page 32)

VERSION the version number of the terminal controller firmware being used by the terminal is displayed in the CI area, e.g. VERSION = 1

Notes:

1. The terminal beeps each time the BREAK key is operated.
2. The code HT discontinues the display of process responses, starting with the response when the code is entered, without affecting the process or responses in any other way.
3. The code RT resumes the display of process responses, starting with the response when the code is entered, without affecting the process or responses in any other way.
4. The codes HX and HXX function in the same way as STOP.
5. When STOP is used, there is an 8 to 10 second delay before the screen returns to the CI: display.
6. Menu numbers cannot be used when the terminal is in CLEAR mode.
7. Exit for CLEAR is QUIT ALL which returns the screen to CI:. Only a typed-in command is valid.
8. Line editing functions are in active mode by default.

COMMAND INFORMATION

5.33 Online command information is available that describes the function of the command and indicates the parameters that may be used. A description of how to access this information is contained in Non-Menu Command Q on page 39. The syntax that is displayed for the parameters uses the following symbols:

<> angle brackets enclose a required parameter

[] square brackets enclose one or more optional parameters

{ } braces enclose a list of one or more parameter values, or a description of a parameter.

5.34 A parameter value is the actual text which must be typed in instead of the wording in <> or []. A parameter description is usually a range of numeric values, one of which must be typed in.

5.35 The following example shows how a command syntax description that is displayed on a MAP is interpreted:

```
ALMSTAT
Parms:  [<Alarm condition>          {D,
                                       F,
                                       S,
                                       N,
                                       PSPD}
        <Minor alarm threshold>    {0 to 32767}
        <Major alarm threshold>    {0 to 32767}
        <Critical alarm threshold>{0 to 32767}]
```

5.36 In this example one of the alarm condition parameters D, F, S, N, PSPD may be entered so that the alarm thresholds may be changed. The required minor alarm threshold parameter is then set between the range of parameter values from 0 to 32767. Similarly the major alarm threshold and the critical alarm threshold is set between 0 and 32767.

#### PROMPTS FOR MISSING PARAMETERS

5.37 Many commands require the entry of parameters. The system prompts the user to enter the missing or incorrect parameters by displaying the following information in the command interpreter output area using the symbols discussed in Paragraph 5.33 on page 37:

- o the name of the missing parameter
- o a syntax statement that includes:
  - f the exact spelling if it is required
  - f the allowable range of values.

5.38 An example of a sequence of prompts for missing parameters is:

| ENTRY           | PROMPT  |
|-----------------|---|
| MAPCI;MTC;CC;DS | ENTER: :CC NUMBER>                                    |
| 0               | Wrong type: :CC NUMBER>{0 to 1}<br>Enter: :CC NUMBER> |
| (space)0        | no further prompts                                    |

#### Notes:

1. Capital letters denote the actual characters that are to be entered.
2. The system continues to prompt the user to supply missing parameters until the information is supplied, or until the command ABORT is entered.
3. A space is required before a prompted parameter 0 (zero).

#### CONFIRMATION REQUEST

5.39 Certain commands require additional action by the user before they can be executed. A message is displayed in the CI output area of the MAP, describing the effect of the command if it is executed, and requesting confirmation of intent to proceed. The message is phrased: Please confirm (YES or NO). A YES entry executes the command, while a NO entry cancels the command and clears the CI area of the screen. Confirmation requests are repeated until one of YES, NO or ABORT is entered. ABORT responds in the same way as NO.

#### NON-MENU COMMANDS

5.40 There are non-menu commands available at any level in every maintenance subsystem at all times. Some non-menu commands are exclusive to particular subsystems, while CI commands can be used at any level. Because these commands do not

appear on a menu, they must be typed in full. Most of the commands are not used in day-to-day system maintenance activities and are not described in this Practice. The exceptions are described in the paragraphs which follow.

#### Non Menu Commands in General Use

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ SIL ≥
;fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Silences the audible alarm.

