DIGITAL CLOCK DISTRIBUTOR

500 SERIES

TL1 USER'S GUIDE

(USED WITH MIS CARD 090-45018-14)

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1. GENERAL

1.01 This practice provides information on the input messages (commands), response messages, and automatic messages used with the Telecom Solutions DCD 500 series shelf and the NAS System. The

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language used in this practice is Transaction Language 1 (TL1). A Maintenance Interface, System (MIS) card (p/n 090-45018-14) must be installed in the DCD-500 series system, and the DCD system used in conjunction with the NAS software to use the tools and information presented here. Any command pertaining to a specific DCD card (e.g., MRC-E or PSM-E) requires that the specified card be installed.

1.02 This document is reissued for the following reasons; changes and additions are marked with change bars:

- Update the following commands to include parameters for the MRC-EA card:
  - — EDIT PARAMETER T1
  - — SET-TH-T1
  - — SET-ATTR-T1
  - — INIT-REG-T1
  - — RTRV-PRMTR-T1
  - — RTRV-COND-T1
  - — RTRV-ALM-T1
  - — RTRV-ATTR-T1
  - — RTRV-TH-T1
- Update documentation where necessary to include information regarding the MRC-EA card.
- Update Table A to include the new parameters

2. USING THIS PRACTICE

2.01 Part 3, Description, describes how to use the commands and read the responses, including: explanations of the typestyle conventions and syntax, finding a command to perform a desired task, definitions of the parameters, and other useful information.

2.02 Part 4, Commands, contains the commands, each one starting at the top of a page. Each command has a description, a format, examples, values for the parameters, and responses to the command.

3. DESCRIPTION

A. Conventions

3.01 The syntax and language structure used with the 500 series systems comply with specifications in Bellcore's TR-TSY-000831, Section 12.1 of OTGR Issue 2, Feb. 1988. As a subset of the ITU's MML (Man-Machine Language), the language specifies Applications Messages which allow communication between an OS (Operations System) and an NE (Network Element) such as one of the 500 series systems.

3.02 The following conventions are used in this manual to define the syntax of input and response messages:

< >	enclose parameters which must be used
[ ]	enclose optional parameter(s)
{ }	enclose a series of parameters, at least one of which must be used
|	separates a list of parameters within the { } symbols, of which one and only one parameter may be selected
" "	enclose a report of an alarm or event
:	separates parameter blocks
...	indicates one or more parameters are repeated an appropriate number of times, and hence are omitted
,	separates parameters within a block
;	terminates a command and causes execution of the command

B. Application Message Types

3.03 Two TL1 standard types of messages are used:

a. *Input/Response*, a command with valid parameters is input to the 500 series system and a response message is returned.

b. *Automatic*, a message is generated by the 500 series system, stored in the Event Log, and sent to the Communications Port.

C. Command Definitions

3.04 A command consists of a Command Code followed by a colon, parameter blocks separated by colons, and a terminating semicolon; see Figure 1 for an example. A command can only be entered at the semicolon prompt (;).

3.05 Parameter blocks may be null (contain no parameters), or contain one or more parameters. Two colons occur next to each other if a parameter block is null. (Some parameters in the complete TL1 language set are not used. These unused parameters are left null in this command set.) Colons after the last active parameter and before the semicolon need not be entered.

3.06 Multiple parameters in a parameter block are separated by commas. Two commas occur next to each other if a parameter is null. Commas after the last active parameter and before a colon or semicolon need not be entered.

3.07 Entering a semicolon at the end of the command causes the command to execute.

3.08 If any mistakes are made while entering a command, send the bad command and reenter a good command. The system does not recognize edited commands.

3.09 In this practice, uppercase letters in a command are parameter values to be entered as shown. Lowercase letters in a command indicate a choice of values is available for that parameter. The values specific to that command are listed with the command.

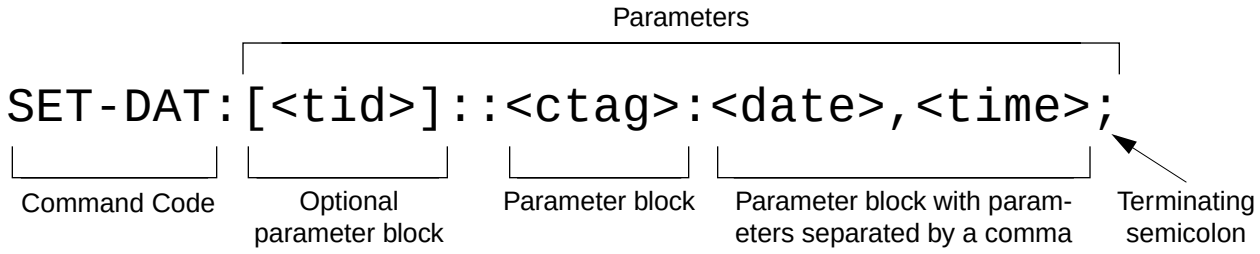
D. Response Definitions

3.10 A response is returned by the 500 series system when it receives a command. All responses include the source identifier (the sender of the response), the date and time, and the correlation tag of the given command. A response to a command may be a Completed or an Error response.

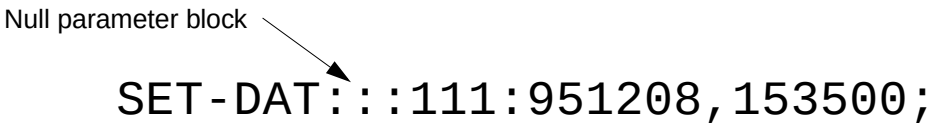
a. *Completed*: The command has been completed or information requested is returned. This response carries the COMPLD message.

b. *Error*: The command was denied, and the response carries the DENY message. The Error Code parameter (errcde) shows the reason.

Note: All external communications ports are software-configurable to set one character as the end-of-text message. This character does not replace the TL1 specified end-of-text message terminator (;). Refer to the instructions for the ED-EQPT command for additional information.



Example of a command format



Example of a command generated using the above format

Figure 1. Command Format

E. Parameter Definitions and Values

3.11 The TL1 commands use parameters that direct and constrain their operation. The general definitions of the parameters, and the type of message in which they appear, are listed in Table A. The values of the parameters are listed with the command.

F. Task/Command Cross-reference

3.12 Consult Table B to find the command appropriate for a task. This table also lists whether or not a command is password protected. Protected commands can only be accessed if the user logged on with a password. Unprotected commands can be accessed with or without a password.

Table A. Parameter Definitions

PARAMETER	USED IN MESSAGE TYPE	DEFINITION
aid	Command, response	This parameter is the access identifier. When used in a command, the aid is the equipment that the command affects. When seen in a response, the aid is the equipment reporting the condition.
almcde	Response	This parameter is the alarm code. It identifies the severity of the alarm. If multiple alarms are reported, the value for almcde is the highest severity of those reported.
atag	Response	This parameter is the automatic message tag, a decimal number with a maximum of 3 characters (1 through 999). It is assigned by the system to sequence and correlate automatic messages.
baud	Command, response	This parameter is the communications port baud rate; the baud rate for COM2 can only be changed via DIP switch on the MIS card; ports 1 and 3 are software-configurable only.
compri	Command, response	This parameter specifies the priority level of the communications port from 0 to 3; 0 inhibits alarm/event messages from being transmitted from a port; 1 is the highest priority, and 3 is the lowest.
comtype	Command, response	This parameter indicates the type of communications device used (X25 [PAD], MODEM, or [dumb] TERM)
condeff	Automatic message	This parameter is the condition effectivity. It reports that a standing condition is raised (SC), or that it is cleared (CL). This parameter is the only difference between a response that raises a standing condition, and a response that clears the same standing condition. If a standing condition is raised, it can be retrieved using the RTRV-COND-ALL or RTRV-COND-EQPT commands.
conddescr	Response	This parameter is the condition description. It is a text description of the alarm or condition reported by the system, enclosed within escaped quotes (\"). The system returns one conddescr per response message.
condtype	Command, response, automatic message	This parameter is the condition type. When used in a command, it indicates the type of alarm condition requested. When seen in a response, it indicates the type of alarm condition being reported, which is further explained in the conddescr parameter. When seen in an automatic message, it indicates the type of alarm condition reported as either raised or cleared (see the conddescr parameter).

Table A. Parameter Definitions (Contd)

PARAMETER	USED IN MESSAGE TYPE	DEFINITION
crcmode	Command	This parameter specifies whether the selected Multi-Reference Controller (MRC) reference uses CRC validation.
ctag	Command, response	This parameter is the correlation tag. The operator must enter a ctag for each command. This is the method the system uses to communicate the results of the command. For example, if “111” was entered as a ctag in a command, the response contains “111 COMPLD” or “111 DENY”. If two commands were entered with the same ctag and one command was completed but the other was in error, both responses would have the same identification number. The operator may not be able to identify the command to re-enter. The ctag has a maximum of 6 characters beginning with either a letter or a numeral. It is assigned by the operator and must be included in a command.
date	Command, response	This parameter is the current date in the 6-digit form yy-mm-dd (year, month, day). For example, 95-12-08 is December 8, 1995. To enter the date in a command, do not use the hyphens. For example, 951208 is December 8, 1995.
endoftext	Command, response	This parameter is the end-of-text terminator; it does not replace the TL1-specified end-of-text terminator (;).
errcde	Response	This parameter is the error code returned by the system. It is a four-character mnemonic that identifies the reason the command was denied.
fmode	Command	This parameter specifies the framing format for the selected MRC reference.
keepalive	Command, response	This parameter is the keepalive message; if enabled, the keepalive message is sent every 15 to 20 minutes and consists of the response to the RTRV-HDR command (with the ctag used with this ED-EQPT command)
localecho	Command, response	This parameter enables or disables the local echo function; if enabled, local echo causes each character to be echoed back to the terminal when entered.
mondat	Command, response	This parameter is the date of the beginning of the requested performance-monitoring period specified by the tmper parameter.
monmode	Command, response	This parameter determines whether a port is allowed to view data traffic associated with other ports in real-time
montm	Command, response	This parameter is the beginning time of day of the requested performance-monitoring period specified by the tmper parameter.
montype	Command, response	This parameter is the type of performance-monitoring register in the memory storage.
monval	Command, response	This parameter is the value in the specified performance-monitoring register.

Table A. Parameter Definitions (Contd)

PARAMETER	USED IN MESSAGE TYPE	DEFINITION
ntfcncde	Command, response	This parameter is the notification code, indicating the severity of the alarm or event. When used in a command, it requests only those alarms or events of that severity level. When seen in a response, it indicates the severity of the alarm or event.
pid	Command	This parameter specifies the password identification; a pid is limited to a maximum of 10 (upper, lower, or mixed case) characters.
priority	Command	This parameter specifies the priority of the references available at the MRC. The reference with priority 1 is used first, then the priority 2 reference, and so on.
sid	Response	This parameter is the source identifier. It identifies the system sending the response or automatic message. The sid in a response message matches the tid in the input command, if a tid was used. The sid must be a valid TL1 identifier of no more than 20 characters, limited to letters, numerals and hyphens, beginning with a letter. The sid is recommended to be the target's office name, if available. All systems are manufactured with the sid TELECOMSOLUTIONS as the default. Assign unique sids in a multi-system installation with the SET-SID command. Note: The sids on the expansion shelves are automatically assigned.
srveff	Command, response	This parameter identifies how the alarm condition affects service.
state	Command	This parameter contains the primary maintenance state (in-service or out-of-service) into which the unit is moved, and may contain a secondary maintenance state indication that identifies a reason for the move to that maintenance state.
tid	Command	This parameter is the target identifier. Use this parameter in a command if there are multiple systems and you want to address a system other than the current one. If this parameter is not used, the command goes to the current system. The tid must be a valid sid, the name assigned to the target system with the SET-SID command. The sid in the response message is the same value as the tid.
time	Command, response	This parameter is the current time in the 6-digit form hh:mm:ss (hours, minutes, seconds). For example, 15:46:06 is 3:46:06 pm. To enter the date in a command, do not use the colons. For example, 154606 is 3:46:06 pm.
tmper	Command, response	This parameter is the accumulation time period for the specified performance-monitoring information.
type	Command	This parameter specifies the type of reference (GPS, Cesium, etc.) the selected MRC reference uses.
typereq	Command	This parameter is the type of condition or state to be retrieved.

