

SYSTEM CENTURY®
DIGITAL CENTRAL OFFICE
SYSTEM OPERATORS MANUAL

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1. INTRODUCTION

1.01 This section describes the man-machine procedures relating to the various software programs of a SYSTEM CENTURY Digital Central Office. These procedures include details and examples that relate to the maintenance or administrative responsibilities of an operator.

1.02 This section is reissued to reflect the latest changes in the diagnostic and administrative software and includes all changes from Addendum 1. Significant changes are indicated by bars in the margin. Procedures in this document support all software releases, up to and including software release 9.

SECTION 23-001-97

2. RELATED INFORMATION

2.01 General.

A Sales and Instructional Literature Index of latest available publications can be obtained from your Stromberg-Carlson sales representative or from Publications Services, Stromberg-Carlson Corporation, P.O. Box 1698, Sanford, Florida 32771.

2.02 Related Publications.

The following publications are recommended for use with this document:

23-001-66 Traffic-Measuring Facilities, Administration

23-001-67 Trouble and Status Reporting, Administrative Procedures

23-001-99 Input/Output Message Dictionary

23-222-51 Equipment Location

24-010-50 Distributed Network Interface, Maintenance and Troubleshooting Guide

28-005-02 CAMA/LAMA, General Description

28-005-50 CAMA/LAMA Maintenance

3. OPERATOR CAPABILITIES

3.01 The procedures in this section are used to do the following:

- a. Start up a call processor (CP), start up a maintenance processor (MP), start up a digital satellite unit, and restore (recover) the system to synchronous operation.
- b. Copy the on-line data base.
- c. Do second-level diagnostics, including verification of printed wiring board assembly (PWBA) replacement actions.
- d. Administer various functions relative to the data base, such as trunk or private branch exchange (PBX) group updates, line class-of-service changes, route treatment changes, directory service order requests, code translation changes, and custom calling changes.
- e. Administer functions relative to traffic measurement. For example, change or display the traffic measurement schedule and start/stop the traffic report.
- f. Initiate a time and date report.
- g. Initiate a port status report. For example, list the line/trunks in lockout, the out-of-service lines/trunks, and the lines/trunks in an alarm state.
- h. Initiate manual switchover to the redundant side of the system.
- i. Initiate various status reports showing the current state of the system.

- j. Administer functions relative to the Local Automatic Message Accounting (LAMA) option.
- k. Do various diagnostics relative to the Distributed Network Interface option.
- l. Do various procedures relative to the Digital Satellite Unit option.
- m. Do various procedures relative to the Digital Trunk Interface option.

4. INPUT/OUTPUT MESSAGE FORMATS

4.01 Input Command.

The DCO system can be directed to do a function by entering a command (input message) using the input/output console. These commands direct the maintenance and administration software to do the desired task. The format for requesting a task includes a command-keyword and an optional parameter field. Each request must be entered by first striking a dollar sign (\$), followed by entering a command-keyword (consisting of up to six alphacharacters), one blank space, and then the parameter field (limited to 64 ASCII characters). The parameter field is used to expand the selective capabilities of a command. For example, the command to change the time is \$TIME C where TIME is the command keyword and C is a parameter. The input message is ended by striking the RETURN (carriage return) key. If an entry mistake is made, the DEL (delete) key can be used to correct individual characters, or the ESC (escape) key can be used and the complete command reentered.

4.02 Special Input Commands.

- a. DCO systems equipped with release 8A or later software provide several special input commands (control characters) that are entered on the input/output console by simultaneously pressing the control (CTRL) key and the appropriate character key. Some control characters can be used in place of certain "dollar sign" commands, and other control characters do special functions not done by normal "dollar sign" commands.
- b. Any control character that can be used in place of a "dollar sign" command is shown in the table or paragraph for the specific command. The following is a list and brief description of all control characters that do special functions:
 - 1. Control C suspends printing so that other inputs can be entered.
 - 2. Control G aborts the overlay that is currently running.
 - 3. Control R clears any active alarms.
 - 4. Control P dismounts the printer for offline and online CP error messages when entered from the system console only. (Mount printer using the DCO equipment utilities, and the mount system device operation.)
 - 5. Control Y executes the last "dollar sign" command entered.
 - 6. Control S saves the last "dollar sign" command entered.
 - 7. Control D displays the saved (control S) command.
 - 8. Control X executes the "dollar sign" command saved by the control S command.

4.03 Output Message Sequence.

After the input command is entered, a series of output messages is automatically displayed (printed). The first output message is called a standard heading. This is followed by a message, or a series of messages, that relate to the specific system task. If a fault occurs during the execution of a task, a diagnostic message(s) is printed following the task-related message(s). The number of diagnostic messages and, subsequently, any maintenance processor (MP) or operator's actions depend on the nature of the fault (minor, major, repetitive, transient, etc.). The detailed formats for output messages are sequentially described in the following paragraphs.

4.04 Standard-Heading Message.

A standard-heading output message is automatically printed after an input command has been entered. The message identifies what specific system task is being initiated. The format is:

HH:MM:SS MM/DD/YY XX---X Vn

Where: H, M, S = Hour, minute, second
 M, D, Y = Month, day, year
 XX---X = Task name
 Vn = Software version number

An example of a standard-heading message is:

13:24:35 10/31/77 TM ADMINISTRATION V1

4.05 Task-Related Message.

A task-related message is automatically printed after the standard heading and generally tells how the selected task is progressing. The format for these output messages is similar to the standard-heading format but does not include month, day, and year information. An example of a task-related message is:

00:02:54 PORTST TRUNK PORTS IN LOCKOUT REPORT

4.06 Diagnostic Messages.

- a. Two types of diagnostic messages are printed at the console. Messages relating to any error occurring in the call processing (CP) system from which the CP can recover unaided are printed according to the following format (format 1):

*** HH:MM:SS DIAGC ONLINE CP ERR#XXXXXX
 *** EQUIP NUMBER YY-Y-YY

Where: * = Asterisk
 H, M, S = Hour, minute, second
 # = Number symbol
 XXXXXX = Six-digit error message number that correlates with ERR output message described in the section titled *Input/Output Message Dictionary*, referenced in paragraph 2.02.
 YY-Y-YY = Equipment number in CC-MS-TS-PG format.

An example of a format 1 diagnostic message printout is:

```
***10:15:01  DIAGC ONLINE CP ERR #000771
***
                EQUIP NUMBER 02-6-16
```

- b. All other faults, including faults that cause the DCO system to enter either a single-side fault or a degraded mode (both sides off-line) are printed according to the following format (format 2):

```
*** HH:MM:SS  XX---X  Message
```

Where: XX---X = Diagnostic-related mnemonic such as:

```
DIAG2 – Second-level diagnostic controller
DIAGC – Error handler or first-level diagnostic controller
MBIIM – Maintenance bus interface interrupt handler
MSDHND – Matrix switch diagnostic handler
SYNCMM – Synchronizer mismatch
```

Message = Diagnostic-related message such as:

```
MP BUS TIMEOUT
CP BUS MISMATCH
REPAIR LIST
MSD CARD XXXXXX (Representing a six-digit number)
```

Examples of format 2 diagnostic message printouts are:

```
***00:01:19 DIAGC SYSTEM NOW IN STATE 4
***00:01:26 SYNCMM CP BUS MISMATCH
```

5. PROCEDURES PREREQUISITE TO SYSTEM USE

- 5.01 The startup program procedures, referenced in paragraph 6, must be completed before trying any procedure described in paragraphs 7 through 16. All devices associated with the system, such as floppy disk, I/O console, and basic maintenance panel, should be operational.



6. STARTUP PROGRAM PROCEDURES

6.01 General.

- a. The startup program has the following functional capabilities: maintenance processor (MP) start-up, emergency call processor (CP) startup, copy data base, and recovery. Each function can be selected by entering specific commands by way of the console. For the startup function, this selection process also requires the use of switches on the microcomputer PWBAs that are located in the maintenance and administration frame (MAF).
- b. The startup and recovery procedures can be done only when the maintenance processor and its associated peripherals (floppy disks and I/O console) are operational. If the MP is inoperable and, subsequently, the fault is diagnosed and repaired, the operator can then do the MP startup procedure. The following procedures assume that power and maintenance facilities are operational and the desired diskettes have been properly inserted in the disk drive units. From a cold start, the operator should do the MP startup, a CP startup next, and then attempt a recovery. When a side is inoperative because of a printed wiring board assembly failure, repair (repair-verification or restore-verification) procedures described in paragraph 15.03 must be done before trying either the startup or recovery procedures.

6.02 Cold Startup.

The cold startup procedure is used to initialize the three processors in the DCO system after power has been applied to the maintenance and administration frame. It can also be used whenever the system needs reinitializing. The cold-start procedure is done according to table 1. When the procedures are completed, the MP should be operational and both CPs in synchronization.

NOTE. To do the complete cold start procedure properly, all three HALT/RUN switches located on the associated computer (MP, CPA, and CPB) PWBAs must be in the RUN position. Also, the status of the BMP controls and indicators must be as follows:

- a. *One of the ON-LINE indicators (A or B) lighted.*
- b. *FAULT indicators PWR and MP dark.*
- c. *STATUS indicators MP HALT, CPA HALT, and CPB HALT dark.*
- d. *No audible alarms exist; alarms can be cleared by operating ALARM STOP button. Corresponding alarm indicators become dark (and remain so) by entering \$CLEAR ALARMS and striking RETURN key.*
- e. *A/AUTO/B control in AUTO position.*

6.03 Maintenance Processor Startup.

When the DCO system is being cold started, the MP startup process is to be done before the CP startup procedure is tried. The MP startup procedure is done at the I/O console, according to table 2.

6.04 Call Processor Startup.

The startup of a CP can only be done when the MP is operating. The CP startup procedure is done at the I/O console according to table 3. For release 8A and above systems, three types of call processor startups can be done; standard startup, startup without running PL diagnostic tests, and startup using one disk drive. A normal startup takes approximately 1 to 3 minutes depending on size of data base. After successfully getting one CP started, do the recovery procedure.

NOTE. Call processor startup can be aborted from the system terminal, even if started from any other terminal, by entering \$ABORT CPSU, followed by a carriage return.

6.05 Emergency Restore.

In an emergency condition, the restore procedure in table 4 can be used to restore all port store areas. This procedure does all functions of the CP startup procedure except that the programs and data base are not downloaded into the system from the disk.

CAUTION. All calls are dropped when the restore procedure is done.

6.06 Recovery.

The recovery procedure is done when the system is in state 2; the MP and one of the CPs have been successfully started up and the other CP is ready to be put into synchronous operation. Refer to table 5 for this procedure.

6.07 DSI Equipment Startup and Recovery.

- a. The digital satellite interface (DSI) equipment startup and recovery procedure is used to initially start up a DSI or recover a DSI after a catastrophic failure to the digital satellite interface occurs. This procedure can be done only when the host system has the MP and at least one CP up and running.
- b. Two modes of operation are available. The first mode, accessed by entering \$DSISUR, followed by the decimal number of the DSI to be started, PDB, and a carriage return, starts up the DSI operating program and DSI data base. The second mode, accessed by entering \$DSISUR, followed by the decimal number of the digital satellite interface and a carriage return, starts up the digital satellite interface and copies only the DSI operating program from the floppy disk.

Table 1. Cold Start

STEP	ENTER	DISPLAY
1	In maintenance and administration (M&A) frame, locate the following: a. In M&A cell, locate MPMB (maintenance processor motherboard) PWBA and MP reset button. b. In CPU tone and pulse cell, locate both CPMB (call processor motherboard) PWBA and reset buttons on each. Refer to section titled <i>Equipment Location</i>, referenced in paragraph 2.02, if required.	
2	Operate MP, CPA, and CPB reset buttons in that order.	Three messages showing site name, issue, and date. IS THIS CORRECT? (Y/N)

Table 1. Cold Start (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3	a. To start up MP, refer to table 2 and do steps 2 through 7. b. To start up CP, refer to table 3 and do steps 1 through 6. c. To recover DCO system, refer to table 4 and do steps 1 through 3.	

Table 2. MP Startup

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	On MP processing unit PWBA, located in the maintenance and administration (M&A) frame, M&A cell, operate MP reset button.	Three messages showing site name, issue, and date. IS THIS CORRECT? (Y/N)
2	Y – if name, issue, and date are correct. Otherwise, proceed to step 4b.	
3	RETURN (key).	MPSU MP STARTUP COMPLETE
4	a. If MP STARTUP COMPLETE displayed, end of procedure. b. N	N
5	RETURN (key).	WRONG SYSTEM — HALT MP halts.
6	Insert proper diskette in disk drive unit.	
7	Repeat steps 1 and 2.	Same as steps 1 and 2.

Table 3. CP Startup

STEP	ENTER	DISPLAY
1	a. To do standard startup: \$CPSU b. To startup without PL tests: \$CPSU S c. To startup using one disk: \$CPSU 1 <i>NOTE. If system in state 1, on-line CP is started; if in state 2, off-line CP is started.</i>	\$CPSU \$CPSU S \$CPSU 1
2	RETURN (key). <i>NOTE. To confirm startup, enter \$STATUS followed by RETURN (key). Report should indicate appropriate CP as being UP and SYSTEM IN STATE: TWO.</i>	Series of messages (standard heading and task-related). If faults exist, diagnostic messages; if successful, CPSU STARTUP FINISHED after approximately 1 to 3 minutes.
3	If startup was successful, set time and date (table 7).	Time and date message.

Table 4. Emergency Restore Procedure

STEP	ENTER	DISPLAY
	<i>CAUTION. All calls are lost when this procedure is done.</i>	
1	a. To do a complete restore: \$RESTOR b. To do a restore without PL tests: \$RESTOR S	\$RESTOR \$RESTOR S
2	RETURN (key).	RESTOR CPU-X RESTORE IN PROCESS

Table 5. Recovery Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$RECOV	\$RECOV
2	RETURN (key).	Three messages, if no faults are reported: RECOV RECOVERY STARTED, RECOV RECOVERY COMPLETED, and DIAGC CPU-X ONLINE IN STATE 4. If any fault needs reporting, diagnostic message(s) follow.
3	If recovery is unsuccessful, repeat steps 1 and 2 after appropriate action has been taken.	



7. MULTITASKING OPERATION AND PROCEDURES

7.01 General.

DOUBLE SECURITY

- a. This software release 7 or later optional feature provides multiterminal capability to the DCO system. With this feature, up to eight terminal input/output (I/O) ports can be equipped.
- b. One of the ports is designated the system console, and is the only terminal that receives unsolicited messages (such as error messages). This port is allowed access to all system functions.

NOTE. The terminal to which the traffic measuring report is directed is determined by the TERMINAL assignment controlled by the TMRS change procedure shown in table 47. It is the only terminal to receive this report.

- c. The remaining seven terminals are assigned access rights that limit their access to specified system functions, such as traffic measurement controls, administrative functions, etc.
- d. In addition to terminal access limitations, up to 70 passwords can be assigned, with each password granted a unique set of access rights. Each password consists of up to 10 alphanumeric characters (including special characters) assigned by the operating company. However, the system uses only the first eight characters to determine a valid password and associated access rights; therefore, the first eight characters in any password must be unique to every other password to ensure proper security.
- e. When a user logs in at a terminal, the system allows the user only those access rights that are assigned to both the terminal and password. For example, if the terminal is assigned maintenance and administration access rights, and a user logs in on that terminal with a password having access rights of maintenance and status display, the system will allow the user to execute maintenance tasks only.

7.02 Operation.

- a. To enable operation of a terminal in a system equipped with this option, the user must first log in at the terminal by entering \$LOGIN followed by a carriage return (or control N for release 8A or later software). The system then displays PASSWORD? after which the user must enter the appropriate password, followed by a carriage return; the system responds with TERMINAL LOGGED ON, at which time the user can do any allowed operations. At the completion of required operation, enter \$LOGOFF (or control F for release 8A or later systems); the system responds with TERMINAL LOGGED OFF.
- b. It is recommended that the system console be logged on at the beginning of each work day and logged off at the end of the day so that it is always instantly available for any required maintenance actions. All other terminals should be logged on when needed and logged off when required actions are completed.

7.03 Administration Procedures.

These procedures are used to assign passwords, terminal and password access rights, change access rights mnemonics, etc. as follows:

- a. Table 6 provides procedures for establishing the identity of the system console and defining access rights of all terminals using the security (SECTTY) command.

- b. Table 7 provides procedures for establishing passwords and access rights, deleting passwords, listing all passwords and their access rights, etc.

8. TIME AND DATE PROCEDURE

- 8.01 The time and date procedure (table 8) is used to enter, change, or print time and date information.

Table 6. Multitasking – Security Procedures

STEP	ENTER	DISPLAY
1	\$SECTTY	\$SECTTY
2	RETURN (key).	WHICH TERMINAL TO MODIFY? (0-8)
3	Number of terminal to be modified.	As entered.
4	RETURN (key).	WANT IT TO BECOME SYSTEM TERMINAL? (Y/N)
5	Y for yes, N for no	Y or N
6	RETURN (key).	HIT ESCAPE TO SKIP REST aa IS NOW ALLOWED or aa IS NOW DISALLOWED CHANGE THIS ACCESS RIGHT? (Y/N) Where: aa = access right mnemonic as follows: AD = Administrative TM = Traffic measurement SD = Status display MN = Maintenance SB = Security (master)
7	a. If no further changes to terminal selected in step 3 required; go to step 10. b. If changing access rights; Y for yes or N for no.	Y or N
8	RETURN (key).	aa IS NOW DISALLOWED or aa IS NOW ALLOWED Followed by the same display as step 6. <i>NOTE. System displays all allowed and disallowed access rights, one at a time, until all are displayed or ESC (escape key) is pressed.</i>

Table 6. Multitasking – Security Procedures (Cont)

STEP	ENTER	DISPLAY
9	Go to step 7.	WHICH TERMINAL TO MODIFY? (0-8)
10	RETURN (key).	
11	a. If changing additional terminals; go to step 3. b. If no further changes to terminals required; ESC (key).	
		SECTTY TERMINALS SECURED

Table 7. Multitasking – Password Maintenance Procedures

STEP	ENTER	DISPLAY
1	\$PASSWM	\$PASSWM
2	RETURN (key).	PASSWORD MAINTENANCE COMMANDS ARE: AD, DE, LI, UP, EX ENTER COMMAND Where: AD = Add password DE = Delete password LI = List all passwords and associated access rights UP = Update password file (Must be specified to transfer changes to disk.) MN = Establish mnemonics for access rights EX = Exit task
3	Appropriate command as required. a. If AD entered, go to step 4. b. If DE entered, go to step 10. c. If LI entered, go to step 14. d. If MN entered, go to step 16. e. If UP entered, go to step 21.	As entered.

Table 7. Multitasking – Password Maintenance Procedures (Cont)

STEP	ENTER	DISPLAY
4	RETURN (key).	ENTER PASSWORD
5	Required password.	As entered.
6	RETURN (key).	ENTER "Y" FOR DESIRED ACCESS RIGHTS aa? Where aa is: AD = Administrative TM = Traffic measurement SD = Status display MN = Maintenance SB = Security (master) or as specified by operating company.
7	a. If access right required: Y b. If access right not required: strike space bar.	
8	RETURN (key).	aa? Where aa is same as in display for step 6. <i>NOTE. System repeats aa? prompt until all equipped access rights are displayed, then the following is displayed:</i> <i>PASSWORD ADDED</i> <i>or</i> <i>MASTER PASSWORD REPLACED</i> <i>ENTER COMMAND</i>
9	a. If aa? displayed, go to step 7. b. If ENTER COMMAND displayed, go to step 20.	
10	RETURN (key).	ENTER PASSWORD
11	Password to be deleted.	As entered.

Table 7. Multitasking – Password Maintenance Procedures (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
12	RETURN (key).	PASSWORD DELETED ENTER COMMAND
13	Go to step 20.	
14	RETURN (key).	List of all passwords and access rights followed by: ENTER COMMAND
15	Go to step 20.	
16	RETURN (key).	BIT nn (UNDEFINED) ENTER MNEMONIC: or BIT nn CURRENTLY: aa *SECURITY BIT* ENTER MNEMONIC Where: nn = Bit number aa = Access right mnemonic (see step 6)
17	a. If change required: aa	As entered.
	b. If no change required, enter same mnemonic displayed.	As entered.
	c. If deleting mnemonic, go to next step.	
18	RETURN (key).	Same as step 16. System will display all 16 bits, allowing changes to each one. When all are displayed: ENTER COMMAND
19	a. If display same as step 16, go to step 17.	
	b. If ENTER COMMAND displayed, go to step 20.	

Table 7. Multitasking – Password Maintenance Procedures (Cont)

STEP	ENTER	DISPLAY
20	UP	UP
21	RETURN (key).	PASSWORD FILE UPDATED ENTER COMMAND
22	EX	EX
23	RETURN (key).	*** PASSWM EXIT ***

Table 8. Time and Date Procedure

STEP	ENTER	DISPLAY
1	a. To enter or change time and date information, do steps 2 through 9. b. To print only: \$TIME Go to step 9.	\$TIME <i>will give you the time</i>
2	\$TIME C	\$TIME C
3	RETURN (key).	ENTER TIME HH:MM:SS
4	Time according to HH:MM:SS format.	Time.
5	RETURN (key).	ENTER DATE MM/DD/YYYY
6	Date according to MM/DD/YYYY format.	Date.
7	RETURN (key).	a. If system not equipped with LAMA: Time and date entered/changed. b. If system equipped with LAMA: DO YOU WANT TO RESET CP LAMA CLOCK? (Y/N)

Table 8. Time and Date Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
8	a. If system not equipped with LAMA, go to step 11. b. If system equipped with LAMA: Y to reset CP LAMA clock or N to leave CP LAMA clock as currently set.	Y or N
9	RETURN (key).	Time according to HH:MM:SS, date according to MM/DD/YYYY format and day (abbreviation).



9. STATUS REPORTS

9.01 General.

The system program allows the printing of a DCO system status report, specific port status information, and the status of various facilities that interface with the maintenance bus.

9.02 System Status Report.

This report provides status information relating to the system and CP alarm conditions and the system state. It also includes alarm level and system state information. Refer to the section titled *Trouble and Status Reporting, Administrative Procedures*, referenced in paragraph 2.02, for a description of this printout. This report is initiated by entering \$STATUS and striking the RETURN key. By entering \$STATE and striking the RETURN key, the "state only" of the system will be printed. System states are as follows:

- a. State 0 indicates total system failure. (This state cannot be displayed and is mentioned for information only.)
- b. State 1 indicates the MP is running and both CPs are assumed to be inoperative.
- c. State 2 indicates the MP is running and one CP is operative. (The status of the other CP is undefined.)
- d. State 3 indicates the MP is running and both CPs are operating asynchronously. (This is a temporary diagnostic condition, the system will eventually go to state 2 or 4.)
- e. State 4 indicates the MP is running and both CPs are operating synchronously.

An example of a system status report is as follows:

10:47:07 10/30/81 SYSTEM STATUS REPORT : GENERIC RELEASE

**** CALL PROCESSOR STATUS ****

	CPU-A	CPU-B
STATUS	UP	ISU
ONLINE	ONLINE	OFFLINE
DIS FACTOR	0	1
SWC ERRORS	NO	NO
PLD ERRORS	NO	NO

INITIAL START UP

**** SYSTEM STATUS ****

OUT OF SYNC
SGD FAULT
OFFICE EMERGENCY
STATE: 2
FAST INTER-DIGIT TIMING: OFF

**** SERVICE GROUP STATUS ****

CLOCK: X ONLINE
RING : X ONLINE
TONE : X ONLINE

**** MOUNT STATUS ****

CNTRL 0: Y 1: Y 2:
CCDST0 : Y CPSU : Y DIAG1 : Y DIAG2 :
DISK0 : Y DISK1 : Y DISK2 : DISK3 :
DSISUR : NTEST : Y NITSWC : OFPRNT :
ONPRNT : PHASE2 : Y RECOV : Y RTEST :
STATUS : TRACE : XDPRNT :

**** AMA STATUS ****

UNIT X: AMA STATE UNKNOWN
UNIT Y: AMA STATE UNKNOWN
AMAFREE: OFF

**** LINE LOAD CONTROL STATUS ****

DCO: OFF
DSI: OFF

**** DSI STATUS ****

ALL EQUIPPED DSI'S ARE INSERVICE WITH NO ALARMS

9.03 Port Status Report.

The port status report procedure (table 9) is used to request the following functions:

- a. List all line ports in lockout.
- b. List all trunk ports in lockout.
- c. Display/change the lockout threshold limits (high and low) for lines and trunks.
- d. List all out-of-service ports.
- e. Display information for a selected port.
- f. List all ports in alarm state.
- g. Display the entire port store area.
- h. List all trunks in the automatic trunk make busy (ATMB) state.
- i. Display the approximate number of calls currently in the talking state (line-to-line, line-to-trunk, trunk-to-trunk, and trunk-to-line) (release 8A or later software only).

9.04 Configuration Status Report.

This report provides system status information that includes the on-line or off-line state of X or Y clocks, ringing generators, and tone generators. Also included is the state (ON or OFF) of software programs titled: traffic measurement recording system (TMRS), routine testing (RTEST), recovery (RECOV), first-level diagnostics (DIAG1), second-level diagnostics (DIAG2), and CP startup (CPSU). This report is printed by entering \$FIGX and striking the RETURN key, and can be obtained in systems having release 7 or earlier software only.

9.05 Diagnostics Error Status Reports.

These reports provide brief descriptions of any errors that have been detected by the matrix switch, port control store, or service group diagnostic PWBAs. They are printed by entering \$MSDX for a matrix switch diagnostic report, \$PCDX for a port control store diagnostic report, \$SGDX for a service group diagnostic report, or \$SYMMDP for a sync mismatch diagnostic report and then striking the RETURN key. In addition, a history of the most recent matrix switch errors is obtained by entering \$MSDHX, followed by a carriage return. An example and description of these reports is included in the section titled *Input/Output Message Dictionary*, referenced in paragraph 2.02.

9.06 Maintenance Bus Interface Status Report.

To get a snapshot of the maintenance bus interface (MBI) mask register, enter \$MBI and strike the RETURN key. Facilities that are masked (ignored) by the system can be returned to active status by entering SUNMASK and the mnemonic of the facility. The following mnemonics are applicable: SYNC (synchronizer), TCG (test call generator), BMP (basic maintenance panel), PCD (port control diagnostics), MSD (matrix switch diagnostics), SGD (service group diagnostics), SWC (switchover control), DNI (distributed network interface), LAM (LAMA), PLD (programable logic diagnostics), SNC (synchronous network clock), DSI (digital satellite interface), and DNI (distributed network interface).

9.07 Alarm Status Report.

The current alarm status, including the time of occurrence, alarm level, and descriptions of any existing alarms, is obtained by entering \$ALARMX, and striking the RETURN key.

9.08 DNI Equipment Status Report.

The current DNI equipment status is obtained by entering \$STATUS DNI, and striking the RETURN key.

9.09 CP Error Message Report.

To display all saved CP error messages and the status of dismounted English error messages, enter \$DMPMSG, and strike the RETURN key.

9.10 Call Processor Status Report.

The current status of both call processors is obtained by entering \$STATUS CP, and striking the RETURN key.

9.11 Mount Status Report.

The current mount/dismount status of various system devices is obtained by entering \$STATUS MOU, and striking the return key.

Table 9. Port Status Report Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. If listing all line ports in lockout: SPORTST LNLOUT and RETURN (key). b. If listing all trunk ports in lockout: SPORTST TKLOUT and RETURN (key).	SPORTST LNLOUT plus time, heading, and listing of all ports in lockout. SPORTST TKLOUT plus time, heading, and listing of all trunk ports in lockout.

Table 9. Port Status Report Procedure (Cont)

STEP	ENTER	DISPLAY
1 (cont)	c. If displaying high and low lockout threshold limits for lines and trunks: SPORTST LIMITS and RETURN (key). To change high and/or low threshold limits, see Note at end of table. d. If listing all out-of-service ports: SPORTST OSPORT and RETURN (key). e. If displaying selected port information: 1. SPORTST DISP and RETURN (key). 2. Number of selected port under FR, CELL, and PT headings. 3. RETURN (key). 4. ESC (key) to end procedure. f. If listing all ports in alarm state: SPORTST ALPORT and RETURN (key). g. If listing all trunks in automatic trunk make busy (ATMB) state: SPORTST BUSY TK and RETURN (key). h. If displaying number of calls in talking state (release 8A or above only): SPORTST TRAF	SPORTST LIMITS plus time, heading, and display of line and trunk lockout threshold limits. SPORTST OSPORT plus time, heading, and listing of all out-of-service ports. SPORTST DISP plus time and headings. Number entered. Appropriate information under DIR. NO., FR, CELL, PT, PORT TYPE, CST, O/S STATUS, PORT CMD, and PID headings. Time and PORTST EXIT SPORTST ALPORT plus time, headings, and listing of all ports in alarm. Series of messages showing all trunks in ATMB. Message showing number of calls.
2	ESC (key) to end procedure. <i>NOTE. To change high and/or low threshold limits, enter new limits under appropriate columns followed by RETURN (key). The system response is time, date, and display of new limits.</i>	Time and PORTST EXIT

10. ADMINISTRATIVE PROCEDURES

10.01 General.

The data base administration software programs are used to make various changes to the data base relative to the administrative responsibilities of the office. These programs can handle service order requests; requests to update PBX, PABX, or trunk groups; requests to update either line class of service, trunk class of service, route treatment, or translation tables; and requests relative to off-hook service and custom calling features.