Responses: All flashing alarm indicators that are displayed in the system status area are stopped, and remain in the steady state, and the audible alarm is stopped.

#### Notes:

1. Additional alarms that are displayed after SIL has been entered can be silenced by re-entering SIL.
2. Operation of the non-locking alarm reset key on the alarm control and display panel achieves the same result as entering the SIL command at the MAP.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ Q ≥ command
;fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Queries the function and format of any command

#### Where:

command the command is at the accessed level or a higher level.

#### Responses:

A description of the command and its syntax is displayed in the CI output area of the MAP.

Explanation: The information displayed explains the purpose of the command and lists the required and optional parameters.

#### NO COMMAND IN LINE

Explanation: This response is displayed if one of the following events has occurred.

- o a menu number has been queried
- o a queried command is not in the accessed level or an earlier level
- o a queried command is misspelled

#### User Action:

- o type in queried command in full
- o access the level that contains the command being queried.

- o query properly spelled command

Notes:

1. Commands which have a function or format that is unique to a particular maintenance subsystem cannot be queried outside the subsystem.
2. A space is required between Q and the command being queried.
3. "Q" cannot be queried. Q is not actually a command; it is a parameter in front of the specified command.
4. When a command is typed in, a check is made to see if something was typed "in front of" the command. If Q or any string of characters was typed, the command is not executed. Instead, a brief description of the command and the syntax is displayed.

Example:

When Q RTS is entered in the CC subsystem, the output in the CI output area is:

```
RTS_ -- RETURN TO SERVICE CC LINKS
PARMS: <_LINK_> {LINK CMC NUMBER} {0 to 1}}
```

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ ABORT ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Terminates a command that has been entered previously with incomplete or incorrect parameters.

Responses: The CI output area of the MAP screen is cleared, and ABORT is displayed.

Notes:

1. ABORT is valid only in response to a request for parameters or for a confirmation request.
2. The system repeatedly requests the entry of the missing or incorrect non-optional parameter until it is supplied, ABORT is entered.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ MAPCI ≥ [NODISP] ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Places the VDU in the MAP mode of operation.

Where:

NODISP Provides access to the NODISP mode. (See section 4.04)

Responses: The MAP screen displays in the menu area the systems that are available. (See Figure 5 on page 17).

Note: The command is valid only after LOGIN or QUIT ALL.

5.41 The highest level of MAP commands, MAPCI, is used to gain access to the available maintenance and administration menu of commands. They are described in the paragraphs that follow, and are shown in Figure 5 on page 17.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ MTC ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Accesses the maintenance subsystem.

Responses: The MAP displays the status of the system in the top three lines of the screen; and, in the menu area, the subsystems that can be accessed.

Note: Item 2 in the MAPCI menu may be entered instead of the command MTC.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ SASelect ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for service analysis

Responses: The MAPCI menu display is replaced with the SASelect menu display. Service analysis headers and data are displayed in the CI area.

Notes:

1. Item 3 in the MAPCI menu may be entered instead of the command SASelect.
2. A detailed description of Service Analysis is provided in 297-1001-471.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ NWM ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for network management.

Responses: The MAPCI menu display is replaced with the NWM menu display. NWM headers and data are displayed in the CI output area.

Notes:

1. Item number 4 in the MAPCI menu may be entered instead of the command NWM.
2. A detailed description of NWM MMI is provided in 297-1001-453.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ CPSys ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Call Processing System display.

Responses: The MAPCI menu display is replaced with the call processing system menu display. Call processing headers and data

are displayed in the CI output area.

Notes:

1. Item 5 in the MAPCI menu may be entered instead of the command CPSys.
2. A detailed description of the CPSys MMI is provided in 297-1001-519.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
> IBNMEAS >
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for Integrated Business Network measurements.

Responses: The MAPCI menu display is replaced with the INBMEAS menu display. IBN headers and data are displayed in the CI area.

Notes:

1. Item 6 in the MAPCI menu may be entered instead of the command IBNMEAS.
2. A detailed description of the IBNMEAS MMI is provided in 297-1001-320.