Table B. Task/Command Cross-reference

TASK	COMMAND / MESSAGE	PAGE	CAN BE PROTECTED
SECURITY			
Allows user to log on	ACT-USER	14	No
Allows user to log off	CANC-USER	16	Yes
Allows user to change password	ED-SECU-PID	18	No
CARD CONFIGURATION AND CONTROL			
Changes communications port configuration	ED-EQPT	20	Yes
Changes reference parameters	ED-PRMTR-T1	22	Yes
Sets or clears performance-monitoring registers	INIT-REG-T1	24	Yes
Initializes (clear) the system	INIT-SYS	27	Yes
Silences audible alarms	OPR-ACO-ALL	29	Yes
Takes equipment out of service	RMV-T1	31	No
Puts equipment in service	RST-T1	33	No
Clears 64-event system log	SET-ATTR-LOG	35	Yes
Sets notification code associated with a specific event	SET-ATTR-T1	37	Yes
Sets system date and time	SET-DAT	39	Yes
Sets system identification code (source identifier)	SET-SID	41	Yes
Sets threshold for equipment parameters	SET-TH-T1	43	Yes
Switches to duplicate equipment	SW-DX-EQPT	45	Yes

Table B. Task/Command Cross-reference (Contd)

TASK	COMMAND / MESSAGE	PAGE	CAN BE PROTECTED
RETRIEVE ALARMS (MANUAL AND AUTOMATIC)			
Displays alarms for all or specific equipment	RTRV-ALM- {ALL|EQPT|T1}	46	No
Displays the occurrence of alarmed events	REPT-ALM- {EQPT|T1}	54	No
Displays the occurrence of nonalarmed events	REPT-EVT	58	No
Displays alarms and events in 64-event system log	RTRV-LOG	61	No
CARD INFORMATION AND DATE			
Displays notification code and condition type associated with a specific event	RTRV-ATTR-T1	63	No
Displays condition of all or specific equipment that is not in alarm	RTRV-COND- {EQPT|T1}	66	No
Displays sid, date, and time (to verify equip. data path)	RTRV-HDR	72	No
Displays communications port configuration information for a specific port	RTRV-EQPT	74	No
Displays performance-parameter data	RTRV-PRMTR-T1	77	No
Displays performance-monitoring data	RTRV-PM-T1	79	Yes
Displays threshold for equipment parameter	RTRV-TH-T1	83	Yes

G. Alarm Message Format

3.13 In the event an alarm is detected, a message is displayed on the terminal. The alarm message format displayed is as follows:

"<aid>:<ntfcncde>,<condtype>,<srveff>: \"[<conddescr>]\"

3.14 The <aid> is the equipment that the command affects.

3.15 The <ntfcncde> is the notification code, indicating the severity of the alarm or event.

3.16 The <condtype> is the condition type which indicates the type of alarm condition reported as either raised or cleared, which is also further explained in the conddescr parameter.

3.17 The <srveff> is the service effectivity which identifies how the alarm condition affects service.

3.18 The <condescr> is a text description of the alarm or condition reported by the system, enclosed within escaped quotes(\").

3.19 Refer to Table C for a list of alarm messages; the table is divided into two sections, one for alarm messages received from the GTI and the other section lists system alarm messages. The section for the GTI messages lists the entire terminal display; the section for the system messages lists only the condition description. Refer to Table A for additional information regarding the parameters for the alarm message format.

Table C. Terminal Alarm Displays

DISPLAY	MEANING
GTI MESSAGES	
"GTI-x:GPS-FREQTOL,SC:\"GPS FREQ TOL\"	The GTI has determined that, compared to oscillators A and B, the GPS timing solution from the GTR is out of tolerance (factory set) (x = 1 or 2).
"GTI-x:MN,OSCA-LOS,SA:\"OSC LOSS OF SIGNAL\"	The GTI detects no signal energy on OSC A input (x = 1 or 2).
"GTI-x:MN,OSCB-LOS,SB:\"OSC LOSS OF SIGNAL\"	The GTI detects no signal energy on OSC B input (x = 1 or 2).
"GTI-x:MJ,GPS-LOS,SA:\"GPS LOSS OF SIGNAL\"	The GTI detects no signal energy on the GTR fiber link. This condition has exceeded the period of time set via DIP switch and has escalated into a major alarm (x = 1 or 2).
"GTI-x:MN,GPS-INVLD,NSA:\"GPS INVALID	The timing information from the GTR has been determined to be invalid for timing at this time (x = 1 or 2).
"GTI-x:MN,GTI-OUTFLT,SA:\"GTI OUT FAULT\"	The primary rate output of the GTI has been faulted by a short, improper termination, or equipment failure (x = 1 or 2).
"GTI-x:MN,GTR-PWR,SA:\"GTR POWER FAULT\"	The GTR power supply has been faulted by a short, an open, or equipment failure (x = 1 or 2).
"GTI-x:MN,FB,SA:\"FUSE OR POWER FAIL\"	A fuse of the DCD-LPR shelf has blown, or an office battery has failed (x = 1 or 2).
"GTI-x:MN,GTI-FAILxx,SA:\"GTI FAIL\"	The GTI has experienced a failure. Where x = 1 or 2, and xx = 1 through 3. The xx numbers are diagnostic codes for field service/engineering use only.
"GTI-x:MN,GTR-FAILxx,SA:\"GTR FAIL\"	The GTR has experienced a failure. Where x = 1 or 2, and xx = 1 through 5. The xx numbers are diagnostic codes for field service/engineering use only.

Table C. Terminal Alarm Displays (Contd)

DISPLAY	MEANING
SYSTEM MESSAGES	
\"ALARM INDICATION SIGNAL RECEIVED\"	Received alarm indication
\"CARD FAIL\"	Card has failed
\"CLOCK ACTIVE\"	Clock is active
\"CLOCK FREERUNNING\"	Clock is in the freerunning mode
\"CLOCK IN HOLDOVER\"	Clock is in the holdover mode
\"CLOCK NOT CONVERGED\"	Clock is not locked to the input signal
\"DISCIPLINING REFERENCE SWITCHED\"	Timing input has switched to another reference
\"EXPANSION MAJOR\"	Expansion shelf has a major alarm
\"EXPANSION MINOR\"	Expansion shelf has a minor alarm
\"FRAMER FAILURE\"	Framing
\"FUSE OR POWER FAIL\"	Fuse or power at DCD system has failed
\"INPUT OUT OF TOLERANCE\"	Input signal is out of the clock unit's pull-in range
\"INPUT ACTIVE\"	Input signal is active
\"LOSS OF SIGNAL\"	Signal is lost
\"LOSS OF ALL PRIMARY TIMING INPUT REFERENCES\"	All primary timing input references have been lost
\"LOSS OF STRATUM A INPUT\"	Input from clock in ST A slot has been lost
\"LOSS OF STRATUM B INPUT\"	Input from clock in ST B slot has been lost
\"OUTPUT SYNC PORT FAIL\"	Output port on an output card has failed
\"ST SYNTH SIGNAL FREQ DRIFT\"	The synthesized signal from the clock card is showing frequency drift
\"SYNC INPUTS UNLOCKED\"	Synchronization inputs are unlocked
\"SYNC INPUT FAILED\"	Input reference signal input has failed
\"SYNC SYSTEM FAIL\"	Entire system has failed
\"THRESHOLD VIOLATION FOR BPV\"	Bipolar violation threshold has been exceeded

Table C. Terminal Alarm Displays (Contd)

DISPLAY	MEANING
SYSTEM MESSAGES (CONTD)	
\"THRESHOLD VIOLATION FOR CRC\"	Cyclic redundancy check threshold has been exceeded
\"THRESHOLD VIOLATION FOR FFREQ\"	Fractional frequency threshold has been exceeded
\"THRESHOLD VIOLATION FOR MTIE OBSERVATION\"	An MTIE threshold has been exceeded
\"THRESHOLD VIOLATION FOR MTIE1 OBSERVATION\"	Threshold for MTIE 1-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE4 OBSERVATION\"	Threshold for MTIE 4-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE16 OBSERVATION\"	Threshold for MTIE 16-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE64 OBSERVATION\"	Threshold for MTIE 64-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE128 OBSERVATION\"	Threshold for MTIE 128-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE512 OBSERVATION\"	Threshold for MTIE 512-second observation has been exceeded
\"THRESHOLD VIOLATION FOR MTIE900 OBSERVATION\"	Threshold for MTIE 900-second observation has been exceeded
\"THRESHOLD VIOLATION FOR TVAR1 OBSERVATION\"	Time variance for TVAR 1-second observation has been exceeded
\"THRESHOLD VIOLATION FOR TVAR4 OBSERVATION\"	Time variance for TVAR 4-second observation has been exceeded
\"THRESHOLD VIOLATION FOR TVAR16 OBSERVATION\"	Time variance for TVAR 16-second observation has been exceeded
\"THRESHOLD VIOLATIONFOR TVAR64 OBSERVATION\"	Time variance for TVAR 64-second observation has been exceeded
\"THRESHOLD VIOLATION FOR TVAR128 OBSERVATION\"	Time variance for TVAR 128-second
\"THRESHOLD VIOLATION FOR OOF\"	Out-of-frame threshold has been exceeded
<null>	No descriptive information exists

4. COMMANDS

4.01 The commands used with the 500 series systems are listed in this section. Each command starts on a separate page with the command code, message category, and type. The first two paragraphs describe what the command is and what it does. The command paragraph shows the format and syntax of the command, shows an example of the command and what the example accomplishes, and provides the values for the parameters. The completed and error response formats are shown, with examples and messages that may be displayed for the parameters. Parameter definitions are listed in Table A. For a list of the available commands, refer to Table B. Operational considerations are listed in Table D.

4.02 The command types include:

- Security
- Card configuration and control
- Retrieve manual and/or automatic alarms
- Card information and date

4.03 Security for the MIS -14 card is controlled by two items: a password entered by command and a switch setting on the card (section 4 of SW1; see Figure 2). When assigning a password, the password is assigned to a specific port. Only one password per port is allowed, and only one user per port is allowed at any one time.

4.04 From the factory, no password is entered and the switch is set for no protection (section 4 is in the ON position). When set for no protection, all commands can be accessed without logging onto the system.

4.05 To activate protection, section 4 of SW1 must be set to OFF and a password must be entered. A password is entered by using the ED-SECU-PID command. Once a valid password is entered, the protected commands (listed in Table B) can be accessed only by logging onto the system using the ACT-USER command with the correct password. Those commands which cannot be protected (listed in Table B) can always be accessed without logging on.

4.06 Protection can be removed by either setting section 4 of SW1 to ON or removing the password. The ED-SECU-PID command is used to remove the password (or change the password). Refer to the ED-SECU-PID command description for details on removing or changing a password.

4.07 If the ACT-USER command is used to log onto the system, the CANC-USER command is used to log off. However, the user will be automatically logged off if no activity is detected for 5 minutes.

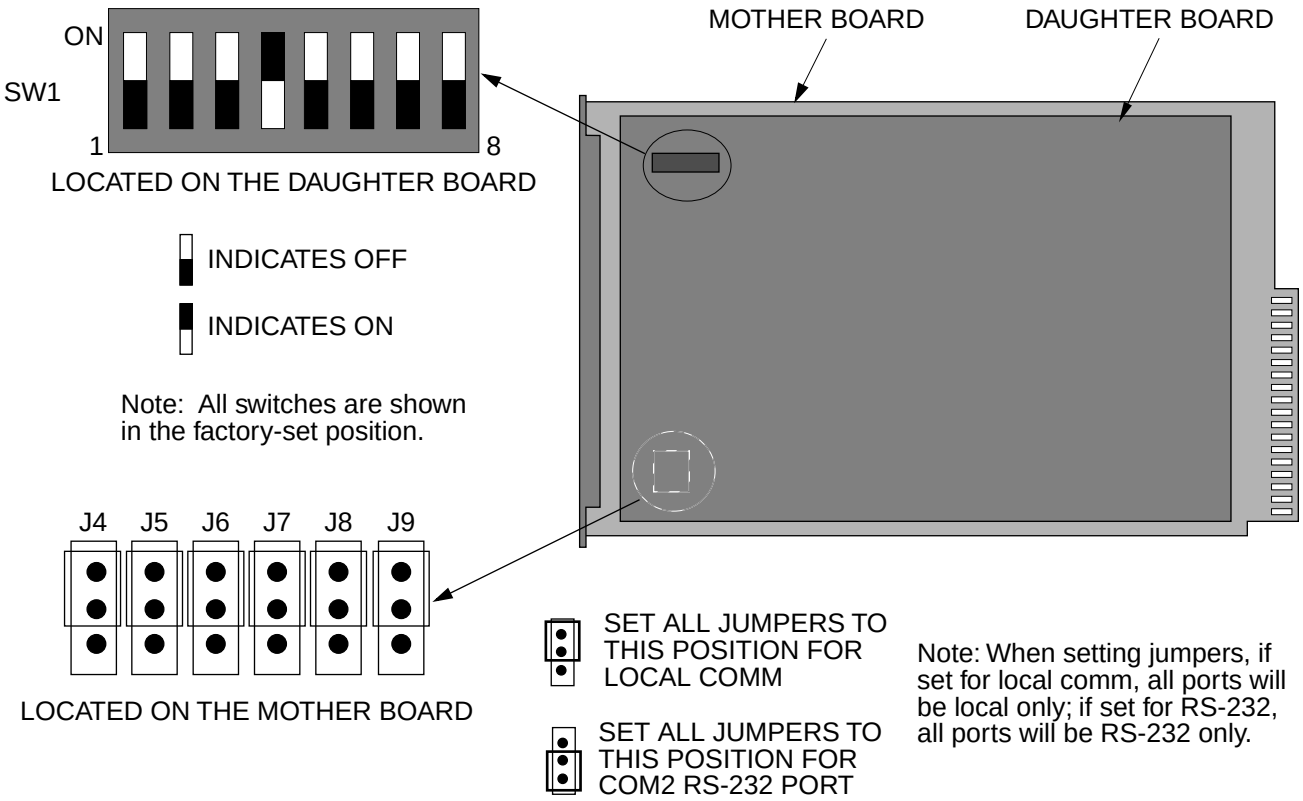
4.08 Card configuration and control commands are used to configure card and system parameters.