10.02 Special Instructions.

- a. When columnar tabbing must be done, do the following: if TTY equipped, press and hold CTRL key and strike the character "I"; if DECwriter* equipped, strike TAB key each time a columnar move is desired.
- b. If the ESC key is operated during the execution of a function, then that function is canceled; if operated during a CHANGE function that follows entry of all required data, the change is allowed. If the ESC key is operated in the middle of the change-data line, that line is not processed; if operated while the program is waiting for a request, EXIT (plus program name) is displayed.
- c. If an invalid change is made, the console displays an error message and then the system locates and displays the "as-it-is-now" data for a retry of the change. If the same data is entered, or none at all, then NO CHANGE is displayed.
- d. Location numbers are for referencing equipment numbers to the physical location in the office; this is implemented by the following format:

FR	CELL	PT
XYZ	N	NN

Where the following values for XYZ, N, and NN apply:

1. The frame (FR) designation (XYZ) has the following meaning:

a) For Line/Trunk Frames (LTF):

X – equipment type 0
 Y – common control sector 0, 1, 2, or 3
 Z – frame number (0-7) within CCS

Therefore, LTF's are 000-007, 010-017, 020-027, 030-037.

*DECwriter is a registered trademark of the Digital Equipment Corporation.

b) For Line Expander Network Frame (LXN):

X — equipment type 1
 Y — common control sector/line expander control
 (0-7). This number is interpreted as follows:

- 0 — CCS 0 LXC 0
- 1 — CCS 0 LXC 1
- 2 — CCS 1 LXC 0
- 3 — CCS 1 LXC 1
- 4 — CCS 2 LXC 0
- 5 — CCS 2 LXC 1
- 6 — CCS 3 LXC 0
- 7 — CCS 3 LXC 1

Z — frame number (0-6) within LXC

Therefore, LXN frames are 100-106, 110-116, 120-126, 130-136, 170-176; 125 represents: LXN frame 5 which is associated with common control sector 1 and line expander control 0.

c) For digital satellite interface equipment:

X — equipment type 2
 YZ — DSI number (00-31)

Therefore, DSI equipment is 200-231.

d) For local line switch frames:

X — frame type 3
 YZ — frame number (00-99)

Therefore, LLS frames are 300-399.

2. The cell designator (N) can be 0-7 for LTF's, 0-4 for LXN frames, nothing (blank) for DSI, and 0-11 for LLS frames.

3. Ports (NN) are: 00-29 for LTF cells and correspond to TSI timeslots; 00-99 for LXN cells and correspond to DNI inlets. The LXN cell outlets are numbered 00-44. The first two-digit number is the B switch module and the second two-digit number is the outlet within that module. 000-119 and 128-247 are used for DSI satellite lines and correspond to the satellite line equipment number at the associated DSU remote. Ports are 00-89 for LLS line groups and correspond to line circuit numbers.

e. Changes can also be made to the data base associated with the off-line side when the system is out of sync (changes to the on-line side are not allowed); this can be done by entering OFF following the program name (such as \$LCOS OFF) and striking the RETURN (key). If the system is in synchronization, the error message PROCESSORS IN SYNC is displayed and the function is aborted.

10.03 Line Class-of-Service Update. *p. 54*

Line class-of-service (LCOS) update procedures provided in table 10 are used to make changes to line COS table entries by adding, deleting, deriving, or purging (clearing) table entries. They are also used to display or list all line COS table entries and to list all equipment numbers that reference a specific line COS table entry. These procedures are initiated by entering \$LCOS and then striking the RETURN key. After the heading is automatically printed out, any of the following requests can be entered; several of these requests will cause the DESC... (description) prompt message to be printed.

- a. List (LIST) and display (DISP) requests are initiated by entering the line COS number under the LCOS# field along with the specific request (LIST or DISP). DISP prints all the information describing the particular line COS while LIST begins with a specific number (as entered) and prints information related to that entry and all following numbers until the end of the software table is reached or the list is terminated by striking the ESC key.
- b. The add (ADD) request is used to create new LCOS table entries. Along with the ADD request entry, the screen class value should be entered under the SCRCL field heading. Optionally, the number of a spare COS can be entered under the LCOS# heading. If an LCOS number is not entered, or if the number of an existing COS is entered, the system automatically assigns the first available LCOS number to the new COS. Following the DESC... prompting message, a valid mnemonic (step 5 of table 10) is to be entered. This, along with the screen class value, represents a new table entry. This entry is then compared with all existing entries in the table to eliminate duplicate entries. If the new entry does not represent a duplicate, the ADD request is processed. If the new entry is a duplicate of an existing COS, the system displays: EXISTING COS, followed by: COMPLETE REQUEST (Y/N)? If yes (Y) is entered, the add is done, if no (N) is entered, the add is aborted.
- c. The delete (DEL) request is one method used to eliminate an inactive LCOS table entry from the line COS table. This request is initiated by entering the line COS number under the LCOS# heading. The delete request does not allow deleting of active table entries.
- d. The derive (DERV) request is used to select any existing LCOS table entry to be used as a base entry for building a new entry. The selected entry is entered under the LCOS# field. The operator can then modify any of the characteristics, to define the new entry configuration. The new entry then goes through the same comparison process described for the ADD request in paragraph b. above.
- e. The purge (PURG) request is used to delete one or all inactive LCOS table entries. Normally it is used for deleting all inactive entries.
- f. The active (ACTV) request is used to get a hardcopy list of all equipment numbers and PBX hunt group numbers that reference an active line class-of-service entry. This request is initiated by entering a number under the LCOS# heading.
- g. The change (CHNG) request is used to alter the characteristics of an existing LCOS table entry.

10.04 Directory Service Order.

- a. These procedures are used to display (DISP) or list (LIST) all directory number and equipment number information and to make changes (CHNG) to single- and multiparty line assignments. Tables 11 through 20 provide the directory service order (DSO) procedures.

1. Table 11 provides procedures for generating the appropriate heading for the directory service order to be done.
2. Table 12 provides procedures for displaying directory or equipment number information.
3. Table 13 provides procedures for listing directory or equipment numbers starting with any given number.
4. Table 14 provides procedures for listing directory or equipment numbers based on port or line type (software release 7 or later).
5. Tables 15 through 20 describe the procedures related to the various change functions that can be done.

b. Six change requests can be made:

1. Unassign a single-party line. Both DN and EN are displayed as unassigned after change is made (table 15).
2. Assign a DN to an EN (table 16).
3. Change COS for multiparty line (table 17).
4. Unassign one line of multiparty line (table 18).
5. Assign DN to multiparty EN; that is, specifying a party that is unassigned and assigning EN to unassigned DN (table 19).
6. Unassign multiparty EN; initiated by keying DN (table 20).

10.05 Custom Calling.

The procedures in tables 21 through 28 are used to do the following functions related to speed calling and call forwarding:

- a. Display the custom-calling features for a specified directory number (table 21).
- b. Change any or all valid parameters for a specific custom-calling entry or add an entry (table 22).
- c. Create a call-forwarding list (table 23).
- d. Create a speed-calling list (table 24).
- e. Display the total number of speed-calling/call-forwarding list-entry areas assigned and the number currently unassigned (table 25).
- f. Display the call-forwarding sequence for a specified directory number (table 26).
- g. Display all directory numbers in the system that have custom-calling tables assigned (table 27) (software release 7 or later only).

- h. Display a call-forwarding list starting with the forwarded-to directory number and showing all directory numbers that are to be forwarded to the entered directory number (table 28) (software release 7 or later only).

10.06 Fixed-Called-Address Update.

- a. These procedures (table 29) are used to list, display, change, add, or delete information relating to the fixed-called-address (FCA) CP data base tables. These tables contain the ENs, associated DNs, and state timers needed to delay automatic transfer of DNs.

- b. The following examples represent various requests that can be made to update FCA data:

1. Add.

The following example shows an ADD of a new entry to the FCA CP data base tables. The location number must be a single-party subscriber line.

12:04:25	4/04/78	REQUEST	FR	CELL	PT	FCA DIR. NO.	SCL	STPS
		ADD	2	3	4	3240000	0	1
			2	3	4	3240000	0	1
12:05:00		FIX				ADD COMPLETE		

2. Change.

The following example shows the change request (CHNG) of an FCA entry, initiated by entering the location number. This example shows the changing of the scale (SCL) values that are used to establish the desired timeout period and the directed-to directory number. These values are described in table 29.

12:03:05	4/04/78	REQUEST	FR	CELL	PT	FCA DIR. NO.	SCL	STPS
		CHNG	0	1	2			
			0	1	2	3232312	0	2
						3232313	2	2
			0	1	2	3232313	2	2
12:04:00		FIX				CHANGE COMPLETE		

10.07 PBX Group Update.

The PBX group update procedures provided in table 30 are used to make changes to PBX assignments and display or list all directory number/equipment number, PBX, and trunk assignments. These procedures are initiated by entering \$PBX and striking the RETURN key. After doing steps 1 through 3 of table 30 for each new request (list, display, or change), additional steps can be done as shown in the examples below. Whenever a hunt function is done within the PBX group, the ports are sequenced in the order of their assignment.

a. Display PBX Group.

The following example shows a display of a PBX group initiated by entering DISP under the REQUEST heading and a pilot number under the DIR.# column and then striking the RETURN key:

SECTION 23-001-97

11:25:46 11/10/79

REQUEST	HG#	DIR.#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	RC
DISP		3231201								
	576	P3231201				PX	4	4	16	
		B3239999								
		N3239000	0	4	5					
			0	4	6					
			0	4	7					
			0	5	0					

Where:

- ↵ * Carriage return (RETURN) key
- DISP * Display request
- P * Pilot number
- PX * PBX
- B * Billing number
- N * Night number
- * = Valid PBX numbers are 512 through 1023

b. Change PBX Billing Number and Night Number Assignment.

The following example shows a change request initiated by entering change request code CHNG under the REQUEST heading and a pilot number and then striking the RETURN key (step 1). The first input command (step 1) shows the directory number; the second input command shows a change in COS for the PBX group (step 2). The next steps indicate: change PBX group billing number (step 3); change night number assignment (step 4); and enter a no-change request (steps 5, 6, and 7) so the other three PBX group members are unaffected.

STEP	REQUEST	HG#	DIR.#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	RC
1	CHNG		3231201								
			P3231201				PX	4	4	16	4
2			P3231201				PX	4		20	4
			B3239999							20	4
3			3239666								
			B3239666								
			N3239000	0	4	5	PX				
4			3239111								
			N3239111	0	4	5	PX				
			NUN	0	4	6	PX				
5			11:32:50	10/11/77			PBX NO CHANGE				
			NUN	0	4	7	PX				
6			11:32:58	10/11/77			PBX NO CHANGE				
			NUN	0	5	0					
7			11:33:10	10/11/77			PBX NO CHANGE				

c. Create a PBX Group.

The following example shows how to create a PBX group by assigning a pilot number (P), a billing number (B), and adding two members (one member has a night number assigned). This example is initiated by entering change request code CHNG under the REQUEST heading, an unassigned directory number under the DIR.# heading, and then striking the RETURN key (step 1). Step 2 shows the information (PX, 32, 7, 280, 0) entered to assign a pilot number. Step 3 is where the billing number is entered, and steps 4 and 5 show adding two members.

STEP	RNQUEST	HG#	DIR.#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	RC
1	CHNG		8318333								
			8318333		UN						
2		580								32	7
		580	P8318333				PX	0		32	7
			8318300								
3			N8318300								
4	ADD	580	8318355	0	0	1					
			8318355	0	0	1	PX	1			
5	ADD			0	0	2					
		580	NUN	0	0	2	PX	2			

10.08 Trunk Class-of-Service Update.

Trunk class-of-service (TCOS) update procedures (table 31) are used to display a selected trunk class-of-service entry, list all TCOS entries starting at a specific entry, change one or all valid parameters of a specific TCOS entry and derive a new TCOS from an existing TCOS. These procedures are initiated by entering \$TCOS and striking the RETURN key. The complete procedure should be done each time a new request (display, list, or change) is made. Table 32 provides a listing and definitions of the mnemonics that are used in both input and output messages. *P68*

10.09 Trunk Group Update.

- a. The trunk group update procedures (table 33) are used to list or display trunk group assignments and PBX group assignments when the equipment number or hunt group number is entered, to add/delete a trunk to/from a trunk group and to get the current call state (CST) of all trunks when required. These procedures are initiated by entering \$TRK and striking the RETURN key. The procedures are to be done each time a new request (display, list, add, or delete) is made.

NOTE. A trunk group cannot be added or deleted if automatic trunk make busy is active.

- b. The following mnemonics can appear under the COS heading: ICID (incoming/immediate dial), ICWS (incoming/wink start), ICDD (incoming/delay dial), TWID (two-way/immediate dial), TWWS (two-way/wink start), TWDD (two-way/delay dial), OGID (outgoing/immediate dial), OGWS (outgoing/wink start), OGDD (outgoing/delay dial), and PX (PBX group).

- c. The following examples represent various requests that are made to update a trunk group:

1. Display Trunk by Hunt Group as PBX Group.

This example shows a display (DISP) request keyed on a hunt group number where the hunt group is assigned as a PBX group with three members (ports) assigned:

SECTION 23-001-97

11:25:30 REQUEST	10/20/77 HG#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	CST
DISP	280 ↗ 280					3	5	ICID	
		17	0	5	ET				
		17	0	7	ET				
		15	0	1	ET				

2. Add Trunk.

The following example shows an add (ADD) request that resulted in an error because the operator entered an invalid trunk hunt group. Valid trunk group numbers are 0 through 511.

NOTE. The total number of trunks in a hunt group cannot exceed the number of trunks assignable to that group (MAX #HG value).

11:25:30 REQUEST	10/20/77 HG#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	CST
ADD	513 ↗ 513								
		UN							
11:30:45		TRK	ADD/DEL						MUST BE KEYED ON TRK GRP#
11:30:47		TRK	ADD/DEL						FINISHED

Where:

Un = Unassigned

TRK GRP# = Trunk group number

3. Delete Trunk.

The following example shows a delete (DEL) request that results in deleting a trunk from a trunk group (126). All information on the trunk group is displayed, and the operator then reenters the DEL request and the EN information.

11:25:30 REQUEST	10/20/77 HG#	-FR	-CELL	-PT	TY	#HG	MAX #HG	COS	CST
DEL	126 ↗ 126					2	10	TWID	
		16	0	2	LT				
		17	0	1	LT				
DEL		16	0	2	LT ↗				
	UN	16	0	2	LT				
12:32:00		TRK	ADD DEL						FINISHED

Where:

TWID = Two-way/immediate dial

DEL = Delete request

LT = Loop trunk

4. Request Call States.

The following example shows a request (STAT) for the current call state (CST) of all trunks starting at the hunt group entered.

14:06:49 REQUEST STAT	10/20/81 HG#	-FR	-CELL	-PT-	TY	#HG	MAX #HG	COS	CST
	101	UN					10		
	102	001	4	0	OT	1	3	OGID	57
	103	UN					15		
	302	002	4	4	DT	4	11	OGWS	0
		002	4	5	DT				0
		002	4	6	DT				0
		002	4	7	DT				0
	303	001	1	6	ET	2	10	OGWS	0
		001	1	7	ET				0
	304	002	4	8	DT	4	11	OGWS	0
		002	4	9	DT				0
		002	4	10	DT				0

14:07:35 TRK LIST COMPLETE

10.10 PABX Group Update.

- The PABX group update procedures provided in table 34 are used to administer PABXs within the software trunk table. This administrative capability corresponds with the ability to administer the software PBX table by way of PBX group update procedures (paragraph 10.07).
- These procedures are used to do the following: display a selected group, list all groups starting at a specified entry, change one or all parameters of a specified group, add a new member to an existing group, and delete a member from a group.
- These procedures are initiated by entering \$PABX and striking the RETURN key. The procedures are to be done each time a new request (display, list, change, add, or delete) is made.
- The following mnemonics can appear under the port type (TY) heading: ET (E&M trunk), LT (loop trunk), and ST (step-by-step trunk).
- The following examples represent various requests that are made to update a PABX group:

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1. Display PABX Group.

The following example shows a display request (DISP) keyed on a hunt group number.

REQUEST	HG#	-FR	-CELL	-PT	-TY	#HG	MAX #HG	BIL.#	HOM	TCOS	RC
DISP	4										
	4					2	3	3231200	Y	4	8
		000	1	2	ET						
		002	3	4	ET						

PABX DISPLAY COMPLETE

2. List all PABX Group Numbers.

This example shows a LIST started by entering a number under the hunt group number (HG#) heading:

REQUEST	HG#	-FR	-CELL	-PT	-TY	#HG	MAX #HG	BIL.#	HOM	TCOS	RC
LIST	1										
	1					1	5	3227987	N	1	3
		010	3	7	LT						
	4					2	3	3231200	Y	4	8
		000	1	2	ET						
		002	3	4	ET						
	11					2	7	8437123	N	11	1
		012	3	4	ST						
		023	4	5	ST						

PABX LIST COMPLETE

3. Add New Member.

The following example shows a request for an ADD of a new member to an existing PABX group. The new member must be the same hardware type as the PABX. For example, if the hardware port is an E&M trunk, then the new member's type of port (TY heading) is assigned ET.

NOTE. The total number of members in a group cannot exceed the number of members assignable to that group (MAX #HG value).

12:06:30 5/30/78

REQUEST	HG#	-FR	-CELL	-PT	-TY	#HG	MAX #HG	BIL.#	HOM	TCOS	RC
ADD	11										
	11					2	7	8437123	N	11	1
		012	3	4	ST						
		023	4	5	ST						
ADD?		2	4	6							
	11	002	4	6	ST	3					
ADD?											
(ESC KEY)											

PABX ADD COMPLETE

4. Change PABX Group.

The following example shows the results of a request for a change (CHNG) of a PABX group, keyed on a pilot directory number, to an unassigned hunt group. This unassigns each member and the pilot directory number.

```

10:02:45  5/30/78
REQUEST  HG#  -FR  -CELL  -PT  -TY  #HG  MAX #HG  BIL.#  HOM  TCOS  RC
CHNG     4    4
          4          2      3      3231200  Y    4      8

CHNG?
          UN
UN      000  1    2    ET
UN      002  3    4    ET
4       UN

```

PABX CHANGE COMPLETE

5. Delete Member.

The example below shows the results of a request for deletion (DEL) of an existing member of a PABX group. The port is unassigned with the port type (TY) set to correspond with the PABX hardware type.

```

12:07:10  5/30/78
REQUEST  HG#  -FR  -CELL  -PT  -TY  #HG  MAX #HG  BIL.#  HOM  TCOS  RC
DEL      4    4
          4          1      3      3231200  Y    4      8
          002      3    4    ET

DEL?
          2      3    4
UN      002      3    4    ET

DEL?
(ESC KEY)

```

PABX DELETE COMPLETE

10.11 Route Treatment Update.

- a. Route treatment update procedures (table 35) are used to list all entries, display an entry, add or delete entries, change entries, derive a new entry from an existing table entry, purge all unreferenced entries, and list all active references in the data base to a specific route treatment. The complete procedure should be done for each new request. There are ten different output-message formats for route treatment entries, each containing various fields. The following printout example illustrates these formats.

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16:44:44 09/04/80
REQUEST RTR#
LIST 15

RTR#	RTRKEY	PR0RT	PR1RT	PR2RT	PR3RT											
15	ML	10	37	0	0											
RTR#	RTRKEY	TKMFSD	ART	MSS	RBT	INT	TKSPTD	TG#	PRFXDG	NRT	DLDG	EXDG				
16	TG	EDST	43	N	N	N	0	101	8866	0	0	7				
RTR#	RTRKEY	ST/DP	STP	ST2P	ST3P											
17	IC	7	101	144	70											
RTR#	RTRKEY	NOD	FDP	TRC	PFX	EXDGRT	CTORT	CTE	RTTCTO	EXDG						
18	PD	2	0	0	0	0	0	N	0	4						
RTR#	RTRKEY	SRVADD	EXDG	FIELD1	FIELD2	FIELD3										
19	CS	10	7	2	0	64										
RTR#	RTRKEY	NCPI	CTORT	CTE	RTTCTO	EXDG										
20	CT	2	23	Y	1	2										
RTR#	RTRKEY	OCODE	PRFXDG	STNDGT	EXDG											
21	LO	423	NONE	4	7											
RTR#	RTRKEY	ANIFST	STNDGT	ONIST	-ANI-			-ONI-			-ANIF-					
22	VA	14	6	5	KP	1	2	3	KP	1	2	3	KP	1	2	3
					12	2	2	4	0	5	3	1	7	1	9	4
RTR#	RTRKEY	RAHG#	EXDG	RANXRT												
23	RA	105	14	80												
RTR#	RTRKEY															
24	SP															

16:44:43 RTR LIST COMPLETE

The description and meaning of each field and the different formats are:

1. For custom-service (CS) route treatment that is used to provide routing for special services such as call forwarding and abbreviated dialing, the format is RTR# RTRKEY SRVADD EXDG FIELD 1 FIELD 2 FIELD 3. The meaning and corresponding output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	CS
SRVADD	Custom program index	16-bit field
EXDG	Number of digits expected	Value 0-15
FIELD1	Parameter field 1	12-bit field
FIELD2	Parameter field 2	16-bit field
FIELD3	Parameter field 3	12-bit field

NOTE. FIELD1, FIELD2, FIELD3 are used to pass parameters to the custom routine.

2. For local-office (LO) route treatment, the format is RTR# RTRKEY OCODE PRFXDG STNDGT EXDG. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	LO
OCODE	Office code (used to convert to NOC)	3 digits
PRFXDG	Prefix digits	Up to 4 digits (each a 4-bit field)
STNDGT	Number of station digits	Value 0-15
EXDG	Number of digits expected	Value 0-15

3. For recorded-announcement (RA) route treatment, the format is RTR# RTRKEY RAHG# EXDG RANXRT. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	RA
RAHG#	Recorded announcement hunt group number	12-bit field
EXDG	Number of digits expected	Value 0-15
RANXRT	Route treatment after recorded announcement completes	Value 0-1023

4. For trunk-group (TG) route treatment, the format is RTR# RTRKEY TKMFSD ART MSS RBT INT TKSPTD TG# PRFXDG NRT DLDG EXDG. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	TG
TKMFSD	MF suffix digit: None (DP only)	4-bit field NONE
	Coded ED ST=ST3P, standard ING ST	EDST3P
	Coded ED ST=ST, standard ING ST	EDST
	Coded ED ST=STP, standard ING ST	EDSTP
	Coded ED ST=ST2P, standard ING ST	EDST2P
	Coded ED ST=SSSP, standard ING ST	EDSSSP
	Coded ING ST=ST3P, no ED ST	NGST3P
	Coded ING ST=ST, no ED ST	NGST
	Coded ING ST=STP, no ED ST	NGSTP
	Coded ING ST=ST2P, no ED ST	NGST2P
	Coded ING ST=SSSP, no ED ST	NGSSSP
	Coded ED ST=ST3P, no ING ST	ST3PNI
	Coded ED ST=ST, no ING ST	STNI
	Coded ED ST=STP, no ING ST	STPNI
	Coded ED ST=ST2P, no ING ST	ST2PNI

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
	Coded ED ST=SSSP, no ING ST ING=calling party ED=called party	SSSPNI
ART	Alternate route index	Value 1-511
MSS	Multistage sending required for IDDD	Y or N
RBT	Apply ringback tone	Y or N
INT	Intercept tone to operator required	Y or N
TKSPTD	Number of DP digits to be sent before switching to MF	Value 0-15
TG#	Trunk group number	Value 0-255
PRFXDG	Prefix digits	Up to 4 digits (each a 4-bit field)
NRT	Next route index (after switch point)	Value 1-511
DLDG	Number of incoming digits to be deleted	Value 0-15
EXDG	Number of incoming digits expected	Value 0-15

5. For partial-dial (PD) route treatment, the format is RTR# RTRKEY NOD FDP TRC PFX EXDGRT CTORT CTE RTTCTO EXDG. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	PD
NOD	Number of digits for next indexing	Value 0-15
FDP	First digit position for next indexing	Value 0-15
TRC	Translation code for IDDD	Value 0-15
PFX	Prefix code for multiple route treatment	Value 0-3
EXDGRT	Route treatment for expected digit count	Value 1-1023
CTORT	Critical timeout route treatment	Value 1-1023
CTE	Critical timeout enable	Y or N
RTTCTO	Critical timeout digit position	Value 0-15
EXDG	Number of digits expected	Value 0-15

6. For multiple (ML) route treatment, the format is RTR# RTRKEY PR0RT PR1RT PR2RT PR3RT. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	ML
PR0RT	Prefix 0 route index	Value 0-1023
PR1RT	Prefix 1 route index	Value 0-1023
PR2RT	Prefix 2 route index	Value 0-1023
PR3RT	Prefix 3 route index	Value 0-1023

NOTE. The proper route indices are selected according to the prefix value previously set up by partial-dial route treatment.

7. For spare (SP) route treatment, the format is RTR# RTRKEY. This treatment is used to designate spare entries. The meaning and corresponding output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	SP

8. For incoming CAMA (IC) route treatment, the format is RTR# RTRKEY ST/DP STP ST2P ST3P. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	IC
ST/DP	Starting signal/dial pulse	Value 0-1023
STP	Starting signal	Value 0-1023
ST2P	Starting signal	Value 0-1023
ST3P	Starting signal	Value 0-1023

9. For critical timeout (CT) route treatment, the format is RTR# RTRKEY NCPI CTORT CTE RTTCTO EXDG. The meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	CT
NCPI	Next code point index	Value 0-255
CTORT	Critical timeout route treatment	Value 0-1023
CTE	Critical timeout enable	Y or N
RTTCTO	Digital position for critical timing	Value 0-15
EXDG	Digits expected	Value 0-15

10. For variable ANI (VA) route treatment, the format is RTR# RTRKEY ANIFST STNDGT ONIST ANI KP ANI1 ANI2 ANI3 ONIKP ONI1 ONI2 ONI3 ANIFKP ANIF1 ANIF2 ANIF3. This meaning and corresponding input/output response is:

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
RTRKEY	Route treatment key	VA
ANIFST	ANI fail start signal	15 – for KP 12 – for ST 13 – for STP 14 – for ST2P 11 – for ST3P 0 – for translator start signal passed

<u>FIELD</u>	<u>MEANING</u>	<u>INPUT/OUTPUT RESPONSE</u>
STNDGT	Station digits for ONI- type call	Value 0-7
ONIST	ONI start signal	Same as ANIFST

NOTE. The following parameters all appear under each of the specific category digit requirements for ANI, ONI and ANIF.

KP	KP digit required	Same as ANIFST except 0 = none
1, 2, or 3	First, second, or third category digits	Value 1-10 for digits 1-0 (10 equals digit 0). 15 – for KP 12 – for ST 13 – for STP 14 – for ST2P 11 – for ST3P 0 – for none

- b. Various route treatment update functions are shown in the following examples. All functions are initiated by entering **\$RTR** and then striking the **RETURN** key. This results in the display (printout) of time and date in a standard heading as described in step 2 of table 35. The following examples assume that steps 1 and 2 of table 35 have been done and start with the command entry (step 3) made under the REQUEST heading.

1. Display Route Treatment.

The example below shows a typical display of information pertaining to the local office route treatment. The data shown in the various fields was arbitrarily selected.

REQUEST	RTR#				
DISP	2				
RTR#	RTRKEY	OCODE	PRFXDG	STNDGT	EXDG
2	LO	323	111	11	12
	12:02:00	RTR	DISP COMPLETE		

2. List Route Treatment.

The following example shows a typical listing where route treatment numbers are assigned to the ten different route treatments described in paragraph 10.11a. The data shown in the various fields was arbitrarily selected.

16:44:44 09/04/80

REQUEST RTR=
LIST 15

RTR=	RTRKEY	PR0RT	PR1RT	PR2RT	PR3RT
15	ML	10	37	0	0

RTR=	RTRKEY	TKMFSD	ART	MSS	RBT	INT	TKSPTD	TG#	PRFXDG	NRT	DLDG	EXDG
16	TG	EDST	43	N	N	N	0	101	8866	0	0	7

RTR=	RTRKEY	ST/DP	STP	ST2P	ST3P
17	IC	7	101	144	70

RTR=	RTRKEY	NOD	FDP	TRC	PFX	EXDGRT	CTORT	CTE	RTTCTO	EXDG
18	PD	2	0	0	0	0	0	N	0	4

RTR=	RTRKEY	SRVADD	EXDG	FIELD1	FIELD2	FIELD3
19	CS	10	7	2	0	64

RTR=	RTRKEY	NCPI	CTORT	CTE	RTTCTO	EXDG
20	CT	2	23	Y	1	2

RTR=	RTRKEY	OCODE	PRFXDG	STNDGT	EXDG
21	LO	423	NONE	4	7

RTR=	RTRKEY	ANIFST	STNDGT	ONIST	-ANI-			-ONI-			-ANIF-					
					KP	1	2	3	KP	1	2	3	KP	1	2	3
22	VA	14	6	5	12	2	2	4	0	5	3	1	7	1	9	4

RTR=	RTRKEY	RAHG=	EXDG	RANXRT
23	RA	105	14	80

RTR=	RTRKEY
24	SP

16:44:43 RTR LIST COMPLETE

3. Add Route Treatment.

The following example shows a typical situation where route information is added. The data shown in the various fields was arbitrarily selected.