MTC MENU COMMANDS

5.42 The highest level of maintenance commands, MTC, is used to gain access to the available maintenance subsystem menu of commands. They are described in the paragraphs that follow.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
> > / 0 >
> > >ALL> >
> > >PM > >
> QUIT > >n > >
> > >1 > >
> > ¿ Y >
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Retreats from the current maintenance level to a higher level.

Where:

- ALL Achieves direct exit from any MAP level to CI.
- PM returns the display from any PM level to the MTC level.
- n is a specified number of retreat levels from the current level. The range of values is 1 to 5.
- 1 achieves retreat to the next higher level. It is the default parameter value.

Responses: The MAP display of the current level is completely replaced with that of the level retreated to.

Notes:

1. Item 0 in any of the menus may be entered instead of the com-

mand QUIT.

2. Before the current level display is replaced, the name of the level being retreated to is displayed in the CI output area under the command entered.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ ACTIVITY ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for switch activity.

Responses: The MTC menu display is replaced with the activity menu display. Switch activity headers data are displayed in the CI input area.

Notes:

1. Item 2 in the MTC menu can be entered instead of the command ACTIVITY.
2. The system status display is retained and continues to be updated.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ BERP ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

The MTC menu display is replaced with the bit error rate performance (BERP) menu display. Bit error rate statistics appear in the CI output area of the display followed by the command input prompt: BERP.

Notes:

1. Item 5 in the MTC menu can be entered instead of the command BERP.
2. The system status display is retained and continues to be updated.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ CPSTATUS ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

The MTC menu display is replaced with the call processing status (CPSTATUS) menu display. Call processing statistics appear in the CI output area of the display followed by the command input prompt: CPSTATUS.

Notes:

1. Item 6 in the MTC menu can be entered instead of the command CPSTATUS.
2. The system status display is retained and continues to be updated.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ CC ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Central Control maintenance.

Responses: The MTC menu display is replaced with the CC menu display. CC headers and data are displayed in the CI area.

Notes:

1. Item 9 in the MTC menu may be entered instead of the command CC.
2. The system status display is retained and continues to be updated.
3. A detailed description of the CC MMI is provided in 297-1001-511.
4. A DMS switch may be configured with a Central Control and a Central Message Controller (CC/CMC) or with a Message Switch and a Computing Module (MS/CM). The CC command is used only in the CC/CMC configuration.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0  
≥ CM ≥  
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Computing Module maintenance.

Responses: The MTC menu display is replaced with the CM menu display. CM headers and data are displayed in the CI area.

Notes:

1. Item 9 in the MTC menu may be entered instead of the command CM.
2. The system status display is retained and continues to be updated.
3. A detailed description of the CM MMI is provided in 297-1001-529.
4. A DMS switch may be configured with a Central Control and a Central Message Controller (CC/CMC) or with a Message Switch and a Computing Module (MS/CM). The CM command is used only in the MS/CM configuration.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0  
≥ CMC ≥  
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Central Message Controller maintenance.

Responses: The MTC menu display is replaced with the CMC menu display. CMC headers and data are displayed in the CI area.

Notes:

1. Item 10 in the MTC menu may be entered instead of the command CMC.
2. The system status display is retained and continues to be updated.
3. A detailed description of the CMC MMI is provided in

297-1001-512.

- 4. A DMS switch may be configured with a Central Control and a Central Message Controller (CC/CMC) or with a Message Switch and a Computing Module (MS/CM). The CMC command is used only in the CC/CMC configuration.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ MS ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for Message Switch maintenance.

Responses: The MTC menu display is replaced with the MS menu display. MS headers and data are displayed in the CI area.

Notes:

- 1. Item 10 in the MTC menu may be entered instead of the command MS.
- 2. The system status display is retained and continues to be updated.
- 3. A detailed description of the MS MMI is provided in 297-1001-530.
- 4. A DMS switch may be configured with a Central Control and a Central Message Controller (CC/CMC) or with a Message Switch and a Computing Module (MS/CM). The MS command is used only in the MS/CM configuration.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ IOD ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for maintenance of Input/Output devices.