4.09 Retrieve manual and/or automatic alarm commands are used to obtain alarm information.

4.10 Card information and date commands are used to obtain MRC and/or PSM-E card information.

Table D. Operational Considerations

NUMBER	CONSIDERATION
1	All systems are shipped with the factory-set sid TELECOMSOLUTIONS. In multi-system installations, the SET-SID command sets a unique sid for each system before entering other commands.
2	Upon initial installation of the MIS card, it is recommended to set the time and date using the SET-DAT command to allow for proper event correlation.
3	In a shelf, clock cards and clock input cards are labeled A and B. In the commands and responses, these cards are designated 1 and 2. For example, input 4 of clock input card MRC A is designated MRC-1-4 in the commands and responses.
4	All clock input cards are designated MRC, whether they are ECI cards, ACI cards, or MRC cards.
5	If multiple autonomous alarms appear that include a major (MJ) alarm and a card failure (CARD FAIL), ignore the MJ CARD FAIL message.



SW1 Switch Settings

SW1 Section	Position	Description	Factory Setting
1	On	1200 Baud	—
	Off	9600 Baud	X
2 and 3	2=on, 3=any	Odd Parity	—
	2=off, 3=on	Even Parity	—
	2=off, 3=off	No Parity	X
4	On	Password Protection Not Enabled	X
	Off	Password Protection Enabled	—
7	On	Expansion Shelf	—
	Off	Master Shelf	X
8	On	Remote System	—
	Off	Not a Remote System	X
Note: Section 1 sets COM2 and the front panel RJ45 jack only (active port selected by jumpers).			

Figure 2. MIS Card Switch

ACTIVATE USER
(ACT-USER)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT

This command allows the user to log on and begin a session.

Note: During a session, if no activity is detected for five minutes, the system will initiate a CANCEL USER and log the user off.

COMMAND

```
ACT-USER:[<tid>]:SUPER:<ctag>::<pid>;
```

pid: password identification; pid is limited to a maximum of 10 (upper, lower, or mixed case) characters

Example:

```
ACT-USER::SUPER:155::CASSIOPEIA;
```

This example, tagged as command 155, logs onto the designated <tid> with the password CASSIOPEIA and begins a session.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:04:13
M  155 COMPLD
;
```

ACTIVATE USER (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:12:47
M  155 DENY
   IISP
;
```

CANCEL USER
(CANC USER)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT

This command logs the user out and ends the session. There is also a timeout feature; if no activity is detected for a five minute period, the system will initiate a CANCEL USER command.

COMMAND

```
CANC-USER:[<tid>]:SUPER:<ctag>;
```

Example:

```
CANC-USER::SUPER:155;
```

This example, tagged as command 155, logs out and ends a session.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:04:13
M  155 COMPLD
;
```

CANCEL USER (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:12:47
M  155 DENY
   IISP
;
```

EDIT SECURITY PASSWORD (ED-SECU-PID)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT

This command allows the user to change passwords.

Notes:

1. For password protection to be enabled, DIP switch SW1, section 4, of the MIS card must be set to the OFF position.
2. To password protect all commands which can be protected (see Table B), a password must be entered. The factory-setting is no password. As long as there is no password, no protection is performed.
3. To remove the password and assign a new password (for example, used if the password is forgotten), perform the following:
   a. Remove the MIS card and set DIP switch SW1, section 4, to ON.
   b. Replace the MIS card and let it go through the power up sequence.
   c. Rename the password using the ED-SECU-PID command.
   d. Remove the MIS card and set DIP switch SW1, section 4, to OFF.
   e. Replace the MIS card and let it go through the power up sequence.

COMMAND

```
ED-SECU-PID:[<tid>]:SUPER:<ctag>::<pid>,<newpid>;
```

pid:	password identification
new pid:	maximum of 10 (upper, lower, or mixed case) characters
default pid:	null; if a null password is detected, the system is placed in the non-secure (no password protection) mode.

Example:

```
ED-SECU-PID::SUPER:150::,ORION;
```

This example, tagged as command 150, changes the null password to ORION.

Example:

```
ED-SECU-PID::SUPER:155::ORION,CASSIOPEIA;
```

This example, tagged as command 155, changes the old password (ORION) to CASSIOPEIA.

EDIT SECURITY PASSWORD (Contd)

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:04:13
M  155 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:12:47
M  155 DENY
   IISP
;
```

EDIT EQUIPMENT (ED-EQPT)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT

This command allows the user to select the communications device type.

COMMAND

```
ED-EQPT:[<tid>]:<aid>:<ctag>::[<baud>],[<monmode>], [<keepalive>],
   [<comtype>],[<endoftext>],[<localecho>],[<compri>];
```

where:	aid:	COM-1	= COM port 1
		COM-2	= COM port 2
		COM-3	= COM port 3
	baud:	1200	= 1200 bps (factory set for Ports 1 and 3)
		9600	= 9600 bps
		<null>	= no change
	monmode:	ALW	= allows a port to view data traffic associated with other user ports in real-time
		INH	= inhibits a port from viewing data traffic associated with other user ports in real-time (factory set for all ports)
		<null>	= no change
	keepalive:	ALW	= allows a port to autonomously output a COMPL message every 15 to 20 minutes
		INH	= inhibits a port from autonomously outputting a COMPL message every 15 to 20 minutes (factory set for all ports)
		<null>	= no change
	comtype:	X25	= PAD
		MODEM	= modem
		TERM	= dumb terminal (factory set for all ports at powerup)
		<null>	= no change
	endoftext:	0 to 0xFF	= sets the 1 character at the end-of-text message. This character does not replace the TL1 end-of-text terminator (;). 0 indicates no end-of-text message (factory set for all ports); 0xFF is a hexadecimal number range (the prefix 0xFF is not required)
	localecho	ALW	= allows local echo
		INH	= inhibits local echo (factory set for all ports)
		<null>	= no change
	compri:	0	= inhibits alarm/event messages from being transmitted from a port
		1, 2, or 3	= allows alarm/event messages to be transmitted from a port; 1 is the highest priority, 3 the lowest (factory setting is 1 for ports 1 and 2, 0 for port 3)
		<null>	= no change

EDIT EQUIPMENT (Contd)

Example:

```
ED-EQPT::COM-1:115::9600,,X.25,,,;
```

This example, tagged as command 115, identifies port COM1 as set for 9600 baud, using a PAD as the communications device, and using the factory settings for the remaining parameters.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:04:13
M  170 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:	ENEQ	= not equipped
	IIAC	= invalid aid
	ICNV	= command not valid
	IICT	= invalid ctag
	IDNV	= data not valid
	IISP	= invalid syntax or punctuation
	IITA	= invalid tid
	INUP	= unimplemented non-null parameter
	SARB	= system resources are busy
	SCSN	= invalid sequence
	SDNA	= duplex unit not available
	SROF	= requested operation failed
	SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:12:47
M  170 DENY
   IISP
;
```

EDIT PARAMETER T1
(ED-PRMTR-T1)

MESSAGE CATEGORY: PROVISIONING
TYPE: INPUT/RESPONSE

This command modifies the facility parameter values for priority, reference type, framing, and CRC that are stored in the system database. If the priority of the reference is reassigned, the other references rearrange their priorities automatically, for example, if MRC-1-2 (MRC A of span 2) is assigned a priority 4, the priority for MRC-1-3 becomes second, MRC-1-4 becomes third, and so on.

COMMAND

```
ED-PRMTR-T1:[<tid>]:<aid>:<ctag>:<priority>,<ref type>,
   <signal type>,[<fmode>],[<crcmode>];
```

aid:
- MRC-1-x = Multi-Reference Controller A (x = span 1 to 4)
- MRC-2-x = Multi-Reference Controller B (x = span 1 to 4)
- PSM-x-y = Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

priority:
MRC-E and MRC-EA only (null for PSM):
- 1 to 4 = priority of the reference, 1 is highest priority

ref type:
MRC-E and MRC-EA only (null for PSM):
- GPS = global positioning system reference
- LORAN = LORAN reference
- CESIUM = cesium reference
- NETWORK = network reference

signal type:
MRC-EA only:
- ANALOG = analog signal
- E1 = E1 signal (factory setting)

fmode:
MRC-E, MRC-EA, and PSM:
- CAS = CAS framing
- CCS = CCS framing
- <null> = CCS framing at powerup; after that, framing is set by the last setting

crcmode:
MRC-E, MRC-EA, and PSM:
- NONCRC4 = do not use CRC4 (factory set if E1 is selected)
- CRC4 = use CRC4
- <null> = current crcmode does not change

Examples:

```
ED-PRMTR-T1::MRC-2-2:154:1,NETWORK,,CCS,NONCRC4;
```

This example, tagged as command 154, commands MRC B of span 2 to be the first priority reference, specifies it is using a network reference, E1 signal type, CCS framing, and no CRC4.

EDIT PARAMETER T1 (Contd)

```
ED-PRMTR-T1::MRC-2-2:154:1,NETWORK,ANALOG;
```

This example, tagged as command 154, commands MRC B of span 2 to be the first priority reference, specifies it is using a network reference and analog signal type; framing mode, and crcmode parameters are not available and will cause an error to be initiated if input.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  154 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:	ENEQ	= not equipped
	IIAC	= invalid aid
	ICNV	= command not valid
	IICT	= invalid ctag
	IDNV	= data not valid
	IISP	= invalid syntax or punctuation
	IITA	= invalid tid
	INUP	= unimplemented non-null parameter
	SARB	= system resources are busy
	SCSN	= invalid sequence
	SDNA	= duplex unit not available
	SROF	= requested operation failed
	SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  154 DENY
   IISP
;
```

REFERENCE

AT&T 365-340-202, August, 1992

INITIALIZE REGISTER T1
(INIT-REG-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command initializes the specified performance-monitoring storage registers on the specified equipment, and sets the register to the specified value. These registers contain PM information accumulated in previous intervals. The SET-ATTR-LOG command clears the 64-event system log. The INIT-SYS command performs a "cold restart", clearing all system registers.

Note: This command may be issued only once every 60 seconds.

COMMAND

```
INIT-REG-T1:[<tid>]:<aid>:<ctag>::[<montype>],[<monval>]
   [,,,[<tmper>],[<mondat>][,<montm>]];
```

aid:	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
montype:	AIS	= alarm indication signal
	BPV	= bipolar violations
	CRC	= cyclic redundancy check errors
	OOF	= out of frame errors
	LOS	= loss of signal
	<null>	= all montypes

Note: If the aid is MRC-1-x or MRC-2-x, the montypes AIS, BPV, CRC, OOF, and LOS are to be used only if E1 is selected as the input; if analog is the input, and AIS, BPV, CRC, OOF, or LOS are the montypes, the command will be denied.

montype:	For PSM only:	
	MTIE1	= maximum time interval error at 1 second
	MTIE4	= maximum time interval error at 4 seconds
	MTIE16	= maximum time interval error at 16 seconds
	MTIE64	= maximum time interval error at 64 seconds
	MTIE128	= maximum time interval error at 128 seconds
	MTIE512	= maximum time interval error at 512 seconds
	MTIE900	= maximum time interval error at 900 seconds
	TVAR1	= time variance error at 1 second
	TVAR4	= time variance error at 4 seconds
	TVAR16	= time variance error at 16 seconds
	TVAR64	= time variance error at 64 seconds
	TVAR128	= time variance error at 128 seconds
	<null>	= all of the above montypes
monval:	x	= value in the performance-monitoring register
	<null>	= zero

INITIALIZE REGISTER T1 (Contd)

tmper: For PSM only:
15-MIN = time period of the register to be initialized (always 15-MIN)
<null> = current time period

mondat: For PSM only:
mm-dd = date of the first initialization register
<null> = current date

montm: For PSM only:
hh-mm = start of the first register to be initialized (e.g., 14-00, 14-15, 14-30, 14-45) (registers are initialized from this point to the current register)
<null> = current time

Examples:

```
INIT-REG-T1::MRC-1-4:143::BPV,5;
```

The above example, if E1 is the input, tagged as command 143, sets the current BPV performance-monitoring register to 5 at MRC A, span 4.

The above example, if analog is the input, will be denied, and an IDNV error code produced.

```
INIT-REG-T1::PSM-1-ALL:144::,,,,,15-MIN,06-22,14-30;
```

The current date and time in this example are June 23 (06-23) and 2:17 pm (14-17). The example above, tagged as command 144, sets all 24 hours of PSM performance-monitoring registers to zero, losing all stored maintenance data.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  143 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

INITIALIZE REGISTER T1 (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  143 DENY
   IISP
;
```

REFERENCE

TR-NWT-00833, Issue 5, Revision 1, April 1993

INITIALIZE SYSTEM (INIT-SYS)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command performs a "cold restart" by unconditionally executing the same routine performed on power-up. The cold restart initializes the system processor registers, which are on the MIS card, to the highest initialization level (9). All information except the sid, tid, date, and time are cleared. (The SET-ATTR-LOG command clears only the 64-event system log, and the INIT-REG-T1 command clears specific registers.) Use INIT-SYS with care.

COMMAND

```
INIT-SYS:[<tid>]:MIS:<ctag>::9;
```

Example:

```
INIT-SYS::MIS:110::9;
```

This example, tagged as command 110, erases all system information (which is stored on the MIS card) except the sid, tid, date, and time.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:41:32
M  110 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

INITIALIZE SYSTEM (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:42:21
M  111 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833, Issue 4, December 1990

OPERATE ALARM CUTOFF (OPR-ACO-ALL)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT/RESPONSE

This command silences all current audible alarm signals and lights the green ACO lamp on the MIS card.