REQUEST	RTR#
ADD	2 ↗

RTRKEY
LO ↗

OCODE	PRFXDG	STNDGT	EXDG
324	1111	12	13 ↗

RTR#	RTRKEY	OCODE	PRGXDG	STNDGT	EXDG
7	LO	324	1111	12	13

12:03:00	RTR	NEW RTR
12:03:01	RTR	ADD COMPLETE

4. Delete Route Treatment.

The following example shows a typical situation where a route treatment is deleted.

```

REQUEST    RTR#
DEL        2 ↵

12:04:30   RTR    DEL COMPLETE

```

5. Derive Route Treatment.

The following example shows typical entries and displays for deriving route treatments information. The data shown in the various fields was arbitrarily selected.

```

REQUEST    RTR#
DERV       2 ↵

RTR#       RTRKEY  OCODE  PRFXDG  STNDGT  EXDG
2          LO      323    1111    11      12

CHNG?

1234 ↵

RTR#       RTRKEY  OCODE  PRFXDG  STNDGT  EXDG
7          LO      323    1234    11      12

12:05:09   RTR    NEW RTR
12:05:10   RTR    DERV COMPLETE

```

6. Purge Route Treatment.

The following example shows entries and displays in purging all unassigned route treatments.

```

REQUEST    RTR#
PURG ↵

ONE OR ALL?
ALL ↵

PURGE IN PROGRESS

#ASSIGNED          = 12
#SPARE             = 10
#PURGED            = 2

12:07:00   RTR    PURGE COMPLETE

```

7. Active References to Route Treatment.

The following example shows a typical entry and display for active references to a route treatment. The escape (ESC) key can be used to exit during a lengthy printout.

REQUEST RTR#
ACTV 1

RTR TABLE ENTRY #... 1 REFERENCED BY:

RTR ENTRY #.... 4
RTR ENTRY #.... 8
DNHGSD #..... 6
DN #..... 3231111
CPST #..... 5
MDBVT..... DISINT

12:09:00 RTR ACTV COMPLETE

The following are definitions of terms used in this example and additional terms for MDBVT:

RTR ENTRY # = Another table entry
DNHGSD # = DN hundreds group subtranslator directory entry number
DN # = Directory number (XXX XXXX)
CPST # = Code point screening table number
MDBVT = Master data base vector table entries. Route index examples are:
DISINT = Disconnect number intercept
ILLDEF = Illegal class default
VACDEF = Vacant code default
LOSDEF = Line-out-of-service default
TLBDEF = Toll-barred default

10.12 Translation Table Update.

The translation table update procedures provided in table 36 are used to display and/or list code translation and screen table information contained in the CP data base; they also allow changes to be made to code translation assignments and screen class/route treatment assignments in the CP data base. The procedures should be done every time a new request (list, display, or change) is made. To do various list/change requests, refer to the following examples.

a. Create Conflict Entry.

This example shows the creating of a conflict entry from a vacant code point for code 001:

11:35:29	01/12/77							
REQUEST	ABC	DEF	ST#-PCT-PDX	ST(A)-PCT-PDX	ST(O)-PCT-PDX	CDX	TRC	
CHNG	001							
	001		UN					
				3	5		1	
	001			3	5		1	
11:36:41	01/12/77		TTU	CHANGE COMPLETE				

Where: Mode is CODE

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b. Change Code Point Index.

This example shows the changing of an office code screen table number for conflicting entry 323#:

11:35:29	01/12/77							
REQUEST	ABC	DEF	ST#-PCT-PDX	ST(A)-PCT-PDX	ST(O)-PCT-PDX	CDX	TRC	
CHNG	323	#						
	323	#		4	2	3		
CHNG?					6			
	323	#		4	6	3		
11:36:51	01/12/77		TTU	CHANGE COMPLETE				

Where: Mode is CODE

c. Add Peg Counter Index.

This example shows adding a peg counter index to the office code conflicting entry.

11:39:57	01/12/79							
REQUEST	ABC	DEF	ST#-PCT-PDX	ST(A)-PCT-PDX	ST(O)-PCT-PDX	CDX	TRC	
CHNG	323	4						
	323	4		2 3 4	1	3		
CHNG?								
	323	4		2 3 4	1	4 5	3	
11:42:01	01/12/79		TTU	CHANGE COMPLETE				

Where: Mode is CODE

d. List Screen Table, Class, and Route Treatment.

This example shows a LIST started by entering a screen table number:

11:39:05	01/12/77			
REQUEST	SCREEN TABLE #	SCREEN CLASS	ROUTE TREATMENT	
LIST	0			
	0	0	19	
	0	1	5	
	0	2	3	
	0	3	26	
	1	0	1	
	1	1	1	
	1	2	6	
	1	3	8	

Where: Mode is SCREEN

e. Change Screen Class/Route Treatment.

This example shows the changing of a screen class/route treatment assignment:

```

11:39:05    01/12/77
REQUEST      SCREEN TABLE #    SCREEN CLASS    ROUTE TREATMENT

  CHNG                1                6 ↗
                  1                6                13
                  1                6                14 ↗
                  1                6                14
11:39:55    01/12/77  TTU CHANGE COMPLETE

```

Where: Mode is SCREEN

f. Change Auxiliary Table, Auxiliary Digit.

This example shows the changing of an unassigned auxiliary digit (software release 7 or later).

```

REQUEST  TBL    AUX    ST#-PCT-PDX    ST(A)-PCT-PDX    ST(O)-PCT-PDX    CDX    TRC

CHNG      4      1      UN ↗
          4      1      UN

CHNG?      2 ↗
          4      1      2
          TTU CHANGE COMPLETE

```

Where: Mode is AUX

10.13 Seven-/Ten-Digit Alarm Sending.

The procedures in tables 37, 38, and 39 are used to do the following functions related to the optional seven-/ten-digit alarm sending feature (software release 9 or later):

- Display (in order) all directory numbers assigned and associated position numbers, and assigned answer and recycle timing values (table 37).
- Change an assigned directory number, unassign a directory number (any following directory numbers are automatically moved up to fill the vacated position), and add a directory number (table 38).

NOTE. If zero (0) is used as a destination, the system will not recycle. Therefore, it is recommended that, if required, zero be assigned as the last destination number.

- Change the answer time (the length of time the system rings the called line before advancing to the next number), the recycle time (the length of time before the entire list is repeated if the alarm checking number is not called), and/or alarm checking timing (the length of time after answer that the system waits for the alarm checking number to be dialed) (table 39).

10.14 Administrable Options.

The procedures in tables 40 and 41 are used to display and change, respectively, the following options (software release 8A or later):

- a. The AMA incomplete ticketing option (AMAINC) is used to specify whether or not partial or incomplete AMA [CAMA, LAMA, usage sensitive recording (USR), in-WATS, or out-WATS] calls are ticketed.
- b. The usage sensitive recording option (USR) is used to specify whether or not all calls are ticketed.
- c. The system overload option (OVERLD) is used to specify whether or not to apply fast inter-digit dialing time. This option should be activated whenever extremely high traffic conditions occur.
- d. The AMA free option (AMAFREE) is used to specify whether or not AMA calls, that cannot be ticketed because of a system fault, are allowed to continue without being ticketed.
- e. The excessive conversation time option (ECTIME) is used to specify the length of time a call can continue before the system displays a message indicating an excessively long conversation on a particular line. The time is specified in multiples of 30 minutes (1 to 99).

10.15 Manual Control of Ports.

This procedure (table 42) is used to do the following operations to ports and various other functions of the system:

- a. Place an idle port out of service immediately and set the test call indication for that port (IOS).
- b. Automatically place a busy port out of service when it becomes idle and set the test call indicator for that port (ROS).
- c. Purge and reinitialize a port and restore the port to service (RPS).
- d. Set up a semiautomatic test call (STC). The test call generator uses this information to generate a test call between the ports specified.
- e. Set up a manual test call (for all but DNI lines) (MTC). This causes the system to assume that every call originating at the specified port is a test call.

NOTE. Before doing the MTC procedure, place the specified ports out of service and set the test call indicator using the IOS or ROS procedure.

- f. Cancel a manual test call set-up (CAN).

NOTE. After canceling the manual test call, do the RPS procedure on the specified ports to restore them to service.

- g. Set up a manual test call for DNI lines (MTD). This causes the system to assume that every call originating at the specified port is a test call.

NOTE. Before doing the MTD procedure, place the specified ports out of service and set the test call indicator using the IOS or ROS procedure.

- h. Cancel a manual test call set-up for DNI lines (CND).

NOTE. After canceling the manual test call, do the RPS procedure on the specified ports to restore them to service.

- i. Provide a printout of all data, or specific word, stored in a specific port storage area (PSA). Two versions of this printout are available: the long version provides the data in decimal with description headings; the short version presents the data as an octal number for each PSA word.
- j. Make a one-way incoming trunk appear busy to the originating office (providing the originating office is equipped to receive the "reverse-make-busy signal") (BUS).

NOTE. Use the RPS procedure to restore the trunk to service.

- k. Display the association of a specified DNIP, inlet, DSIP, or SN.
- l. Display the send or receive cross-office timeslot (XOT), reserve receive store XOT, sending port, and receiving port connected to a specified port (TSS).

NOTE. If a reserve receive XOT is not found, NF is displayed under the appropriate heading.

- m. Force a one-way or two-way network connection between two specified ports (SUP). Pad values may be specified for DTI trunks (0-, 3-, 5-, or 6-dB) and E&M trunks (0-, or 3-dB) by entering the appropriate value under the PAD heading. The path direction is specified by entering a 1 for one-way path, or a 2 for two-way path under the DIRECTION heading.
- n. Cancel the condition (break up the paths) created by using the SUP procedure and purge a port without restoring it to service (BUP).
- o. Clear the switched maintenance access network (SMAN)-related software tables in the MP, and release all test access relays of test call/out-of-service ports (CSM).
- p. The CLD operation does the following functions to the DNI subsystem:
 - 1. Clears all DNI software queues.
 - 2. Initializes the PSA of all DNI control ports and places them in the idle state.
 - 3. Resets the hardware marker for each line expander control (LXC).
 - 4. Clears all DNI bit maps.

CAUTION. Use this operation for emergencies only as loss of DNI calls will result.

- q. Test the seven-/ten-digit alarm-sending feature (ALM). This operation causes the system to simulate an alarm condition and activate the alarm sending feature.

NOTE. Before doing this test, inform the individuals who are assigned to be called that a test of the alarm sending feature is being done.

- r. Make a specific DNI matrix card idle for one minute (MCI). The matrix card is specified by entering the LXC (0-7), LXN (0-31), module stage (A-B), and module number (0-9 for A-stage or 0-4 for B-stage) for the specific module, under the appropriate heading.

NOTE. The system will not force a matrix card idle that is carrying any traffic. For this reason, this procedure can take several minutes or several hours to be done, depending on DNI traffic. When the matrix card becomes idle, the system displays the data entered followed by:

DNI MATRIX CARD IDLE
1 MIN. WARNING

and sounds the alert tone. At this time, the system will block all traffic to the specified card for one minute only, after which traffic is automatically allowed to access the matrix card.

- s. Cancel an unaccomplished matrix card idle request (CMC).

10.16 Copy Data Base.

The copy data base procedures in table 43 are used to copy the following data bases from memory (call processor memory, and maintenance processor memory) to the floppy disk:

- a. Call Processor (CP) Data Base.

The copy CP data base procedure (ONL DB) replaces the CP data base stored on the floppy disk with the CP memory resident version. This procedure is normally done once per day after changes have been made to the CP data base.

- b. Maintenance Processor (MP) Data Base.

The copy MP data base procedure (CFSITE) replaces the MP data base stored on the floppy disk with the MP memory-resident version. This procedure is normally done when a new floppy disk is installed in the system or after patches have been added by Stromberg-Carlson.

10.17 Copy Diskette Procedure.

The copy diskette procedure (table 44) is used to copy the entire contents (or specific files) from one diskette to another. If the entire contents are to be copied, a new formatted diskette must be used.

Table 10. Line COS Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$LCOS	\$LCOS
	b. To update off-line CP: \$LCOS OFF	\$LCOS OFF
2	RETURN (key).	Time, date, and LINE COS UPDATE REQUEST LCOS #, and SCRCL headings.

Table 10. Line COS Procedure (Cont)

STEP	ENTER	DISPLAY
3	One of the following, as appropriate: DISP LIST DEL ADD DERV (see Note 1) PURG ACTV CHNG (see Note 1)	Request entered.
4	RETURN (key).	Message(s), depending on step 3.
5	If entered request from step 3 causes DESC ... prompt, enter mnemonic from following list:	
	<u>MNEMONIC</u>	<u>DESCRIPTION</u>
	KEYS	Key system station
	NTIC	No LAMA ticket
	IMTS	Improved mobile telephone service
	SEAS	Selective extended area service
	WHTH	Whistle-thru
	TOLL	Toll barred (release 8.07 or earlier)
	ORIG	Originating permitted (release 8.07 or earlier)
	TERM	Termination barred (release 8.07 or earlier)
	TOLB	Toll barred (release 8A or later)
	ORGB	Originating barred (release 8A or later)
	TRMB	Termination barred (release 8A or later)
	FREE	See Note 2 Free terminating
	CLWT	Call waiting
	3WAY	3-way calling
	ASUP	Return answer supervision
	SLEV	Sleeve lead
	HOTL	Hotel/motel service
	TONE	TONE-DIAL [®] type telephone allowed
	DATA	Data security
	GRND	Ground-start
	INWS	In-WATS service
	HOOK	Off-hook service
	LOOP	Loop range extender
	MCAL	Malicious call trace
	MCTR	Malicious call trace (release 9 only)
	EMER	Emergency service

Table 10. Line COS Procedure (Cont)

STEP	ENTER	DISPLAY
5 (cont)	MNEMONIC FIRE } Volunteer fire alarm MCTT } Malicious call trap and trace (release 9 only) USRG } Usage sensitive recording LIVE } Live service observing 30SC } Speed calling, 30-number list 8LSC } Speed calling, 8-number list FCLF } Call forwarding, fixed VCLF } Call forwarding, variable RCLF } Call forwarding by ring count NCLF } Call forwarding barred NOSC } Speed calling barred NPYS } Not paystation SPPS } Semipostpay paystation LPPS } Local prepay paystation FPPS } Full prepay paystation LLCA } Line-load control, class A (essential) line LLCB } Line-load control, class B (semiessential) line LLCC } Line-load control, class C (nonessential) line WCMT } WATS measured time, code 3 WCBD } WATS full business day, code 4 WCFR } WATS flat rate, code 8 WB00 } WATS band 0 WB01 } WATS band 1 WB02 } WATS band 2 WB03 } WATS band 3 WB04 } WATS band 4 WB05 } WATS band 5 WB06 } WATS band 6 WB07 } WATS band 7 WB08 } WATS band 8 WB09 } WATS band 9 WB10 } WATS band 10 WB11 } WATS band 11 WB12 } WATS band 12 WB13 } WATS band 13 WB14 } WATS band 14 NOWC (See Note 6) } WATS access barred	DESCRIPTION

Table 10. Line COS Procedure (Cont)

STEP	ENTER	DISPLAY
5 (cont)	NOTES. 1. This entry causes CHNG? prompt message. Additional entries required. 2. Reset condition, which clears field represented by mnemonic, is allowed. For example: "TOLL" clears toll-barred field in that entry. "-" (the minus sign) is reset condition key and is checked for validity with mnemonic used. 3. Reset condition for call forwarding and speed calling is NCLF and NQSC respectively. 4. These must be assigned to every LCOS as required, if the line-load control option is provided in the system (release 7 or later software only). 5. These must be assigned to every LCOS that has access to WATS trunks, required for proper billing (release 9 or later software only). 6. Reset condition for all WATS mnemonics is NOWC (release 9 or later software only).	

Table 11. Directory Service Order Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$DSO	\$DSO
	b. To update off-line CP: \$DSO OFF	\$DSO OFF
2	RETURN (key).	Time, date, and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	One of the following under REQUEST heading: DISP = Display all DN or EN/PTY information. If DN, proceed to step 3a of table 12. If EN/PTY, proceed to step 3b of table 12. LIST = List information for series of DNs, ENs [or port type (TY) software release 7 or later]. Proceed to step 3 of table 13 or 14.	DISP, LIST, or CHNG

Table 11. Directory Service Order Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3 (cont)	CHNG = Change single and multi-party data base assignments. Select appropriate request from paragraph 10.04b and do corresponding procedures (tables 15 through 20).	

Table 12. DSO Display Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To display on-line CP: \$DSO	\$DSO
	b. To display off-line CP: \$DSO OFF	\$DSO OFF
2	RETURN (key).	Time, date and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	a. If display of DN data is desired: DISP under REQUEST and directory number (seven digits) under DIR. # headings. Go to step 4.	DISP and directory number.
	b. If display of EN/PTY data is desired: DISP under REQUEST and equipment number under FR, CELL, and PT headings.	DISP and equipment number.
4	RETURN (key).	Message showing directory number (or UN for unassigned) under DIR. # heading and numerical information under appropriate headings.

Table 13. DSO LIST Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To list on-line CP: \$DSO	\$DSO
	b. To list off-line CP: \$DSO OFF	\$DSO OFF

Table 13. DSO LIST Procedure (Cont)

STEP	ENTER	DISPLAY
2	RETURN (key).	Time, date and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	LIST under REQUEST and directory number (seven digits) under DIR. # headings; or equipment number under FR, CELL, and PT headings.	LIST and directory number, or equipment number.
4	RETURN (key).	Series of messages showing numerical information (under appropriate headings) for all DNs or ENs. Message at end of series, showing time and date and DSO LIST END
5	To manually stop series of messages initiated in step 4: ESC (key).	Time and date and DSO LIST END

Table 14. DSO LIST by Equipment Type Procedure

STEP	ENTER	DISPLAY
1	a. To list on-line CP: \$DSO b. To list off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date, and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	LIST under REQUEST and one of following port or line types under TY: AT – DSI autotest CC – Conference circuit DC – DTI control DP – DSI port DR – DTMF receiver DS – DTMF sender DT – DTI trunk ET – E&M trunk LL – S-lead line	As entered.

Table 14. DSO LIST by Equipment Type Procedure (Cont)

STEP	ENTER	DISPLAY
3 (cont)	LT – Loop trunk NE – Not equipped PG – Port group control L2 – S-lead (type 2 line circuit) SL – Standard line IT – S x S incoming trunk L1 – Standard line (type 1 line circuit) PA – DSI prepay adapter (release 9 only) TR – Toll MF receiver TS – Toll MF sender XC – DNI control XP – DNI port OT – S x S outgoing trunk UN – Unassigned line SP – Single-party line 2P – Two-party line 4P – Four-party line 8P – Eight-party line	
4	RETURN (key).	Series of messages showing numerical information (under appropriate headings) for all DNs or ENs. Message at end of series, showing time and date and DSO LIST END.
5	To manually stop series of messages initiated in step 4: ESC (key).	Time and date and DSO LIST END

Table 15. DSO Change Procedure, Unassign Single-Party DN

STEP	ENTER	DISPLAY
1	a. To change on-line CP: \$DSO b. To change off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date, and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST and directory number (seven digits) under DIR. # headings.	CHNG and directory number.

Table 15. DSO Change Procedure, Unassign Single-Party DN (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
4	RETURN (key).	Directory number under DIR. # heading and associated information under appropriate FR, CELL, PT, TY, COS, and RC headings.
5	UN under directory number caused by step 4.	UN under directory number.
6	RETURN (key).	Message showing directory number under DIR. # heading and UN under FR heading. Message showing UN under directory number of last printout line and numerical data under FR, CELL, and PT headings. Message showing time and DSO CHANGE FINISHED

Table 16. DSO Change Procedure, Assign Single-Party DN

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$DSO b. To change off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date, and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST and directory number under DIR. # headings.	CHNG and directory number.
4	RETURN (key).	Messages showing directory number under DIR. # heading, UN under FR heading, and numerical information under RT heading.
5	Appropriate data under FR, CELL, PT, TY, COS, RC, and NI headings.	Appropriate data under corresponding headings.
6	RETURN (key).	Message showing directory number under DIR. # heading and data under FR, CELL, PT, TY, COS, RC, and NI headings. This data is a repeat of preceding input line. Message showing time and DSO CHANGE FINISHED

Table 17. DSO Change Procedure, Change COS for Multiparty Line

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$DSO b. To change off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date, and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST and desired numerical data under FR, CELL, and PT headings.	CHNG and appropriate numerical data.
4	RETURN (key).	Message showing identical data under FR, CELL, PT headings; port type data under TY; and numerical data under COS and NI heading.
5	Class-of-service number under COS heading.	COS number under COS heading.
6	RETURN (key).	Messages showing data under DIR. #, FR, CELL PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings. Message showing time and DSO CHANGE FINISHED

Table 18. DSO Change Procedure, Unassign One Line of Multiparty Line

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$DSO b. To change off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST heading and desired directory number under DIR. # heading.	CHNG and desired number.
4	RETURN (key).	Message showing data under DIR. #, FR, CELL, PT, TY, PTY, COS, RC, CD, and NI headings.

Table 18. DSO Change Procedure, Unassign One Line of Multiparty Line (Cont)

STEP	ENTER	DISPLAY
5	UN under FR heading. <i>CAUTION. If UN is entered under DIR. # heading, all directory numbers associated with that equipment number will be unassigned.</i>	UN under FR heading.
6	RETURN (key).	Message showing data under DIR. # (a number), UN under FR, and a number under RT heading. Message showing UN under DIR. # heading, and data under FR, CELL, PTY, TY, and PTY headings. Message showing time and DSO CHANGE FINISHED

Table 19. DSO Change Procedure, Assign DN to Multiparty EN

STEP	ENTER	DISPLAY
1	a. To change on-line CP: \$DSO b. To change off-line CP: \$DSO OFF	\$DSO \$DSO OFF
2	RETURN (key).	Time, date and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST heading and desired numerical data under FR, CELL, PT, and PTY headings.	CHNG and desired numerical data.
4	RETURN (key).	Message showing UN under DIR. #, and data under FR, CELL, PT, TY, PTY, COS, and NI headings.
5	Directory number under DIR. # heading and desired numerical data under RC and CD headings.	Appropriate numerical data under DIR. #, RC, and CD headings.
6	RETURN (key).	Message showing data under DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings. Message showing time and DSO CHANGE FINISHED

Table 20. DSO Change Procedure, Unassign Multiparty ENs

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$DSO	\$DSO
	b. To change off-line CP: \$DSO OFF	\$DSO OFF
2	RETURN (key).	Time, date and DIRECTORY SERVICE ORDER Time of message over REQUEST and DIR. # headings. REQUEST, DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
3	CHNG under REQUEST heading and directory number under DIR. # heading.	CHNG and directory number.
4	RETURN (key).	Message showing data under DIR. #, FR, CELL, PT, TY, PTY, COS, RT, RC, CD, NI, HG#, and #HG headings.
5	UN under DIR. # heading.	UN under DIR. # heading.
6	RETURN (key).	Series of messages showing data under DIR. #, FR (UN), and RT headings for all directory numbers. Message showing UN under DIR. # heading and numerical data (same as step 4, FR, CELL, PT display) under FR, CELL, and PT headings. Message showing time and DSO CHANGE FINISHED

Table 21. CCAL Display Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To display on-line CP: \$CCAL	\$CCAL
	b. To display off-line CP: \$CCAL OFF	\$CCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	a. If display of all custom calling data for specific DN required: DISP under REQUEST and directory number under DIR. # heading.	As entered.

Table 21. CCAL Display Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3 (cont)	b. If display of specific speed calling data for DN required: DISP under REQUEST heading, directory number under DIR. # heading and abbreviated code under AC heading.	As entered.
4	RETURN (key).	Message showing directory number and numerical information under appropriate headings.

Table 22. CCAL Change Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$CCAL b. To change off-line CP: \$CCAL OFF	\$CCAL \$CCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	CHNG under REQUEST heading and directory number under DIR. # heading.	As entered.
4	RETURN (key).	Directory number under DIR. # heading and associated information under appropriate FR, CELL, PT, TYP, COS, CF, and SC headings, followed by CHNG?
5	a. If change of any displayed information required, enter new information directly under original information. b. If no change of displayed information required, go to step 6.	As entered.
6	RETURN (key).	a. If line selected in step 3 has call-forwarding COS: CALL FORWARDING followed by LST, DEST ADDR, and STATUS headings. b. If line selected in step 3 has speed calling COS: SPEED CALLING followed by LST, AC, DEST ADDR, and ADMN headings.

Table 22. CCAL Change Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7	a. If change of any displayed information required, enter new information directly under original information. b. If no change of displayed information required, go to step 8.	As entered.
8	RETURN (key).	Message showing all information as it now is, followed by: CCAL CHANGE COMPLETE

Table 23. CCAL Change Procedure, Create a Call-Forwarding List

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$CCAL b. To change off-line CP: \$CCAL OFF	\$CCAL \$CCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	CHNG under REQUEST heading and directory number under DIR. # heading.	As entered.
4	RETURN (key).	Directory number under DIR. # heading and associated information under appropriate FR, CELL, PT, TYP, COS, CF, and SC headings, followed by CHNG?
5	Appropriate information under COS and CF headings.	As entered.
6	RETURN (key).	CALL FORWARDING, followed by LST, DEST ADDR, and STATUS, followed by CHNG?
7	Forwarded-to directory number under DEST ADDR heading.	As entered.
8	RETURN (key).	Message showing all information as it now is, followed by: CCAL CHANGE COMPLETE

Table 24. CCAL Change Procedure, Create a Speed-Calling List

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To change on-line CP: \$CCAL b. To change off-line CP: \$CCAL OFF	\$CCAL \$CCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	CHNG under REQUEST heading and directory number under DIR. # heading.	As entered.
4	RETURN (key).	Directory number under DIR. # heading and associated information under appropriate FR, CELL, PT, TYP, COS, CF, and SC headings followed by CHNG?
5	Appropriate information under COS and SC headings.	As entered.
6	RETURN (key).	SPEED CALLING followed by LST, AC, DEST ADDR, and ADMN, followed by CHNG?
7	a. If any changes to displayed parameters required: enter new information directly under old information. b. If no changes required, go to step 8.	As entered.
8	RETURN (key).	ADD?
9	Speed-calling code under AC heading and directory number to be dialed under DEST ADDR heading.	As entered.
10	RETURN (key).	ADD?
11	a. If additional speed-calling numbers required, go to step 9. b. If no further additions required: RETURN (key).	Message showing all information as it now is, followed by: CCAL CHANGE COMPLETE

Table 25. CCAL Procedure to Get List of List-Entry Areas Available

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To verify on-line CP: SCCAL b. To verify off-line CP: SCCAL OFF	SCCAL SCCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	AREA under REQUEST heading.	AREA
4	RETURN (key).	Messages showing speed-calling and call-forwarding total areas and areas unassigned.

Table 26. CCAL Forward Trace Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To verify on-line CP: SCCAL b. To verify off-line CP: SCCAL OFF	SCCAL SCCAL OFF
2	RETURN (key).	Time, date and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	FRWD under REQUEST heading and directory number under DIR. # heading.	As entered.
4	RETURN (key).	Messages showing call-forwarding sequence list for directory number entered in step 3, followed by: CCAL CF SEQUENCE COMPLETE

Table 27. CCAL LIST Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To list on-line CP: SCCAL b. To list off-line CP: SCCAL OFF	SCCAL SCCAL OFF
2	RETURN (key).	Time, date, and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	LIST	LIST
4	RETURN (key).	Messages showing all directory numbers and equipment numbers assigned custom-calling tables.

Table 28. CCAL Backward Trace Procedure

STEP	ENTER	DISPLAY
1	a. To list on-line CP: \$CCAL b. To list off-line CP: \$CCAL OFF	\$CCAL \$CCAL OFF
2	RETURN (key).	Time, date, and CUSTOM CALLING OVERLAY followed by: REQUEST DIR. # AC
3	BKWD under REQUEST, and forwarded-to directory number under DIR. #.	BKWD and directory number.
4	RETURN (key).	Message showing directory number(s) that forward to directory number entered in step 3.

Table 29. Fixed-Called-Address Update Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$FIX b. To update off-line CP: \$FIX OFF	\$FIX \$FIX OFF
2	RETURN (key).	Time, date, and FIXED CALLED ADDRESS Time and date. Message showing REQUEST, FR, CELL, PT, FCA DIR. NO., SCL, and STPS headings. NOTE. SCL (scale) values are: 0 – 256 ms 1 – 2.048 s STPS (steps) values in each scale are 1 – 13 (decimal). If step value 1, an immediate timeout occurs. Timer value must be greater than 0 and less than 26 seconds.
3	One of the following under REQUEST heading: LIST, DISP, CHNG, ADD, or DEL	Corresponding request.
4	RETURN (key).	Display as required for entry made in step 3.

Table 30. PBX Group Update Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$PBX b. To update off-line CP: \$PBX OFF	\$PBX \$PBX OFF
2	RETURN (key).	Time, date and PBX GROUP UPDATE. Message showing time and date over REQUEST and DIR. # headings. Message showing REQUEST, HG#, DIR. #, FR, CELL, PT, TY, #HG, MAX #HG, COS, and RC headings.
3	One of the following under REQUEST heading: DISP, LIST, CHNG, ADD, or DEL	Corresponding request.
4	RETURN (key).	Display as required for entry made in step 4.