Responses: The MTC menu display is replaced with the IOD menu display. IOD headers and data are displayed in the CI area.

Notes:

- 1. The item number 11 in the MTC menu can be entered instead of the command IOD.
- 2. The system display is retained and continues to be updated.
- 3. A detailed description of the IOD MMI is provided in 297-1001-513.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ NET ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for network maintenance.

Responses: The MTC menu display is replaced with the NET menu display. NET headers and data are displayed in the CI area.

Notes:

1. Item 12 in the MTC menu may be entered instead of the command NET.
2. The system status display is retained and continues to be updated.
3. A detailed description of the NET MMI is provided in 297-1001-514.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ PM ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Peripheral Module maintenance.

Responses: The MTC menu display is replaced with the PM menu display. PM headers and data are displayed in the CI area.

Notes:

1. Item 13 in the MTC menu may be entered instead of the command PM.
2. The system status display is retained and continues to be updated.
3. A detailed description of PM MMI is provided in 297-1001-515.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ CCS ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for Common Channel Signalling maintenance.

Responses: The MTC menu display is replaced with the CCS menu display. CCS headers and data are displayed in the CI area.

Notes:

1. Item 14 in the MTC menu may be entered instead of the command CCS.
2. The system status display is retained and continues to be updated.
3. A detailed description of the CCS MMI is provided in 297-1001-528.

```
<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ LNS ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY
```

Requests status display and menu for lines maintenance.

Responses: The MTC menu display is replaced with the LNS menu display. LNS headers and data are displayed in the CI area.

Notes:

1. Item 15 in the MTC menu may be entered instead of the command LNS.

2. The system status display is retained and continues to be updated.
3. A detailed description of LNS MMI is provided in 297-2101-516.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ TRKS ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for trunk maintenance.

Responses: The MTC menu display is replaced with the TRKS menu display. TRKS headers and data are displayed in the CI area.

Notes:

1. Item 16 in the MTC menu may be entered instead of the command TRKS.
2. The system status display is retained and continues to be updated.
3. A detailed description of TRKS MMI is provided in 297-1001-516.

```

<fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffff0
≥ EXT ≥
¿fffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffffY

```

Requests status display and menu for external alarms maintenance.

Responses: The MTC menu display is replaced with the EXT menu display. EXT alarms headers and data are displayed in the CI area.

Notes:

1. Item 17 in the MTC menu may be entered instead of the command EXT.
2. The system status display is retained and continues to be updated.
3. A detailed description of EXT MMI is provided in 297-1001-517.

## 6. ABBREVIATIONS

|          |   |
|----------|---|
| BCS      | Batch Change Supplement                 |
| BERP     | Bit Error Rate Performance              |
| BMMI     | Bilingual Man Machine Interface         |
| CC       | Central Control                         |
| CCS      | Common Channel Signalling               |
| CI       | Command Interpreter                     |
| CM       | Computing Module                        |
| CMC      | Central Message Controller              |
| CPSTATUS | Call Processing Status                  |
| CPU      | Central Processing Unit                 |
| CR       | Carriage Return                         |
| DS       | Data Store                              |
| IOC      | Input Output Controller                 |
| IOD      | Input Output Device                     |
| MAP      | Maintenance and Administration Position |

|     |                                |
|-----|--------------------------------|
| MMI | Man Machine Interface          |
| MS  | Message Switch                 |
| MTC | Maintenance                    |
| NET | Network                        |
| NT  | Northern Telecom               |
| NTP | Nothern Telecom Practice       |
| NM  | Network Module                 |
| PEC | Product Engineering Code       |
| PM  | Peripheral Module              |
| PO  | Purchase Order                 |
| POP | Performance Oriented Practices |
| RTM | Ready to Manufacture           |
| TC  | Terminal Controller            |
| VDU | Visual Display Unit            |