COMMAND

```
OPR-ACO-ALL:[<tid>]:ALL:<ctag>;
```

Example:

```
OPR-ACO-ALL::ALL:111;
```

This example, tagged as command 111, silences all alarms in the current system.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:44:27
M  111 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

OPERATE ALARM CUTOFF (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:46:06
M  111 DENY
   IISP
;
```

REFERENCE

TA-TSY-000309, Issue 1, December 1990

REMOVE T1
(RMV-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command removes an equipment unit or facility from service, and places it into a maintenance state. When the equipment or facility is in a maintenance state, service-affecting diagnostic routines may be performed or the unit may be replaced. No alarms are generated at the near end office as a result of this command.

COMMAND

```
RMV-T1:[<tid>]:<aid>:<ctag>;
```

aid:	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

Example:

```
RMV-T1::PSM-1-3:133;
```

This example, tagged as command 133, removes PSM-1, span 3 from service.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-01-11 15:48:14
M  133 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

REMOVE T1 (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:52:25
M  113 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833, Issue 5, December 1992

RESTORE T1
(RST-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command restores an equipment unit or facility into service from a maintenance state.

COMMAND

```
RST-T1:[<tid>]:<aid>:<ctag>;
```

aid:	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

Example:

```
RST-T1::PSM-1-3:134;
```

This example, tagged as command 134, restores PSM-1, span 3 to service.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-01-11 15:53:12
M  134 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

RESTORE T1 (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-05 15:53:25
M  134 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833, Issue 5, December 1992

SET ATTRIBUTE LOG
(SET-ATTR-LOG)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT/RESPONSE

This command clears the 64-event system message log (which is in the MIS). It is useful after retrieving the messages with the RTRV-LOG command. (The INIT-SYS command performs a "cold restart" and clears all the system registers, and the INIT-REG-T1 command clears specific registers.)

COMMAND

```
SET-ATTR-LOG:[<tid>]::<ctag>::ALARMS,CLR;
```

Example:

```
SET-ATTR-LOG:::117::ALARMS,CLR;
```

This example, tagged as command 117, erases all information stored in the system message log.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:31:46
M  117 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

SET ATTRIBUTE LOG (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:31:51
M  117 DENY
   IISP
;
```

REFERENCE

TA-TSY-000309, Issue 1, December 1990

SET ATTRIBUTE T1
(SET-ATTR-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command sets the notification code associated with the specified event. This attribute governs whether the event is reported automatically. Alarmed events are reported automatically by the REPORT ALARM message.

COMMAND

```
SET-ATTR-T1:[<tid>]:<aid>:<ctag>::[<ntfcncde>],[<condtype>];
```

aid:	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
ntfcncde:	CR	= critical alarm
	MJ	= major alarm
	MN	= minor alarm
	NA	= not alarmed
	<null>	= not alarmed
condtype:	AIS	= alarm indication signal
	BPV	= bipolar violations
	CRC	= cyclic redundancy check errors
	OOF	= out of frame errors
	LOS	= loss of signal
	<null>	= all condtypes

Note: If the aid is MRC-1-x or MRC-2-x, the condtypes AIS, BPV, CRC, OOF, and LOS are to be used only if E1 is selected as the input; if analog is the input, and AIS, BPV, CRC, OOF, or LOS are the condition types, the command will be denied.

condtype:	<u>For PSM only:</u>	
	MTIE1	= maximum time interval error at 1 second
	MTIE4	= maximum time interval error at 4 seconds
	MTIE16	= maximum time interval error at 16 seconds
	MTIE64	= maximum time interval error at 64 seconds
	MTIE128	= maximum time interval error at 128 seconds
	MTIE512	= maximum time interval error at 512 seconds
	MTIE900	= maximum time interval error at 900 seconds
	TVAR1	= time variance error at 1 second
	TVAR4	= time variance error at 4 seconds
	TVAR16	= time variance error at 16 seconds
	TVAR64	= time variance error at 64 seconds
	TVAR128	= time variance error at 128 seconds
	<null>	= all condtypes

SET ATTRIBUTE T1 (Contd)

Examples:

```
SET-ATTR-T1::MRC-1-4:137::MJ,AIS;
```

This example, if E1 is the input, tagged as command 137, sets the alarm indication signal to a major alarm on MRC A, span 4.

This example, if analog is the input, will be denied, and an IDNV error code produced.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  137 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

SET ATTRIBUTE T1 (Contd)

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  137 DENY
   IISP
;
```

REFERENCE

TR-NWT-00833, Issue 5, Revision 1, April 1993

SET DATE
(SET-DAT)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT/RESPONSE

This command sets the system (real-time) date and time clock to the given values.

COMMAND

```
SET-DAT:[<tid>]::<ctag>:<date>,<time>;
```

date: 6-digit form yymmdd (year, month, day)
time: 6-digit form hhmmss (hours, minutes, seconds)

Example:

```
SET-DAT:::118:951208,163500;
```

This example, tagged as command 118, sets the date and time.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:35:00
M  118 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

SET DATE (Contd)

errcde:	ENEQ	= not equipped
	IIAC	= invalid aid
	ICNV	= command not valid
	IICT	= invalid ctag
	IDNV	= data not valid
	IISP	= invalid syntax or punctuation
	IITA	= invalid tid
	INUP	= unimplemented non-null parameter
	SARB	= system resources are busy
	SCSN	= invalid sequence
	SDNA	= duplex unit not available
	SROF	= requested operation failed
	SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:35:02
M  118 DENY
   IISP
;
```

REFERENCE

TA-TSY-000309, Issue 1, December 1990

SET SOURCE IDENTIFIER (SET-SID)

MESSAGE CATEGORY: ADMINISTRATION
TYPE: INPUT/RESPONSE

This command sets the system identification, or source identifier. The sid is included in every message sent by the system. The target identifier (tid) in a command is the sid of the system where the command is targeted. (The MIS card retains the sid for six to eight hours after the card is removed from the shelf.)

Note: The sids on the expansion shelves are automatically assigned. The expansion shelf sids are as follows:

- `<tid>E1` = Expansion shelf #1
- `<tid>E2` = Expansion shelf #2
- `<tid>E3` = Expansion shelf #3

COMMAND

```
SET-SID:[<tid>]::<ctag>:<sid>;
```

Example:

```
SET-SID:::119:TELECOMSOLUTIONS2;
```

This example, tagged as command 119, sets the sid as TELECOMSOLUTIONS2.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS2 95-12-08 16:37:08
M  119 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:37:12
M  119 DENY
   IISP
;
```

REFERENCE

TA-TSY-000309, Issue 1, December 1990

SET THRESHOLD T1
(SET-TH-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command sets the threshold level for a monitored parameter. When the parameter exceeds the threshold value, an automatic message is sent. The threshold may apply to one or more units. One command is required for each threshold setting.

COMMAND

```
SET-TH-T1:[<tid>]:<aid>:<ctag>::<montype>,<thlev>;
```

aid:
- MRC-1-x = Multi-Reference Controller A (x = span 1 to 4 or ALL)
- MRC-2-x = Multi-Reference Controller B (x = span 1 to 4 or ALL)
- PSM-x-y = Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

montype:
- BPV = bipolar violations
- CRC = cyclic redundancy check errors
- OOF = out of frame errors
- AIS = alarm indication signal

thlev:
- xxxxx = decimal numeral for the threshold level (max. 32767)

Note: If the aid is MRC-1-x or MRC-2-x, montypes BPV, CRC, OOF, and AIS are to be used only if E1 is selected as the input; if analog is the input, the command will be denied.

montype: <u>For PSM only:</u>
- MTIE1 = maximum time interval error at 1 second
- MTIE4 = maximum time interval error at 4 seconds
- MTIE16 = maximum time interval error at 16 seconds
- MTIE64 = maximum time interval error at 64 seconds
- MTIE128 = maximum time interval error at 128 seconds
- MTIE512 = maximum time interval error at 512 seconds
- MTIE900 = maximum time interval error at 900 seconds
- TVAR1 = time variance error at 1 second
- TVAR4 = time variance error at 4 seconds
- TVAR16 = time variance error at 16 seconds
- TVAR64 = time variance error at 64 seconds
- TVAR128 = time variance error at 128 seconds

thlev:
- xxxxx = where xxxxx equals a decimal numeral for the threshold level (max. 32767 nanoseconds)

Examples:

```
SET-TH-T1::MRC-1-3:135::OOF,20;
```

This example, if E1 is the input, tagged as command 135, sets the out of frame errors of MRC-1, span 3, to 20.

This example, if analog is the input, will be denied, and an IDNV error code produced.

SET THRESHOLD T1 (Contd)

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  135 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  135 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833 Issue 5, Revision 1, April 1993

SWITCH DUPLEX EQUIPMENT (SW-DX-EQPT)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command switches an equipment unit or facility with its mate.

COMMAND

```
SW-DX-EQPT:[<tid>]:<aid>:<ctag>;
```

aid: MRC = active Multi-Reference Controller

Example:

```
SW-DX-EQPT::MRC:140;
```

This example, tagged as command 140, switches the active MRC with its mate unit.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS2 95-01-10 14:44:36
M  140 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

Example:

```
   TELECOMSOLUTIONS 95-01-10 14:44:37
M  140 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833 Issue 5, December 1992

RETRIEVE ALARMS (RTRV-ALM-{ALL|EQPT|T1})

MESSAGE CATEGORY: SYSTEM MAINTENANCE
TYPE: INPUT/RESPONSE

This command lists all the alarms in any equipment or facility in a system (RTRV-ALM-ALL), specific equipment alarms (RTRV-ALM-EQPT), or specific facilities (RTRV-ALM-T1). The optional parameters specify alarms by severity, type, or whether they affect service. If a piece of equipment is not in alarm, use the RTRV-COND command to retrieve its condition. Equipment that does not respond to either command is not installed.

COMMAND

```
RTRV-ALM-{ALL|EQPT|T1}:[<tid>]:<aid>:<ctag>[::[<ntfcncde>],
   [<condtype>],[<srveff>]][,,,];
```

Note: The <aid> field is optional for RTRV-ALM-ALL.

aid: For RTRV-ALM-ALL:
- ALL = all DCD-500 equipment types or states
- <null> = all

aid: For RTRV-ALM-EQPT:
- EXPANS = expansion shelf
- FUSE-1 = fuse A
- FUSE-2 = fuse B
- MASTER = master shelf
- MRC-1 = Multi-Reference Controller A
- MRC-2 = Multi-Reference Controller B
- PSM-x = Precision Sync Monitor card (x = 1 to 9)
- MIS = Maintenance Interface, System
- CLK-1 = Stratum clock unit A
- CLK-2 = Stratum clock unit B
- GTI-1 = GTI installed in the A slot
- GTI-2 = GTI installed in the B slot
- SYSTEM = all clocks
- ALL = all equipment

aid: For RTRV-ALM-T1:
- MRC-1-x = Multi-Reference Controller A (x = span 1 to 4 or ALL)
- MRC-2-x = Multi-Reference Controller B (x = span 1 to 4 or ALL)
- PSM-x-y = Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

ntfcncde:
- CR = critical alarm
- MJ = major alarm
- MN = minor alarm
- <null> = all ntfcncdes

ntfcncde: For RTRV-ALM-ALL only:
- <null> = all ntfcncdes

RETRIEVE ALARMS (Contd)

condtype:	FA	=	fuse alarm
	SYNCCLK	=	output port failed
	HLDOVRSYNC	=	clock in the holdover mode
	SYNC	=	input reference failed
	FRNGSYNC	=	clock in the freerunning mode
	SLTMSIG	=	input references unlocked
	INT	=	card failed
	FSTSYNC	=	clock in the fast-converge mode
	BPV	=	bipolar violations
	CRC	=	cyclic redundancy check errors
	OOF	=	out of frame errors
	LOS	=	loss of signal
	AIS	=	alarm indication signal
	<null>	=	all of the above condtypes

Note: If the aid is MRC-1 or MRC-2, the condtypes AIS, BPV, CRC, OOF, and LOS are to be used only if E1 is selected as the input; if analog is the input, and AIS, BPV, CRC, OOF, or LOS are the condition types, the command will be denied.

condtype:	<u>For PSM only:</u>		
	MTIE1	=	maximum time interval error at 1 second
	MTIE4	=	maximum time interval error at 4 seconds
	MTIE16	=	maximum time interval error at 16 seconds
	MTIE64	=	maximum time interval error at 64 seconds
	MTIE128	=	maximum time interval error at 128 seconds
	MTIE512	=	maximum time interval error at 512 seconds
	MTIE900	=	maximum time interval error at 900 seconds
	TVAR1	=	time variance error at 1 second
	TVAR4	=	time variance error at 4 seconds
	TVAR16	=	time variance error at 16 seconds
	TVAR64	=	time variance error at 64 seconds
	TVAR128	=	time variance error at 128 seconds
	<null>	=	all condtypes, except those listed for GTI

condtype:	<u>For GTI only:</u>		
	FA	=	fuse A
	FB	=	fuse B
	GPSLOS	=	GPS loss of signal
	GPSINVLD	=	GPS timing is invalid
	GTINOINPUTS	=	no oscillator A or B and no GPS
	GTIOUTFLT	=	output of the GTI has been faulted
	GTIFAILx	=	hard failure, where x = 1 through 5 (the numbers 1-5 are diagnostic codes for field service/engineering use only)
	OSCALOS	=	no OSC A input
	OSCBLOS	=	no OSC B input
	OSCATOL	=	OSC A out of tolerance
	OSCBTOL	=	OSC B out of tolerance
	GTRPWR	=	power supply has been faulted by a short, an open, or equipment failure
	GTRFREQTOL	=	4 kHz output from the GTR is not phase-locked
	GTRSAT	=	insufficient satellites

RETRIEVE ALARMS (Contd)

condtype:	For GTI only: (Contd):		
	GTRCOMM	=	GTI has timed out waiting for a status message from the GTR
	GTRFAILx	=	hard failure, where x = 1 through 5 (the numbers 1-5 are diagnostic codes for field service/engineering use only)
	<null>	=	all condtypes, except those listed for PSM
condtype:	For RTRV-ALM-ALL:		
	<null>	=	all condtypes
srveff:	SA	=	service-affecting condition
	NSA	=	nonservice-affecting condition
	<null>	=	service-affecting or nonservice-affecting conditions
srveff:	For RTRV-ALM-ALL:		
	<null>	=	service-affecting or nonservice-affecting conditions

Examples:

```
RTRV-ALM-T1::MRC-1-4:145::MJ,,NSA;
```

This example, if E1 is the input, tagged as command 145, retrieves major alarms (if any) from MRC A, span 4.