Table 31. Trunk COS Update Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$TCOS b. To update off-line CP: \$TCOS OFF	\$TCOS \$TCOS OFF
2	RETURN (key).	Time, date, and TRUNK COS UPDATE. Time and date over REQUEST and HG# headings.
3	One of the following under REQUEST heading: DISP, LIST, CHNG, or DERV	DISP, LIST, CHNG, or DERV (depending on entry).
4	Three-digit number under HG# heading.	Three-digit number.
5	RETURN (key).	Series of messages (depending on step 3) followed by: a. If display request successful: TCOS DISP END b. If list request successful: TCOS LIST END c. If change request successful: TCOS CHANGE COMPLETE d. If derive request successful: TCOS DERV COMPLETE

Table 32. Trunk COS Mnemonics

<u>MNEMONIC</u>	<u>DEFINITION</u>	<u>FUNCTION</u>	<u>REMARKS</u>
AFTC	After sending digits control	Output/heading	AFTC values are: 0 = Immediate 1 = After I/D pause 2 = Wink, 24 to 352 ms 3 = Wink, 100 to 352 ms 4 = Delay dial, 24 ms 5 = Delay dial, 100 ms 6 = Stop dial, 700 ms delay 7 = Stop dial, no delay 8 = Upon seizure, 24 ms 9 = Upon seizure, 100 ms 10 = Polarity check
AISV	Automatic intercept service	Input/entry Output/data	Refer to Note 1. Can be reset by entering – ASIV
BARG	Barge-in recorded announcement	Input/entry Output/data	Refer to Note 1. Can be reset by entering – BARG
BEFC	Before sending digits control	Output/heading	BEFC values are the same as for AFTC.
CI-B	Coin trunk inband	Input/entry Output/data	Refer to Note 1.
CLDDTI	Called delay time, incoming	Output/main heading	Main heading for SCL or DUR. (Refer to Note 2.)
CLDDTO	Called delay time, outgoing	Output/main heading	Main heading for SCL or DUR. (Refer to Note 2.)
CLGDTI	Calling delay time, incoming	Output/main heading	Main heading for SCL or DUR. (Refer to Note 2.)
CLGDTO	Calling delay time, outgoing	Output/main heading	Main heading for SCL or DUR. (Refer to Note 2.)
CM-W	Coin trunk multiwink	Input/entry Output/data	Refer to Note 1.
COAN	Connecting office type, analog	Input/entry Output/data	Refer to Note 1.
COC3	Connecting office class, three	Input/entry Output/data	Refer to Note 1.

Table 32. Trunk COS Mnemonics (Cont)

<u>MNEMONIC</u>	<u>DEFINITION</u>	<u>FUNCTION</u>	<u>REMARKS</u>
COC4	Connecting office class, four	Input/entry Output/data	Refer to Note 1.
COC5	Connecting office class, five	Input/entry Output/data	Refer to Note 1.
CODI	Connecting office type, digital	Input/entry Output/data	Refer to Note 1.
COLO	Colocated office	Input/entry Output/data	Refer to Note 1.
DUR	Duration	Output/heading	Value (0-15); SCL multiplier.
FIRE	Volunteer fire alarm	Input/entry Output/data	Refer to Note 1. Can be reset by entering – FIRE
FREE	Free terminating	Input/entry Output/data	Refer to Note 1. Can be reset by entering – FREE
GLRTIM	Glare time	Output/main heading	Main heading for SCL or DUR. (Refer to Note 2.)
GRDL	Guard timing, long (768-1024 ms)	Input/entry Output/data	Refer to Note 1.
GRDS	Guard timing, short (512-768 ms)	Input/entry Output/data	Refer to Note 1.
HG#	Hunt group number	Output/heading	Value from 1 through 511.
ISDP	Incoming signal dial pulse	Input/entry Output/data	Refer to Note 1.
ISMF	Incoming signal multifrequency	Input/entry Output/data	Refer to Note 1.
LIVE	Live service observing	Input/entry Output/data	Refer to Note 1. Can be reset by entering LIVE
MCTR	Malicious call trace	Input/entry Output/data	Refer to Note 1.
NCAM	Not CAMA	Input/entry Output/data	Refer to Note 1.

Table 32. Trunk COS Mnemonics (Cont)

<u>MNEMONIC</u>	<u>DEFINITION</u>	<u>FUNCTION</u>	<u>REMARKS</u>
NEAS	Allows USR on EAS trunks	Input/entry Output/data	Refer to Note 1.
NONC	Non-coin	Input/entry Output/data	Refer to Note 1. Must be assigned to every non-coin trunk.
OCAM	Off-hook CAMA	Input/entry Output/data	Refer to Note 1.
OFF	Off-hook time	Output/heading	Options under heading are: 0 - 44 ms 1 - 40 ms 2 - 36 ms 3 - 32 ms
ONH	On-hook time	Output/heading	Options under heading are: 0 - 56 ms 1 - 60 ms 2 - 64 ms 3 - 68 ms
ONIC	Route non-AMA trunk to ONI	Input/entry Output/data	Refer to Note 1.
OSDP	Outgoing signal dial pulse	Input/entry Output/data	Refer to Note 1.
OSMF	Outgoing signal multifrequency	Input/entry Output/data	Refer to Note 1.
REVB	Reserve make-busy	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- REVB
RING	Ringback tone required before announcement	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- RING
ROUT	Route treatment after end-of-message	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- ROUT
RSEIZT	RSE seizure	Output/main heading	Main heading for SCL or TMIN.
RWINKT	RSE wink	Output/main heading	Main heading for SCL, TMIN, or TMAX.
SCL	Scale	Output/heading	Value in milliseconds where 0 = 16, 2 = 64, 1 = 256 (unless otherwise specified); DUR multiplier.

Table 32. Trunk COS Mnemonics (Cont)

<u>MNEMONIC</u>	<u>DEFINITION</u>	<u>FUNCTION</u>	<u>REMARKS</u>
SCRCL	Screen class	Output/heading	Values obtained from screen class table.
SDATA	Send digit control	Output/main heading	Main heading for ONH, OFF, BEFC, AFTC.
SEAS	Selective extended area service	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- SEAS
SREC	Seizure recognition time	Output/main heading	Value (0 - 15); SCL multiplier.
SSEDDT	SSE delay dial	Output/main heading	Main heading for SCL, TMIN, or SREC.
SUPN	Dialing supervision	Output/heading	Options under heading are: ID -- Intermediate dial WS -- Wink start DD -- Delay dial
TMAX	Time maximum	Output/heading	Value (0 - 15); SCL multiplier.
TMIN	Time minimum	Output/heading	Value (0 - 15); SCL multiplier.
TOLB	Toll barred	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- TOLB
TORO	Toll or operator completing trunk	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- TORO
USR	Usage sensitive recording (PABX trunks only)	Input/entry Output/data	Refer to Note 1.
USAGE	Trunk group usage and entry format	Output/heading	Options under heading are: I-O -- Incoming only O-O -- Outgoing only 2-W -- Two-way PBX -- PBX-type usage.
WTHH	Whistle-thru	Input/entry Output/data	Refer to Note 1. Can be reset by entering -- WTHH
WINK	Wink CAMA	Input/entry Output/data	Refer to Note 1.

NOTE 1. a. If used as input, this mnemonic is entered after the prompt message DESC is printed.
b. If used as output, this mnemonic is printed after DESC is printed.

NOTE 2. SCL values are 0 = 256 ms, 1 = 2.048 s, 2 = 16.38 s, 3 = 131.75 s, 4 = 0.032 s, 5 = 0.064 s.

Table 33. TRK Group Update Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To update on-line CP: \$TRK b. To update off-line CP: \$TRK OFF	\$TRK \$TRK OFF
2	RETURN (key).	Time, date, and TRUNK GROUP UPDATE Time and date over REQUEST and HG# headings. REQUEST, HG#, FR, CELL, PT, TY, #HG, MAX #HG, and COS headings.
3	One of the following under REQUEST heading: DISP, LIST, DEL, or STAT	Corresponding request.
4	RETURN (key).	Display as required for entry made in step 3.

Table 34. PABX Group Update

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To update on-line CP: \$PABX b. To update off-line CP: \$PABX OFF	\$PABX \$PABX OFF
2	RETURN (key).	Time, date, and PABX V1 Time, date, and REQUEST, HG#, FR, CELL, PT, TY, #HG, MAX #HG, BIL. #, HOM, TCOS, and RC headings.
3	One of the following under REQUEST heading: DISP LIST CHNG ADD DEL	DISP, LIST, CHNG, ADD, or DEL (depending on entry).
4	Desired information under appropriate headings displayed in step 2.	
5	RETURN (key).	Message(s), depending on step 3 and 4 entries.

Table 35. Route Treatment Update Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$RTR b. To update off-line CP: \$RTR OFF	\$RTR \$RTR OFF
2	RETURN (key).	Time, date, and ROUTE TREATMENT UPDATE. Time and date over REQUEST and RTR# headings.
3	One of the following under REQUEST heading: LIST, DISP, ADD, DEL, CHNG, DERV, PURG, or ACTV	LIST, DISP, ADD, DEL, CHNG, DERV, PURG, or ACTV
4	a. If step 3 request is LIST, DISP, DEL, CHNG, DERV, or ACTV: proper number under RTR# heading. b. If step 3 request is ADD or PURG, go to step 5.	Number under RTR# heading.
5	RETURN (key).	Various messages depending on entries of steps 3 and 4.
6	Various data can be entered.	Various data.

Table 36. Translation Table Update Procedure

STEP	ENTER	DISPLAY
1	a. To update on-line CP: \$TTU b. To update off-line CP: \$TTU OFF	\$TTU \$TTU OFF
2	RETURN (key).	Time, date, and TRANSLATION TABLE UPDATE MODE?
3	a. If desired function is relative to screen class/route treatment/screen table assignments: SCREEN and proceed to step 4. b. If related to code translation assignment: CODE and then go to step 6. c. If related to auxiliary code translator: AUX and go to step 7.	SCREEN CODE AUX

Table 36. Translation Table Update Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
4	RETURN (key).	Time and date. REQUEST, SCREEN TABLE, SCREEN CLASS, and ROUTE TREATMENT headings.
5	One of the following, then do step 9: a. If displaying all screen class/route treatment assignments for a specific screen table: DISP under REQUEST heading and table number under SCREEN TABLE heading. b. If listing of entire screen table/screen class/route treatment assignments for all screen tables is desired: LIST under REQUEST heading and table number under SCREEN TABLE heading. c. If changing screen class/route treatment assignment within specific screen table: CHNG under REQUEST heading and desired numbers under SCREEN TABLE and SCREEN CLASS headings.	DISP and table number. LIST and table number. CHNG, table number, and class number.
6	RETURN (key).	Time and date. REQUEST, ABC, DEF, ST#, PCT, PDX, ST(A), PCT, PDX, ST(O), PCT, PDX, CDX, and TRC headings.
7	RETURN (key).	Time and date. REQUEST, TBL, DEF, ST#, PCT, PDX, ST(A), PCT, PDX, ST(O), PCT, PDX, CDX, and TRC headings.
8	Do desired portion of step 5 and proceed to step 9.	Same as step 5.
9	Numerical characters under appropriate headings.	Numerical characters.
10	After completing numerical entries for all headings: RETURN (key).	Relative messages.

Table 37. Display Alarm Sending Directory Number Procedure

STEP	ENTER	DISPLAY
1	\$STASND	\$STASND
2	RETURN (key).	As shown in the following example: <pre> 00:00:10 7/10 DIGIT ALARM SENDING OVERLAY 00:00:20 4/29/80 REQUEST POS DEST.# </pre>
3	DISP	DISP
4	RETURN (key).	As shown in the following example: <pre> 1 3391600 2 3231260 3 8345377 4 3310527 5 18984137 6 15122952111 7 15124440561 8 0 9 UN 10 UN ANSWER TIMING = 90 SECS RECYCLE TIMING = 360 SECS ALARM CHECK TIMING = 60 SECS 00:01:40 STASND DISP COMPLETE </pre>

Table 38 Change Alarm Sending Directory Number Procedure

STEP	ENTER	DISPLAY
1	\$STASND	\$STASND
2	RETURN (key).	As shown in the following example: <pre> 00:00:10 7/10 DIGIT ALARM SENDING OVERLAY 00:00:20 4/29/80 REQUEST POS DEST.# </pre>
3	CHNG under REQUEST heading followed by position number under POS heading; or assigned directory number under DEST. # heading.	As entered.
4	RETURN (key).	a. If position number/directory number is assigned: position number and assigned directory number, followed by: CHNG?

Table 38. Change Alarm Sending Directory Number Procedure (Cont)

STEP	ENTER	DISPLAY
4 (cont)		b. If position number is not assigned a directory number: position number and UN under DIR. # heading, followed by: CHNG?
5	a. To change or add a directory number to displayed position number: 7-, 8-, or 10-digit directory number, or zero (0). b. To delete a directory number: UN under DEST. # heading. <i>NOTE. When a directory number is deleted, any following directory numbers are automatically moved up to fill the vacated position.</i>	As entered. UN
6	RETURN (key).	Position number, new directory number (or UN) followed by: STASND CHNG COMPLETED

Table 39. Change Alarm Sending Timing Values Procedure

STEP	ENTER	DISPLAY
1	\$STASND	\$STASND
2	RETURN (key).	As shown in the following example: 00:00:10 7/10 DIGIT ALARM SENDING OVERLAY 00:00:20 4/29/80 REQUEST POS DEST.#
3	TIME	TIME
4	RETURN (key).	As shown in the following example: ANSWER TIMING = 90 SECS CHNG?
5	a. To change answer timing: new value in seconds [1-300 (5 minutes)].	As entered.

Table 39. Change Alarm Sending Timing Values Procedure (Cont)

STEP	ENTER	DISPLAY
5 (cont)	b. If no change to answer timing required, go to next step.	
6	RETURN (key).	As shown in the following example: ANSWER TIMING = 120 SECS RECYCLE TIMING = 300 SECS CHNG?
7	a. To change recycle timing; new value in seconds [1-300 (5 minutes)] . b. If no change to recycle timing required, go to next step.	As entered.
8	RETURN (key).	As shown in the following example: RECYCLE TIMING = 360 SECS ALARM CHECK TIMING = 60 SECS CHNG?
9	a. To change alarm check timing; new value in seconds [1-300 (5 minutes)] . b. If no change to alarm check timing required, go to next step.	As entered.
10	RETURN (key).	As shown in the following example: ALARM CHECK TIMING = 70 SECS 00:09:20 STASND TIMING CHANGE COMPLETE

Table 40. Display Administrable Options Procedure

STEP	ENTER	DISPLAY
1	\$AMOPT	\$AMOPT
2	RETURN (key).	As shown in the following example: 00:08:20 REL TIME ADMINISTRATIVE CP OPTIONS 00:08:20 REL TIME REQUEST

Table 40. Display Administrable Options Procedure (Cont)

STEP	ENTER	DISPLAY
3	DISP	DISP
4	RETURN (key).	As shown in the following example: <pre> OPTION STATE DESCRIPTION AMAINC ON AMA INCOMPLETE TICKETING USR ON USAGE SENSITIVE RECORDING OVERLD ON FAST INTER-DIGIT TIMING AMAFREE ON IF NO BUFS: ON=FREE OFF=BLOCKED ECTIME 9 EXCES CONVSIN TIME--30 MIN UNITS 00:08:35 AMOPT DISP COMPLETE 00:08:37 REL TIME REQUEST </pre>
5	a. To change any value displayed, go to table 41, step 3. b. To end procedure: ESC (key).	AMOPT EXIT COPY DATA BASE TO SAVE CHANGES

Table 41. Change Administrable Options Procedure

STEP	ENTER	DISPLAY
1	a. If REQUEST is displayed, go to step 3. b. If REQUEST is not displayed: \$AMOPT	REQUEST \$AMOPT
2	RETURN (key).	As shown in the following example: <pre> 00:08:20 REL TIME ADMINISTRATIVE CP OPTIONS 00:08:22 REL TIME REQUEST </pre>
3	CHNG	CHNG
4	RETURN (key).	OPTION
5	Mnemonic of option to change.	As entered.

Table 41. Change Administrable Options Procedure (Cont)

STEP	ENTER	DISPLAY
6	RETURN (key).	STATE = followed by current state (ON, OFF, or a numerical value if ECTIME entered in step 5). CHNG?
7	a. To change state displayed: new state [ON, OFF, or numerical value (1-99) if ECTIME entered in step 5]. b. To retain displayed state, go to next step.	As entered.
8	RETURN (key).	As shown in the following example: STATE = OFF 00:08:46 AMOPT CHANGE COMPLETE 00:08:52 REL TIME REQUEST
9	a. To change other options, go to step 3. b. To display all options, go to step 3 of table 40. c. To end procedure: ESC (key).	AMOPT EXIT COPY DATA BASE TO SAVE CHANGES

Table 42. Manual Control of Ports Procedure

STEP	ENTER	DISPLAY
1	a. On-line CP: \$MANUAL (or CONTROL L for release 8A or later systems; go to step 3.) b. Off-line CP: \$MANUAL OFF	\$MANUAL \$MANUAL OFF
2	RETURN (key).	Time and date. REQUEST
3	One of the following: a. If placing port out-of-service immediately: IOS	IOS

Table 42. Manual Control of Ports Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3 (cont)	b. If placing port out of service whenever idle: 1. ROS, followed by RETURN (key). 2. Y or N as required. c. If purging (clearing) and reinitializing a port: RPS d. If semiautomatic test call: STC e. If manual test call: MTC f. If canceling manual test call: CAN. Go to step 6. g. If manual test call for digital network interface: MTD h. If canceling manual test call for digital network interface: CND. Go to step 6. i. If printing entire (or part) port store area (PSA) of a port: PSS j. If busying an incoming trunk: BUS k. If getting association: ASC l. If searching for timeslots and receiving/sending ports: TSS m. If setting up path between two ports: SUP n. If breaking up paths between two ports: BUP	DO YOU WANT TEST CALL BIT SET? (Y/N) As entered. RPS STC MTC CAN MTD CND PSS BUS ASC TSS SUP BUP

Table 42. Manual Control of Ports Procedure (Cont)

STEP	ENTER	DISPLAY
	o. If clearing SMAN tables and releasing test access relays: CSM. Go to step 6.	CSM
	p. If clearing DNI queues and initializing DNI control ports: CLD. Go to step 6.	CLD
	q. If testing 7/10 digit alarm sending feature: ALM. Go to step 6.	ALM
	r. If requesting a matrix card to become idle: MCI	MCI
	s. If canceling matrix card idle request: CMC. Go to step 6.	CMC
4	RETURN (key).	Various headings, depending on entry in step 3. These headings are: a. If either IOS, ROS, RPS, BUS, or TSS. FR-CELL-PT b. If PSS: FR-CELL-PT VERSION WORDS c. If STC: ORIG LN TRK LN RCVR LN SDR LN FR-CELL-PT FR-CELL-PT FR-CELL-PT FR-CELL-PT d. If MTC: ORIG LN TRK LN PBX LN RCVR LN SDR LN FR-CELL-PT FR-CELL-PT FR-CELL-PT FR-CELL-PT FR-CELL-PT e. IF MTD: INLET DNIP FR-CELL-PT FR-CELL-PT f. If ASC: INPUT: DNIP, INLET, DSIP, or SN? g. If SUP: SENDING RECEIVING FR-CELL-PT NOT PAD FR-CELL-PT NOT PAD DIRECTION

Table 42. Manual Control of Ports Procedure (Cont)

STEP	ENTER	DISPLAY																
4 (cont)		h. If BUP: <table><tr><td colspan="2">SENDING</td><td colspan="2">RECEIVING</td></tr><tr><td>FR-CELL-PT</td><td>OS.TCL?</td><td>FR-CELL-PT</td><td>OS.TCL?</td></tr></table> i. If MCI: <table><tr><td colspan="2"></td><td>MODULE</td><td>MODULE</td></tr><tr><td>LXC</td><td>LXN</td><td>STAGE</td><td>NUMBER</td></tr></table>	SENDING		RECEIVING		FR-CELL-PT	OS.TCL?	FR-CELL-PT	OS.TCL?			MODULE	MODULE	LXC	LXN	STAGE	NUMBER
SENDING		RECEIVING																
FR-CELL-PT	OS.TCL?	FR-CELL-PT	OS.TCL?															
		MODULE	MODULE															
LXC	LXN	STAGE	NUMBER															
5	Numerical information under appropriate heading field, except as follows: If PSS entered in step 3: a. To display long version (PSA fields displayed in decimal) of entire PSA, go to step 6. b. To display long version of specific PSA word(s): L under VERSION heading and word number(s) under WORDS heading. c. To display short version (PSA fields displayed in octal) of specific PSA word(s): S under VERSION field and word number(s) under WORDS field. d. To display long version of words 0-9: L under VERSION heading and L under WORDS heading. e. To display long version of words 10-19: L under VERSION heading and U under WORDS heading. f. To display short version of words 0-9: S under VERSION heading and L under WORDS heading. g. To display short version of words 10-19: S under VERSION heading and U under WORDS heading. If ASC entered in step 3: DNIP, INLET, DSIP, or SN as required, go to step 7.	Numerical information. As entered. As entered. As entered. As entered. As entered. As entered.																

Table 42. Manual Control of Ports Procedure (Cont)

STEP	ENTER	DISPLAY
6	RETURN (key). Go to step 12.	a. If IOS in step 3: HH:MM:SS MANUAL FR-CELL-PT-STATUS 0 0 0 * *This field may contain O/S-A, O/S-R, or IN USE; where O/S-A is "already out-of-service before request" and O/S-R is "request placed port out-of-service." b. If ROS in step 3: HH:MM:SS MANUAL FR-CELL-PT STATUS 0 0 0 * *This field may contain O/S-R, REQACT, (request active), or O/S-A (already out of service). c. If RPS in step 3: HH:MM:SS MANUAL PORT ON PURGE LIST d. If STC in step 3: HH:MM:SS MANUAL SEMI-AUTO TEST CALL SUCCESSFUL or HH:MM:SS MANUAL SEMI-AUTO TEST CALL FAIL e. If MTC in step 3: HH:MM:SS MANUAL MANUAL TEST CALL READY f. If CAN in step 3: HH:MM:SS MANUAL MANUAL TEST CALL CANCEL g. If BUS in step 3: HH:MM:SS MANUAL TRUNK BUSIED OUT

Table 42. Manual Control of Ports Procedure (Cont)

STEP	ENTER	DISPLAY
6 (cont)		h. If MTD in step 3: HH:MM:SS MANUAL DNI MANUAL TEST CALL COMPLETE i. If CND in step 3: HH:MM:SS MANUAL MANUAL TEST CALL DNI CANCEL j. If TSS in step 3: SENDING RECEIVING RECEIVE RESERVE RECEIVE 000 6 6 000 1 16 0 51 06:46:27 MANUAL TSS COMPLETE k. If SUP in step 3: 08:44:32 MANUAL PATH COMPLETE l. If BUP in step 3: 06:46:27 MANUAL FR-CELL-PT STATUS 000 3 9 OS-R 000 4 10 INSRV 06:46:32 MANUAL BREAK-UP PATH COMPLETE m. If CSM in step 3: 00:53:05 MANUAL SMAN CLEAR n. If CLD in step 3: 00:53:10 MANUAL DNI CLEAR o. If ALM in step 3: MANUAL 7/10 DIGIT ALARM SENDING ACTIVATED p. If MCI in step 3: MANUAL MATRIX CARD IDLE REQUEST ACTIVATED q. If CMC in step 3: MANUAL MATRIX CARD IDLE REQUEST CANCELLED

Table 42. Manual Control of Ports Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7	RETURN (key).	a. If DNIP entered: DNIP FR-CELL-PT b. If INLET entered: INLET FR-CELL-PT c. If DSIP entered: DSIP FR-CELL-PT d. If SN entered: SN FR-CELL-PT
8	Equipment number as required.	As entered.
9	RETURN (key).	a. If DNIP entered: INLET FR-CELL-PT XXX X XX b. If INLET entered: DNIP FR-CELL-PT XXX X XX c. If DSIP entered: SN FR-CELL-PT XXX X XX d. If SN entered: DISP FR-CELL-PORT XXX X XX Where: X = a decimal frame, cell, and/or port number
10	RETURN (key).	INPUT:DNIP, INLET, DSIP, or SN

Table 42. Manual Control of Ports Procedure (Cont)

STEP	ENTER	DISPLAY
11	a. To get another association, go to step 3. b. To exit from procedure, go to step 12.	
12	To exit from procedure: ESC (key).	EXIT MANUAL CONTROL OF PORTS

Table 43. Copy Data Base Procedure

STEP	ENTER	DISPLAY
	<i>NOTE. If time of day has not been previously set, do the procedures in table 7, then do the procedures below. If diskettes are to be removed and/or replaced, go to step 1. If the presently mounted diskette is being copied, go to step 6.</i>	
1	a. If release 6 or earlier software equipped: \$DMOUNT DISK (0 or 1) b. If release 7 or later software equipped: \$UTL DMO/DISK (0 or 1)	\$DMOUNT DISK (0 or 1) \$UTL DMO/DISK (0 or 1)
2	RETURN (key).	a. If step 1a done: DISK NOW DISMOUNTED b. If step 1b done: ***HH:MM:SS UTL DISK NOW DISMOUNTED
3	Remove diskette from appropriate disk drive and insert diskette requiring copy service.	
4	a. If release 6 or earlier software equipped: \$MOUNT DISK (0 or 1) b. If release 7 or later software equipped: \$UTL MOU/DISK (0 or 1)	\$MOUNT DISK (0 or 1) \$UTL MOU/DISK (0 or 1)
5	RETURN (key).	a. If step 4a done: DISK NOW MOUNTED DISK VOLUME HEADER Name and date of diskette.

Table 43. Copy Data Base Procedure (Cont)

STEP	ENTER	DISPLAY
5 (cont)		b. If step 4b done: ***HH:MM:SS UTL DISK NOW MOUNTED DISK VOLUME HEADER Name and date of diskette.
6	a. To copy online CP data base: \$COPY ONL DB b. To copy offline data base: \$COPY OFF DB c. To copy MP data base \$COPY CFSITE	\$COPY ONL DB \$COPY OFF DB \$COPY CFSITE
7	RETURN (key).	a. If step 6a done: Time and date and CALL PROCESSOR FILE COPY followed by: Time and COPY COMPLETED b. If step 6b done: Time and date and CFSITE FILE COPY followed by: Time and COPY COMPLETED

Table 44. Copy Diskette Procedure

STEP	ENTER	DISPLAY
1	a. To copy entire contents: \$BACKUP ALL b. To copy specific file: \$BACKUP (file name)	\$BACKUP ALL \$BACKUP (file name)
2	RETURN (key).	Time and date and DCO FLOPPY COPY ROUTINE WHICH DISC DO YOU WISH TO COPY (0 or 1)?
3	0 or 1 as required.	0 or 1
4	RETURN (key).	ARE YOU READY TO COPY FROM DRIVE# (0 or 1) TO DRIVE# (0 or 1) (YES OR NO)?

Table 44. Copy Diskette Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
5	a. If ready to copy: YES Go to step 6. b. If not ready to copy: NO followed by RETURN (key).	YES END OF DCO FLOPPY COPY ROUTINE
6	RETURN (key).	DISC DRIVE# (1 or 0) HAS BEEN DISMOUNTED REMOVE DISC FROM DRIVE#(1 or 0) AND RESPOND WITH "READY" WHEN DRIVE IS EMPTY
7	Remove the disk that is not to be copied from the drive.	
8	READY	READY
9	RETURN (key).	INSERT OUTPUT DISC INTO EMPTY DRIVE TYPE "READY" WHEN COMPLETED
10	Insert new disk into empty drive.	
11	READY	
12	RETURN (key).	Time and date and START of COPY
13		TIME and date and DISC COPY COMPLETE REMOVE THE DISC FROM DRIVE# (1 or 0) REPLACE IT WITH THE ORIGINAL AND REMOUNT THE DRIVE USING THE ("SMOUNT" for release 6 or earlier software, or "SUTL MOU" for release 7 or later software) COMMAND Time and date and END OF FLOPPY COPY ROUTINE



11. TRAFFIC MEASUREMENT PROCEDURES

11.01 General.

These procedures are used to administer the traffic measurement reporting system (TMRS), turn the traffic measuring (TM) report on or off, schedule automatic generation of the TM report, and manually display the entire TM report or selected measurements within the report.

11.02 TM Administration.

The following TM administration commands are used to activate, add, change, etc. traffic measurements:

- a. The \$TMAD command is used to access the TM administration program so that all administrative functions can be done.
 - b. The ACTIVATE command is used to schedule data collection and printout routines (table 45).
 - c. The ADD command is used to add specific measurements to the group loaded in the MP work area (table 46).
 - d. The CHANGE command is used to change TM report schedules and output terminal used to display the report for the group loaded in the MP work area (table 47).
 - e. The DEFINE command is used to display any or all measurement mnemonics equipped in the system and to create a TM report schedule for the group loaded in the MP work area only (table 48).
 - f. The DELETE command is used to delete measurements from the group loaded in the MP work area (table 49).
 - g. The LIST command is used to list any of the following (table 50):
 1. All active measurements.
 2. Specific active measurement.
 3. Number of unassigned registers.
 4. All mnemonics, qualifiers and print position of measurements in the group loaded in the MP work area.
 5. Data collection schedule and terminal assigned to the group loaded in the MP work area.
 6. Collection schedule for active group.
 - h. The LOAD command is used to load a measurement group from the floppy disk to the MP work area (table 51).
- NOTE. A group must be loaded into the MP work area before any operation can be done to it.*
- i. The PURGE command is used to delete all or part of the group loaded in the MP work area (table 52).

- j. The REPORT command is used to control automatic report generation (table 53).
- k. The SAVE command is used to transfer a group from the MP work area to the floppy disk and save all changes made to the group (table 54).

NOTE. If a group is not "saved", all changes made to the group will be lost.