This example, if analog is the input, will be denied, and an IDNV error code produced.

COMPLETED RESPONSE

If there are no alarms, the format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  145 COMPLD
;
```

If there is at least one alarm to report, the format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>[,<aiddet>]:<ntfcncde>,<condtype>,<srveff>:
   [<conddescr>]"]...
   "[<aid>]:<ntfcncde>,<condtype>,<srveff>:
   [<conddescr>]"
;
```

RETRIEVE ALARMS (Contd)

aid:	For RTRV-ALM-EQPT:	
	EXPANS	= expansion shelf
	FUSE-1	= fuse A
	FUSE-2	= fuse B
	MASTER	= master shelf
	MRC-1	= Multi-Reference Controller A
	MRC-2	= Multi-Reference Controller B
	PSM-x	= Precision Sync Monitor card (x = 1 to 9)
	MIS	= Maintenance Interface, System
	CLK-1	= Stratum clock unit A
	CLK-2	= Stratum clock unit B
	GTI-1	= GTI installed in the A slot
	GTI-2	= GTI installed in the B slot
	SYSTEM	= all clocks have failed
aid:	For RTRV-ALM-T1:	
	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
ntfcncde:	CR	= critical alarm
	MJ	= major alarm
	MN	= minor alarm
condtype	AIS	= alarm indication signal
	FA	= fuse or power fail
	FRNGSYNC	= clock is in the freerunning mode
	FSTSYNC	= clock is in the fast-converge mode
	HLDOVRSYNC	= clock is in the holdover mode
	INT	= card has failed
	LOS	= loss of signal
	SFI	= loss of stratum input to MRC
	SLTMSIG	= input references are unlocked
	SYNC	= input reference has failed
	SYNCCLK	= output port has failed
	SYNCPRI	= loss of all primary timing references
	SYNCSEC	= loss of all secondary timing references
	TBPV	= threshold for BPVs has been exceeded
	TCRC	= threshold for CRCs has been exceeded
	TOOF	= threshold for OOFs has been exceeded
condtype	For PSM only:	
	MTIE1	= maximum time interval error at 1 second
	MTIE4	= maximum time interval error at 4 seconds
	MTIE16	= maximum time interval error at 16 seconds
	MTIE64	= maximum time interval error at 64 seconds
	MTIE128	= maximum time interval error at 128 seconds
	MTIE512	= maximum time interval error at 512 seconds
	MTIE900	= maximum time interval error at 900 seconds
	TVAR1	= time variance error at 1 second

RETRIEVE ALARMS (Contd)

condtype	For PSM only (Contd):		
	TVAR4	=	time variance error at 4 seconds
	TVAR16	=	time variance error at 16 seconds
	TVAR64	=	time variance error at 64 seconds
	TVAR128	=	time variance error at 128 seconds
condtype	For GTI only:		
	FA	=	fuse A
	FB	=	fuse B
	GPSLOS	=	GPS loss of signal
	GPSINVLD	=	GPS timing is invalid
	GTIOUTFLT	=	output of the GTI has been faulted
	GTIFAILx	=	hard failure, where x = 1 through 3 (the numbers 1-3 are diagnostic codes for field service/engineering use only)
	OSCALOS	=	no OSC A input
	OSCBLOS	=	no OSC B input
	GTRPWR	=	power supply has been faulted by a short, an open, or equipment failure
	GTRCOMM	=	GTI has timed out waiting for a status message from the GTR
	GTRFAILx	=	hard failure, where x = 1 through 5 (the numbers 1-5 are diagnostic codes for field service/engineering use only)
srveff:	SA	=	service-affecting condition
	NSA	=	nonservice-affecting condition
conddescr:	ALARM INDICATION SIGNAL RECEIVED	=	received alarm indication
	CARD FAIL	=	card has failed
	CLOCK ACTIVE	=	clock is active
	CLOCK FREERUNNING	=	clock is in the freerunning mode
	CLOCK IN HOLDOVER	=	clock is in the holdover mode
	CLOCK NOT CONVERGED	=	clock is not locked to the input signal
	DISCIPLINING REFERENCE SWITCHED	=	timing input has switched to another reference
	EXPANSION MAJOR	=	expansion shelf has a major alarm
	EXPANSION MINOR	=	expansion shelf has a minor alarm
	FRAMER FAILURE	=	framing
	FUSE OR POWER FAIL	=	fuse or power at DCD system has failed
	INPUT OUT OF TOLERANCE	=	input signal is out of the clock unit's pull-in range
	INPUT ACTIVE	=	input signal is active
	LOSS OF SIGNAL	=	signal is lost
	LOSS OF ALL PRIMARY TIMING INPUT REFERENCES	=	all primary timing input references have been lost

RETRIEVE ALARMS (Contd)

conddescr (Contd):

LOSS OF STRATUM A INPUT	=	input from clock in ST A slot has been lost
LOSS OF STRATUM B INPUT	=	input from clock in ST B slot has been lost
OUTPUT SYNC PORT FAIL	=	output port on an output card has failed
ST SYNTH SIGNAL FREQ DRIFT	=	the synthesized signal from the clock card is showing frequency drift
SYNC INPUTS UNLOCKED	=	synchronization inputs are unlocked
SYNC INPUT FAILED	=	input reference signal input has failed
SYNC SYSTEM FAIL	=	entire system has failed
THRESHOLD VIOLATION FOR BPV	=	bipolar violation threshold has been exceeded
THRESHOLD VIOLATION FOR CRC	=	cyclic redundancy check threshold has been exceeded
THRESHOLD VIOLATION FOR FFREQ	=	fractional frequency threshold has been exceeded
THRESHOLD VIOLATION FOR MTIE OBSERVATION	=	an MTIE threshold has been exceeded
THRESHOLD VIOLATION FOR MTIE1 OBSERVATION	=	threshold for MTIE 1-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE4 OBSERVATION	=	threshold for MTIE 4-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE16 OBSERVATION	=	threshold for MTIE 16-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE64 OBSERVATION	=	threshold for MTIE 64-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE128 OBSERVATION	=	threshold for MTIE 128-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE512 OBSERVATION	=	threshold for MTIE 512-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE900 OBSERVATION	=	threshold for MTIE 900-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR1 OBSERVATION	=	time variance for TVAR 1-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR4 OBSERVATION	=	time variance for TVAR 4-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR16 OBSERVATION	=	time variance for TVAR 16-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR64 OBSERVATION	=	time variance for TVAR 64-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR128 OBSERVATION	=	time variance for TVAR 128-second observation has been exceeded
THRESHOLD VIOLATION FOR OOF	=	out-of-frame threshold has been exceeded
<null>	=	no descriptive information exists

RETRIEVE ALARMS (Contd)

conddescr (Contd):

For GTI only:

FUSE OR POWER FAIL	=	DCD-LPR fuse has blown, or the office battery has failed
GPS LOSS OF SIGNAL	=	GPS loss of signal
GPS INVALID	=	GPS timing is invalid
GTI OUT FAULT	=	primary rate output of the GTI has been faulted by a short, improper termination, or equipment failure
GTI-FAIL	=	hardware failure; for field service/engineering use only
OSCA LOSS OF SIGNAL	=	no signal energy detected on OSC input
GTR POWER FAULT	=	power supply has been faulted by a short, an open, or equipment failure
GTR COMM FAILURE	=	The GTI has timed out waiting for a status message from the GTR
GTR FAIL	=	hardware failure; for field service/engineering use only
<null>	=	no descriptive information exists

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  145 COMPLD
   "MRC-1-4:MJ,LOS,NSA"
   "MRC-1-4:MJ,MTIE1,NSA"
;
```

This example, in response to command 145, shows that MRC A, span 4, has two major alarms: loss of signal, and MTIE 1-second alarms. This also shows that an E1 input is used; if an analog input was used, the command would have been denied.

RETRIEVE ALARMS (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  145 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833, Issue 5, Revision 1, April 1993

REPORT ALARM
(REPT-ALM{EQPT|T1})

MESSAGE CATEGORY: SURVEILLANCE
TYPE: AUTOMATIC

This message reports the occurrence of alarmed events, including the access identifier, the severity of the alarm, the type of condition, whether it affects service, and a short description of the alarm.

MESSAGE FORMAT

```
          <sid> <date> <time>
<almcde> <atag> REPT ALM {EQPT|T1}
          "<aid>:<ntfcncde>,<condtype>,<srveff>:<conddescr>"
;
```

almcde:	*C	= critical alarm
	**	= major alarm
	*	= minor alarm
	A	= automatic message (only if a following ntfcncde is CL or NA)
aid:	ALL	= all DCD-500 object entities
	CLK-1	= Stratum clock unit A
	CLK-2	= Stratum clock unit B
	EXPANS	= expansion shelf
	FUSE-1	= fuse A
	FUSE-2	= fuse B
	MASTER	= master shelf
	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4)
	MIS	= Maintenance Interface, System
	GTI-1	= GTI installed in the A slot
	GTI-2	= GTI installed in the B slot
	SYSTEM	= all clocks have failed
ntfcncde:	CR	= critical alarm
	MJ	= major alarm
	MN	= minor alarm
	CL	= cleared alarm
	NA	= not alarmed

REPORT ALARM (Contd)

condtype:	AIS	=	alarm indication signal
	FA	=	fuse alarm
	FRNGSYNC	=	clock is in the freerunning mode
	FSTSYNC	=	clock is in the fast-converge mode
	HLDOVRSYNC	=	clock is in the holdover mode
	INT	=	card has failed
	LOS	=	loss of signal
	SFI	=	loss of stratum input to MRC
	SLTMSIG	=	input references are unlocked
	SYNC	=	input reference has failed
	SYNCCLK	=	output port has failed
	SYNCPRI	=	loss of all primary timing references
	SYNCSEC	=	loss of all secondary timing references
	TBPV	=	threshold violation for BPVs
	TCRC	=	threshold violation for CRC errors
	TFFREQ	=	threshold violation for fractional frequency
	TMTIE1	=	threshold for MTIE 1 second has been exceeded
	TMTIE4	=	threshold for MTIE 4 seconds has been exceeded
	TMTIE16	=	threshold for MTIE 16 seconds has been exceeded
	TMTIE64	=	threshold for MTIE 64 seconds has been exceeded
	TMTIE128	=	threshold for MTIE 128 seconds has been exceeded
	TMTIE512	=	threshold for MTIE 512 seconds has been exceeded
	TMTIE900	=	threshold for MTIE 900 seconds has been exceeded
	TOOF	=	threshold for OOFs has been exceeded
	TTVAR1	=	threshold for TVAR 1 second has been exceeded
	TTVAR4	=	threshold for TVAR 4 seconds has been exceeded
	TTVAR16	=	threshold for TVAR 16 seconds has been exceeded
	TTVAR64	=	threshold for TVAR 64 seconds has been exceeded
	TTVAR128	=	threshold for TVAR 128 seconds has been exceeded
	<u>For GTI only:</u>		
	FA	=	fuse A
	FB	=	fuse B
	GPSLOS	=	GPS loss of signal
	GPSINVLD	=	GPS timing is invalid
	GTIOUTFLT	=	primary rate output of the GTI has been faulted
	GTIFAILx	=	hard failure, where x = 1 through 3. The numbers 1-3 are diagnostic codes for field service/engineering use only
	OSCALOS	=	signal energy on OSC A input
	OSCBLOS	=	signal energy on OSC B input
	GTRPWR	=	power supply has been faulted by a short, an open, or equipment failure
	GTRCOMM	=	The GTI has timed out waiting for a status message from the GTR
	GTRFAILx	=	hard failure, where x = 1 through 5. The numbers 1-5 are diagnostic codes for field service/engineering use only
srveff:	SA	=	service-affecting condition
	NSA	=	nonservice-affecting condition

REPORT ALARM (Contd)

conddescr:	ALARM INDICATION SIGNAL RECEIVED	=	received alarm indication
	CARD FAIL	=	card has failed
	CLOCK ACTIVE	=	clock is active
	CLOCK FREERUNNING	=	clock is in the freerunning mode
	CLOCK IN HOLDOVER	=	clock is in the holdover mode
	CLOCK NOT CONVERGED	=	clock is not locked to the input signal
	DISCIPLINING REFERENCE SWITCHED	=	timing input has switched to another reference
	EXPANSION MAJOR	=	expansion shelf has a major alarm
	EXPANSION MINOR	=	expansion shelf has a minor alarm
	FRAMER FAILURE	=	framing
	FUSE OR POWER FAIL	=	fuse or power at DCD system has failed
	INPUT OUT OF TOLERANCE	=	input signal is out of the clock unit's pull-in range
	INPUT ACTIVE	=	input signal is active
	LOSS OF SIGNAL	=	signal is lost
	LOSS OF ALL PRIMARY TIMING INPUT REFERENCES	=	all primary timing input references have been lost
	OUTPUT SYNC PORT FAIL	=	output port on an output card has failed
	SYNC INPUTS UNLOCKED	=	synchronization inputs are unlocked
	SYNC INPUT FAILED	=	input reference signal input has failed
	SYNC SYSTEM FAIL	=	entire system has failed
	THRESHOLD VIOLATION FOR BPV	=	bipolar violation threshold has been exceeded
	THRESHOLD VIOLATION FOR CRC	=	cyclic redundancy check threshold has been exceeded
	THRESHOLD VIOLATION FOR FFREQ	=	fractional frequency threshold has been exceeded
	THRESHOLD VIOLATION FOR MTIE OBSERVATION	=	an MTIE threshold has been exceeded
	THRESHOLD VIOLATION FOR MTIE1 OBSERVATION	=	threshold for MTIE 1-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE4 OBSERVATION	=	threshold for MTIE 4-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE16 OBSERVATION	=	threshold for MTIE 16-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE64 OBSERVATION	=	threshold for MTIE 64-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE128 OBSERVATION	=	threshold for MTIE 128-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE512 OBSERVATION	=	threshold for MTIE 512-second observation has been exceeded
	THRESHOLD VIOLATION FOR MTIE900 OBSERVATION	=	threshold for MTIE 900-second observation has been exceeded
	THRESHOLD VIOLATION FOR OOF	=	out-of-frame threshold has been exceeded

conddescr (Contd):

THRESHOLD VIOLATION FOR TVAR1 OBSERVATION	=	time variance for TVAR 1-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR4 OBSERVATION	=	time variance for TVAR 4-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR16 OBSERVATION	=	time variance for TVAR 16-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR64 OBSERVATION	=	time variance for TVAR 64-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR128 OBSERVATION	=	time variance for TVAR 128-second observation has been exceeded
<null>	=	no descriptive information exists
For GTI only:		
FUSE OR POWER FAIL	=	DCD-LPR fuse has blown, or the office battery has failed
GPS LOSS OF SIGNAL	=	GPS loss of signal
GPS INVALID	=	GPS timing is invalid
GTI OUT FAULT	=	primary rate output of the GTI has been faulted by a short, improper termination, or equipment failure
GTI-FAIL	=	hardware failure; for field service/engineering use only
OSCA LOSS OF SIGNAL	=	no signal energy detected on OSC input
GTR POWER FAULT	=	power supply has been faulted by a short, an open, or equipment failure
GTR COMM FAILURE	=	The GTI has timed out waiting for a status message from the GTR
GTR FAIL	=	hardware failure; for field service/engineering use only

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:41:32
*  14 REPT ALM EQPT
   "CLK-1:MN,HLDOVRSYNC,NSA:\"CLOCK IN HOLDOVER\""
;
```

This example, tagged as automatic message 14, shows that clock 1 has a minor alarm, the clock is in holdover, and service is not affected.

REFERENCE

TA-TSY-000309, Issue 1, December 1990

REPORT EVENT
(REPT-EVT)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: AUTOMATIC

This message reports the occurrence of nonalarmed events, including the access identifier, the severity of the alarm, the type of condition, whether it affects service, and a short description of the alarm.

MESSAGE FORMAT

```
        <sid> <date> <time>
  <atag> REPT EVT {EQPT|T1}
        "<aid>:<condtype>,<condeff>:<conddescr>"
;
```

aid:	MRC-1-x	=	Multi-Reference Controller A (x = span 1 to 4)
	MRC-2-x	=	Multi-Reference Controller B (x = span 1 to 4)
	PSM-x-y	=	Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
	CLK-1	=	clock card A
	CLK-2	=	clock card B
condtype:	AIS	=	alarm indication signal
	FFREQ	=	fractional frequency exceeded for ST A or ST B
	LOS	=	loss of signal
	SFI	=	loss of stratum input
	TBPV	=	threshold violation for BPVs
	TCRC	=	threshold violation for CRC errors
	TFFREQ	=	threshold for fractional frequency has been exceeded
	TMTIE	=	an MTIE threshold has been exceeded
	TMTIE1	=	threshold for MTIE 1 second has been exceeded
	TMTIE4	=	threshold for MTIE 4 seconds has been exceeded
	TMTIE16	=	threshold for MTIE 16 seconds has been exceeded
	TMTIE64	=	threshold for MTIE 64 seconds has been exceeded
	TMTIE128	=	threshold for MTIE 128 seconds has been exceeded
	TMTIE512	=	threshold for MTIE 512 seconds has been exceeded
	TMTIE900	=	threshold for MTIE 900 seconds has been exceeded
	TOOF	=	threshold for OOFs has been exceeded
	TTVAR1	=	time variance for TVAR 1 second has been exceeded
	TTVAR4	=	time variance for TVAR 4 seconds has been exceeded
	TTVAR16	=	time variance for TVAR 16 seconds has been exceeded
	TTVAR64	=	time variance for TVAR 64 seconds has been exceeded
	TTVAR128	=	time variance for TVAR 128 seconds has been exceeded
	WKSWPRx	=	working facility switched back to working status (x = equipment number)
condeff:	CL	=	standing condition cleared
	SC	=	standing condition raised

REPORT EVENT (Contd)

conddescr:

DISCIPLINING REFERENCE SWITCHED	=	working facility switched back to working status
LOSS OF STRATUM A INPUT	=	input from clock in ST A slot has been lost
LOSS OF STRATUM B INPUT	=	input from clock in ST B slot has been lost
THRESHOLD VIOLATION FOR BPV	=	BPV errors exceed the BPV threshold
THRESHOLD VIOLATION FOR OOF	=	OOF errors exceed the OOF threshold
THRESHOLD VIOLATION FOR CRC	=	AIS errors exceed the AIS threshold
ALARM INDICATION SIGNAL RECEIVED	=	an alarm indication signal has been received
ST SYNTH SIGNAL FREQ VIOLATION	=	the synthesized signal from the clock card is showing frequency drift
THRESHOLD VIOLATION FOR MTIE OBSERVATION	=	an MTIE threshold has been exceeded
THRESHOLD VIOLATION FOR MTIE1 OBSERVATION	=	threshold for MTIE 1-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE4 OBSERVATION	=	threshold for MTIE 4-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE16 OBSERVATION	=	threshold for MTIE 16-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE64 OBSERVATION	=	threshold for MTIE 64-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE128 OBSERVATION	=	threshold for MTIE 128-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE512 OBSERVATION	=	threshold for MTIE 512-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE900 OBSERVATION	=	threshold for MTIE 900-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR1 OBSERVATION	=	time variance for TVAR 1-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR4 OBSERVATION	=	time variance for TVAR 4-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR16 OBSERVATION	=	time variance for TVAR 16-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR64 OBSERVATION	=	time variance for TVAR 64-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR128 OBSERVATION	=	time variance for TVAR 128-second observation has been exceeded

REPORT EVENT (Contd)

Example:

```
   TELECOMSOLUTIONS 95-12-08 15:41:32
 2 REPT EVT T1
   "MRC-1-4:SFI,SC:\"LOSS OF STRATUM A INPUT\""
;
```

This example, tagged as automatic message 2, shows that a standing condition has been raised because of a loss of input from the stratum A clock at MRC A, span 4.

REFERENCE

TA-TSY-000309, Issue 1, December 1990

RETRIEVE LOG (RTRV-LOG)

MESSAGE CATEGORY: SYSTEM MAINTENANCE
TYPE: INPUT/RESPONSE

This command displays all alarm and non-alarm events in the 64-event system message log. RTRV-LOG does not erase the messages. (See SET-ATTR-LOG to erase the system message log, which is located on the MIS card.)

COMMAND

```
RTRV-LOG:[<tid>]::<ctag>::ALARMS;
```

Example:

```
RTRV-LOG:::115::ALARMS;
```

This example, tagged as command 115, displays all event information stored in the event log in the MIS card.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
   ALARMS
   /* <contents of message log> */
;
```

If the sequence /* or */ occurs within the contents of a message log, it is represented by the sequence \/* or */ respectively.

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:11:28
M  115 COMPLD
   ALARMS
/*
   "95-12-08 16:06:42  SET-ATTR-LOG:::1::ALARMS,CLR;"
   "95-12-08 16:06:42 AMRC-2:NORMAL,CL:\"INPUT ACTIVE\""
   "95-12-08 16:07:27 *MASTER:MN,SYNC,NSA:\"SYNC INPUT FAILED\""
   "95-12-08 16:07:27 *CLK-1:MN,HLDOVRSYNC,NSA:\"CLOCK IN HOLDOVER\""
   "95-12-08 16:07:27 ACLK-1:FSTSYNC,SC:\"CLOCK NOT CONVERGED\""
   "95-12-08 16:07:27 ACLK-2:FSTSYNC,SC:\"CLOCK NOT CONVERGED\""
   "95-12-08 16:07:27 *CLK-2:MN,HLDOVRSYNC,NSA:\"CLOCK IN HOLDOVER\""
   "95-12-08 16:07:27 AMRC-1:NORMAL,CL:\"INPUT ACTIVE\""
   */
;
```

RETRIEVE LOG (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:12:31
M  115 DENY
   IISP
;
```

REFERENCE

TA-NWT-000200, Issue 5, December 1990

RETRIEVE ATTRIBUTE T1
(RTRV-ATTR-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command retrieves and displays the notification code associated with the specified event. Alarmed events are reported automatically by the REPORT ALARM message. Use the <aid>, <ntfcncde>, and <condtype> parameters together or separately to display the notification code, or the type of events.

COMMAND

```
RTRV-ATTR-T1:[<tid>]:<aid>:<ctag>::[<ntfcncde>],[<condtype>];
```

aid	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
ntfcncde:	CR	= critical alarm
	MJ	= major alarm
	MN	= minor alarm
	NA	= not alarmed
	NR	= not reported (see Note below)
	<null>	= not alarmed
condtype:	AIS	= alarm indication signal
	BPV	= bipolar violations
	CRC	= cyclic redundancy check errors
	LOS	= loss of signal
	OOF	= out of frame errors
	<null>	= all the above condtypes
condtype:	For MRC-E and MRC-EA only:	
	FFREQ	= fractional frequency exceeded
	<null>	= all condtypes, including those listed previously

Note: If the aid is MRC-1 or MRC-2, and analog is the input, the AIS, BPV, CRC, and OOF condtypes have NR (not reported) notification codes (ntfcncde); LOS and FFREQ are not affected.

condtype:	For PSM only:	
	MTIE1	= maximum time interval error at 1 second
	MTIE4	= maximum time interval error at 4 seconds
	MTIE16	= maximum time interval error at 16 seconds
	MTIE64	= maximum time interval error at 64 seconds
	MTIE128	= maximum time interval error at 128 seconds
	MTIE512	= maximum time interval error at 512 seconds
	MTIE900	= maximum time interval error at 900 seconds
	TVAR1	= time variance error at 1 second
	TVAR4	= time variance error at 4 seconds
	TVAR16	= time variance error at 16 seconds
	TVAR64	= time variance error at 64 seconds
	TVAR128	= time variance error at 128 seconds
	<null>	= all condtypes

Example:

```
RTRV-ATTR-T1::MRC-1-4:153::MJ;
```

This example, tagged as command 153, retrieves and displays the major alarm notification codes associated with all performance-monitoring events for MRC A, span 4.

COMPLETED RESPONSE

If there are no attributes for the items specified in the command, the response format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

If attributes for the items specified in the command exist, the response format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
["<aid>:<ntfcncde>,<condtype>,,"]...
"<aid>:<ntfcncde>,<condtype>,,"
;
```

Example:

If the aid is MRC-1 or MRC-2, and E1 is the input, the response may be:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  153 COMPLD
"MRC-1-4:MJ,LOS,,"
"MRC-1-4:MJ,BPV,,"
;
```

If the aid is MRC-1 or MRC-2, and analog is the input, the BPV, CRC, OOF, and AIS parameter types will have NR (not reported) condition types; LOS and FFREQ are not affected. The response may be:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  153 COMPLD
["MRC-1-4:NR,BPV,,"]...
"MRC-1-4:NR,OOF,,"
"MRC-1-4:MJ,FFREQ,,"
"MRC-1-4:MJ,LOS,,"
;
```

RETRIEVE ATTRIBUTE T1 (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  153 DENY
   IISP
;
```

REFERENCE

TR-NWT-00833, Issue 5, Revision 1, April 1993

RETRIEVE CONDITIONS (RTRV-COND-{EQPT|T1})

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command instructs the system to return the current standing condition and/or state associated with one or more specified equipment units or facilities.

COMMAND