- l. The TERMINATE command is used to terminate the data collection and printout routines (table 55).

11.03 TMRS Manual Report Generation.

Table 56 provides procedures for requesting a manual report of the contents of any or all currently accumulating (active) registers, or last displayed (passive) registers.

Table 45. TMRS Activate Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	a. If group not loaded into MP work area: LOAD GROUP N Where: N = group number (0-32). Go to step 4. b. If group is loaded into MP work area go to step 5.	As entered.
4	RETURN (key).	GROUP N LOADED XXXX ASSIGNED REGISTERS XXXX LOCATIONS AVAILABLE IN GROUPING FILE TMAD?
5	ACTIVATE	ACTIVATE
6	RETURN (key).	GROUP ACTIVATED
7	EXIT	TMAD? EXIT
8	RETURN (key).	Time, date, and END OF TMRS ADMINISTRATION

Table 46. TMRS Add Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	Do steps 3 and 4 of table 51.	TMAD?
4	ADD XXXXX/Q R, C Where: XXXXX = required mnemonic /Q = Qualifier if required R = Printout row C = Printout column	As entered.
5	RETURN (key).	TMAD?
6	a. If more adds required, go to step 4. b. If saving adds: SAVE, followed by RETURN (key). c. If activating adds: ACTIVATE, followed by RETURN (key).	GROUP SAVED TMAD? GROUP ACTIVATED TMAD?
7	To exit from procedure: EXIT followed by RETURN (key).	Time, date and END OF TMRS ADMINISTRATION

Table 47. TMRS Change Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	Do steps 3 and 4 of table 51.	TMAD?
4	a. If changing data collection schedule: CHANGE GROUP SEGMENT X Where: X = Schedule number to be changed (1-4). Go to step 7.	CHANGE GROUP SEGMENT X

Table 47. TMRS Change Procedure (Cont)

STEP	ENTER	DISPLAY
4 (cont)	b. If changing group terminal: CHANGE GROUP TERMINAL	CHANGE GROUP TERMINAL
	c. If changing active terminal: CHANGE ACTIVE TERMINAL	CHANGE ACTIVE TERMINAL
5	RETURN (key).	ENTER TERMINAL NUMBER
6	Number of terminal. Go to step 10.	As entered.
7	RETURN (key).	ENTER INPUT AS FOLLOWS: DAYS HOUR NO SIZE SMTWTFS XXXX XX XXXX
8	Required information under appropriate headings. (Refer to the section titled <i>Traffic Measuring Facilities, Administration.</i>)	As entered.
9	RETURN (key).	TMAD?
10	a. To save changes: SAVE, followed by RETURN (key).	GROUP SAVED TMAD?
	b. To activate changes: ACTIVATE, followed by RETURN (key).	GROUP ACTIVATED TMAD?
11	To exit from procedure: EXIT, followed by RETURN (key).	Time, date and END OF TMRS ADMINISTRATION

Table 48. TMRS Define Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	a. If display of all mnemonics and descriptions equipped in system required: DEFINE ALL Go to step 6.	DEFINE ALL

Table 48. TMRS Define Procedure (Cont)

STEP	ENTER	DISPLAY								
3 (cont)	b. If display of specific mnemonic and description required: DEFINE XXXXX Where: XXXXX = Specific mnemonic Go to step 6. c. If creating new data collection schedule: Do steps 3 and 4 of table 51 followed by: DEFINE GROUP SEGMENT X Where: X = Schedule number to be defined (1-4).	DEFINE XXXXX DEFINE GROUP SEGMENT X								
4	RETURN (key).	ENTER INPUT AS FOLLOWS: <table><tr><td>DAYS</td><td>HOUR</td><td>NO</td><td>SIZE</td></tr><tr><td>SMTWTFS</td><td>XXXX</td><td>XX</td><td>XXXX</td></tr></table>	DAYS	HOUR	NO	SIZE	SMTWTFS	XXXX	XX	XXXX
DAYS	HOUR	NO	SIZE							
SMTWTFS	XXXX	XX	XXXX							
5	Required information under appropriate headings followed by RETURN (key). (Refer to section titled <i>Traffic Measuring Facilities, Administration.</i>) Go to step 7.	As entered followed by TMAD?								
6	RETURN (key).	Mnemonic(s) and definition(s) as requested in steps 3a and 3b, followed by TMAD?								
7	a. To save changes: SAVE, followed by RETURN (key). b. To activate changes: ACTIVATE, followed by RETURN (key).	GROUP SAVED TMAD? GROUP ACTIVATED TMAD?								
8	To exit from procedure: EXIT followed by RETURN (key).	Time, date and END OF TMRS ADMINISTRATION								

Table 49. TMRS Delete Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?

Table 49. TMRS Delete Procedure (Cont)

STEP	ENTER	DISPLAY
3	Do steps 3 and 4 of table 51.	TMAD?
4	DELETE XXXXX/Q Where: XXXXX = Mnemonic /Q = Qualifier if required	DELETE XXXXX/Q
5	RETURN (key). a. If more deletions required, go to step 3. b. To save deletions: SAVE followed by RETURN (key). c. To activate changed group: ACTIVATE followed by RETURN (key).	TMAD? GROUP SAVED TMAD? GROUP ACTIVATED TMAD?
6	To exit from procedure: EXIT followed by RETURN (key).	Time, date and END OF TMRS ADMINISTRATION

Table 50. TMRS List Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	a. If listing of all active measurements required: LIST ACTIVE ALL b. If listing of specific active measurement required: LIST ACTIVE XXXXX Where: XXXXX = Specific mnemonic c. If listing of number of unassigned registers and total number of equipped registers required: LIST INACTIVE	LIST ACTIVE ALL LIST ACTIVE XXXXX LIST INACTIVE

Table 50. TMRS List Procedure (Cont)

STEP	ENTER	DISPLAY
3 (cont)	d. If listing of mnemonics, qualifiers, and print position of all measurements in MP work area required, do steps 3 and 4 of table 51, followed by: LIST GROUP e. If listing of schedule and terminal number for group in MP work area required, do steps 3 and 4 of table 51 followed by: LIST GROUP SCHEDULE f. If listing of active schedule required, do steps 3 and 4 of table 51 followed by: LIST ACTIVE SCHEDULE	LIST GROUP LIST GROUP SCHEDULE LIST ACTIVE SCHEDULE
4	RETURN (key).	List as specified in step 3 followed by TMAD?
5	EXIT	EXIT
6	RETURN (key).	Time, date and END OF TMRS ADMINISTRATION

Table 51. TMRS Load Procedure

STEP	ENTER	DISPLAY
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	LOAD GROUP N Where: N = Number of group (0-32) to be loaded into MP work area from disk.	LOAD GROUP N
4	RETURN (key).	GROUP N LOADED XXXX ASSIGNED REGISTERS XXXX LOCATIONS AVAILABLE IN GROUPING FILE TMAD?
5	a. To activate group: ACTIVATE, followed by RETURN (key).	GROUP ACTIVATED TMAD?

Table 51. TMRS Load Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
5 (cont)	b. To list group, go to step 3 of table 50.	
6	To exit from procedure: EXIT followed by RETURN (key).	Time, date and END OF TMRS ADMINISTRATION

Table 52. TMRS Purge Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$TMAD	STMAD
2	RETURN (key).	Time, date, and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	Do steps 3 and 4 of table 51.	
4	a. If all assigned measurements to be purged: PURGE MEASUREMENTS	PURGE MEASUREMENTS
	b. If data collection and printout schedule to be purged: PURGE SEGMENT X Where: X = Number of schedule (1-4)	PURGE SEGMENT X
	c. If all assigned measurements and schedules to be purged: PURGE ALL	PURGE ALL
5	RETURN (key).	TMAD?
6	EXIT	EXIT
7	RETURN (key).	Time, date, and END OF TMRS ADMINISTRATION

Table 53. TMRS Report Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$TMAD	STMAD
2	RETURN (key).	Time, date, and TMRS ADMINISTRATION PROGRAM followed by TMAD?

Table 53. TMRS Report Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3	a. To turn automatic report generation on: REPORT ON b. To turn automatic report generation off: REPORT OFF	REPORT ON REPORT OFF
4	RETURN (key).	TMAD?
5	EXIT	EXIT
6	RETURN (key).	Time, date, and END OF TMRS ADMINISTRATION

Table 54. TMRS Save Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date, and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	Do steps 3 and 4 of table 51. <i>NOTE. Only groups 1 through 32 can be saved. Group 0 can only be activated.</i>	
4	SAVE	SAVE
5	RETURN (key).	GROUP N SAVED followed by TMAD?
6	EXIT	EXIT
7	RETURN (key).	Time, date, and END OF TMRS ADMINISTRATION

Table 55. TMRS Terminate Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$TMAD	\$TMAD
2	RETURN (key).	Time, date, and TMRS ADMINISTRATION PROGRAM followed by TMAD?
3	TERMINATE	TERMINATE
4	RETURN (key).	TMRS TERMINATED followed by TMAD?
5	EXIT	EXIT
6	RETURN (key).	Time, date, and END OF TMRS ADMINISTRATION

Table 56. TMRS Manual Report Generation

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. If contents of all active measurement registers required: \$TMREPT A b. If contents of all passive (last displayed) measurement registers required: \$TMREPT P c. If contents of all or specific measurement registers required: \$TMREPT	\$TMREPT A \$TMREPT P \$TMREPT
2	RETURN (key).	a. If step 1a done, entire active TM report followed by: TMREPT: END OF TMRS REPORTING b. If step 1b done, entire passive TM report followed by: TMREPT: END OF TMRS REPORTING c. If step 1c done: Time, date, and TM REPORTING ADMINISTRATION followed by: ACTIVE OR PASSIVE BUFFERS (A/P)?

Table 56. TMRS Manual Report Generation (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
3	A for active buffer or P for passive buffer.	A or P
4	RETURN (key).	ENTER ID OR HIT RETURN KEY
5	a. If contents of all active measurement registers required: RETURN (key).	Entire TM report followed by: TMREPT: END OF TMRS REPORTING
	b. If contents of specific measurement register required: XXXXX/Q	XXXXX/Q
	Where: XXXXX = Specific mnemonic /Q = Qualifier if required	
6	RETURN (key).	Contents or register specified followed by ID?
7	a. If contents of additional registers required, go to step 5b.	
	b. If no more registers to be displayed: RETURN (key).	TMREPT: END OF TMRS REPORTING



12. CAMA/LAMA PROCEDURES

12.01 General.

- a. All functions related to the centralized and local automatic message accounting (CAMA/LAMA) subsystem can be done from the console. These include: start the ticket recording operation, display and/or change the state of a tape unit, rewind a tape to the starting position (load point), reset a selected tape unit, change the volume serial label, and initiate maintenance diagnostics to be done. These functions are manually implemented according to the following format:

\$AMA	SPACE	FUNCTION	SPACE	UNIT	RETURN
	KEY	PARAMETER	KEY	PARAMETER	KEY

- b. Function parameters are: ACTIVE, STANDBY, MAINT, LOCKOUT, STATUS, CHANGE, MOS, RESET, REWIND, and WRITEVSL. Unit parameters are: X (for the X unit) and Y (for the Y unit). The selection of a unit parameter is not required when using either the CHANGE or STATUS function parameter. The console response to a function parameter is in the following format:

```
*** 00:00:00    PARAMETER INFORMATION - UNIT
          (Time of day)
```

- c. Additional information on the CAMA/LAMA subsystem is provided in the section titled *CAMA/LAMA, General Description*, referenced in paragraph 2.02.

12.02 Status/Control Panel.

CAUTION. A unit must be in a ticketing state (active or standby) before being manually selected or a loss of tickets will result.

The CAMA/LAMA status/control panel is located on the AMA frame and contains status lamps and a MANUAL SELECT switch for the CAMA/LAMA tape units. The switch (XSIDE/AUTO/YSIDE) can be used to force either tape unit into the ticketing mode (active state). The unit selected (X or Y) is automatically put into the active state. Whenever the switch is returned to the AUTO position, the system must be restored to normal program control by entering any of the CAMA/LAMA commands on the DCO console. The side not selected by the manual select switch will be placed in the maintenance state at this time to protect any toll ticketing data which may have been written on that tape. It is then up to the system operator to determine if the tape should be saved or restored to the standby state.

12.03 Tape Unit Status.

- a. A tape unit can be placed in any one of the following states: active, lockout, standby, maintenance, or maintenance-out-of-service.
1. The active state indicates that a tape unit is recording toll ticketing data.
 2. The lockout state indicates that a tape unit contains current ticketing data and is protected from being overwritten. Manual controls on the tape drive are enabled to facilitate the removal of the tape reel and mounting a fresh reel.

AMA, Return

3. The standby state indicates a tape unit is at the load-point position and is capable of replacing the active unit as the ticketing device.
4. The maintenance state indicates that a tape unit is ready for diagnostic testing. A unit must be placed in this state before being put in the active or standby states.
5. The maintenance-out-of-service state indicates that a tape unit has been detected as being faulty. The unit is placed in this state automatically by the M&A software, or manually from the system console.

b. To obtain unit status, enter:

\$AMA STATUS

The response at the console is:

```
*** 00:00:00 PRESENT TAPE UNIT STATES ARE
      .... (This line will contain state) ... = X
      .... (This line will contain state) ... = Y
```

12.04 Start Ticketing.

After dc power application ticketing is started according to the procedures in table 57. Before doing these procedures, verify that the tape(s) has been loaded into the drive(s) per manufacturer's instructions.

12.05 Changing States.

- a. To protect the information recorded on a CAMA/LAMA tape, special restrictions for changing tape unit states have been established. In some cases, a tape unit must be placed in a given state before it can be put into another state. In other cases, a tape unit can only be transferred from one state to another specific state. The following tables define these restrictions.

DESIRED STATE	PREREQUISITE STATE
ACTIVE	Maintenance or standby
STANDBY	Maintenance
Maintenance	Not active
MOS	Lockout, maintenance or standby
Lockout	Any state (normally active)

CURRENT STATE	NEXT POSSIBLE STATE
ACTIVE	Lockout
STANDBY	Maintenance, lockout, active or MOS
Maintenance	Active, standby, MOS, or lockout
MOS	Lockout or maintenance. Must be preceded by a reset of the unit
Lockout	Maintenance or MOS

- b. The active state places a tape unit on-line to record toll ticket information. This is accomplished (only if a tape unit is in the maintenance state) by entering \$AMA ACTIVE X (or Y) on the console.

- c. The standby state changes a unit from the maintenance state to standby, where it can be placed in the active state by the CHANGE command. A tape unit is placed in the standby state by entering \$AMA STANDBY X (or Y) on the console.
- d. The CHANGE parameter is used to replace the currently active tape unit with the unit in the standby state. When the command \$AMA CHANGE is entered, the standby unit is placed in the active state and the active unit is placed into lockout. The responses at the console for a \$AMA CHANGE (no unit parameter required) command are:

1. *** 00:00:00 TAPE CONTROL UNIT IN LOCKOUT = X (or Y)
2. *** 00:00:00 REMOVE TAPE FROM TAPE DRIVE = X (or Y)
3. *** 00:00:00 UNIT ACTIVE - TICKETING ENABLED = Y (or X)

NOTE. The change parameter is only valid if the tape units are in the active and standby states.

- e. After selecting the ACTIVE, STANDBY, or CHANGE command the following message is displayed:

DO YOU WISH TO CERTIFY AMA (Y/N)?

An operator response of Y causes a subset of AMA diagnostics to be run to verify that the AMA unit is functioning properly before completing the command. A response of N causes the system to complete the command without diagnostics.

- f. The LOCKOUT parameter can be used to transfer a desired tape unit from any state to the lockout state. This parameter is normally used to transfer an active tape unit to the lockout state when only a single tape unit is available for ticketing. Enter \$AMA LOCKOUT X (or Y) and then strike RETURN key. The responses at the console are:

***00:00:00 TAPE CONTROL UNIT IN LOCKOUT = X
***00:00:00 REMOVE TAPE FROM TAPE DRIVE = X (or Y)

- g. The maintenance-out-of-service (MOS) state indicates that a unit has been diagnosed as being faulty and is to be kept from being put into the active or standby states. The command can be initiated through software if second level diagnostics detect a failure, or by the command \$AMA MOS X (or Y) from the console. The response at the console is:

***00:00:00 TAPE UNIT IS IN THE MOS STATE = X (or Y)

12.06 Volume Serial Label (VSL).

- a. When doing the ACTIVE, STANDBY, or CHANGE command for those sites that use a VSL, the following message is displayed requesting verification of the tape serial number:

TAPE SERIAL NUMBER = XXXXXX
SHALL WE COMPLETE COMMAND? (Y/N)

A response of Y causes the command to proceed; a response of N aborts the command.

- b. The WRITEVSL X (or Y) command is used to create a new serial number. Enter SAMA WRITEVSL X (or Y) followed by a carriage return. The system response is:

ENTER SERIAL NUMBER (6 DIGITS) =

Enter a six-digit alphanumeric serial number. When the sixth digit is entered, the VSL is written at the front of the tape and the following message, indicating successful completion of the operation, is displayed:

TAPE CNTL WRITE VSL COMPLETED X (or Y)

12.07 Tape Rewind.

The REWIND parameter is used to return a desired tape unit tape to the load point position. Enter SAMA REWIND X (or Y) and then strike the RETURN key.

NOTE. The REWIND parameter can be entered during any tape unit state other than ACTIVE or STANDBY.

12.08 Tape Unit Reset.

The RESET parameter is used to initialize a desired tape unit for operation after maintenance has been performed to reset error conditions, especially noise transients. Enter SAMA RESET X (or Y) and then strike the RETURN key.

NOTE. The RESET parameter can be entered during any tape unit state other than ACTIVE, STANDBY, or LOCKOUT.

12.09 Changing Tapes.

The following three types of procedures are provided for changing tapes:

- Use the procedure in table 58 for changing the tape on the active unit when two tape units are operational.
- Use the procedure in table 59 for changing the tape on the active unit when the standby unit is not operational or not equipped.
- Use the procedure in table 60 for changing the tape in the inactive unit when the other unit is active and in operation.

Table 57. **CAMA/LAMA Start Ticketing Procedure**

STEP	ENTER	DISPLAY
1	SAMA MAINT X	SAMA MAINT X
2	RETURN (key).	TAPE UNIT IN MAINTENANCE ---- = X
3	SAMA ACTIVE X	SAMA ACTIVE X
4	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?

Table 57. CAMA/LAMA Start Ticketing Procedure (Cont)

STEP	ENTER	DISPLAY
5	Y	Y
6	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV = 000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG2 FLTISO PASS followed by: a. If tape contains volume serial label, the following is displayed: TAPE SERIAL NUMBER = XXXXXX SHALL WE COMPLETE COMMAND? b. If tape does not contain a volume serial label, the following is displayed: UNIT ACTIVE – TICKETING ENABLED --- = X
7	a. If UNIT ACTIVE --- is displayed, go to step 11. b. If TAPE SERIAL --- is displayed, go to next step.	
8	a. If tape serial number is correct: Y b. If tape serial number is not correct: N	Y N
9	RETURN (key).	a. If step 8a done: UNIT ACTIVE – TICKETING ENABLED --- = X b. If step 8b done: TAPE ACTIVE COMMAND ABORTED
10	a. If UNIT ACTIVE --- displayed, go to step 11. b. If TAPE ACTIVE COMMAND ABORTED displayed, use the WRITEVSL command to write the serial number to tape, then go to step 3 of this table.	
11	\$AMA MAINT Y	\$AMA MAINT Y
12	RETURN (key).	TAPE UNIT IS IN MAINTENANCE --- = Y

Table 57. CAMA/LAMA Start Ticketing Procedure (Cont)

STEP	ENTER	DISPLAY
13	\$AMA STANDBY Y	\$AMA STANDBY Y
14	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?
15	Y	Y
16	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV=000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG2 FLTISO PASS TAPE UNIT IS IN STANDBY STATE = Y

Table 58. Change Active Tape Procedure (Standby Tape Unit Available)

STEP	ENTER	DISPLAY
1	Verify that inactive unit is in standby: \$AMA STATUS followed by RETURN (key).	Status of tape units.
2	\$AMA CHANGE	\$AMA CHANGE
3	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?
4	Y	Y
5	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV = 000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG 2 FLTISO PASS followed by: a. If tape contains volume serial label, the following is displayed: TAPE SERIAL NUMBER = XXXXXX SHALL WE COMPLETE COMMAND? b. If tape does not contain volume serial label, see display in step 7, and go to step 8.
6	Y	Y

Table 58. Change Active Tape Procedure (Standby Tape Unit Available) (Cont)

STEP	ENTER	DISPLAY
7	RETURN (key).	As shown in the following example: TAPE CONTROL UNIT IN LOCKOUT ---- = X (or Y) REMOVE TAPE FROM TAPE DRIVE ---- = X (or Y) TICKETING OPERATION DISABLED ** AMA TAPE SUMMARY ** SERIAL NUMBER = XXXXXX TAPE UNIT = X (or Y) START BC = XXXXXX END BC = XXXXXX # BLOCKS = XXXXXX # RECORDS = XXXXXX # TOLL TKS = XXXXXX UNIT ACTIVE – TICKETING ENABLED ---- = Y (or X)
8	Remove and replace tape per manufacturer's instructions.	
9	\$AMA MAINT X (or Y)	\$AMA MAINT X (or Y)
10	RETURN (key).	TAPE UNIT IN MAINTENANCE ---- = X
11	\$AMA STANDBY X (or Y)	\$AMA STANDBY X (or Y)
12	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?
13	Y	Y
14	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV = 000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG2 FLTISO PASS TAPE UNIT IS IN STANDBY STATE = X

Table 59. Change Active Tape Procedure (No Standby Unit Available)

STEP	ENTER	DISPLAY
	<i>NOTE. Do this procedure during light traffic periods only to minimize loss of ticketing data.</i>	
1	SAMA LOCKOUT X (or Y)	SAMA LOCKOUT X (or Y)
2	RETURN (key).	As shown in the following example: TAPE CONTROL UNIT IN LOCKOUT ---- = X (or Y) REMOVE TAPE FROM TAPE DRIVE ---- = X (or Y) TICKETING OPERATION DISABLED ** AMA TAPE SUMMARY ** SERIAL NUMBER = XXXXXX TAPE UNIT = X (or Y) START BC = XXXXXX END BC = XXXXXX # BLOCKS = XXXXXX # RECORDS = XXXXXX # TOLL TKS = XXXXXX UNIT ACTIVE - TICKETING ENABLED ---- = Y (or X)
3	Remove and replace tape per manufacturer's instructions.	
4	SAMA MAINT X (or Y)	\$AMA MAINT X (or Y)
5	RETURN (key).	TAPE UNIT IS IN MAINTENANCE - - = X (or Y)
6	SAMA ACTIVE X (or Y)	\$AMA ACTIVE X (or Y)
7	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?
8	Y	Y
9	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV = 000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG2 FLTISO PASS followed by: a. If tape contains volume serial label, the following is displayed: TAPE SERIAL NUMBER = XXXXXX SHALL WE COMPLETE COMMAND?

Table 59. Change Active Tape Procedure (No Standby Unit Available) (Cont)

STEP	ENTER	DISPLAY
9 (cont)		b. If tape does not contain a volume serial label, the following is displayed: UNIT ACTIVE - TICKETING ENABLED ---- = X
10	a. If UNIT ACTIVE ---- is displayed, end of procedure. b. If TAPE SERIAL ----- is displayed, go to next step.	
11	a. If tape serial number is correct: Y b. If tape serial number is not correct: N	Y N
12	RETURN (key).	a. If step 8a done: UNIT ACTIVE - TICKETING ENABLED ---- = X b. If step 8b done: TAPE ACTIVE COMMAND ABORTED
13	a. If UNIT ACTIVE ---- displayed, end of procedure. b. If TAPE ACTIVE COMMAND ABORTED displayed, use the WRITEVSL command to write the serial number to tape, then go to step 6 of this table.	

Table 60. Change Inactive Tape Procedure (Other Tape Unit Active)

STEP	ENTER	DISPLAY
1	\$AMA LOCKOUT X (or Y)	\$AMA LOCKOUT X (or Y)
2	RETURN (key).	As shown in the following example: TAPE CONTROL UNIT IN LOCKOUT ---- = X (or Y) REMOVE TAPE FROM TAPE DRIVE ---- = X (or Y) TICKETING OPERATION DISABLED ** AMA TAPE SUMMARY ** SERIAL NUMBER = XXXXXX TAPE UNIT = X (or Y) START BC = XXXXXX END BC = XXXXXX # BLOCKS = XXXXXX

Table 60. Change Inactive Tape Procedure (Other Tape Unit Active) (Cont)

STEP	ENTER	DISPLAY
2 (cont)		# RECORDS = XXXXXX # TOLL TKS = XXXXXX
	Remove and replace tape per manufacturer's instructions.	
3	\$AMA MAINT X (or Y)	\$AMA MAINT X (or Y)
4	RETURN (key).	TAPE UNIT IS IN MAINTENANCE ---- = X (or Y)
5	\$AMA STANDBY X (or Y)	\$AMA STANDBY X (or Y)
6	RETURN (key).	DO YOU WISH TO CERTIFY AMA (Y/N)?
7	Y	Y
8	RETURN (key).	As shown in the following example: *** HH:MM:SS SECOND LEVEL DIAGNOSTICS V1 *** HH:MM:SS DIAG2 AMATST EV = 000000 VX = 0 FC = 000000 *** HH:MM:SS DIAG2 FLTISO PASS TAPE UNIT IS IN STANDBY STATE = X (or Y)

13. MANUAL OVERRIDE PROCEDURES

13.01 General.

These procedures are done at the basic maintenance panel (BMP) and/or the console when the normal operation of the system has been impaired. The decision to manually take over a facility of the system should be made by the person responsible for system maintenance.

13.02 X and Y Service Circuit Switchover.

NOTE. Before switching service circuits, confirm their status by displaying a system status report. Refer to paragraph 9.02, if needed.

Use the command \$SWITCH TONES to switch precise tone generators, the command \$SWITCH RINGS to switch ringing generators, the command \$SWITCH CLOCKS (in state 1 only) to switch clocks, and the command \$SWITCH SIDES (in state 1 or 4 only) to switch A and B CPUs. The command \$SWITCH NX is used to switch sides (in state 1 only) without doing a port store area (PSA) or matrix switch (MS) cross-write, and the command \$SWITCH SI is used to switch sides (in state 1 only) and do a PSA and MS cross-write. Follow the command by striking the RETURN key.

13.03 Line Load Control.

The purpose of line load control is to selectively deny call-origination capability to specified subscriber lines in order to provide service to essential lines in cases of excessive traffic due to an extreme emergency. It is not intended as an administrative tool for controlling loads on high-traffic days. Furthermore, it is not the intention of this section to advise as to when to apply line load control, but rather to describe how to apply it. The decision to apply it must be left up to local management. Tables 61 and 62 provide procedures for activating and deactivating line load control for software release 7 and above systems.

13.04 Automatic Trunk Make Busy.

NOTE. This feature applies to software release 7 and above only.

The purpose of automatic trunk make busy (ATMB) is to selectively restrict the amount of traffic to a congested (usually, higher ranking) office. This is done by manually making a specified percentage (25, 50, 60, 70, 80, 90, or 100 percent) of the trunk group to that office appear busy to the system. Table 63 provides procedures for activating and deactivating ATMB for a specific trunk group as required.

13.05 Stopping Call Processor A or B.

NOTE. Before stopping a call processor, ensure that it is the off-line processor by either operating the A/AUTO/B switch on the BMP or entering \$SWITCH SIDES followed by striking the RETURN key.

If either call processor develops faults and/or begins to run erratically (according to BMP fault indicators), stop the call processor by operating the HALT/RUN toggle switch on the associated (CPA or CPB) CPU PWBA to the HALT position. When a call processor is stopped, the CPA HALT or CPB HALT indicator on the BMP lights. Restore the processor locally by operating the HALT/RUN toggle switch to the RUN position; the processor will resume operation at the point where it was stopped by the halt command. To restore the processor to service, do the CP startup program procedures described in paragraph 6.

13.06 Call Processor Switchover.

NOTE. Before a CP switchover is initiated, a system status report (paragraph 9.02) should be generated to determine which CP is ONLINE and UP; the CP intended for testing or maintenance should be OFFLINE after switchover.

During normal operation, the A/AUTO/B switch, located in the A/B SELECT portion of the BMP, is left in the AUTO position to permit automatic switchover if a fault occurs in the on-line side. If it is desired to force calls through one side, during testing or maintenance, set the A/AUTO/B switch to either the A or the B position; the red MANUAL SW-OVER indicator on the BMP lights when in this mode to alert maintenance personnel that automatic switchover is disabled. The A or B ON-LINE indicator displays which side is on-line at any time. To switch CPs, using the console, ensure that the A/AUTO/B switch is in the AUTO position and the side intended for on-line operation is functioning properly. Then enter \$SWITCH SIDES and strike the RETURN key.

13.07 Change System States.

To change system states, the operator enters \$STATE, followed by the desired state (1, 2, or 4) and a carriage return. To protect system operation, restrictions for switching states have been established. The following table defines these restrictions:

NOTE. In order to change from state 1 to any other state, call-processor startup (\$CPSU) must be done.

DESIRED STATE	PREREQUISITE STATE
4	2
2	4
1	2

13.08 Clear Diagnostic Reports Storage Areas.

The various diagnostic reports storage areas are cleared by entering \$PCDX C to clear the port control diagnostics history storage area, \$SYMMDP C to clear the synch mismatch history storage area, or \$MSDHX S to clear the matrix switch diagnostics history storage area. In addition, the CP error message storage area is manually cleared by entering \$DMPMSG C (this storage area is automatically cleared every hour).

13.09 Clear Alarms.

All software alarms are cleared by entering \$CLEAR AL followed by a carriage return (or control R for systems equipped with release 8A or later software).

Table 61. Line Load Control Activate Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To activate line load control (LLC) for DCO and DNI lines: \$LLC INV B (or C) DCO Where: B = Restrict class B and C lines C = Restrict class C lines only b. To activate LLC for DSI lines only: \$LLC INV B (or C) DSI XX Where: B = Restrict class B and C lines C = Restrict class C lines only XX = Decimal digital satellite interface number (0-31) or A for all digital satellite interfaces c. To activate LLC for all lines: \$LLC INV B (or C) ALL Where: B = Restrict class B and C lines C = Restrict class C lines only	\$LLC INV B (or C) DCO \$LLC INV B (or C) DSI XX \$LLC INV B (or C) ALL
2	RETURN (key).	One or all of the following: 1. If routine testing active: ROUTINE TESTING PURGED 2. If DNI night testing active: NIGHT TESTING PURGED 3. If DNI night testing mounted: NIGHT TESTING DISMOUNTED followed by: Time, date, and LLC ACTION COMPLETED

Table 62. Line Load Control Deactivate Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. To deactivate line load control (LLC) for DCO and DNI lines: \$LLC REV DCO b. To deactivate LLC for DSI lines: \$LLC REV DSI XX Where: XX = Decimal DSI number (0-31), or A for all DSIs.	\$LLC REV DCO \$LLC REV DSI XX

Table 62. Line Load Control Deactivate Procedure (Cont)

STEP	ENTER	DISPLAY
1 (cont)	c. To deactivate LLC for all lines: \$LLC REV ALL	\$LLC REV ALL
2	RETURN (key).	DO YOU WANT TO SCHEDULE ROUTINE TESTING (Y or N)
3	Y for yes or N for no as required.	Y or N
4	a. If system not equipped with digital network interface go to step 8. b. If system is equipped with digital network interface: RETURN (key).	DO YOU WANT TO SCHEDULE NIGHT TESTING (Y or N)
5	Y or N as required.	Y or N
6	RETURN (key).	DO YOU WANT TO MOUNT NIGHT TESTING (Y or N)
7	Y or N as required.	Y or N
8	RETURN (key).	Time, date and LLC ACTION COMPLETED.

Table 63. Automatic Trunk Make Busy Procedure

STEP	ENTER	DISPLAY
1	a. To turn automatic trunk make busy on: \$UTL ATB/NN: ON = XXX. Where: NN = Trunk group number XXX. = 25. for 25 percent 50. for 50 percent 60. for 60 percent 70. for 70 percent 80. for 80 percent 90. for 90 percent 100. for 100 percent <i>NOTE. The appropriate number must be entered exactly as shown, including the period.</i>	As entered.

Table 63. Automatic Trunk Make Busy Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1 (cont)	b. To turn automatic trunk make busy off: \$UTL ATB/NN: OFF Where: NN = Trunk group number	As entered.
2	RETURN (key).	a. If 1a entered: UTL ATB "ON" FOR TG b. If 1b entered: UTL ATB "OFF" FOR TG



14. UTILITY PROCEDURES

14.01 DCO Equipment Utilities.

NOTE. These procedures apply to software release 7 or later only.

The DCO equipment utility programs are used to provide access to certain characteristics of the multiterminal operating system and to provide procedures for mounting (enabling) and dismounting (disabling) various system devices. All utility functions are accessed by entering \$UTL followed by the mnemonic for the specific function required, followed by any specific parameters required and then striking the RETURN key. The following paragraphs provide a description of all functions that can be done using the \$UTL command.

a. Active Task List.

The ACT function is used to display a list of all active or pending tasks and identify the terminal that originated each task. To obtain a list of all active tasks and terminals, enter \$UTL ACT followed by RETURN (key) (or optionally, control A for release 8A or later systems). The system response is a series of messages showing each active task and the terminal at which the task is active.

b. Broadcast Message.

send mess. from 1 TTY to Another

The BRO function is used to send a message to any other terminal in the system. The message can be up to 60 characters in length. When the message is displayed at the receiving terminal, the originating terminal ID is included in the message. To send a message to another terminal, enter \$UTL BRO/ followed by the receiving terminal ID, then enter a colon (:) followed by up to 60 characters and a RETURN key. The following is an example of a message sent to terminal TT0:

\$UTL BRO/TT0: HELLO THERE

c. Dismount System Device.

The DMO function is used to dismount (disable) various system devices. Table 64 is a list of all devices and corresponding mnemonics that can be dismounted. To dismount a device, enter \$UTL DMO/ followed by the device mnemonic and RETURN (key). The system response is:

UTL (device) NOW DISMOUNTED

d. Mount System Device.

The MOU function is used to mount (enable) a system device that was dismounted (disabled) using the DMO function. Refer to table 64 for a list of all system devices and corresponding mnemonics. To mount a device, enter \$UTL MOU/ followed by the device mnemonic and RETURN (key). The system response is:

UTL (device) NOW MOUNTED

e. Change Mount/Dismount Status.

Special control character operations to change the mounted or dismounted status of various system devices is provided in systems equipped with release 8A or later software. This operation is done by entering a control U followed by the appropriate character shown in the SPECIAL CHARACTER column in table 64.

f. List Valid Utility Functions.

The HELP function is used to display a list of all valid utility functions and a brief description of each function. To obtain this list, enter **\$UTL HELP** followed by **RETURN** key. The system response is a list of all valid functions.

g. Task Static Priority.

Each task in the system is assigned a static priority that is used at schedule time to determine its running priority. The PRI function is used to list all tasks and respective priorities, list a specific task and priority, or to change a specific task's priority. Changing a static priority has no effect on a task that is active or pending. Refer to table 66 for UTL task static priority procedures.

h. Redirect Task.

The RED function is used to redirect a task that was initiated on one terminal to another terminal as required. A task can only be controlled from one terminal at a time. To redirect a task, enter **\$UTL RED/** followed by the **task mnemonic**, a colon (:), and the **terminal at which the task is to be controlled**. The following is an example of a redirect function:

\$UTL RED/DIAGC:TT1

The system response is:

DIAGC I/O REDIRECTED TO TT01

i. Task Access Rights.

Each task in the system is assigned access rights which, along with terminal access rights and logged-on access rights, determine the execution validity for the task at a given terminal. The RGT function is used to display each task and corresponding access rights and to change the access rights as required.

1. To list a task and access rights, enter **\$UTL RGT/** followed by the task mnemonic and **RETURN** key. The system responds with the task mnemonic and all access rights.
2. To change the access rights assigned to a task, enter **\$UTL RGT/task mnemonic**, followed by an equal sign (=) and new access rights. The following is an example of changing the access rights for the DSO overlay:

\$UTL RGT/DSO = MN, AD

The system response is:

DSO ACCESS RIGHTS => MN - AD

j. Task Run Priority.

As each task is scheduled by the M&A operating system, the task is assigned a running priority. This run priority is then used to establish the task position in the active task table of the M&A operating system. The RPR function is used to list all tasks and respective running priority, display a specific task and priority, and to change a specific tasks run priority. Refer to table 67 for task run priority procedures.

k. Terminal ID Display.

The TID function is used to display the system ID of a terminal. To display the ID of a terminal, enter \$UTL TID followed by RETURN key. The system responds with the terminal ID.

l. Automatic Trunk Make Busy.

Refer to paragraph 13.04 for a complete description of this function.

14.02 DTI Utilities.

The DTI utilities are used to remove a DTI from service, restore a DTI to service, or to obtain a status display of any or all DTIs equipped. Table 68 provides procedures for doing the DTI utilities.

14.03 Synchronous Network Clock Utilities.

- a. The synchronous network clock (SNC) utilities are used to indicate the span drive configuration, alarm status, and on-line side of the SNC. The utilities are also used to do various manual actions and initialize the SNC. All SNC utility functions are accessed by entering \$\$SNCUTL and striking the RETURN key. The system then prompts for the specific function required by displaying FUNCTION: . The following paragraphs describe all SNC utility functions.
- b. A display of SNC status, including span drive configuration, alarm status, and on-line side, is requested by entering SNCREP (or SNCRPT for release 8A or later software) followed by a carriage return (RETURN key) in response to the FUNCTION: prompt. The system response is a display of the status of the SNC.
- c. The SNC is initialized (required either for initial power-up or after replacing a SNC card) by entering, following the FUNCTION: prompt, SNCPOW followed by a carriage return (RETURN key). When initialization is completed, the system displays DONE.
- d. Various manual controls for the SNC are provided by first entering SNCKEY followed by a carriage return (RETURN key) in response to the FUNCTION: prompt. Then, in response to the resulting ACTION: prompt, enter the appropriate two-letter action code. When the action is completed, the system displays DONE followed by another ACTION: prompt. Another two-letter code to perform another action or to exit the SNC utility program then can be entered. The following two-letter action codes can be used:
 1. CX is used to clear the X synchronizer mask.
 2. CY is used to clear the Y synchronizer mask.
 3. EX is used to exit from the SNC utility program.
 4. FF is used to verify that the service group diagnostics program can detect a DTI fault. (This function should be followed by EX and \$SGDX to verify that fault is detected by the service group diagnostics.)
 5. OS is used to control both X and Y SNCs from the SNC internal oscillator.
 6. PP is used to allow both X and Y SNC to sync off of their own primary spans.
 7. PS is used to set the X span to primary and the Y span to secondary.

8. RF is used to manually refresh the SNC internal oscillator.
 9. SP is used to set the Y span to primary and the X span to secondary.
 10. XR is used to reset X SNC fault and set the X SNC mask.
 11. YR is used to reset the Y SNC fault and set the Y SNC mask.
- e. To run the automatic SNC routine test, enter, following the FUNCTION: prompt, SNCRTN followed by a carriage return (RETURN key). The system prints START SNC ROUTINE TEST, followed by: TYPE: \$ABORT SNCUTL to indicate how to abort the test. The test is then executed, followed by: END SNC ROUTINE TEST and TEST FAILED or TEST PASSED.
- f. Table 69 provides procedures to be followed when changing primary SNC and table 70 provides procedures to be followed after an SNC automatic switchover.

14.04 DSI Equipment Utilities.

The DSI equipment utilities are used to do various manual actions and to initialize the digital satellite interface. All digital satellite interface utility functions are accessed by entering \$DSIUTL and striking the RETURN key. The system prompts for the DSI to be acted upon by displaying DSI#?. The operator then enters the required DSI number (0 through 31) followed by striking the RETURN key. At this time, the system prompts for the required function by displaying COMMAND?. The following utility commands are available:

NOTE. The terminal that is being used for DSI utilities is the only terminal that can receive messages from, and do actions to the selected DSI.

- a. ATEST is used to initiate automatic tests on a selected line (table 71).
- b. ITMR is used to inhibit the DSI manual span control (MSC) timer. The MSC timer is a safeguard to prevent leaving an MSC function unintentionally in effect for an extended period of time (greater than 15 minutes). This command prevents the timer from overriding any manual actions (table 72).
- c. MANUL is used to manually set the span lines to various configurations as required for maintenance or repair (table 73).

NOTE. If required configuration is needed for more than 15 minutes, the MSC timer must be disabled (table 72).

- d. MASK is used to mask (disable) and unmask (enable) various alarm indications as required for maintenance (table 74).
- e. PBIT is used to provide an automatic display of the eight words of line memory for a specified DSI line whenever the line is seized for originating or terminating calls, by setting the "print bit" for the specified line (table 76).
- f. PRT is used to display the out-of-service status of the selected digital satellite interface, display span control information, enable the MSC timer that was disabled using the ITMR command, and display all eight words of line memory for a specified DSI line (table 77).

- g. READ DCHAN is used to display all dedicated channels in the specified digital satellite interface (table 78).
- h. RESET is used to reset various functions of the digital satellite interface, reset a specific line, or reset the "print bit" for a specific line (table 79).
- i. RDCH is used to release a dedicated channel assignment (table 80).
- j. SDCH is used to assign a dedicated channel to a line (table 81).
- k. STOP is used to halt a manual test and reset test access (TA) relay (table 82).
- l. TEST is used to manually test various features and operations of a specified line or test the ability of the DSI circuits to detect a parity error (table 83).
- m. STATUS is used to determine whether one or all of the digital satellite interfaces are in or out of service and to identify the class of any DSI alarm that occurs (table 84).
- n. SERVICE is used to put a digital satellite interface in or out of service (table 85).
- o. LOOPAROUND is used to loop a test pattern of data bits from the MP through the digital satellite interface to the CP, then back through the digital satellite interface to the MP (table 86). The system must be in service to do this test.
- p. LOOPBACK is used to loop a test pattern of data bits from the MP through the digital satellite interface and then back to the MP (table 87).
- q. READ LNBSY is used to display all DSI lines in use.
- r. DSI is used to direct operations to a DSI other than the one initially specified.

14.05 Number Conversion Utilities.

#5YST CONV.

- a. Octal-to-Decimal (Release 8.07 or earlier software.).
Octal-to-decimal conversion is done by entering \$CONUTL D NNNNNN, where NNNNNN is the octal number to be converted, followed by a carriage return. The system response is the decimal equivalent of the octal number entered.
- b. Decimal-to-Octal (Release 8.07 or earlier software.).
Decimal-to-octal conversion is done by entering \$CONUTL O NNNNNN, where NNNNNN is the decimal number to be converted, followed by a carriage return. The system response is the octal equivalent of the decimal number entered.
- c. Octal-to-Binary (Release 8.07 or earlier software.).
Octal-to-binary conversion is done by entering \$CONUTL B NNNNNN, where NNNNNN is the octal number to be converted, followed by a carriage return. The system response is the binary equivalent of the octal number entered.

d. Equipment Number Conversion (Release 8A or later software).

Equipment number conversion is done by entering \$CONUTL, followed by a carriage return. The system response is: CC-MS-PG-TS to OCTAL? (Y/N, DEFAULT=N). To convert an octal port number to decimal, enter a carriage return and the octal port number following the prompt: ENTER OCTAL PORT to convert a decimal port number, enter Y followed by a carriage return, and the decimal port number following the prompt: ENTER PORT. Strike the ESC key to exit from the conversion utility program.

14.06 Periodic Task Scheduler.

a. The periodic task scheduler is used to automatically schedule various system tasks such as, status reports (STATUS), night switchover (NITSWC), routine testing (RTEST), and night testing (NTEST) (software release 8A or later only). The task can be scheduled on an elapsed time basis (ESK) or system time basis (STK). Provisions are made to specify the following additional parameters:

1. The terminal on which the task is to be displayed.
2. Whether or not the task is to be suspended when diagnostics are running.
3. Whether the task is to be run once and then deleted from the schedule, or always run as scheduled.
4. Whether or not the schedule for a task can be changed.

b. Tables 88 through 93 provide procedures to display, list, add, change, and delete scheduled tasks.

Table 64. System Devices

DEVICE	MNEMONIC	REL 8A	SPECIAL CHARACTER
Automatic call processor startup	4 JTL AUTOCP	CPSU	C
Automatic recovery	RECOV		R
Custom-calling data storage	CCDSTO		O
Disk drive 0	DISK 0		0
Disk drive 1	DISK 1		1
Disk drive 2	DISK 2		2
Disk drive 3	DISK 3		3
DNI night testing	NTEST		E
Expanded diagnostics data printout	XDPRNT		X
First level diagnostics	DIAG1		I
Night switchover	NITSWC		W
Off-line CP printer	OFPRNT		F
On-line CP printer	ONPRNT		N
Phase two first level diagnostics	FLDPH2	PHASE2	P
Routine testing printer	RTPRNT	RTEST	S
Second level diagnostics	DIAG2		D
Special control character input function		CNTRL	L (dismount only)
CP and DB file trace during CPSU		TRACE	T
Automatic download of DSIs		DSISUR	U
Messages (enter message number from table 65)		MSG	(none)

Table 65. Dismountable Error Messages

MESSAGE	NUMBER
STUCK COIN IN PAYSTATION	314
SEIZURE ON UNASSIGNED EN	315
OVERDIAL ON EN	474
GLARE DETECTED ON EN	2121
EXCESSIVE LINES IN LOCKOUT	2300
LINE LOCKOUT COUNT =	2302
EXCESSIVE TRUNKS IN LOCKOUT	2303
TRUNK LOCKOUT COUNT =	2304
DIRECTORY # NOT FOUND ON EN	4542
ALARM ON EN	313
ANI FAIL ON INCOMING CAMA TRUNK	4545
WINK AND NO TONES ON PAYSTATION	150

Table 66. UTL Task Static Priority Procedures

STEP	ENTER	DISPLAY
1	a. To list all system tasks and corresponding static priority: \$UTL PRI b. To list specific task and static priority: \$UTL PRI/task mnemonic c. To change a specific task static priority: \$UTL PRI/task mnemonic = XXX Where XXX = new priority number (000-370).	\$UTL PRI \$UTL PRI/task mnemonic As entered.
2	RETURN (key).	a. If step 1a done: list of all tasks and priorities. b. If step 1b done: specified task and assigned priority. c. If step 1c done: specified task and priority entered in step 1c.

Table 67. UTL Task Run Priority Procedures

STEP	ENTER	DISPLAY
1	a. To list all tasks and corresponding run priorities: \$UTL RPR b. To list specific task and run priority: \$UTL RPR/task mnemonic	\$UTL RPR \$UTL RPR/task mnemonic

Table 67. UTL Task Run Priority Procedures (Cont)

STEP	ENTER	DISPLAY
1 (cont)	c. To change a specific task run priority: \$UTL RPR/task mnemonic = XXX Where XXX = new run priority number (000-370).	As entered.
2	RETURN (key).	a. If step 1a done: list of all running tasks and priorities. b. If step 1b done: specified task and assigned priority. c. If step 1c done: specified task and priority entered in step 1c.

Table 68. DTI Utilities Procedures

STEP	ENTER	DISPLAY
1	SDTIUTL	\$DTIUTL
2	RETURN (key).	FUNCTION
3	a. To remove a DTI from service: DTIREM (REM if release 8a or later software) b. To restore a DTI to service: DTIRES (RES if release 8a or later software) c. To display DTI status: DTIRPT (RPT if release 8a or later software) d. To clear DTI error counters: DTICLR (CLR if release 8a or later software)	DTIREM DTIRES DTIRPT DTICLR
4	RETURN (key).	a. If steps 3a or 3b done: DTI NO: b. If step 3c or 3d done: DTI NO. OR ALL:
5	DTI equipment number (in octal) [or decimal CC-MS-PG-TS format (release 8a or later software)] or ALL as required.	As entered.
6	RETURN (key).	a. If steps 3a or 3b done: five-digit octal equipment number. b. If steps 3c done: status report as requested.

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Table 69. Change Primary SNC Procedures

STEP	ENTER	DISPLAY
1	\$SNCUTL	\$SNCUTL
2	RETURN (key).	FUNCTION:
3	SNCKEY	SNCKEY
4		ACTION:
5	XR	XR
6	RETURN (key).	DONE ACTION:
7	YR	YR
8	RETURN (key).	DONE ACTION:
9	a. To set X to primary span, Y to primary span: PP	PP
	b. To set X to primary span, Y to secondary span: PS	PS
	c. To set X to secondary span, Y to primary span: SP	SP
	d. To set both sides to internal oscillator: OS	OS
10	RETURN (key).	DONE ACTION:
11	Wait approximately 1.5 minutes.	
12	XR	XR
13	RETURN (key).	DONE ACTION:
14	YR	YR
15	RETURN (key).	DONE ACTION:

Table 69. Change Primary SNC Procedures (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
16	CX	CX
17	RETURN (key).	DONE ACTION:
18	CY	CY
19	RETURN (key).	DONE ACTION:
20	EX	EX
21	RETURN (key).	EXIT SNCUTL

Table 70. Post-Automatic SNC Switchover Procedures

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	Refer to table 68 and do steps 1, 2, 3c, and 4 through 6 to verify that faulty span is restored.	
2	\$SNCUTL	\$SNCUTL
3	RETURN (key).	FUNCTION:
4		ACTION:
5	XR	XR
6	RETURN (key).	DONE ACTION:
7	YR	YR
8	RETURN (key).	DONE ACTION:
9	PP	PP
10	RETURN (key).	DONE ACTION:

Table 70. Post-Automatic SNC Switchover Procedures (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
11	Wait approximately 1.5 minutes.	
12	XR	XR
13	RETURN (key).	DONE ACTION:
14	YR	YR
15	RETURN (key).	DONE ACTION:
16	CX	CX
17	RETURN (key).	DONE ACTION:
18	CY	CY
19	RETURN (key).	DONE ACTION:
20	EX	EX
21	RETURN (key).	END SNCUTL

Table 71. DSI Equipment, Automatic Test Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of digital satellite interface requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	ATEST, XXX	As entered.
	Where: XXX=Decimal DSI line number (0 through 119, 128 through 247).	

Table 71. DSI Equipment, Automatic Test Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
6	RETURN (key).	a. If test OK: AUTO TEST GOOD COMMAND? b. If line in use: NOT AVAILABLE FOR AUTO TEST COMMAND? c. If test fails: appropriate message indicating failure.
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (72 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 72. DSI Equipment, Inhibit Manual Span Control Timer Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of digital satellite interface requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	PRT, ISER, CNTRL	PRT, ISER, CNTRL
6	RETURN (key).	COMMAND?
7	ITMR	ITMR
8	RETURN (key).	COMMAND ACCEPTED COMMAND?
9	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 73. DSI Equipment, Manual Span Control Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of digital satellite interface requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	MANUL, Remote No., Function Where: Remote No. = Number of remote requiring manual action (0 through 9) or ALL for all remotes. Function = Number of manual action to be done as follows: 001 = bypass span 0 of selected remote 002 = bypass span 1 of selected remote. 004 = bypass span 2 of selected remote 010 = transfer span 0 all remotes. See Note. 020 = transfer span 1 all remotes. See Note. 040 = loop span 0 of selected remote 100 = loop span 1 of selected remote 200 = loop span 2 of selected remote (no entry) = update all spans to normal. See Note. <i>NOTE. Use with remote number of ALL only.</i>	As entered.

Table 73. DSI Equipment, Manual Span Control Procedure (Cont)

STEP	ENTER	DISPLAY
6	RETURN (key).	OUT-OF-SERVICE INFORMATION (MANUAL SPAN CONTROL CONFIGURING SPANS) COMMAND?
7	a. If manual configuration required for greater than 15 minutes, go to table 65, step 7. b. If additional DSI equipment operations required, go to step 5 of appropriate table (71 through 87). c. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 74. DSI Equipment, Mask/Unmask Alarms Procedure

STEP	ENTER	DISPLAY
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of digital satellite interface requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	MASK, Alarm No., Parameter Where: Alarm = Number of alarm to be masked or unmasked (refer to table 75 for alarms and appropriate codes). Parameter = SET, to mask alarm, or RESET to unmask alarm.	As entered.
6	RETURN (key).	TASK COMPLETE COMMAND?

Table 74. DSI Equipment, Mask/Unmask Alarms Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 75. DSI Alarm Mask and Unmask Codes

<i>NUMBER</i>	<i>ALARM</i>
0	MP message not decodable
1	Span return fail rate
2	Poll error rate
3	Not used
4	MP message too long
5	CP message too long
6	DSI card
7	DSI span
8	Not used
9	Data sector check
10	Software check
11	Queue pointer error
12	Stack pointer error
13	Watchdog timer timeout
14	Not used
15	Not used
16	Digital satellite interface to MP message lost
17	Span alarm blocked
18	Maintenance code not decodable when in test call control
19	Unable to decode CP test call control message
20	Remote line circuit removed
21	Party update from remote but not paystation class of service
22	Span message with invalid equipment number
23	Undefined span message decoded
24	Stack overflow into line memory
25	Mask all inherent maintenance messages
26	Not used
27	Not used
28	CP data link stuck
29	Not used
30	CP message with invalid line number
31	Undefined CP message header decoded

Table 76. DSI Equipment, Set Print Bit Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	PBIT, Line No. Where: Line No. = Decimal DSI line number (0 through 119, 128 through 247).	As entered.
6	RETURN (key).	TASK COMPLETE COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 77. DSI Equipment, PRT Command Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	a. To print out-of-service information: PRT, ISER b. To print span control information and enable manual span control: PRT, ISER, CNTRL	PRT, ISER PRT, ISER, CNTRL

Table 77. DSI Equipment, PRT Command Procedure (Cont)

STEP	ENTER	DISPLAY
5 (cont)	c. To print line memory information for specific line: PRT, Line No. Where: Line No. = Decimal DSI line number (0 through 119, 128 through 247).	As entered.
6	RETURN (key).	Information requested in step 5, followed by: COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 78. DSI Equipment, Display Dedicated Channels Procedure

STEP	ENTER	DISPLAY
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	READ, DCHAN	READ, DCHAN
6	RETURN (key).	Information requested in step 5 followed by: COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 79. DSI Equipment, Reset Procedure

STEP	ENTER	DISPLAY
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	a. To reset a line: RESET, XXX Where: XXX = Decimal DSI line number (0 through 119, 128 through 247).	As entered.
	b. To reset print bit for a line: RESET, XXX, PBIT Where: XXX = Decimal DSI line number (0 through 119, 128 through 247).	As entered.
	c. To reset alarms: RESET, ALARM	RESET, ALARM
	d. To reset alarm lamps only: RESET, LAMPS	RESET, LAMPS
	<i>CAUTION. Entire DSI system can be put out of service if a RESET, SYSTEM from a loop condition is done and all spans are not operational.</i>	
	e. To reset DSI system: RESET, SYSTEM	RESET, SYSTEM
6	RETURN (key).	a. If step 5a or 5b entered: COMMAND ACCEPTED COMMAND? b. If step 5c through 5e entered: TASK COMPLETE COMMAND?

Table 79. DSI Equipment, Reset Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7	a. If additional DSI equipment operations required, go to step 5 of appropriate table (71 through 87). b. If no additional operations required: ESC (key).	\$DSIUTL EXITED

Table 80. DSI Equipment, Release Dedicated Channel Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	RDCH, XXX, YY Where: XXX = Decimal DSI line number (0 through 119, 128 through 247). YY = Channel number (0 through 23 for span 0, 32 through 55 for span 1, or 64 through 87 for span 2).	As entered.
6	RETURN (key).	TASK COMPLETE COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 of appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 81. DSI Equipment, Assign Dedicated Channel Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	SDCH, XXX, YY Where: XXX = Decimal DSI line number (0 through 119, 128 through 247). YY = Channel number (0 through 23 for span 0, 32 through 55 for span 1, or 64 through 87 for span 2).	As entered.
6	RETURN (key).	TASK COMPLETE COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 82. DSI Equipment, Halt Manual Tests Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	STOP	STOP
6	RETURN (key).	TASK COMPLETE COMMAND?

Table 82. DSI Equipment, Halt Manual Tests Procedure (Cont)

STEP	ENTER	DISPLAY
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 83. DSI Equipment, Manual Test Procedure

STEP	ENTER	DISPLAY
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	TEST, XXX, YYYYY Where: XXX = Decimal DSI line number (0 through 119, 128 through 247). YYYYY = specific tests as follows: FPOT ~ Checks for foreign potential at line. LCAP - Checks line capacitance. LLEAK - Checks line leakage. TARLY Operate TA relay at line.	As entered.
6	RETURN (key).	AUTO TEST IN PROGRESS REMOTE IN MANUAL TEST COMMAND?

Table 83. DSI Equipment, Manual Test Procedure (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 84. DSI Equipment, Read Service and Alarm Status Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI #?
3	Number of DSI equipment requiring manual action (0 through 31) – will be ignored if ALL is entered in step 5.	As entered.
4	RETURN (key).	COMMAND?
5	a. If status of DSI# specified in step 3: STATUS b. If status of all digital satellite interfaces: STATUS, ALL	STATUS STATUS, ALL
6	RETURN (key).	DSI STATUS, followed by a description of the status (In Service or Out of Service) and class of any alarms in the digital satellite interface specified in step 3 or all digital satellite interfaces if ALL entered in step 5. TASK COMPLETE COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 85. Place DSI Equipment In- or Out-of-Service Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual action (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	a. To put DSI equipment in service: SERVICE, IN	SERVICE, IN
	b. To put DSI equipment out of service: SERVICE, OUT	SERVICE, OUT
6	RETURN (key).	TASK COMPLETE COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87).	
	b. If no additional operations required: ESC (key).	DSIUTL EXITED

Table 86. DSI Equipment, Set Looparound (MP-DSI-CP-DSI-MP) Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
	<i>NOTE. The system must be in service to do this test.</i>	
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual operation (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	LOOPAROUND, XX, XX, XX, XX where XX = any octal value that can be expressed in eight bits.	LOOPAROUND, XX, XX, XX, XX

Table 86. DSI Equipment, Set Looparound (MP-DSI-CP-DSI-MP) Procedure (Cont)

STEP	ENTER	DISPLAY
6	RETURN (key).	DSIRPT DSI# =, followed by DSI number specified in step 3. COMPLETE LOOP TEST, followed by seven bytes containing: a. number of bytes transferred, b. code for type of transfer, c. values specified by XX, XX, XX, XX in step 5. COMMAND?
7	a. If additional DSI equipment operations required, go to step 5 in appropriate table (71 through 87). b. If no additional operations required: ESC (key).	DSIUTL TASK EXITED

Table 87. DSI Equipment, Set Loopback (MP-DSI-MP) Procedure

STEP	ENTER	DISPLAY
1	\$DSIUTL	\$DSIUTL
2	RETURN (key).	DSI # ?
3	Number of DSI equipment requiring manual operation (0 through 31).	As entered.
4	RETURN (key).	COMMAND?
5	LOOPBACK, XX, XX, XX, XX where XX = any octal value that can be expressed in eight bits.	LOOPBACK, XX, XX, XX, XX
6	RETURN (key).	DSIRPT DSI# =, followed by DSI number specified in step 3. COMPLETE LOOP TEST, followed by six bytes containing: a. number of bytes transferred, b. code for type of transfer, c. values specified by XX, XX, XX, XX in step 5.