```
RTRV-COND-{EQPT|T1}:[<tid>]:<aid>:<ctag>[::<typereq>];
```

aid: For RTRV-COND-EQPT:

CLK-1	= Stratum clock unit A
CLK-2	= Stratum clock unit B
FUSE-1	= fuse A
FUSE-2	= fuse B
MIS	= Maintenance Interface, System
ALL	= all above equipment (does not include MRC or PSM)
MRC-1	= Multi-Reference Controller A
MRC-2	= Multi-Reference Controller B
PSM-x	= Precision Sync Monitor card (x = 1 to 9)

aid: For RTRV-COND-T1:

MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

typereq: For RTRV-COND-T1:

AIS	= alarm indication signal
ALLCOND	= all condtypes
ALLSTAT	= all maintenance states
BPV	= bipolar violations
CRC	= cyclic redundancy check errors
IS-NR	= in service, normal
IS-NR,ACT	= in service: active
IS-NR,EQ	= in service: equipped
LOS	= loss of signal
OOF	= out of frame errors
OOS-MT	= out of service and in maintenance
OOS-MT,MAN	= out of service: manually removed
OOS-MT,FLT	= out of service: fault
OOS-MT,OOT	= out of service: out of tolerance
<null>	= all maintenance states

Note: If the aid is MRC-1-x or MRC-2-x, and analog is the input, the AIS, BPV, CRC, OOF, and LOS typereqs are to be used only if E1 is selected as the input; if analog is selected, the command will be denied.

RETRIEVE CONDITIONS (Contd)

typereq (Contd):

For PSM only:

MTIE1	= maximum time interval error at 1 second
MTIE4	= maximum time interval error at 4 seconds
MTIE16	= maximum time interval error at 16 seconds
MTIE64	= maximum time interval error at 64 seconds
MTIE128	= maximum time interval error at 128 seconds
MTIE512	= maximum time interval error at 512 seconds
MTIE900	= maximum time interval error at 900 seconds
TVAR1	= time variance error at 1 second
TVAR4	= time variance error at 4 seconds
TVAR16	= time variance error at 16 seconds
TVAR64	= time variance error at 64 seconds
TVAR128	= time variance error at 128 seconds
<null>	= all maintenance states

typereq: For RTRV-COND-EQPT:

ALLSTAT	= all maintenance states
<null>	= all maintenance states

Example:

```
RTRV-COND-T1::MRC-1-ALL:113::BPV;
```

This example, if E1 is the input, tagged as command 113, retrieves the non-alarmed bipolar violation status of all spans on MRC-1.

This example, if analog is the input, will be denied and an IDNV error code produced.

COMPLETED RESPONSE

If there are no conditions (that is, if all of the equipment is in alarm or not installed), the format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

If there is at least one line of information to report, the format is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
["<aid>[,<aidtype>]:[<ntfcncde>],{<condtype>|<state>},
   [<serveff>][,,,,,<conddescr>"]]...
"<aid>[,<aidtype>]:[<ntfcncde>],{<condtype>|<state>},
   [<serveff>][,,,,,<conddescr>"
;
```

RETRIEVE CONDITIONS (Contd)

aid:	For RTRV-COND-ALL and RTRV-COND-EQPT:	
	CLK-1	= Stratum clock unit A
	CLK-2	= Stratum clock unit B
	FUSE-1	= fuse A
	FUSE-2	= fuse B
	MIS	= Maintenance Interface, System
	MRC-1	= Multi-Reference Controller A
	MRC-2	= Multi-Reference Controller B
	MRC-ALL	= all Multi-Reference Controllers
	PSM-x	= Precision Sync Monitor card (x = 1 to 9 or ALL)
aid:	For RTRV-COND-T1:	
	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)
aidtype:	T1	= RTRV-COND-T1 command was sent
ntfcncde:	For condtype:	
	CR	= critical alarm
	MJ	= major alarm
	MN	= minor alarm
	NA	= not alarmed
	NR	= not reported
	For state:	
	<null>	= ntfcncde has no meaning
condtype:	AIS	= alarm indication signal
	FA	= fuse alarm
	FRNGSYNC	= clock in the freerunning mode
	FSTSYNC	= clock in the fast-converge mode
	HLDOVRSYNC	= clock in the holdover mode
	INT	= card failed
	LOS	= loss of signal
	NORMAL	= input reference or clock is active
	SFI	= loss of stratum input to MRC
	SLTMSIG	= input references unlocked
	SYNC	= input reference failed
	SYNCCLK	= output port failed
	SYNCPRI	= loss of all primary timing references
	SYNCSEC	= loss of all secondary timing references
	TBPV	= threshold for BPVs has been exceeded
	TCRC	= threshold for CRCs has been exceeded
	TFFREQ	= threshold for fractional frequency has been exceeded

RETRIEVE CONDITIONS (Contd)

condtype (Contd):			
	TMTIE1	=	threshold for MTIE 1 second has been exceeded
	TMTIE4	=	threshold for MTIE 4 seconds has been exceeded
	TMTIE16	=	threshold for MTIE 16 seconds has been exceeded
	TMTIE64	=	threshold for MTIE 64 seconds has been exceeded
	TMTIE128	=	threshold for MTIE 128 seconds has been exceeded
	TMTIE512	=	threshold for MTIE 512 seconds has been exceeded
	TMTIE900	=	threshold for MTIE 900 seconds has been exceeded
	TOOF	=	threshold for OOFs has been exceeded
	TTVAR1	=	threshold for TVAR 1 second has been exceeded
	TTVAR4	=	threshold for TVAR 4 seconds has been exceeded
	TTVAR16	=	threshold for TVAR 16 seconds has been exceeded
	TTVAR64	=	threshold for TVAR 64 seconds has been exceeded
	TTVAR128	=	threshold for TVAR 128 seconds has been exceeded
state:	IS-NR	=	in service, normal
	IS-NR,ACT	=	in service: active
	IS-NR,EQ	=	in service:, equipped
	OOS-MT	=	out of service and in maintenance
	OOS-MT,MAN	=	out of service: manually removed
	OOS-MT,FLT	=	out of service: fault
	OOS-MT,OOT	=	out of service: out of tolerance
conddescr:	ALARM INDICATION SIGNAL RECEIVED	=	received alarm indication
	CARD FAIL	=	card has failed
	CLOCK ACTIVE	=	clock is active
	CLOCK FREERUNNING	=	clock is in the freerunning mode
	CLOCK IN HOLDOVER	=	clock is in the holdover mode
	CLOCK NOT CONVERGED	=	clock is not locked to the input signal
	DISCIPLINING REFERENCE SWITCHED	=	timing input has switched to another reference
	EXPANSION MAJOR	=	expansion shelf has a major alarm
	EXPANSION MINOR	=	expansion shelf has a minor alarm
	FRAMER FAILURE	=	framing
	FUSE OR POWER FAIL	=	fuse or power at DCD system has failed
	INPUT OUT OF TOLERANCE	=	input signal is out of the clock unit's pull-in range

RETRIEVE CONDITIONS (Contd)

conddescr (Contd):

INPUT ACTIVE	=	input signal is active
LOSS OF SIGNAL	=	signal has been lost
LOSS OF ALL PRIMARY TIMING INPUT REFERENCES	=	all primary timing input references have been lost
LOSS OF STRATUM A INPUT	=	input from clock in ST A slot has been lost
LOSS OF STRATUM B INPUT	=	input from clock in ST B slot has been lost
OUTPUT SYNC PORT FAIL	=	output port on an output card has failed
ST SYNTH SIGNAL FREQ VIOLATION	=	the synthesized signal from the clock card is showing frequency drift
SYNC INPUTS UNLOCKED	=	synchronization inputs are unlocked
SYNC INPUT FAILED	=	input reference signal input has failed
SYNC SYSTEM FAIL	=	entire system has failed
THRESHOLD VIOLATION FOR BPV	=	bipolar violation threshold has been exceeded
THRESHOLD VIOLATION FOR CRC	=	cyclic redundancy check threshold has been exceeded
THRESHOLD VIOLATION FOR FFREQ	=	fractional frequency threshold has been exceeded
THRESHOLD VIOLATION FOR MTIE OBSERVATION	=	an MTIE threshold has been exceeded
THRESHOLD VIOLATION FOR MTIE1 OBSERVATION	=	threshold for MTIE 1-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE4 OBSERVATION	=	threshold for MTIE 4-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE16 OBSERVATION	=	threshold for MTIE 16-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE64 OBSERVATION	=	threshold for MTIE 64-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE128 OBSERVATION	=	threshold for MTIE 128-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE512 OBSERVATION	=	threshold for MTIE 512-second observation has been exceeded
THRESHOLD VIOLATION FOR MTIE900 OBSERVATION	=	threshold for MTIE 900-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR1 OBSERVATION	=	time variance for TVAR 1-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR4 OBSERVATION	=	time variance for TVAR 4-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR16 OBSERVATION	=	time variance for TVAR 16-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR64 OBSERVATION	=	time variance for TVAR 64-second observation has been exceeded
THRESHOLD VIOLATION FOR TVAR128 OBSERVATION	=	time variance for TVAR 128-second observation has been exceeded
THRESHOLD VIOLATION FOR OOF	=	out-of-frame threshold has been exceeded
<null>	=	no descriptive information exists

RETRIEVE CONDITIONS (Contd)

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  113 COMPLD
   "MRC-1-2,T1:NA,T-BPV,,,,,,,"
;
```

This example, tagged as a response to command 113, reports that MRC A, span 2 has a nonalarmed condition—the BPV threshold has been exceeded. No descriptive information exists.

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  113 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833, Issue 4, December 1990

RETRIEVE HEADER
(RTRV-HDR)

MESSAGE CATEGORY: SYSTEM MAINTENANCE
TYPE: INPUT/RESPONSE

This command returns a normal response indicating COMPLD (completed). This command can be used to verify that parts of the system are good. If the response is returned, the cable, MIS, and communications link are viable; and the sid, date, and time can be verified.

COMMAND

```
RTRV-HDR:[<tid>]::<ctag>;
```

Example:

```
RTRV-HDR:::114;
```

This example, tagged as command 114, requests the header from the current system, including the sid, date, and time.

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:01:04
M  114 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

RETRIEVE HEADER (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:01:21
M  114 DENY
   IISP
;
```

REFERENCE

TA-NWT-000200, Issue 5, December 1990

RETRIEVE EQUIPMENT (RTRV-EQPT)

MESSAGE CATEGORY: SYSTEM MAINTENANCE
TYPE: INPUT/RESPONSE

This command retrieves communications port(s) configuration information.

COMMAND

```
RTRV-EQPT:[<tid>]:<aid>:<ctag>::;
```

aid:	COM-1	= COM port 1
	COM-2	= COM port 2
	COM-3	= COM port 3
	COM-ALL	= shows all COM ports

Example:

```
RTRV-EQPT::COM-1:115;
```

This example, tagged as command 115, requests configuration information for communications port 1.

COMPLETED RESPONSE

The response format depends on whether any alarm conditions exist to report for the input conditions. If there are no alarm conditions, the form is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<COM-1>:[<baud>],[<monmode>],[<keepalive>],[<comtype>],
   [<endoftext>],[<localecho>],[<compri>];"cr lf]
[  "<COM-2>:[<baud>],[<monmode>],[<keepalive>],[<comtype>],
   [<endoftext>],[<localecho>],[<compri>];"cr lf]
[  "<COM-3>:[<baud>],[<monmode>],[<keepalive>],[<comtype>],
   [<endoftext>],[<localecho>],[<compri>];"cr lf]
;
```

baud:	1200	= 1200 bps
	9600	= 9600 bps
	<null>	= No change
monmode:	ALW	= allows a port to view data traffic associated with other user ports in real-time
	INH	= inhibits a port from viewing data traffic associated with other user ports in real-time (factory set for all ports)
	<null>	= no change

RETRIEVE EQUIPMENT (Contd)

keepalive:	ALW	= allows a port to autonomously output a COMPL message every 15 to 20 minutes
	INH	= inhibits a port from autonomously outputting a COMPL message every 15 to 20 minutes (factory set for all ports)
	<null>	= no change
comtype:	X25	= PAD
	MODEM	= modem
	TERM	= dumb terminal (factory set for all ports at powerup)
	<null>	= no change
endoftext:	0 to 0xFF	= sets the 1 character at the end-of-text message. This character does not replace the TL1 end-of-text terminator (;). 0 indicates no end-of-text message (factory set for all ports); 0xFF is a hexadecimal number range (the prefix 0xFF is not required)
localecho	ALW	= allows local echo
	INH	= inhibits local echo
	<null>	= no change
compri:	0	= inhibits alarm/event messages from being transmitted from a port
	1, 2, or 3	= allows alarm/event messages to be transmitted from a port; 1 is the highest priority, 3 the lowest (factory setting is 1 for ports 1 and 2, 0 for port 3)
	<null>	= no change

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:01:04
M  115 COMPLD
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

RETRIEVE EQUIPMENT (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 95-12-08 16:01:21
M  115 DENY
   IISP
;
```

RETRIEVE PARAMETER T1 (RTRV-PRMTR-T1)

MESSAGE CATEGORY: PROVISIONING
TYPE: INPUT/RESPONSE

This command retrieves and displays the facility parameter values for priority, reference type, framing, and CRC that are stored in the system database.

COMMAND

```
RTRV-PRMTR-T1:[<tid>]:<aid>:<ctag>;
```

aid:	MRC-1-x	= Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	= Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	= Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

Example:

```
RTRV-PRMTR-T1::MRC-1-2:154;
```

This example, tagged as command 154, displays the facility parameters for span 2 of MRC-A.