Table 87. DSI Equipment, Set Loopback (MP-DSI-MP) Procedure (Cont)

[illegible]

Table 88. Display Task Schedule Procedure

STEP	ENTER	DISPLAY																																													
1	\$EDSCED	\$EDSCED																																													
2	RETURN (key).	Time, date, and PERIODIC TASK SCHEDULER QUEUE EDITOR ENTER FUNCTION																																													
3	DISP	DISP																																													
4	RETURN (key).	ENTER TASK NAME																																													
5	Name of task.	As entered.																																													
6	RETURN (key).	Message showing requested information, for example: <table><tr><th>TASK NAME</th><th>TIMER TYPE</th><th>PERIOD</th><th>NEXT START</th><th colspan="10">-----STATUS-----</th><th>TID</th></tr><tr><th></th><th></th><th>HR</th><th>MM</th><th>SS</th><th>HR:MM:SS</th><th>AC</th><th>PM</th><th>SP</th><th>SA</th><th>DS</th><th>SD</th><th>LK</th><th></th><th></th></tr><tr><td>STATS</td><td>STK</td><td>01</td><td>00</td><td>00</td><td>13:02:00</td><td>*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td></tr></table> DISP LAY COMPLETE Refer to table 89 for an explanation of STATUS mnemonics.	TASK NAME	TIMER TYPE	PERIOD	NEXT START	-----STATUS-----										TID			HR	MM	SS	HR:MM:SS	AC	PM	SP	SA	DS	SD	LK			STATS	STK	01	00	00	13:02:00	*								0
TASK NAME	TIMER TYPE	PERIOD	NEXT START	-----STATUS-----										TID																																	
		HR	MM	SS	HR:MM:SS	AC	PM	SP	SA	DS	SD	LK																																			
STATS	STK	01	00	00	13:02:00	*								0																																	

Table 89. Task Schedule STATUS Mnemonics

<i>MNEMONIC</i>	<i>DESCRIPTION</i>
AC	An asterisk (*) below this mnemonic indicates the task is presently ACtive
PN	An asterisk below this mnemonic indicates the task is waiting to be scheduled (PeNding).
SM	An asterisk below this mnemonic indicates the task is Suspended Manually from the schedule.
SA	An asterisk below this mnemonic indicates the task is Suspended Automatically from the schedule.
DS	An asterisk below this mnemonic indicates the task will be suspended by the Diagnostic control Software if requested.
SD	An asterisk below this mnemonic indicates the task will be ScheDuled once and then deleted from the schedule.
LK	An asterisk below this mnemonic indicates the task is LocKed and the schedule cannot be changed.
TID	Number below this mnemonic indicates the Terminal to which the task Is Directed.

Table 90. List Task Schedule Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$EDSCED	\$EDSCED
2	RETURN (key).	Time, date, and PERIODIC TASK SCHEDULER QUEUE EDITOR ENTER FUNCTION
3	LIST	LIST
4	RETURN (key).	Message listing all tasks scheduled, for example: <pre> TASK NAME TIMER TYPE PERIOD NEXT START -----STATUS----- STATUS STK 01 00 00 13:02:00 * AC PN SM SA DS SD LK TID RTEST ESK 00 00 06 * * 0 0 1 LIST COMPLETE </pre> Refer to table 89 for an explanation of STATUS mnemonics.

Table 91. Add Task Schedule Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$EDSCED	\$EDSCED
2	RETURN (key).	Time, date, and PERIODIC TASK SCHEDULER QUEUE EDITOR ENTER FUNCTION
3	ADD	ADD
4	RETURN (key).	ENTER TASK NAME
5	Name of task to be added.	As entered.
6	RETURN (key).	ENTER TIMER TYPE
7	a. If elapsed time basis: ESK	ESK
	b. If system time basis: STK	STK
8	RETURN (key).	ENTER START TIME HR:MN:SE
9	Time task is to be started (24-hour clock).	As entered.
10	RETURN (key).	ENTER PERIOD HR MN SE
11	Time period between execution of task in hours, minutes, and/or seconds.	As entered.
12	RETURN (key).	WANT ENTRY FLAGGED AS DIAGNOSTIC SUSPENDED?
13	Y or N as required.	Y or N
14	RETURN (key).	WANT ENTRY FLAGGED AS SCHEDULED AND DELETED?
15	Y or N as required.	Y or N
16	RETURN (key).	WANT ENTRY TO BE LOCKED?
17	Y or N as required.	Y or N

Table 91. Add Task Schedule Procedure (Cont)

STEP	ENTER	DISPLAY
18	RETURN (key).	Message showing addition, for example: <pre> TASK NAME TIMER TYPE PERIODIC NEXT START -----STATUS----- STATUS STK 01 00 00 1*:02:00 * ADD COMPLETE </pre> Refer to table 89 for an explanation of STATUS mnemonics.

Table 92. Change Task Schedule Procedure

STEP	ENTER	DISPLAY
1	\$EDSCED	\$EDSCED
2	RETURN (key).	Time, date, and PERIODIC TASK SCHEDULER QUEUE EDITOR ENTER FUNCTION
3	CHNG	CHNG
4	RETURN (key).	ENTER TASK NAME
5	Name of task to be changed.	As entered.
6	RETURN (key).	Current schedule for task entered in step 5, followed by: THIS ENTRY CORRECT?
7	Y for yes or N for no.	Y or N
8	RETURN (key).	WANT TO MANUALLY SUSPEND?
9	Y for yes or N for no.	Y or N
10	RETURN (key).	WANT ENTRY FLAGGED AS DIAGNOSTIC SUSPENDED?
11	Y for yes or N for no.	Y or N

Table 92. Change Task Schedule Procedure (Cont)

STEP	ENTER	DISPLAY
12	RETURN (key).	WANT ENTRY FLAGGED AS SCHEDULED AND DELETED?
13	Y for yes or N for no.	Y or N
14	RETURN (key).	WANT ENTRY TO BE LOCKED?
15	a. To allow task schedule to be changed: N	N
	b. To prevent changes to this task schedule: Y	Y
16	RETURN (key).	ENTER START TIME HR:MN:SE
17	New start time or go to next step.	As entered.
18	RETURN (key).	ENTER PERIOD HR MN SE
19	New time period if required, if not changing existing, go to next step.	As entered.
20	RETURN (key).	ENTER TERMINAL ID
21	New terminal number, or go to next step.	As entered.
22	RETURN (key).	Message showing changes, for example: <pre> TASK NAME TIMER TYPE PERIOD NEXT START STATUS STATUS STK 01 00 00 17:30:00 * CHANGE COMPLETE </pre> Refer to table 89 for an explanation of STATUS mnemonics.

Table 93. Delete Task Schedule Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$EDSCED	\$EDSCED
2	RETURN (key).	Time, date, and PERIODIC TASK SCHEDULER QUEUE EDITOR ENTER FUNCTION
3	DEL	DEL
4	RETURN (key).	ENTER TASK NAME
5	Name of task to be deleted.	As entered.
6	RETURN (key).	Current schedule for task entered in step 5, followed by: THIS ENTRY CORRECT?
7	a. If display correct: Y	Y
	b. If display not correct: N	N
8	RETURN (key).	a. If Y entered in step 7: ENTRY DELETED b. If N entered in step 7: ENTER TASK NAME

15. SECOND-LEVEL DIAGNOSTICS PROCEDURES

15.01 General.

- a. These procedures are used to selectively (manually) diagnose and verify a fault in the maintenance-out-of-service (MOS) side of the system when the system is in state 2. They are normally done after the actions indicated by the automatic fault-isolation process have been completed. For a description of the printout caused by the automatic fault-isolation, refer to paragraph 4 of this section. Selective diagnostic requests can be run in any of four modes: single pass, repeat until failure (RUF), repeat forever (RPT), or cycle (CYC). CAR
Return
- b. The RUF mode is used in attempts to isolate failures that appear transient to the system. In this mode, the test is run continuously until a failure is detected, at which time the test will halt and the system will display a summary of the fault.
- c. The RPT mode can be used to continuously exercise the hardware. In this mode, the test will continue running even if a fault is detected, until \$STOP, followed by a carriage return, is entered. At that time a summary, in the form of diagnostic messages showing the number of times the test was repeated and the number of times it failed, is displayed.

NOTE. When the RPT or RUF modes are specified for the input/output area (I/O) or distributed network interface (XC) diagnostic tests, the system will prompt for the minimum and maximum number of tests to be run. Because of the nature of these tests, they cannot be run "forever" or until a fault is detected.

- d. The cycle mode allows a single diagnostic test to be repeated, one run at a time, without the user having to reinput any test parameters.

15.02 Test Selection.

Refer to tables 94 through 102 to do specific second-level diagnostic tests.

- a. Table 94 contains procedures to test the I/O area.
- b. Tables 95 and 96 contain supportive information for table 94.
- c. Table 97 contains procedures to test the common control area, for the PL system; table 98 contains procedures to test the common control area for the MPTP system.
- d. Table 99 contains procedures to test the M&A area.
- e. Table 100 contains procedures to test digital trunk interface.
- f. Table 101 contains procedures to test distributed network interface.
- g. Table 102 contains procedures to test LAMA.

15.03 Verification.

The purpose of second-level diagnostics is to try to isolate failures to the PWBA level; however, sometimes this determination results in more than one suspected PWBA. When this happens, the repair list still includes all suspected PWBAs relative to the fault and lists them in a most probable (first one printed) to least probable order. The craftsperson replaces the first one on the list and proceeds (if

unsuccessful) down the list, until successful, replacing PWBA's one at a time. Each replacement is tested by repair verification procedures (table 103) and, if successful, then the restore verification procedure is done before the faulty side is recovered.

Table 94. Second-Level Diagnostics – Input/Output Area

STEP	ENTER	DISPLAY
1	SDIAG2 IO SELECT (or CONTROL Q followed by I for release 8A or later systems)	SDIAG2 IO SELECT
2	RETURN (key).	Time and date and SECOND LEVEL DIAGNOSTICS V1 WANT TO ISOLATE FAULTS (Y/N)?
3	a. If automatic fault isolation required: Y	Y
	b. If automatic fault isolation not required: N	N
4	RETURN (key).	ENTER TASK
5	a. If port test: PT, followed by RETURN (key).	PT and ENTER 'PN' OR 'LN' FORMAT
	b. If port group test: PG, followed by RETURN (key).	PG and ENTER 'PN' OR 'LN' FORMAT
	c. If matrix switch test: MS, followed by RETURN (key).	One of the following is displayed: 1. If more than one CC sector equipped: MS and ENTER CCS Proceed to step 7a. 2. If only one CC sector equipped: MS and ENTER MATRIX SWITCH # (0-7) Proceed to step 9c.
	d. If hunt group test: HG, followed by RETURN (key).	HG and ENTER HUNT GROUP # Proceed to step 6b.
	e. If switched maintenance access network (SMAN) test: SM, followed by RETURN (key).	One of the following is displayed: 1. If more than one CC sector equipped: SM and ENTER CCS Proceed to step 7a. 2. If only one CC sector equipped: SM and ENTER PATH = (0-3) Proceed to step 9d.

Table 94. Second-Level Diagnostics – Input/Output Area (Cont)

STEP	ENTER	DISPLAY
6	a. If ENTER 'PN' OR 'LN' FORMAT displayed, one of the following: 1. If port number format desired: PN, followed by RETURN (key). 2. If location number format desired: LN, followed by RETURN (key). Proceed to step 7. b. If ENTER HUNT GROUP # displayed, enter: A number between 1 - 255, followed by RETURN (key). Proceed to step 12.	One of the following is displayed: 1. If more than one CC sector equipped: PN and ENTER CCS Proceed to step 7a. 2. If only one CC sector equipped: PN and ENTER MATRIX SWITCH # (0 - 7) Proceed to step 9. LN and ENTER IOF # Number between 1 - 255 (depending on entry) and ENTER MODE
7	a. If ENTER CCS displayed, enter number as follows: 0 for 1 - 1920 ports 1 for 1921 - 3840 ports 2 for 3841 - 5760 ports 3 for 5761 - 7680 ports No entry for all sectors. Proceed to step 8. b. If ENTER IOF # displayed enter: A number between 0 - 777, followed by RETURN (key). Proceed to step 9.	Number between 0 - 3 (depending on entry). A number between 0 - 777 (depending on entry) and ENTER CELL #
8	RETURN (key).	ENTER MATRIX SWITCH # (0 - 7)
9	a. If ENTER CELL # displayed and LN selected in step 6, enter: A number between 0 - 7, followed by RETURN (key).	A number between 0 - 7 (depending on entry) and ENTER PORT # (0 - 29)

Table 94. Second-Level Diagnostics – Input/Output Area (Cont)

STEP	ENTER	DISPLAY
9 (cont)	b. If ENTER CELL # displayed and PG selected in step 5 enter: A number between 0 - 7, followed by RETURN (key). Proceed to step 12. c. If ENTER MATRIX SWITCH # (0 - 7) displayed, enter: A number between 0 - 7, followed by RETURN (key). d. If ENTER PATH # (0 - 3) displayed, enter: 0 for port groups 0 and 4 1 for port groups 1 and 5 2 for port groups 2 and 6 3 for port groups 3 and 7, followed by RETURN (key). Proceed to step 11a.	A number between 0 - 7 (depending on entry) and ENTER MODE A number between 0 - 7 (depending on entry). One of the following is displayed: 1. If PN selected in step 6: ENTER PORT GROUP # (0 - 7) 2. If MS selected in step 5: ENTER MODE Proceed to step 12. 0, 1, 2, or 3 (depending on entry) and ENTER PATH LETTER
10	a. If ENTER PORT # (0 - 29) displayed, enter: A number between 0 - 29, followed by RETURN (key). Proceed to step 12. b. If ENTER PORT GROUP # (0 - 7) displayed, enter: A number between 0 - 7, followed by RETURN (key).	A number between 0 - 29 (depending on entry) and ENTER MODE A number between 0 - 7 (depending on entry) and ENTER TIMESLOT # (0 - 29)
11	a. If ENTER PATH LETTER displayed, enter one of the following letters: A, B, or C, followed by RETURN (key). b. If ENTER TIMESLOT # (0 - 29) displayed, enter: A number between 0 - 29, followed by RETURN (key).	A, B, or C (depending on entry) and ENTER MODE A number between 0 - 29 (depending on entry) and ENTER MODE

Table 94. Second-Level Diagnostics -- Input/Output Area (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
12	If ENTER MODE displayed, enter one of the following: a. To repeat test for selected maximum interval: RPT, followed by RETURN (key). Do step 13. b. To repeat test until failure: RUF, followed by RETURN (key). Do step 13. c. To run test once (single pass mode): RETURN (key). Go to step 15. d. To repeat test as required: CYC, followed by RETURN (key). Go to step 15.	RPT ENTER NUMBER OF REPEATS (DEFAULT = XX MAX = YYY) RUF ENTER NUMBER OF REPEATS (DEFAULT = XX MAX = YYY) Test is run once. CYC
13	Enter a number between XX and YYY, followed by RETURN (key).	A number between XX and YYY (depending on entry). Test is repeated as per entry.
14	a. To manually stop test: \$STOP, followed by RETURN (key).	Test identity and EV, VX, FC, and common control sector data. Test failures and attempts. For example: DIAG2 0 TEST FAILURES IN 50 ATTEMPTS Reason for aborting test. For example: DIAG2 SELECT ABT5 Abort codes are: 1 = System configuration -- operator diagnostic request not allowed in current system state. 2 = No isolation data available -- operator request for repair verification not allowed due to lack of fault isolation data. 3 = ESC (escape) key operated -- operator aborted manual diagnostic request during parameter collection. 4 = Stop repeat test request without selective repeat test active.

Table 94. Second-Level Diagnostics Input/Output Area (Cont)

STEP	ENTER	DISPLAY
14 (cont)		5 = Repeat test stopped – operator stopped selective repeat test. 6 = Diagnostic test cluster load error. 7 = Illogical error.
15	b. To let test continue for maximum number of repeats, no action required. Go to next step. a. If a failure occurs, see display.	A series of messages. The following example is provided: <pre> DIAG2 REQUESTED TEST CALL FAILED DIAG2 INGLN PTY EDLN PTY DMFLN TMFLN SDRLN TOC FE DIAG2 23210 2 04215 5 0101 14 DIAG2 ING S = 104 R = 041 X = 004 TA = C FRLN = 04215 TOLN = 04215 DIAG2 ED S = 041 R = 104 X = 023 TA = A FRLN = 23210 TOLN = 23210 DIAG2 REPAIR LIST FR CEL PWBA PT. SIDE CCS PWBA NO. 023 2 CODC 10 023 2 PORT 10 023 2 PGMD 023 2 PGC 1 023 2 PGC 2 DIAG2 REQ PT 23215 BUSY DIAG2 REQ PG SUMMARY PS = 25 NT = 01 UN = 03 FL = 01 DIAG2 SELECT FAIL Where: INGLN = Calling location number (LN) PTY = Calling or called party number EDLN = Called LN DMFLN = DTMF receiver LN TMFLN = TMF receiver LN SDRLN = TMF sender LN TOC = Type of call (Refer to table 95) FE = Failed test call element (Refer to table 96) S = Send store R = Receive store X = Cross-office-highway store </pre>

Table 94. Second-Level Diagnostics – Input/Output Area (Cont)

STEP	ENTER	DISPLAY
15 (cont)	TA = Switched maintenance access network path letter FRLN = Port LN from which this port received transmission TOLN = Port LN receiving transmission from this LN FR = Frame CEL = Cell REQ PT = Requested port REG PG = Requested port group PWBA = Printed wiring board CCS = Common control sector PS = Cycles successfully passed NT = Not tested. Cycles aborted due to busy components or unsupported port types UN = Unequipped components FL = Failed cycles b. If no failure occurs, see display.	A series of messages. The following example is provided: DIAG2 REQ XX SUMMARY PS = nn NT = nn UN = nn FL = nn Where: XX is task (PT, PG, MS, HG, or SM). PS, NT, UN, and FL are described in step 15a. nn equals a two-digit number. DIAG2 SELECT PASS
16	c. If CYC entered in step 12d, see display. Go to step 16. a. To change parameter(s) of test: Y followed by RETURN (key). b. To repeat same test just run: N, followed by RETURN (key). Go to step 15. c. To end testing: ESC (key).	A series of messages as shown in steps 15a and 15b as appropriate, followed by: CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC TO QUIT) ENTER TASK <i>NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of specific data required, enter RETURN (key).</i> Test is run once.

Table 95. Type of Call (TOC) Values

4-DIGIT VALUE	CALLING TYPE	CALLED TYPE
0101	Standard line	Standard line
0102	Standard line	Ground start line
0103	Standard line	DNI port (XIOP)
0201	Ground start line	Standard line
0202	Ground start line	Ground start line
0203	Ground start line	XIOP
0301	XIOP	Standard line
0302	XIOP	Ground start line
0303	XIOP	XIOP

Table 96. Values for Failed Element (FE) of Test Call

2-DIGIT VALUE	TYPE OF TEST	EXPECTED TEST RESPONSE
<i>NOTE. ING is calling party, and ED is called party.</i>		
01	ING off-hook	ING failed to detect dial tone
02	ING dialing ED digits series	No response (TCG timeout)
03	No action	ED failed to detect tone
04	ED off-hook	No response (TCG timeout)
05	ING apply test tone	ED failed to detect tone
06	ED apply test tone	ING failed to detect tone
07	ING on-hook	No response (TCG timeout)
08	ED on-hook	No response (TCG timeout)
10	ING ground inside ring lead	ING failed to detect ground on tip
49		Fault seizure on ING port
50		Fault seizure on ED port
51		Fault seizure on ING and ED ports

Table 97. Second-Level Diagnostics – Common Control Area (PL)

STEP	ENTER	DISPLAY
1	SDIAG2 CC SELECT followed by RETURN (key). (Or CONTROL Q followed by C for release 8a or later systems.)	\$DIAG2 CC SELECT, time and date, and SECOND LEVEL DIAGNOSTICS V1 ENTER TASK
2	One of the following: MPLTST for maintenance processor logic test, go to step 10. LNKTST for link test CPLTST for CP logic test CPMTST for CP memory test CONTST for controller test	MPLTST, LNKTST, CPLTST, CPMTST, CONTST, MSMTST, PSMTST, PGLTST, ALL, CPS, PCS, or TCS (depending on entry).

Table 97. Second-Level Diagnostics – Common Control Area (PL) (Cont)

STEP	ENTER	DISPLAY
2 (cont)	MSMTST for MS memory test PSMTST for port control test PGLTST for programable logic test CPS for call-processing system (see Note), go to step 10. PCS for port control system (see Note), go to step 10. TCS for transmission control system (see Note), go to step 10. ALL for all tests, go to step 10. <i>NOTE. These tests combine various other tests in order to test the entire system specified. The tests are combined as follows:</i> SYSTEM TEST SUBTESTS CPS ——— MPLTST LNKTST CPLTST CPMTST PCS ——— LNKTST CONTST PSMTST PGLTST TCS ——— LNKTST CONTST MSMTST	
3	RETURN (key).	a. If more than one CC sector equipped: ENTER CCS Proceed to step 4. b. If only one CC sector and more than one PWBA equipped: ENTER PWBA Proceed to step 6. c. If only one CC sector and one PWBA equipped: ENTER TEST Proceed to step 7.

Table 97. Second-Level Diagnostics -- Common Control Area (PL) (Cont)

STEP	ENTER	DISPLAY													
4	IF ENTER CCS displayed, enter desired number as follows: 0 for 1 - 1920 ports 1 for 1921 - 3840 ports 2 for 3841 - 5760 ports 3 for 5761 - 7680 ports No entry for <u>all</u> sectors. <i>NOTE. If entered, see step 5 display and proceed to step 6.</i>	0, 1, 2, or 3 as entered.													
5	RETURN (key).	a. If more than one PWBA equipped: ENTER PWBA b. If only one PWBA equipped: ENTER TEST Proceed to step 7.													
6	a. If ENTER PWBA displayed and selecting the number of PWBAs equipped: A number between 0 and 15, followed by RETURN (key). b. To indicate no additional PWBAs: RETURN (key). c. IF ENTER PWBA displayed and selecting all PWBAs: RETURN (key). Proceed to step 7.	A number between 0 and 15 (depending on entry). ENTER PWBA ENTER TEST ENTER TEST													
7	If ENTER TEST displayed: Refer to following list and select desired number between 0 and 9.	A number between 0 and 9 (depending on entry).													
<table><thead><tr><th><u>STEP 2 TASK</u></th><th><u>TEST #</u></th></tr></thead><tbody><tr><td>MPLTST</td><td>0</td></tr><tr><td>LNKTST</td><td>0</td></tr></tbody></table>		<u>STEP 2 TASK</u>	<u>TEST #</u>	MPLTST	0	LNKTST	0	<table><thead><tr><th><u>TEST(S) EXECUTED</u></th></tr></thead><tbody><tr><td>All</td></tr><tr><td>All</td></tr><tr><td>Link basic registers</td></tr><tr><td>Link data transfer</td></tr><tr><td>Link interrupt vector</td></tr><tr><td>Link message ready</td></tr></tbody></table>	<u>TEST(S) EXECUTED</u>	All	All	Link basic registers	Link data transfer	Link interrupt vector	Link message ready
<u>STEP 2 TASK</u>	<u>TEST #</u>														
MPLTST	0														
LNKTST	0														
<u>TEST(S) EXECUTED</u>															
All															
All															
Link basic registers															
Link data transfer															
Link interrupt vector															
Link message ready															
		<table><tr><td rowspan="5">}</td><td rowspan="5">Release 7 or earlier</td></tr><tr></tr><tr></tr><tr></tr><tr></tr></table>	}	Release 7 or earlier											
}	Release 7 or earlier														

Table 97. Second-Level Diagnostics – Common Control Area (PL) (Cont)

STEP	ENTER	DISPLAY
7 (cont)	<u>STEP 2 TASK</u> 0 1 2 3 4 5 6 7 CPLTST If CP is LSI-11* 0 1 2 3 If CP is PDP 11/34* 0 1 2 3 4 5 6 NOTE. Tests apply only if DEC* memory management equipped in system. If not equipped and 5 or 6 are entered, system responds with: INPUT ERROR ENTER TEST CPMTST	<u>TEST(S) EXECUTED</u> All Link command register and interrupt vector register CP page zero and side select ISU PROM verify Download CP memory and verify interrupts Download CP memory with memory management off Download CP memory with memory management on and CP ISU test Verify CP memory from MP using direct memory access } Release 8 or later All Instruction set Traps Memory management All Instruction set Traps Extended instruction set Memory management Memory management abort logic (see NOTE) Memory management access key (see NOTE) All Call processor memory forced parity error Call processor memory bank select Call processor memory bank (data line, address line, and memory chip tests)

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Table 97. Second-Level Diagnostics – Common Control Area (PL) (Cont)

STEP	ENTER	DISPLAY
7 (cont)	STEP 2 TASK TEST # TEST(S) EXECUTED	
	CONTST 0 All	
	1 Controller basic register	
	2 Controller forced parity error	
	3 Controller/matrix switch access	
	4 Controller/port store access	
	5 Controller queue	
	6 Controller ring phase register	
	7 Controller crosswrite and compare	
	MSMTST 0 All	
	1 Matrix switch select	
	2 Matrix switch store select	
	3 Matrix switch store memory chip	
	4 Matrix switch EN search	
	PSMTST 0 All	
	1 Port store word select	
	2 Port store forced parity error	
	3 Port store data line	
	4 Port store memory chip	
	PGLTST 0 All	
	1 Port logic common	
	2 Receive supervisory (supy) event	
	3 Send supy event	
	4 Receive digits	
	5 Send digits	
	6 Ring line	
	7 ANI party	
	8 Prepaid coin	
	9 Thru signaling	
8	RETURN (key).	ENTER MODE
9	a. To repeat test forever: RPT	RPT
	b. To repeat test until failure occurs: RUF	RUF
	c. To run test once: go to step 10.	
	d. To repeat test as required: CYC, followed by RETURN (key). Do step 10.	CYC

Table 97. Second-Level Diagnostics – Common Control Area (PL) (Cont)

STEP	ENTER	DISPLAY
10	RETURN (key).	Selected test is run.
11	a. If failure occurs, see display. DIAG2 XXXXXX EV = YYYYYY VX = Y FC = YYYYYY Where: XXXXXX = Name of diagnostic test run. YYYYYY = Failure indication used by Stromberg-Carlson.	A series of messages. The following example is provided:
	b. If no failure occurs, see display.	DIAG2 SELECT PASS
	c. If CYC entered in step 9d, see display. Go to step 12.	A series of messages as shown in steps a and b as appropriate, followed by: CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC to QUIT)
12	a. To change parameter(s) of test: Y followed by RETURN (key).	ENTER TASK <i>NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of data is required, enter RETURN (key).</i>
	b. To repeat same test just run: N, followed by RETURN (key). Go to step 10.	Test is run once.
	c. To end testing: ESC (key).	

Table 98. Second-Level Diagnostics – Common Control Area (MPTP)

STEP	ENTER	DISPLAY
1	\$DIAG2 CC SELECT followed by RETURN (key). (Or CONTROL Q followed by C for release 8a or later systems.)	\$DIAG2 CC SELECT, time and date, and SECOND LEVEL DIAGNOSTICS V1 ENTER TASK
2	One of the following: MPLTST for maintenance processor logic test (see Note), go to step 10. LNKTST for link test CPLTST for CP logic test (see Note) CPMTST for CP memory test	MPLTST, LNKTST, CPLTST, CPMTST, CONTST, MSMTST, PSMTST, CWQTST, TPDST, CSMTST, TSMTST, TMPTST, ALL, CPS, PCS, or TCS (depending on entry).

Table 98. Second-Level Diagnostics – Common Control Area (MPTP) (Cont)

STEP	ENTER	DISPLAY								
2 (cont)	CONTST for controller test MSMTST for MS memory test PSMTST for port control test CWQTST for crosswrite and queue test TPDTST for TP diagnostic card test CSMTST for control store memory test TSMTST for through supervision memory test TMPTST for microprocessor card test CPS for call-processing system (see Note), go to step 10. PCS for port control system (see Note), go to step 10. TCS for transmission control system (see Note), go to step 10. ALL for all tests, go to step 10. <i>NOTE. These tests combine various other tests in order to test the entire system specified. The tests are combined as follows:</i> <table><tr><td><u>SYSTEM TEST</u></td><td><u>SUBTESTS</u></td></tr><tr><td>CPS</td><td>MPLTST LNKTST CPLTST CPMTST</td></tr><tr><td>PCS</td><td>LNKTST CONTST PSMTST TPDTST</td></tr><tr><td>TCS</td><td>LNKTST CONTST MSMTST</td></tr></table>	<u>SYSTEM TEST</u>	<u>SUBTESTS</u>	CPS	MPLTST LNKTST CPLTST CPMTST	PCS	LNKTST CONTST PSMTST TPDTST	TCS	LNKTST CONTST MSMTST	
<u>SYSTEM TEST</u>	<u>SUBTESTS</u>									
CPS	MPLTST LNKTST CPLTST CPMTST									
PCS	LNKTST CONTST PSMTST TPDTST									
TCS	LNKTST CONTST MSMTST									
3	RETURN (key).	a. If more than one CC sector equipped: ENTER CCS Proceed to step 4. b. If only one CC sector and more than one PWBA equipped: ENTER PWBA Proceed to step 6. c. If only one CC sector and one PWBA equipped: ENTER TEST Proceed to step 7.								