COMPLETED RESPONSE

If no facilities are assigned or equipped, the response is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
;
```

If the aid is MRC-1-x or MRC-2-x, and E1 is the input, and one or more facilities are assigned or equipped, the response is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>:,,,,,,,,<priority>,<type>,<fmode>,,<crcmode>"] ...
   "<aid>:,,,,,,,,<priority>,<type>,<fmode>,,<crcmode>" ...
;
```

If the aid is MRC-1-x or MRC-2-x, and analog is the input, and one or more facilities are assigned or equipped, the response is:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>:,,,,,,,,<priority>,<type>"] ...
   "<aid>:,,,,,,,,<priority>,<type>" ...
;
```

RETRIEVE PARAMETER T1 (Contd)

priority:	1 to 4	= priority of the reference, 1 is the highest priority
	<null>	= PSM
type:	GPS	= global positioning system reference
	LORAN	= LORAN reference
	CESIUM	= cesium reference
	NETWORK	= network reference
	<null>	= PSM
crcmode:	For MRC-E and MRC-EA only:	
	NONCRC4	= does not use CRC4
	CRC4	= uses CRC4
fmode:	For MRC-E and MRC-EA only:	
	CAS	= CAS framing
	CCS	= CCS framing

Examples:

If E1 is the input:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  154 COMPLD
"MRC-1-2,,,,,,,,1,GPS,NONCRC4,,CCS"
;
```

If analog is the input:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  154 COMPLD
"MRC-1-2,,,,,,,,1,GPS,,,"
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

RETRIEVE PARAMETER T1 (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  154 DENY
   IISP
;
```

REFERENCE

AT&T 365-340-202, August, 1992

RETRIEVE PERFORMANCE MONITORING T1 (RTRV-PM-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command retrieves and displays the current set of PM data for one or more equipment units or facilities. The PM data may be used to load or verify a database, to examine events that are not reported by automatic messages, or to evaluate the system after maintenance operations. Parameters are provided to display past PM data if the MIS card is configured to store such data. PM data is retrieved from the specified time period to the current time period.

COMMAND

```
RTRV-PM-T1:[<tid>]:<aid>:<ctag>::[<montype>],,,,[tmper],
   [mondat],[montm];
```

aid:	MRC-1-x	=	Multi-Reference Controller A (x = span 1 to 4 or ALL)
	MRC-2-x	=	Multi-Reference Controller B (x = span 1 to 4 or ALL)
	PSM-x-y	=	Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4)
montype:	For PSM only:		
	BPV	=	bipolar violations
	CRC	=	cyclic redundancy check errors
	OOF	=	out of frame errors
	LOS	=	loss of signal
	AIS	=	alarm indication signal
	MTIE	=	maximum time interval error has occurred
	MTIE1	=	maximum time interval error at 1 second
	MTIE4	=	maximum time interval error at 4 seconds
	MTIE16	=	maximum time interval error at 16 seconds
	MTIE64	=	maximum time interval error at 64 seconds
	MTIE128	=	maximum time interval error at 128 seconds
	MTIE512	=	maximum time interval error at 512 seconds
	MTIE900	=	maximum time interval error at 900 seconds
	TVAR1	=	time variance error at 1 second
	TVAR4	=	time variance error at 4 seconds
	TVAR16	=	time variance error at 16 seconds
	TVAR64	=	time variance error at 64 seconds
	TVAR128	=	time variance error at 128 seconds
	PHASE	=	1 minute average raw phase value as computed by the PSM-E
	SLIPS	=	number of slips in a given time period
	TOTALSLIP	=	number of slips in a specified 24-hour time period
	<null>	=	not allowed

RETRIEVE PERFORMANCE MONITORING T1 (Contd)

montype (Contd):

For MRC-E and MRC-EA only:

BPV	= bipolar violations
CRC	= cyclic redundancy check errors
OOF	= out of frame errors
LOS	= loss of signal
AIS	= alarm indication signal
FREQ	= pair-wise frequency error threshold being exceeded
ALL	= all the above montypes
<null>	= all the above montypes

Note: If the aid is MRC-1-x or MRC-2-x, and analog is the input, BPV, CRC, OOF, and AIS parameter types report -1 error counts.

tmper:

1-DAY	= Accumulation time period (24 hours) for the specified performance-monitoring information
15-min	= last 15-minute period
<null>	= last 15-minute period

mondat:

For PSM only:

mm-dd	= where mm = month, dd = day (current or previous day only)
<null>	= current day

mondat:

For MRC-E and MRC-EA only:

<null>	= current day

montm:

For PSM only:

hh-0	= where hh = 0, 1, ..., 23 (hour of the day)
hh-15	= 15 minutes past the hour (hh)
hh-30	= 30 minutes past the hour (hh)
hh-45	= 45 minutes past the hour (hh)
<null>	= current time period of current day

montm:

For MRC-E and MRC-EA only:

<null>	= current time period of current day

montm:

For PSM only:

1-DAY	= past 24 hour period; applies to TOTALSLIP only
15-min	= specified 15 minute period beginning at the time specified in the montm field
<null>	= current time period of current day

montm:

For MRC-E and MRC-EA only:

15-min	= current 15-minute time period of the current day
<null>	= current time period of the current day

RETRIEVE PERFORMANCE MONITORING T1 (Contd)

Note: Counts for each 15-minute time period from the specified period to the current are retrieved. If the date is not specified, the time period is assumed to be in the last 24 hours. If the previous day is specified, only starting times between midnight (00:00) and 24 hours ago are accepted. If the current day is specified, only starting times between midnight (00:00) and the current time are accepted. In all accepted cases, all data to the current time are retrieved.

Examples:

Note: For all the following examples, assume the current date and time are 06-23 and 19-37, or June 23 and 7:37 pm. The current time period is 19-30, the time period between 7:30 pm and 7:45 pm.

```
RTRV-PM-T1::MRC-1-4:141::OOF,,,,,,18-45;
```

The above example, tagged as command 141, retrieves and displays the out-of-frame performance monitoring data for span 4 on MRC-A. Data is displayed for each 15-minute count since 6:45 pm today.

```
RTRV-PM-T1::MRC-1-4:173::OOF,,,,,06-22,18-45;
```

The above example, tagged as command 173, is invalid. The time is more than 24 hours ago.

```
RTRV-PM-T1::MRC-1-4:174::OOF,,,,,,21-45;
```

The above example, tagged as command 174, retrieves and displays the out-of-frame performance monitoring data for span 4 on MRC-A. Data is displayed for each 15-minute count since 9:45 pm yesterday, which is the only 21-45 in the last 24-hour period. The result is the same if yesterday's date is specified.

```
RTRV-PM-T1::MRC-1-4:175::OOF,,,,,06-23,21-45;
```

The above example, tagged as command 175, is invalid. 9:45 pm today has not arrived yet.

```
RTRV-PM-T1::PSM-1-4:176::TOTALSLIP,,,,,1-DAY::;
```

The above example, tagged as command 176, retrieves and displays the total number of slips for span 4 on PSM-A for the past 24-hour period.

COMPLETED RESPONSE

The following response occurs if E1 is the input:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>:<montype>,<monval>,<valdty>,,,,15-MIN,<montm>,"] ...
   "<aid>:<montype>,<monval>,<valdty>,,,,15-MIN,<montm>,"
;
```

RETRIEVE PERFORMANCE MONITORING T1 (Contd)

valdty:	COMPLD	= data was accumulated over the entire 15-minute time period
	PRTL	= data was accumulated over part of the 15-minute time period
	NA	= data not available

The following response occurs if analog is the input:

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>:<montype>,-1,,,,,"
   "<aid>:<montype>,-1,,,,,"
;
```

Examples:

The following response occurs if E1 is the input:

```
   TELECOMSOLUTIONS 96-02-08 19:35:35
M  177 COMPLD
   "MRC-1-4:OOF,1,COMPLD,,,,15-MIN,18-45"
   "MRC-1-4:OOF,3,COMPLD,,,,15-MIN,19-00"
   "MRC-1-4:OOF,0,COMPLD,,,,15-MIN,19-15"
   "MRC-1-4:OOF,1,PRTL,,,,15-MIN,19-30"
;
```

This example, the response to command 141, shows that MRC A, span 4, had 1 out-of-frame (OOF) errors in the 15-minute period ending at 6:45 pm, 3 OOFs in the period ending 7 pm, and 0 in the current 15-minute time period. The current time period is not complete, and is labeled “partial”.

The following response occurs if analog is the input:

```
   TELECOMSOLUTIONS 96-02-08 19:35:35
M  177 COMPLD
   "MRC-1-4:OOF,-1,COMPLD,,,,15-MIN,18-45"
   "MRC-1-4:OOF,-1,COMPLD,,,,15-MIN,19-00"
   "MRC-1-4:OOF,-1,COMPLD,,,,15-MIN,19-15"
   "MRC-1-4:OOF,-1,PRTL,,,,15-MIN,19-30"
;
```

This example, the response to command 141, shows that MRC A, span 4, had -1 out-of-frame (OOF) errors in the 15-minute period ending at 6:45 pm, -1 OOFs in the period ending 7 pm, and -1 in the current 15-minute time period. The current time period is not complete, and is labeled “partial”.

```
;
```

RETRIEVE PERFORMANCE MONITORING T1 (Contd)

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

errcde:

ENEQ	= not equipped
IIAC	= invalid aid
ICNV	= command not valid
IICT	= invalid ctag
IDNV	= data not valid
IISP	= invalid syntax or punctuation
IITA	= invalid tid
INUP	= unimplemented non-null parameter
SARB	= system resources are busy
SCSN	= invalid sequence
SDNA	= duplex unit not available
SROF	= requested operation failed
SNVS	= not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 19:35:35
M  177 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833 Issue 5, Revision 1, April 1993

RETRIEVE THRESHOLD T1
(RTRV-TH-T1)

MESSAGE CATEGORY: SURVEILLANCE
TYPE: INPUT/RESPONSE

This command retrieves and displays the threshold level for a monitored parameter. When the parameter exceeds the threshold value, an automatic message is sent. The threshold may apply to one or more units.

COMMAND

```
RTRV-TH-T1:[<tid>]:<aid>:<ctag>[::<montype>];
```

aid:
- MRC-1-x = Multi-Reference Controller A (x = span 1 to 4 or ALL)
- MRC-2-x = Multi-Reference Controller B (x = span 1 to 4 or ALL)
- PSM-x-y = Precision Sync Monitor card (x = 1 to 9, y = span 1 to 4 or ALL)

montype:
- AIS = alarm indication signal
- BPV = bipolar violations
- CRC = cyclic redundancy check errors
- OOF = out of frame errors
- LOS = loss of signal
- <null> = all the above montypes

Note: If the aid is MRC-1-x or MRC-2-x, and analog is the input, the montypes AIS, BPV, CRC, OOF, and LOS have -1 as a threshold.

montype: For PSM only:
- MTIE1 = maximum time interval error at 1 second
- MTIE4 = maximum time interval error at 4 seconds
- MTIE16 = maximum time interval error at 16 seconds
- MTIE64 = maximum time interval error at 64 seconds
- MTIE128 = maximum time interval error at 128 seconds
- MTIE512 = maximum time interval error at 512 seconds
- MTIE900 = maximum time interval error at 900 seconds
- TVAR1 = time variance error at 1 second
- TVAR4 = time variance error at 4 seconds
- TVAR16 = time variance error at 16 seconds
- TVAR64 = time variance error at 64 seconds
- TVAR128 = time variance error at 128 seconds
- <null> = all the above montypes

Example:

```
RTRV-TH-T1::MRC-1-1:136::BPV;
```

This example, for either E1 or analog input, tagged as command 136, retrieves and displays the BPV errors for span 1 on MRC-1.

RETRIEVE THRESHOLD T1 (Contd)

COMPLETED RESPONSE

```
   <sid> <date> <time>
M  <ctag> COMPLD
[  "<aid>:<montype>,,,<thlev>"] ...
   "<aid>:<montype>,,,<thlev>"
;
```

thlev: threshold level in decimal numerals

Examples:

The following response occurs if E1 is the input:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  136 COMPLD
   "MRC-1-1:BPV,,,16"
   "MRC-1-2:BPV,,,16"
   "MRC-1-3:BPV,,,16"
   "MRC-1-4:BPV,,,16"
;
```

The following response occurs if analog is the input:

```
   TELECOMSOLUTIONS 96-02-08 15:04:14
M  136 COMPLD
   "MRC-1-1:BPV,,,-1"
   "MRC-1-2:BPV,,,-1"
   "MRC-1-3:BPV,,,-1"
   "MRC-1-4:BPV,,,-1"
;
```

ERROR RESPONSE

```
   <sid> <date> <time>
M  <ctag> DENY
   <errcde>
;
```

RETRIEVE THRESHOLD T1 (Contd)

errcde:
- ENEQ = not equipped
- IIAC = invalid aid
- ICNV = command not valid
- IICT = invalid ctag
- IDNV = data not valid
- IISP = invalid syntax or punctuation
- IITA = invalid tid
- INUP = unimplemented non-null parameter
- SARB = system resources are busy
- SCSN = invalid sequence
- SDNA = duplex unit not available
- SROF = requested operation failed
- SNVS = not in valid state

Example:

```
   TELECOMSOLUTIONS 96-02-08 19:04:35
M  136 DENY
   IISP
;
```

REFERENCE

TR-NWT-000833 Issue 5, Revision 1, April 1993