Table 98. Second-Level Diagnostics -- Common Control Area (MPTP) (Cont)

STEP	ENTER	DISPLAY																		
4	IF ENTER CCS displayed, enter desired number as follows: 0 for 1 - 1920 ports 1 for 1921 - 3840 ports 2 for 3841 - 5760 ports 3 for 5761 - 7680 ports No entry for <u>all</u> sectors. <i>NOTE. If entered, see step 5 display and proceed to step 6.</i>	0, 1, 2, or 3 as entered.																		
5	RETURN (key).	a. If more than one PWBA equipped: ENTER PWBA b. If only one PWBA equipped: ENTER TEST Proceed to step 7.																		
6	a. If ENTER PWBA displayed and selecting the number of PWBA's equipped: A number between 0 and 15, followed by RETURN (key). b. To indicate no additional PWBA's: RETURN (key). c. IF ENTER PWBA displayed and selecting all PWBA's: RETURN (key). Proceed to step 7.	A number between 0 and 15 (depending on entry). ENTER PWBA ENTER TEST ENTER TEST																		
7	If ENTER TEST displayed: Refer to following list and select desired number between 0 and 9.	A number between 0 and 9 (depending on entry).																		
<table> <tr> <th><u>STEP 2 TASK</u></th><th><u>TEST #</u></th><th><u>TEST(S) EXECUTED</u></th></tr> <tr> <td>MPLTST</td><td>0</td><td>All</td></tr> <tr> <td>LNKTST</td><td>0</td><td>All</td></tr> <tr> <td></td><td>1</td><td>Link command register and interrupt vector register</td></tr> <tr> <td></td><td>2</td><td>CP page 0 and side select</td></tr> <tr> <td></td><td>3</td><td>ISU PROM verify test</td></tr> </table>			<u>STEP 2 TASK</u>	<u>TEST #</u>	<u>TEST(S) EXECUTED</u>	MPLTST	0	All	LNKTST	0	All		1	Link command register and interrupt vector register		2	CP page 0 and side select		3	ISU PROM verify test
<u>STEP 2 TASK</u>	<u>TEST #</u>	<u>TEST(S) EXECUTED</u>																		
MPLTST	0	All																		
LNKTST	0	All																		
	1	Link command register and interrupt vector register																		
	2	CP page 0 and side select																		
	3	ISU PROM verify test																		

Table 98. Second-Level Diagnostics – Common Control Area (MPTP) (Cont)

STEP	ENTER	DISPLAY
7 (cont)	<u>STEP 2 TASK</u>	<u>TEST #</u>
		<u>TEST(S) EXECUTED</u>
		4 Downloaded CP memory and verify interrupts
		5 Downloaded CP memory with memory management off
		6 Downloaded CP memory with memory management on and CP ISU
		7 Verify CP memory from MP via direct memory access
	CPLTST	If CP is LSI-11*
		0 All
		1 Instruction set
		2 Traps
		3 Memory management
		If CP is PDP 11/34*
		0 All
		1 Instruction set
		2 Traps
		3 Extended instruction set
		4 Memory management
		5 Memory management abort logic (see NOTE)
		6 Memory management access key (see NOTE)
		<i>NOTE. Tests apply only if DEC* memory management equipped in system. If not equipped and 5 or 6 are entered, system responds with:</i>
		<i>INPUT ERROR</i>
		<i>ENTER TEST</i>
	CPMTST	0 All
		1 Call processor memory forced parity error
		2 Call processor memory bank select
		3 Call processor memory bank (data line, address line, and memory chip tests)
	CONTST	0 All
		1 Controller basic register
		2 Controller forced parity error
		3 Controller/TSI access
		4 Controller/port store access
		5 Controller queue
		6 Controller ring phase register
		7 Controller crosswrite and compare

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Table 98. Second-Level Diagnostics – Common Control Area (MPTP) (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
7 (cont)	<u>STEP 2 TASK</u>	<u>TEST #</u> <u>TEST(S) EXECUTED</u>
	MSMTST	0 All 1 Matrix switch select 2 Matrix switch store select 3 Matrix switch store memory chip 4 Matrix switch EN search
	PSMTST	0 All 1 Port store word select 2 Port store forced parity error 3 Port store data line 4 Port store memory chip
	CWQTST	0 All 1 Queue 2 Crosswrite and compare
	TPDTST	0 All 1 Telephony preprocessor diagnostics (TPD) select 2 High speed buffer force parity error 3 Port control store (PCS) force parity 4 Control store (CS) memory force parity 5 Thru-supy buffer (TSB) force parity 6 Queue force parity 7 DNI force parity 8 Equipment number forced error 9 Bus timeout forced error 10 Cyclic redundancy check forced error 11 Sanity timeout forced error
	CSMTST	0 All 1 CS memory verify 2 CS data address
	CSMTST	3 CS addressing 4 CS memory write 5 CS memory verify
	TSMTST	0 All 1 TSB memory verify 2 TSB data address 3 TSB addressing

Table 98. Second-Level Diagnostics – Common Control Area (MPTP) (Cont)

STEP	ENTER	DISPLAY
7 (cont)	<u>STEP 2 TASK</u> TMPTST	<u>TEST =</u> 0 All 1 Read and write high speed buffer 2 Control store telephony microprocessor (TMP) access 3 Load microprocessor 4 Micro access to high speed buffer 5 Microprocessor logic 6 Microprocessor external buss access
8	RETURN (key).	ENTER MODE
9	a. To repeat test forever: RPT	RPT
	b. To repeat test until failure occurs: RUF	RUF
	c. To run test once: go to step 10.	
	d. To repeat test as required: CYC, followed by RETURN (key). Do step 10.	CYC
10	RETURN (key).	Selected test is run.
11	a. If failure occurs, see display.	A series of messages. The following example is provided:
	DIAG2 XXXXXX EV = YYYYYY VX = Y FC = YYYYYY Where: XXXXXX = Name of diagnostic test run. YYYYYY = Failure indication used by Stromberg-Carlson.	
	b. If no failure occurs, see display.	DIAG2 SELECT PASS
	c. If CYC entered in step 9d, see display. Go to step 12.	A series of messages as shown in steps a and b as appropriate, followed by:
		CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC to QUIT)
12	a. To change parameter(s) of test: Y followed by RETURN (key).	ENTER TASK
		NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of data is required, enter RETURN (key).

Table 98. Second-Level Diagnostics – Common Control Area (MPTP) (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
12 (cont)	b. To repeat same test just run: N, followed by RETURN (key). Go to step 10. c. To end testing: ESC (key).	Test is run once.

Table 99. Second-Level Diagnostics – Maintenance and Administration Area

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>																																	
1	\$DIAG2 MA SELECT followed by RETURN (key).	Time and date, and SECOND LEVEL DIAGNOSTICS V1 ENTER TASK																																	
2	BMPTST followed by RETURN (key).	BMPTST ENTER TASK																																	
3	Refer to the following list and enter desired number between 0 and 9.	A number between 0 and 9.																																	
	<table> <tr> <th><u>STEP 2 TASK</u></th><th><u>TEST #</u></th><th><u>TEST(S) EXECUTED</u></th></tr> <tr> <td>BMPTST</td><td>0</td><td>All</td></tr> <tr> <td></td><td>1</td><td>A-side fault visual</td></tr> <tr> <td></td><td>2</td><td>B-side fault visual</td></tr> <tr> <td></td><td>3</td><td>X-clock fault visual</td></tr> <tr> <td></td><td>4</td><td>Y-clock fault visual</td></tr> <tr> <td></td><td>5</td><td>X-tone fault visual</td></tr> <tr> <td></td><td>6</td><td>Y-tone fault visual</td></tr> <tr> <td></td><td>7</td><td>A-or-B fault visual</td></tr> <tr> <td></td><td>8</td><td>X-ring fault visual</td></tr> <tr> <td></td><td>9</td><td>Y-ring fault visual</td></tr> </table>	<u>STEP 2 TASK</u>	<u>TEST #</u>	<u>TEST(S) EXECUTED</u>	BMPTST	0	All		1	A-side fault visual		2	B-side fault visual		3	X-clock fault visual		4	Y-clock fault visual		5	X-tone fault visual		6	Y-tone fault visual		7	A-or-B fault visual		8	X-ring fault visual		9	Y-ring fault visual	
<u>STEP 2 TASK</u>	<u>TEST #</u>	<u>TEST(S) EXECUTED</u>																																	
BMPTST	0	All																																	
	1	A-side fault visual																																	
	2	B-side fault visual																																	
	3	X-clock fault visual																																	
	4	Y-clock fault visual																																	
	5	X-tone fault visual																																	
	6	Y-tone fault visual																																	
	7	A-or-B fault visual																																	
	8	X-ring fault visual																																	
	9	Y-ring fault visual																																	
4	RETURN (key).	ENTER MODE																																	
5	Refer to table 97 and do steps 9 through 12.																																		

Table 100. Second-Level Diagnostics – Digital Trunk Interface

STEP	ENTER	DISPLAY
1	\$DIAG2 DT SELECT (Or CONTROL Q followed by D for release 8A or later systems.)	\$DIAG2 DT SELECT
2	RETURN (key).	ENTER TASK
3	a. If selecting loop-back test: DTLPBK	DTLPBK
	b. If selecting data test: DTDATA	DTDATA
	c. If selecting frame sync test: DTFRSY	DTFRSY
4	RETURN (key).	ENTER DTI EN #
5	Digital trunk interface equipment number in decimal CC-MS-PG-TS format: XXXXXX	XXXXXX
6	RETURN (key).	ENTER MODE
7	a. To run test once (single-pass mode): Do step 8.	See step 8.
	b. To repeat test until \$STOP is input: RPT	RPT
	c. To repeat test until failure occurs: RUF	RUF
	d. To repeat test as required: CYC	CYC
8	RETURN (key).	Test is run as selected by input commands. a. If no failure occurs, the message that follows is displayed: DIAG2 TTTTTT EV=000000 VX=0 FC=000000 DIAG2 TTTTTT SELECT PASS Where: TTTTTT is task selected (DTLPBK, DTDATA, or DTFRSY).
	RETURN (key).	b. If a failure occurs, the message that follows is displayed: DIAG2 TTTTTT EV=NNNNNN VX=0 FC=0XXXXX DIAG2 TTTTTT SELECT FAIL

Table 100. Second-Level Diagnostics – Digital Trunk Interface (Cont)

STEP	ENTER	DISPLAY
8 (cont)	Where: TTTTTT is task selected (DTLPBK, DTDATA, or DTFRSY). NNNNNN is any number other than zero (value is not significant at present). XXXXXX is octal equipment number of digital trunk interface under test. If TTTTTT = DTLPBK or DTDATA, the above message will be preceded by a display indicating the specific ports that failed.	c. If CYC entered in step 7d, a series of messages as shown in step 10a and b, followed by: CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC TO QUIT)
9	a. If display a or b in step 8 appears, no further action required. b. If display c in step 8 appears, go to step 10.	
10	a. To change parameter(s) of test: Y followed by RETURN (key). b. To repeat same test just run: N Go to step 8. c. To end testing: ESC (key).	ENTER TASK NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of data required, enter RETURN (key).

Table 101. Second-Level Diagnostics – Distributed Network Interface

STEP	ENTER	DISPLAY
1	\$DIAG2 XC SELECT	\$DIAG2 XC SELECT
2	RETURN (key).	Time, date and SECOND LEVEL DIAGNOSTICS V1 ENTER LXC #

Table 101. Second-Level Diagnostics - Distributed Network Interface (Cont)

STEP	ENTER	DISPLAY
3	a. If testing all LXC's, go to step 4. b. If testing specific LXC: number of LXC to be tested.	As entered.
4	RETURN (key).	ENTER TEST
5	a. If selecting data pattern test: 1 b. If selecting force parity error test: 2 c. If selecting hardware self check: 3 d. If selecting all tests, do step 6.	1 2 3
6	RETURN (key).	ENTER MODE
7	a. To run test once (single-pass mode), do step 10. b. To repeat test for selected maximum interval: RPT. Go to step 8. c. To repeat test until failure: RUF. Go to step 8. d. To repeat test as required: CYC. Go to step 10.	RPT RUF CYC
8	RETURN (key).	ENTER NUMBER OF REPEATS (DEFAULT = 025 MAX = 100)
9	Number of tests required; if 25, go to step 10.	As entered.
10	RETURN (key).	Test is run as selected by input commands. a. If no fault occurs, the following message is displayed:
	DIAG2 TEST= XXXX SUMMARY PS = YYY FL = ZZZ DIAG2 SELECT PASS	

Table 101. Second-Level Diagnostics – Distributed Network Interface (Cont)

STEP	ENTER	DISPLAY
10 (cont)	Where: XXXX = Task selected as follows: DPAT = Data pattern test (1) FPAR = Force parity error (2) HWCK = Hardware self check (3) ALL = All tests YYY = Number of tests passed OK ZZZ = Number of tests failed	b. If a failure occurs, refer to the following as an example of resulting display: <pre> DNIISO DNISLD ACTIVE IN LXC 000002 DNIISO AUTOMATIC SWITCH TO (X) DNIISO LXC (Y) FAULT DNIISO ERROR VECTOR 001106 DNIISO FUSE ALARM IN LXN 000006 DIAG2 REPAIR LIST _FRM_ _CEL_ _PWBA_ _NO_ 000 3 DNDR 2Y DIAG2 TEST = ALL SUMMARY PS = 000 FL = 001 DIAG2 SELECT FAIL </pre>
11	a. If display a or b in step 10 appears, no further action required. b. If display c in step 10 appears, go to step 12.	c. If CYC entered in step 7d, a series of messages as shown in step 10a and b, followed by: CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC TO QUIT)
12	a. To change parameter(s) of test: Y followed by RETURN (key). b. To repeat same test just run: N Go to step 10. c. To end testing: ESC (key).	ENTER TASK <i>NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of data required, RETURN (key).</i>

Table 102. Second-Level Diagnostics – AMA System

STEP	ENTER	DISPLAY
1	\$DIAG2 TC SELECT (Or CONTROL Q followed by T for release 8A or later systems.)	\$DIAG2 TC SELECT
2	RETURN (key).	ENTER TASK
3	AMATST	AMATST
4	RETURN (key).	ENTER SIDE (X/Y)
5	Side to be routined: X or Y	X or Y
6	RETURN (key).	VOLUME SERIAL LABEL (Y/N)
7	a. If tape has volume serial label: Y	Y
	b. If tape has no volume serial label: N	N
8	RETURN (key).	ENTER TEST
9	Refer to following list and enter number representing test required.	As entered.
	<u>TEST #</u>	<u>TEST(S) EXECUTED</u>
	1	MBI mask, bit 10 test
	2	Cursory off-line status and error mask
	3	Other side set up
	4	Power fail
	5	Forced motion control error
	6	Tape buffer error mask
	7	Nonmotion control tape buffer and 4k RAM
	8	Motion control, static test
	9	Motion control, illegal command
	10	Motion control, forward/rewind
	11	Motion control, forward/backspace
	12	Motion control, write 1s; 0s, and 1s block
	13	Motion control, erase
	14	Motion control, write incrementing pattern
	15	Motion control, EOF/IRG
	16	Tape buffer motion control
	17	Busy and watchdog timeout
	18	On-line CP/off-line ticket
	19	Tape bus interface error (allowed in state 2 only)
	20	Tape bus interface RAM/loop (allowed in state 2 only)

Table 102. Second-Level Diagnostics – AMA System (Cont)

STEP	ENTER	DISPLAY
10	RETURN (key).	ENTER MODE
11	a. To repeat test until \$STOP is input: RPT	RPT
	b. To repeat test until failure occurs: RUF	RUF
	c. To run test once (single-pass mode): go to next step.	
	d. To repeat test as required: CYC	CYC
12	RETURN (key).	Test is run.
13	a. If failure occurs, refer to section titled, <i>CAMA/LAMA Maintenance</i> , referenced in paragraph 2.02 for failure indications.	
	b. If failure does not occur, see display.	DIAG2 SELECT PASS
	c. If CYC entered in step 11d, see display. Go to step 14.	A series of messages as shown in steps 13a and 13b as appropriate, followed by: CYCLE MODE: ANY CHANGES? (Y/N; DEF = N; ESC TO QUIT)
14	a. To change parameter(s) of test: Y followed by RETURN (key).	ENTER TASK <i>NOTE. At this time, the system prompts with all data that can be changed. To change data, enter new data; if no change of data is required, enter RETURN (key).</i>
	b. To repeat same test just run: N, followed by RETURN (key). Go to step 14.	Test is run once.
	c. To end testing: ESC (key).	

Table 103. Repair and Restore Verification Procedures

STEP	ENTER	DISPLAY
1	a. To verify common control sector: \$DIAG2 CC	\$DIAG2 CC
	b. To verify input/output section: \$DIAG2 IO	\$DIAG2 IO
	c. To verify distributed network interface: \$DIAG2 XC	\$DIAG2 XC
2	RETURN (key).	Message and ENTER REQUEST
3	REPAIR	REPAIR
4	RETURN (key).	Messages showing which tests have been run. MPLTST = MP instruction LNKTST = Link diagnostics CPLTST = CP logic CPMTST = CP memory CONTST = Controller MSMTST = Matrix switch memory PSMTST = Port store memory PGLTST = Programable logic DPAT = Data pattern FPAR = Force parity error HWCK = Hardware check ALL = All tests a. If test is satisfactory: DIAG2 REPAIR PASS b. If test is not satisfactory: DIAG2 REPAIR FAIL and repair list.
5	a. If DIAG2 REPAIR PASS is displayed, proceed to step 6. b. If DIAG2 REPAIR FAIL is displayed, make repairs and repeat steps 1 through 4.	Same as steps 1 through 4.
6	a. To verify common control sector: \$DIAG2 CC	\$DIAG2 CC
	b. To verify input/output section: \$DIAG2 IO	\$DIAG2 IO

Table 103. Repair and Restore Verification Procedures (Cont)

STEP	ENTER	DISPLAY
6 (cont)	c. To verify distributed network interface: \$DIAG2 XC	\$DIAG2 XC
7	RETURN (key).	Message and ENTER REQUEST
8	RESTOR	RESTOR
9	RETURN (key).	Message showing tests run. a. If test is satisfactory: DIAG2 RESTOR PASS b. If test is not satisfactory: DIAG2 RESTOR FAIL and repair list.
10	a. If DIAG2 RESTOR PASS is displayed, proceed to step 11. b. If DIAG2 RESTOR FAIL is displayed, make repairs and repeat steps 6 and 7.	Same as step 6 and 7.
11	\$STATUS	\$STATUS
12	RETURN (key).	System status report.
13	a. If system is in state 1, do steps 14 through 16. b. If system is in state 2, do steps 17 through 19.	
14	Using system status report, select on-line CP (CPA or CPB).	
15	\$CPSU	\$CPSU
16	RETURN (key).	Series of messages (standard heading, task-related). If faults exist, diagnostic messages; if successful, CPSU STARTUP FINISHED after approximately 1 go 3 minutes.
17	\$RECOV	\$RECOV

Table 103. Repair and Restore Verification Procedures (Cont)

STEP	ENTER	DISPLAY
18	RETURN (key). <i>NOTE. To confirm recovery, enter \$STATUS and RETURN (key) after doing step 18. Report should indicate CPA and CPB as being UP and IN SYNC, and SYSTEM IN STATE: FOUR.</i>	Three messages, if recovery is successful (refer to Note) and no faults are reported: RECOV RECOVERY STARTED, COPPSA X-WRITE COMPLETED, and RECOV RECOVERY COMPLETED. If any fault needs reporting, diagnostic message(s) follow.
19	If recovery is unsuccessful, repeat steps 17 and 18 after appropriate action has been taken.	

16. DISTRIBUTED NETWORK INTERFACE VERIFICATION PROCEDURES**16.01 General.**

These procedures are used to selectively (manually) verify specific distributed network interface (DNI) cards or paths. This procedure can be done at any time, providing DNI night testing is not active. Table 104 provides the procedure for DNI verification.

16.02 Manual Commands.

The procedures in tables 105 through 112 are used to do the following manual actions:

- a. Print a list of all valid commands (table 105).
- b. Put DNI night test (NTEST) into an abbreviated mode of operation (i.e. test A – stages only), and restore NTEST to normal (table 106).
- c. Specify the starting location for NTEST (table 107).
- d. Run a complete 25-day test on a specified LXN (table 108).
- e. Specify A-module card for NTEST to test before starting normal night testing (table 109).
- f. Display the contents of the internal registers of a specified LXN (table 110).
- g. Switch LXC sides, providing the manual control switch, located on the DNI diagnostics PWBA (814305-526), is in the neutral (center) position (table 111).
- h. Mask the off-line side of a specified LXC to allow removing PWBA's without getting interrupts from the LXC, or to monitor traffic (table 112).

Table 104. DNI Verification Procedures

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	a. If verification of card required: \$VERDNI CARD	\$VERDNI CARD
	b. If verification of path required: \$VERDNI PATH	\$VERDNI PATH
2	RETURN (key).	ENTER LXC # (0 - 7)
3	Number of LXC to be verified (0 - 7).	As entered.
4	RETURN (key).	ENTER FRAME # (0 - 7)
5	Number of frame to be verified.	As entered.
6	RETURN (key).	ENTER CELL # (0 - 4)
7	Number of cell to be verified.	As entered.

Table 104. DNI Verification Procedures (Cont)

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
8	RETURN (key).	One of the following is displayed: a. If CARD entered in step 1: ENTER CARD TYPE AND POSITION (FORMAT = T-P) b. If PATH entered in step 1: ENTER PATH INLET (00 - 99)
9	a. If CARD entered in step 1, go to step 16. b. If PATH entered in step 1, enter number of path inlet to be verified (00 - 99).	As entered.
10	RETURN (key).	ENTER PATH B MODULE (0 - 4)
11	Number of required B module (0 - 4).	As entered.
12	RETURN (key).	ENTER PATH OUTLET (0 - 4)
13	Number of required outlet (0 - 4).	As entered.
14	RETURN (key).	ENTER NUMBER OF REPEATS (DEFAULT = 10 MAX = 999)
15	Number of test repeats [if 10 required: RETURN (key)].	As entered.
16	Card type (T) and position (P) as required. Where: Card types are as follows: L = Line circuit A = A module B = B module Card position (left to right) as follows: A module = 0 - 9 B module and line circuit = 0 - 4	As entered.
17	RETURN (key).	

Table 105. Procedure to Print List of All DNI Manual Commands

STEP	ENTER	DISPLAY
1	\$VERDNI HELP	\$VERDNI HELP
2	RETURN (key).	CMDS ARE: ABBR, FULL, NTST, LXN, TCD, REG (-), SWO (-), MSK (-), HELP Where: ABBR = Abbreviated night test FULL = Full (normal) night test NTST = Start night test on specific LXN LXN = Test one LXN TCD = Specify card for night testing REG (-) = Dump contents of internal registers SWO(-) = Switchover controls MSK(-) = Mask specified LXC HELP = Print list of all digital network interface manual commands

Table 106. DNI Abbreviated Night Test Procedure

STEP	ENTER	DISPLAY
1	a. To initiate abbreviated night test: \$VERDNI ABBR	\$VERDNI ABBR
	b. To cancel abbreviated night test: \$VERDNI FULL	\$VERDNI FULL
2	RETURN (key).	a. If step 1 a entered: **NTEST NOW IN "ABBR" TEST MODE b. If step 1 b entered: **NTEST NOW IN "FULL" TEST MODE

Table 107. DNI Specify Night Test Start LXN Procedure

STEP	ENTER	DISPLAY
1	SVERDNI NTST (SVERDNI NTEST for release 8A or later systems.)	\$VERDNI NTST (SVERDNI NTEST for release 8A or later systems.)
2	RETURN (key).	ENTER LXC # (0 - 7)
3	Number of LXC to be used as starting point of NTEST.	As entered.
4	RETURN (key).	ENTER FRAME# (0 - 5)
5	Number of frame to be used as starting point of NTEST.	As entered.
6	RETURN (key).	ENTER CELL# (0 - 4)
7	Number of cell to be used as starting point for NTEST.	As entered.
8	RETURN (key).	

Table 108. DNI Complete Test of One LXN

STEP	ENTER	DISPLAY
	<i>NOTE. Before starting this procedure, use the procedures in table 7 to set the time to any time between midnight and 5:00 a.m., and the date to 01/01/1999.</i>	
1	SVERDNI LXN	\$VERDNI LXN
2	RETURN (key).	ENTER LXC # (0 - 7)
3	Number of LXC to be tested.	As entered.
4	RETURN (key).	ENTER FRAME# (0 - 5)
5	Number of frame to be tested.	As entered.
6	RETURN (key).	ENTER CELL# (0 - 4)
7	Number of cell to be tested.	As entered.
8	RETURN (key).	

Table 109. DNI Specify Night Test A-Module Card Test

STEP	ENTER	DISPLAY
1	\$VERDNI TCD (\$VERDNI TCARD for release 8A or later systems.)	\$VERDNI TCD (\$VERDNI TCARD for release 8A or later systems.)
2	RETURN (key).	ENTER LXC# (0 - 7)
3	Number of LXC containing card to be tested.	As entered.
4	RETURN (key).	ENTER FRAME# (0 - 5)
5	Number of frame containing card to be tested.	As entered.
6	RETURN (key).	ENTER CELL# (0 - 4)
7	Number of cell containing card to be tested.	As entered.
8	RETURN (key).	ENTER CARD TYPE AND POSITION FORMAT = T-P
9	Card type (T) = A Position (P) = 0 - 9, as required.	As entered.
10	RETURN (key).	Message as shown in the following example: **LXC2 LXN05 A2 ON LST

Table 110. DNI Display Contents of Internal Registers

STEP	ENTER	DISPLAY																											
1	\$VERDNI REG X Where: X = Number of LXC	\$VERDNI REG X																											
2	RETURN (key).	Message as shown in the following example: LXCO REGISTER DUMP <table> <tr> <th>REG</th><th>X-SIDE</th><th>Y-SIDE</th></tr> <tr> <td>00</td><td>10 000 100</td><td>10 000 100</td></tr> <tr> <td>02</td><td>00 000 000</td><td>00 000 000</td></tr> <tr> <td>04</td><td>00 000 000</td><td>00 000 000</td></tr> <tr> <td>06</td><td>00 000 000</td><td>00 000 000</td></tr> <tr> <td>10</td><td>00 001 000</td><td>00 001 000</td></tr> <tr> <td>12</td><td>00 000 000</td><td>00 000 000</td></tr> <tr> <td>14</td><td>11 111 111</td><td>11 111 111</td></tr> <tr> <td>16</td><td>11 111 111</td><td>11 111 111</td></tr> </table>	REG	X-SIDE	Y-SIDE	00	10 000 100	10 000 100	02	00 000 000	00 000 000	04	00 000 000	00 000 000	06	00 000 000	00 000 000	10	00 001 000	00 001 000	12	00 000 000	00 000 000	14	11 111 111	11 111 111	16	11 111 111	11 111 111
REG	X-SIDE	Y-SIDE																											
00	10 000 100	10 000 100																											
02	00 000 000	00 000 000																											
04	00 000 000	00 000 000																											
06	00 000 000	00 000 000																											
10	00 001 000	00 001 000																											
12	00 000 000	00 000 000																											
14	11 111 111	11 111 111																											
16	11 111 111	11 111 111																											

Table 110. DNI Display Contents of Internal Registers (Cont)

STEP	ENTER	DISPLAY
		20 00 000 000 00 000 000 22 00 000 000 00 000 000 24 00 000 100 00 000 100 26 00 100 101 00 100 101 30 01 000 010 01 000 010 32 01 100 000 01 100 000 34 00 000 000 00 000 000 36 00 000 000 00 000 000 40 00 000 000 00 000 000 42 00 000 000 00 000 000 44 11 110 000 11 110 000 46 11 110 000 11 110 000 50 11 110 000 11 110 000 52 11 110 000 11 110 000 54 11 110 000 11 110 000 56 00 110 000 00 110 000 VERDNI EXITED Refer to the section titled, <i>DNI, Maintenance and Troubleshooting Guide</i> , referenced in paragraph 2.02 for an explanation of the various register indications.

Table 111. Switch DNI LXC Sides Procedure

STEP	ENTER	DISPLAY
	<i>NOTE. Before starting this procedure, verify that the manual control switch on the DNI diagnostics PWBA (814305-526) is in the neutral (center) position.</i>	
1	\$VERDNI SWOX Where: X = Number of LXC to be switched over.	\$VERDNI SWOX
2	RETURN (key).	Messages as shown in the following example: **LXC2 LOCKED OML = Y This message indicates that the Y side of LXC2 is on-line.

Table 112. DNI Mask Off-line LXC Side Procedure

<i>STEP</i>	<i>ENTER</i>	<i>DISPLAY</i>
1	\$VERDNI MSKX Where: X = Number of LXC to be masked.	\$VERDNI MSKX
2	RETURN (key).	Message as shown in the following example: **LXC2 MSK SET IN X This message indicates that the mask is set in LXC2, side X.

